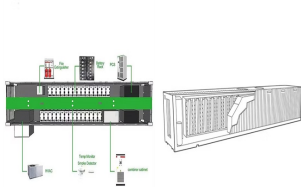
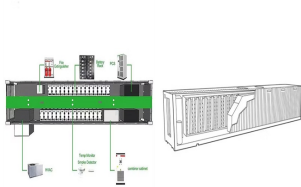


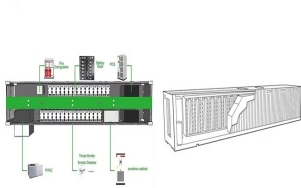
YISHITONG HAS A PATENT FOR HYDROGEN ENERGY STORAGE



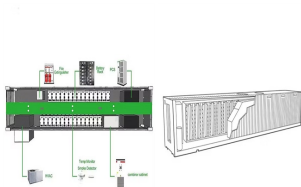
What is a hydrogen patent? Their patent portfolios are mainly focused on production by electrolysis and applications based on fuel cells but also extend to established technologies for the storage and distribution of liquid or gaseous hydrogen, an area of focus for these countries which plan to import stored hydrogen in the near future.



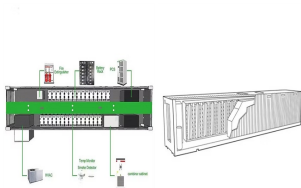
How many international patent families are there in hydrogen technology? About half of international patent families (IPFs)¹ in hydrogen technologies in the period 2011-2020 were related to hydrogen production. The other IPFs were split between end-use applications of hydrogen and technologies for the storage, distribution and transformation of hydrogen.



What is hydrogen technology & why is it important? It covers technologies for the full range of hydrogen supply, storage, distribution, transformation and end-user applications, as well as introducing new search strategies to compare incremental innovation related to established fossil fuel processes with emerging technologies motivated by the climate challenge.

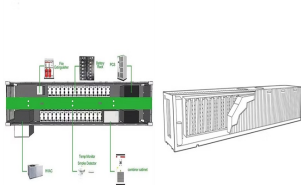


What happened to hydrogen patenting in the US? By contrast, hydrogen patenting decreased significantly in the US after 2015, and the US was a distant third to the EU and Japan in 2020, despite being the main innovator in hydrogen in 2011 in terms of volume of international patent families.

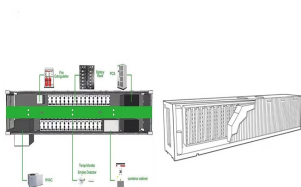


What drives innovation in end-use applications of hydrogen? Innovation in end-use applications of hydrogen is likewise chiefly driven by new applications motivated by climate concerns, with more than 90% of IPFs targeting such applications in transport, iron and steel manufacturing, buildings or electricity generation.

YISHITONG HAS A PATENT FOR HYDROGEN ENERGY STORAGE



Who is driving innovation in hydrogen storage & distribution? The automotive industry is another major driver of innovation in hydrogen storage and distribution, with a main focus on gaseous storage technologies (typically hydrogen tanks), and significant patenting activities in networks and equipment and in refuelling. Japanese companies Toyota and Honda dominate this group.



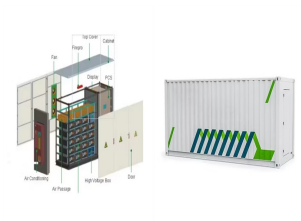
In turn, hydrogen storage has the least dependence of the cost of storing electricity on the installed energy intensity (Fig. 3). With a discharge time of more than 17 ???



Can't battery serve as the base load for stable, large-scale energy storage, while hydrogen energy storage (PEMEC and SOFC) serves as the regulated load to flexibly absorb excess ???



Hydrogen Patents for a Clean Energy Future: A global trend analysis of innovation along hydrogen value chains is the third joint study produced by the European Patent Office (EPO) and International Energy ???



Hydrogen gas storage has been widely discussed in recently granted patents. The patent also refers to two additional technologies: gravity storage and thermal energy storage. ???

YISHITONG HAS A PATENT FOR HYDROGEN ENERGY STORAGE



Solid-state hydrogen storage in Hydrogen Storage Materials (HSM 1) has been extensively investigated in recent years [3]. Different attributes must be evaluated during the ???



California-based Bloom Energy currently has a 2GW solid-oxide electrolyser (SOE) factory in Delaware; Danish company Topsoe is planning 5GW factories in both the US and central Denmark; and Germany's Sunfire is also ???



Motivation for hydrogen energy storage ??? Drivers . o. More renewables bring more grid operation challenges . o. Environmental regulations and mandates ??? Hydrogen can be made "dispatch ???