

## Fuel cell benefits and challenges

Gasoline- and diesel-powered vehicles emit greenhouse gases (GHGs), mostly carbon dioxide (CO<sub>2</sub>), that contribute to climate change. Fuel cell vehicles (FCVs) powered by pure hydrogen emit no tailpipe GHGs, only heat and water. Producing the hydrogen for FCVs can generate GHGs, depending on the production method.

Fuel cell stationary applications clearly have a demand, and it is developing. The main challenge for high-level applications is that the cost objectives should be prioritized to achieve mass-market success. Additionally, the choice of market and marketing strategy plays a vital role in identifying deployment opportunities.

**Benefits and Disadvantages.** Advantages: More detailed information is available in the applications section, which offers information specific to each industry. High Efficiency- when utilizing co-generation, fuel cells can attain over 80% energy efficiency. Good reliability- quality of power provided does not degrade over time.

Hydrogen fuel cells offer numerous benefits over traditional backup power solutions, such as reliability, sustainability, energy independence, scalability, and longevity.

The change in focus from light- to heavy-duty vehicles exacerbates durability and efficiency challenges for fuel cells, necessitating material and system innovations that enable new classes...

Thank you for visiting nature . You are using a browser version with limited support for CSS. To obtain the best experience, we recommend you use a more up to date browser (or turn off compatibility mode in Internet Explorer). In the meantime, to ensure continued support, we are displaying the site without styles and JavaScript.

Peer review information Nature Energy thanks Viktor Johanek, Jiujun Zhang and the other, anonymous, reviewer(s) for their contribution to the peer review of this work.

All articles published by MDPI are made immediately available worldwide under an open access license. No special permission is required to reuse all or part of the article published by MDPI, including figures and tables. For articles published under an open access Creative Common CC BY license, any part of the article may be reused without permission provided that the original article is clearly cited. For more information, please refer to <https://>

Feature papers represent the most advanced research with significant potential for high impact in the field. A Feature Paper should be a substantial original Article that involves several techniques or approaches, provides an outlook for future research directions and describes possible research applications.

Editor's Choice articles are based on recommendations by the scientific editors of MDPI journals from around the world. Editors select a small number of articles recently published in the journal that they believe will be particularly interesting to readers, or important in the respective research area. The aim is to provide a snapshot of some of the most exciting work published in the various research areas of the journal.

Contact us for free full report

Web: <https://hollanddutchtours.nl/contact-us/>

Email: [energystorage2000@gmail.com](mailto:energystorage2000@gmail.com)

WhatsApp: 8613816583346

