

<div class="df_qntext">Are hydrogen fuel cell vehicles sustainable?

Hydrogen fuel cell vehicles (HFCVs) facilitate the integration of green hydrogen and intermittent renewable energy into the energy and transport systems. This Review examines progress and challenges in increasing HFCV adoption and realizing sustainable energy and transport systems based on green hydrogen.

<div class="df_qntext">What is a hydrogen fuel cell vehicle?

Hydrogen fuel cell vehicles (HFCVs) are key to the integration of green hydrogen into the energy and transport systems. The adoption of HFCVs is being supported by advances in hydrogen production and fuel cell technologies, coupled with the development of hydrogen refuelling infrastructure.

<div class="df_qntext">How does IoT transform hydrogen transport and fuel cell vehicle infrastructure?

Abstract: The Internet of Things (IoT) in hydrogen transport and fuel cell vehicle infrastructure is a fundamental transformation. This work discusses how IoT devices transformed the system efficiently. By connecting IoT devices, this infrastructure improves effectiveness, security, and sustainability.

<div class="df_qntext">How are hydrogen storage and fuel cell systems affecting HFCVs?

Concurrently, improvements in hydrogen storage and fuel cell systems are enabling higher energy densities, greater efficiency and longer vehicle range. These developments support the transition to HFCVs across sectors such as heavy-duty transport and industrial logistics.

<div class="df_qntext">Where can I access hydrogen data?

Access in a downloadable format the hydrogen-related datasets made available on the Observatory. Explore our collection and harness the potential of this transformative energy source. Access in a downloadable format the hydrogen-related datasets made available on the Observatory.

<div class="df_qntext">What are hydrogen fuel cells used for?

Hydrogen fuel cells can be used to power forklifts, public busses, and light- and heavy-duty vehicles. Light-duty vehicles can store 4-6 kg of gaseous hydrogen in an onboard tank at high pressure (70 MPa) to avoid the sacrifice of useable vehicle space, whereas heavy-duty vehicles typically store at lower pressure (35 MPa) .

The safety requirements of GTR13 for hydrogen fuel cell vehicles aim to minimize the risk of fire, explosion, or leakage from fuel cell systems in vehicle fuel and hydrogen storage system, so as to ...

The total number of hydrogen-fuel-cell commercial vehicles will reach 721,900 by 2035. The research has guiding significance for the development of hydrogen-fuel-cell commercial ...

By bringing together knowledgeable stakeholders from data center as well as hydrogen storage and fuel cell industries, this workshop aimed to identify the research and development needs to enable ...

This study focuses on the design and downsizing of a green hydrogen fuel cell car, aiming to scale the concept for larger vehicles. Key components, including fuel cells, electrolyzers, ...

Abstract: Hydrogen fuel cell vehicles can complement other electric vehicle technologies as a zero-emission technology and contribute to global efforts to achieve the emission reduction targets. This ...

The research explores the designs of fuel cell cars that use hydrogen by converting it into energy as well as the designs of internal combustion vehicles fueled by hydrogen via ...

Hydrogen energy is significant in the energy consumption, especially in Hydrogen Fuel Cell Vehicles (HFCVs) market. Social media data is critical for exploring public perceptions of HFCVs.

This paper presents the results of a demonstration project, including building-integrated photovoltaic (BIPV) solar panels, a residential building and a hydrogen fuel cell electric vehicle ...

Production of "blue hydrogen" is rising as a method of producing hydrogen in large quantities economically. Although electric/battery powered vehicles are dominating the green ...

Hydrogen safety for fuel cell vehicles (FCVs) should not be limited to their use process and accident scenarios. Their transportation should be a typical scenario, since it is an ...

Large-scale hydrogen storage can cope with seasonal effects. Large-scale hydrogen storage is of similar magnitude to underground gas storage. Future national electricity, heating, ...

This Perspective highlights the potential of hydrogen fuel-cell vehicles as a viable alternative for heavy-duty road transportation. We evaluate the implications of hydrogen integration ...

Abstract A life cycle assessment of hydrogen and gasoline vehicles, including fuel production and utilization in vehicles powered by fuel cells and internal combustion engines, is ...

The adapted system designs consist of the electricity, heating and road transport sectors, with the road transport sector only consisting of battery and fuel cell electric vehicles, the ...

This study explores the potential of hydrogen in transportation systems, analyzing recent developments and trends in hydrogen fuel cell vehicles (HFCVs). The study focuses on the ...

This study assessed the most pertinent themes connected to hydrogen fuel cells and vehicles through a

bibliometric analysis to thoroughly understand hydrogen fuel cell and vehicle ...

Abstract Fuel cell vehicles have a high potential to reduce both energy consumption and carbon dioxide emissions. However, due to the low density, hydrogen gas limits the amount of ...

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