








HFCV Industry – Competitive Landscape

Rising Competition in HFCV Industry

July 2024

Competitive Landscape: Exploring Major Players (1/2)

Hyundai and Toyota are at the forefront of the competition among HFCV vendors, as companies vie for market share in response to increasing consumer demand for sustainable transportation

Competitors	Product Innovation	Product Functionality	Geographical Reach	Partnership	Insights
 HYUNDAI					<ul style="list-style-type: none"> Hyundai leads in hydrogen with the first mass-produced FCEVs and the highest market share, offering solutions in vehicles, trams, equipment, vessels, generators, and air mobility Introduced HTWO's hydrogen value chain solution spanning production, storage, transportation, and use of clean hydrogen, integrating Hyundai's businesses across various sectors to form a comprehensive hydrogen grid
 TOYOTA					<ul style="list-style-type: none"> Toyota unveiled Mirai in 2023, a HFCV boasting a claimed range of 640 kilometers and impressive performance attributes. It is currently developing a new third-generation fuel cell technology, set for sales around 2026-27 Toyota has partnered with 20+ players in Europe to test hydrogen-powered vehicles and explore other uses for its fuel cell technology
 HONDA					<ul style="list-style-type: none"> Honda launched a stationary fuel cell power station at its Torrance, California campus as its first step towards commercializing zero-emission power backuo generation, and confirmed plans for a green hydrogen production facility in Offenbach, Germany⁴ Honda is collaborating with other firms for a project aimed at decarbonizing a data center. The project will utilize by-product hydrogen that repurposes fuel cell systems originally used in FCEVs⁴
 上汽集团 SAIC MOTOR					<ul style="list-style-type: none"> First Chinese player to develop fuel cell technology, launched first FCEV project in 2001. Over two decades, it has invested 3B Yuan in R&D, obtained 511 fuel cell patents, and contributed to 15 national standards⁶ SAIC has established a "hydrogen friend circle" to jointly promote and strengthen its cooperation with upstream and downstream partners of the industrial chain, such as parts, hydrogen production, hydrogen transportation, hydrogen storage and hydrogenation
 Ashok Leyland					<ul style="list-style-type: none"> Ashok Leyland has unveiled an ambitious roadmap for hydrogen propulsion in its medium and heavy vehicles, actively developing hydrogen-based variants to offer cleaner, sustainable transportation solutions⁷ Partnered with Adani Enterprises and Ballard Power to develop Asia's first Hydrogen Fuel Cell electric truck for mining logistics. Ashok Leyland will provide the vehicle platform and technical support, while Ballard will supply the fuel cell engine

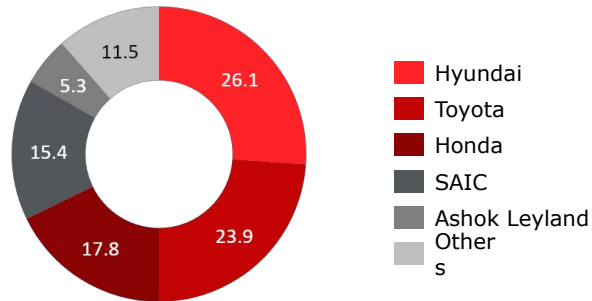
- Product Innovation:** Reflects a vendor's ability to consistently launch updated, cutting-edge products. Higher scores indicate better performance
- Product Functionality:** Assesses how well a vendor offers customized, unique products that provide high value. Higher scores indicate better performance
- Geographical Reach:** Evaluates a vendor's presence in major and emerging markets, rewarding those with high revenue expansion opportunities. Higher scores indicate better performance
- Partnerships/Collaborations:** Measures the strength of a vendor's strategic alliances with industry leaders and partners. Higher scores indicate better performance

Sources: 1. Auto Car Professional, 2. Hyundai, 3. Toyota, 4. Honda, 5. MarkLines, 6. SAIC, 7. Energy News

Competitive Landscape: Exploring Major Players (2/2)

Hyundai and Toyota are at the forefront of the competition among HFCV vendors, as companies vie for market share in response to increasing consumer demand for sustainable transportation

Expected Market Share of Players by 2025



Key Takeaways

- Hyundai is poised to lead the HFCV value chain, with many achievements, including the world's first mass-produced FCEVs
- Toyota is significantly advancing its hydrogen strategy by focusing on the development and commercialization of hydrogen fuel cell technology
- SAIC is collaborating with various players to expedite its market presence enhancing its technological capabilities and acquiring intellectual property rights

List of Recent JV by Key Players to Boost HFCV Market Share

Name	Focus Area	Strategic Partnerships and JVs
HYUNDAI	Commercial & Passenger Vehicle, EV, and Fuel Cell Cars	<ul style="list-style-type: none"> Formed a JV with H2 Energy AG (Hyundai Hydrogen Mobility) to establish strong presence in Switzerland Signed an MOU with SAPTCO to develop a hydrogen mobility ecosystem in Saudi Arabia, focusing on providing technology and improving the hydrogen value chain
TOYOTA	Passenger Vehicles, Trucks, Minivans, and Buses	<ul style="list-style-type: none"> Toyota and BMW have teamed up to advance hydrogen fuel cell vehicles, pooling their expertise for sustainable mobility BMW and Toyota will jointly develop HFCVs by 2025, hedging their investments in zero-emission vehicles
HONDA	Motorcycles, Automobiles, and Power Products	<ul style="list-style-type: none"> Honda and GM partner to advance hydrogen fuel cell vehicles, enabling Honda to double durability and reduce costs by two-thirds compared to previous models Developed a fuel cell-powered heavy-duty truck in collaboration with Isuzu Motors, aimed at reducing emissions in the logistics and transportation sectors
上汽集团 SAIC MOTOR	Passenger and Commercial Vehicles	<ul style="list-style-type: none"> Partnered with Air Liquide to develop hydrogen infrastructure, focusing on establishing hydrogen refueling stations and enhancing the hydrogen supply chain in China Formed a collaboration with Ballard Power Systems to develop and integrate advanced fuel cell technology into their vehicles, leveraging Ballard's expertise in this field Formed a JV with Shanghai Chemistry Industry Park to focus on hydrogen production, storage, and application
Ashok Leyland	Commercial Vehicles and Heavy-duty Vehicles	<ul style="list-style-type: none"> Ashok Leyland has partnered with Ballard and AEL, to develop a hydrogen fuel cell electric truck for mining logistics and transportation Ashok Leyland will supply ~10 HFCV buses to NTPC for deployment in operations in Leh and Ladakh.

Conclusion

Toyota and Hyundai continue to lead due to their advanced technology and customer base, prompting other automakers to innovate in the competitive market

Product innovation is a key aspect players are leveraging to gain market share for HFCVs. Hyundai and Toyota are leading in the development and commercialization of electric and fuel cell powertrains, with Toyota focusing on development of third-generation fuel cell technology. Meanwhile, Honda and SAIC are advancing with their own innovations, such as Honda's Class 8 hydrogen fuel cell truck and SAIC's hydrogen fuel cell MPV

Automakers are forming partnerships and JVs to advance HFCVs by combining their capabilities and expertise. For instance, Hyundai is expanding its European market presence through multiple partnerships, while Toyota has collaborated with more than 20 entities in Europe to conduct trials with hydrogen-powered vehicles

SAIC has established a "hydrogen friend circle" to jointly promote and strengthen its cooperation with upstream and downstream partners of the industrial chain, such as parts, hydrogen production, hydrogen transportation, hydrogen storage and hydrogenation

For widespread adoption of HFCV, players must drive innovation through partnerships across the value chain, while also developing the necessary infrastructure to support HFCV technology

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Important Sources

- Hyundai
- Toyota
- Honda
- SAIC
- Auto Car Professionals
- Global Market Insights

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