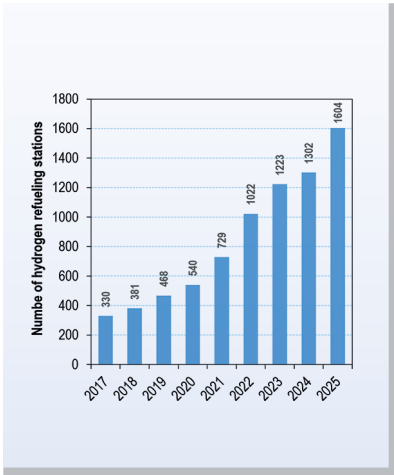
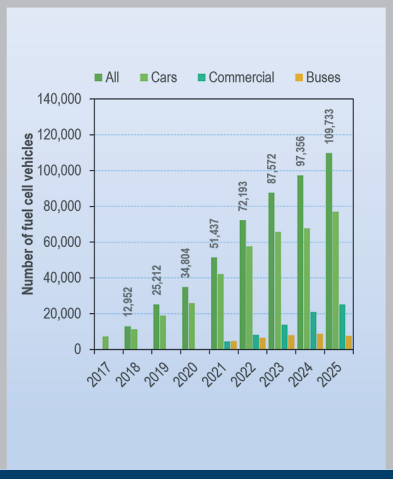




IEA Technology Collaboration Programme
Advanced Fuel Cells







Deployment of Fuel Cell Vehicles in Road Transport and the Expansion of the Hydrogen Refueling Station Network – 2026 Update

Edgar Jungblut, Thomas Grube, Justus Neußer

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Deployment of Fuel Cell Vehicles in Road Transport and the Expansion of the Hydrogen Refueling Station Network – 2026 Update

Edgar Jungblut[1], Thomas Grube[1], Justus Neußer[2]

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Table of Contents

1 Abstract....5
2 Introduction....6
3 Total Fuel Cell Vehicle Fleet....7
4 Hydrogen Refueling Stations....14
5 Analysis....16
6 Summary and conclusion....23
7 Acknowledgements and Disclaimer....24
8 Declaration of the Use of Generative AI and AI-assisted Technologies....24
9 References....25
10 Appendix....27

1 Abstract

This report is the 2026 update on the global status of fuel cell vehicle deployment in road transport and hydrogen refueling stations. The report is based on data collected by the International Energy Agency's (IEA) Technology Collaboration Programme on Fuel Cells and Electrolyzers in 2026. The data shows that the global fuel cell vehicle fleet broke the 100,000 units mark in 2025 while at the same time the number of hydrogen refueling stations increased to 1604 stations. South Korea has the most fuel cell vehicles, accounting for 41% of the global vehicle fleet over all segments and 55% of the global passenger car fleet. China is dominating the commercial vehicle segment, accounting for more than 94% of the light-, medium-, and heavy-duty vehicle fleets, each. Notably, 93% of fuel cell vehicles are operated in just four countries: South Korea (41%), China (25%), the USA (18%) and Japan (9%). Fuel cell passenger cars are the largest segment at 70% of the total fleet. The latest deployment showed growth in the passenger car as well as the commercial vehicle segments. Passenger cars showed the biggest absolute increase with 9229 vehicles (14%), while the commercial vehicle segment (light-, medium-, and heavy-duty combined) showed the biggest relative increase with 20% (4269 vehicles), compared to 2024. Regarding hydrogen refueling stations, China is in the lead with 630 stations out of 1604 stations worldwide. South Korea is in second place with 453 stations, an increase of 167 compared to 2024. Compared to past peak growth, the growth of fuel cell vehicle fleets and hydrogen refueling stations has slowed significantly and in some countries and segments even reversed. This is primarily due to the market success of battery-electric vehicles in most road vehicle segments.

2 Introduction

Fuel cell electric vehicles that run on green hydrogen produced from renewable sources are a true zero-emission transport solution. They are ideal for situations requiring continuous high power with only short interruptions permitted, such as heavy long-distance transport and the operation of heavy non-road mobile machinery. High-speed, long-distance passenger transport by car could also be achieved with fuel cell electric vehicles. Weight and volume constraints of heavy-duty transportation affect fuel cell systems less than battery-electric powertrains. Therefore, fuel cell powertrain technology can help transition the transportation sector toward a greenhouse gas neutral, zero-emission future. Monitoring the deployment of fuel cell vehicles and the status of hydrogen refueling stations around the world is important because it indicates the practical usability of fuel cell vehicles.

This report provides an update on the 2025 report with the latest developments. It is based on data collected in 2026 for the year 2025 [1]. The data is from early 2026, except for the data from China, which is from September 2026 [2]. Previous reports have been provided annually by members of the Fuel Cells and Electrolyzers Technology Collaboration Programme (FCE TCP, former AFC TCP) [3–10] since 2017. The report focuses on regional and country-specific developments considering different road vehicle segments. Additionally, development trends based on data from the previous years are analyzed. Other data sources used include datasets provided by the International Partnership for Hydrogen and Fuel Cells in the Economy [11–13]. Previous reports have been provided annually by members of the Advanced Fuel Cells and Electrolyzers Technology Collaboration Programme (AFC FCE TCP, former AFC TCP) [2–8] [3–10] since 2018. The report focuses on regional and country-specific developments considering different road vehicle segments. Additionally, development trends based on data from previous years are analyzed. Further data sources are datasets provided by the International Partnership for Hydrogen and Fuel Cells in the Economy [11–13], the European Alternative Fuels Observatory [14–36], and H2 MOBILITY Deutschland [37].

The remainder of this report is structured as follows. Chapter 3 presents the most recent data on global fuel cell vehicle deployment. It provides a thorough data analysis and presents a breakdown of the numbers across vehicle segments, world regions, and countries. Chapter 4 then examines the hydrogen refueling station infrastructure by region. Chapter 5 provides a detailed analysis of the data and discusses the historical development of fuel cell vehicles and hydrogen refueling stations over the past eight years. Finally, chapter 6 summarizes the findings of the report.

3 Total Fuel Cell Vehicle Fleet

By the end of 2025, the worldwide number of fuel cell electric vehicles (FCEVs) in operation reached 109,733. This is a 13% increase compared to the 2024 vehicle fleet, reported in the 2025 update [38]. Figure 3-1 shows the distribution of FCEVs among countries with at least 100 FCEVs. South Korea has the largest share 45,143 vehicles (41%), followed by China at 26,957 vehicles (25%), the US at 20,044 vehicles (18%), and Japan at 9435 vehicles (9%). In total, these countries account for 93% of the worldwide FCEV fleet. Among European countries, Germany has the largest fleet at 2322 vehicles (2%), followed by France at 2146 vehicles (2%), the Netherlands at 799 vehicles (0.7%), and the UK at 525 vehicles (0.5%). Combined, these countries account for 81% of the European FCEV fleet. Further European countries with FCEV fleets of at least 100 vehicles are Poland, Switzerland, Norway, Italy, Spain, and Belgium. Worldwide, further countries with fleets of at least 100 FCEVs are Canada (358 FCEVs) and Australia (198 FCEVs). In addition, Austria and India, the Czech Republic, Sweden, and Estonia have FCEV fleets of 45 to 73 vehicles. Iceland, Latvia, Finland, Denmark, Hungary, and Portugal have fleets of 9 to 26 vehicles. Finally, Brazil, Luxemburg, Israel, South Africa, Slovakia, and Bulgaria have fleets of 1 to 5 FCEVs.

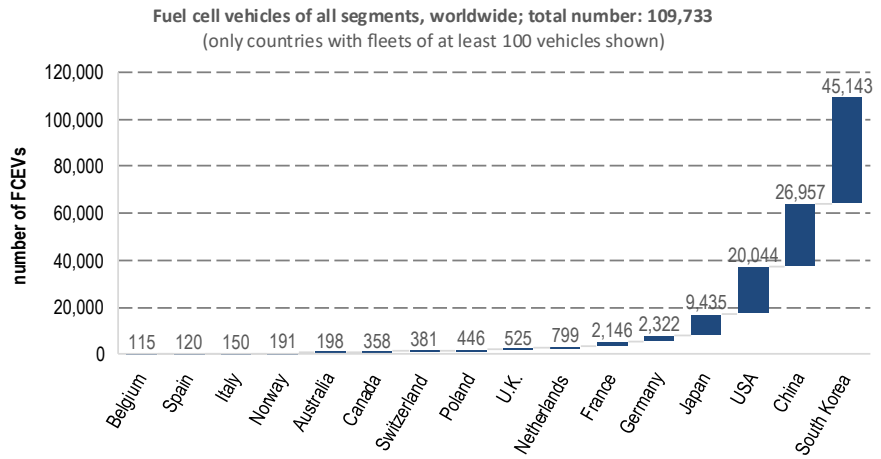


Figure 3-1. Country-based distribution of operational fuel cell vehicle fleets at the end of 2025.

Figure 3-2 shows the distribution of fuel cell vehicles by world region. The shares do not vary significantly from previous updates. Asia accounts for almost three quarters of the global FCEV fleet. North America accounts for almost a fifth, while Europe accounts for less than one tenth. Australia and Latin America account for negligible shares in the global FCEV fleet.

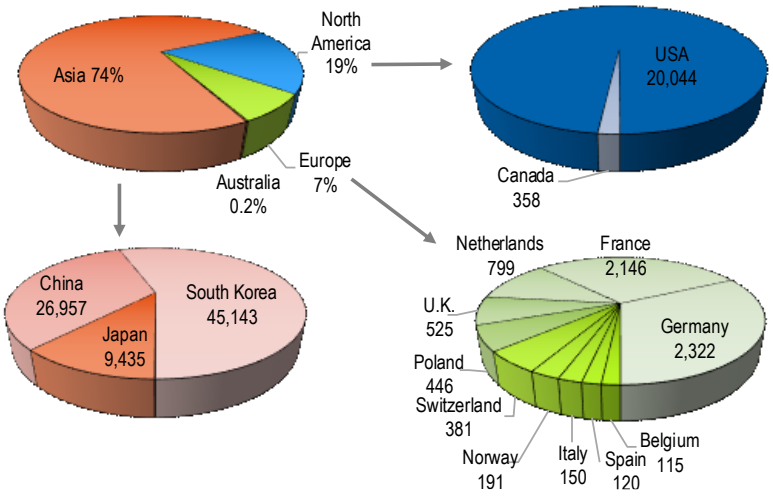


Figure 3-2. Distribution of fuel cell vehicles of all segments by world region at the end of 2025. Only countries with fleets of at least 100 vehicles are shown. Latin America is not displayed in the figure because of a reported fleet of only 5 total vehicles in Brazil. Total number of vehicles: 109,733.

In the following, vehicles fleets are analyzed by vehicle segments. Table 3-1 illustrates the chosen vehicle segments for this analysis. The vehicle segments are fuel cell passenger cars, fuel cell buses (FCBs) with more than eight passenger seats, fuel cell light commercial vehicles (FC-LCVs) up to 3.5 tons, fuel cell medium duty trucks (FC-MDTs) 3.5 to 12 tons, and fuel cell heavy duty trucks (FC-HDTs) above 12 tons. All vehicle masses refer to the maximum loaded vehicle weight (gross vehicle weight).

Table 3-1: Vehicle categories for the data collection.

Vehicle class	Explanation
Passenger cars (FC cars)	Light-duty vehicles (passenger cars and vans) with a maximum mass below 3.5 tons and no more than eight seats in addition to the driver seat. Examples: Toyota Mirai, Hyundai Nexo, Honda CR-V e:FCEV
Fuel cell buses (FCBs)	Passenger buses with more than eight seats in addition to the driver seat
Fuel cell light commercial vehicles (FC-LCVs)	Vehicles for the carriage of goods with a gross vehicle weight up to 3.5 tons
Fuel cell medium-duty trucks (FC-MDTs)	Trucks with a gross vehicle weight of 3.5 to 12 tons; trailers and semitrailers with a gross vehicle weight of 3.5 tons to 10 tons
Fuel cell heavy-duty trucks (FC-HDTs)	Trucks with a gross vehicle weight above 12 tons; trailers and semitrailers with a gross vehicle weight above 10 tons

Figure 3-3 shows the vehicle segment shares in the total FCEV fleet. The passenger car segment is the dominant vehicle segment at 70% of the total fleet. The share increased slightly compared to the previous update (69%). The heavy-duty segment is the second largest segment with an unchanged share of 12%. The bus segment remains the third largest

segment, decreasing from 9 to 7%. Light commercial vehicles tie third place, increasing from 6 to 7%. It should be noted, however, that for some countries, light commercial vehicles are reported in the passenger car segment. However, this does not alter the overall distribution shown in Figure 3-3 significantly. Medium-duty vehicles remain the smallest segment with an unchanged share of 4%.

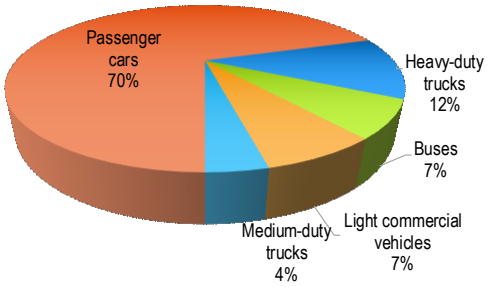


Figure 3-3. Shares of fuel cell vehicles by vehicle segments at the end of 2025. Total number of vehicles: 109,733.

In the following, we focus on the worldwide distribution of segment-specific fleet stocks, starting with passenger cars. Figure 3-4 shows fuel cell passenger cars by world regions and individual countries. The total number of fuel cell passenger cars is 76,995, showing a 14% year-on-year increase. Therefore, the passenger car segment grew slightly stronger than the overall FCEV fleet at 13%. More than two-thirds of all fuel cell passenger cars are in Asia (67%), increasing two percentage points year-on-year. At the same time, the North American share decreases two percentage points year-on-year (25%). The European share also decreases by one percentage point (8%), while the Australian share remains unchanged (0.3%). Compared to the total fleet of FCEVs over all segments (Figure 3-2), fuel cell passenger cars have a significantly lower share in Asia (67% vs. 74%) and higher share in North America (25% vs. 19%).

As shown in Figure 3-4, South Korea clearly dominates the fuel cell passenger car fleet in Asia with a share of 81%, followed by Japan at 17% and China at about 1%. This trend was already apparent in previous reports. Compared to the Asian fleet over all vehicle segments (Figure 3-2), South Korea and Japan show significantly higher shares in fuel cell passenger cars. This is caused by the fact that China has a large fleet of fuel cell commercial vehicle. In North America, the U.S. has a share of 98% of all fuel cell passenger cars and Canada 2%. In comparison to the previous report, Canada's share rose from 0.1% to almost 2%, because vehicles that were reported as light commercial vehicles in last year's report, were reported as passenger cars in this year's report. The distribution of fuel cell passenger cars in Europe differs from those in Asia and North America in that it does not show dominant behavior of a

single country. Fuel cell passenger cars in Europe are spread over 22 countries. Of those countries only three exceed a share of 10%, France at 32%, Germany at 30%, and the Netherlands at 11%. Poland accounts for 6%, Switzerland and the UK for 5% each, Norway for 3%, and Belgium for 2%. The countries' vehicle shares of fuel cell passenger cars are comparable to the countries' vehicle shares over all vehicle segments. France showed a significant increase in fuel cell passenger cars year-on-year from 26% (1484 cars) to 32% (1804 cars), while Germany showed a significant decrease from 39% (2251 cars) to 30% (1692 cars). In addition, the UK, Belgium, and Norway show a decline in their fuel cell passenger cars fleets.

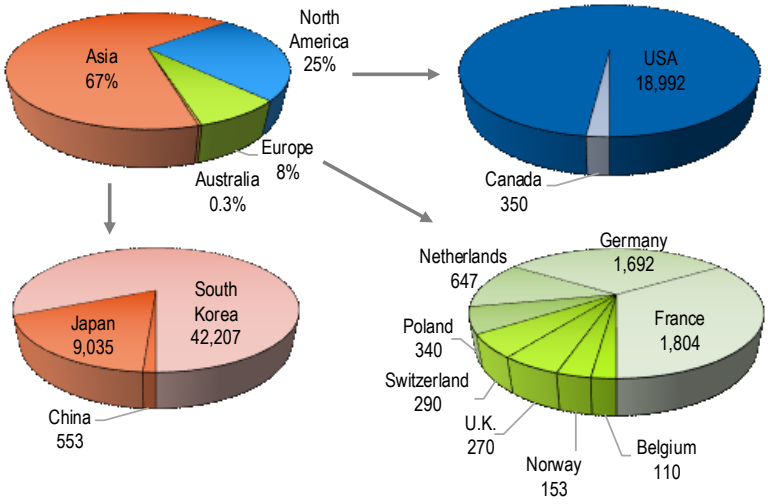


Figure 3-4. Fuel cell passenger cars by world region at the end of 2025. Only countries with fleets of at least 100 vehicles are shown. Total number of fuel cell passenger cars: 76,995.

Figure 3-5 shows the fuel cell passenger car fleet by country for all countries with at least 100 vehicles. The top five countries each have more than 1000 fuel cell passenger cars, South Korea has 42,207, the USA 18,992, Japan 9035, France 1804, and Germany 1692 fuel cell passenger cars. Apart from Germany, all these countries showed increases in the number of fuel cell passenger cars. Of the remaining countries, only China and the Netherlands have more than 500 fuel cell passenger cars.

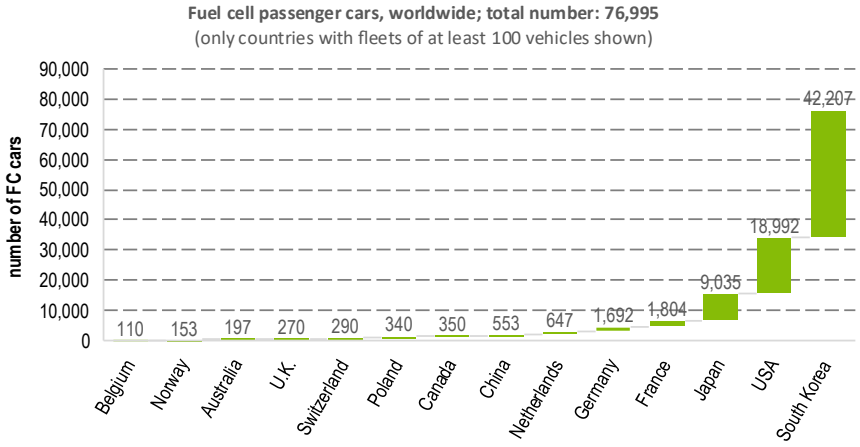


Figure 3-5. Fuel cell passenger cars by country at the end of 2025.

Next, we will turn to light commercial vehicles. Figure 3-6 shows the distribution of fuel cell light commercial vehicles by country. China dominates this segment with 7421 vehicles increasing its fleet by 47% compared to the previous year. France follows in second place with 206 vehicles, showing an 18% decrease. Germany and the Netherlands are in third and fourth place with 86 and 40 vehicles, respectively, both without any vehicles recorded in the previous year. Finally, Switzerland is in fifth place with an unchanged fleet of 10 vehicles. Canada fell out of this category, with 400 vehicles registered in the previous year, because these vehicles are reported in the passenger car segment this year.

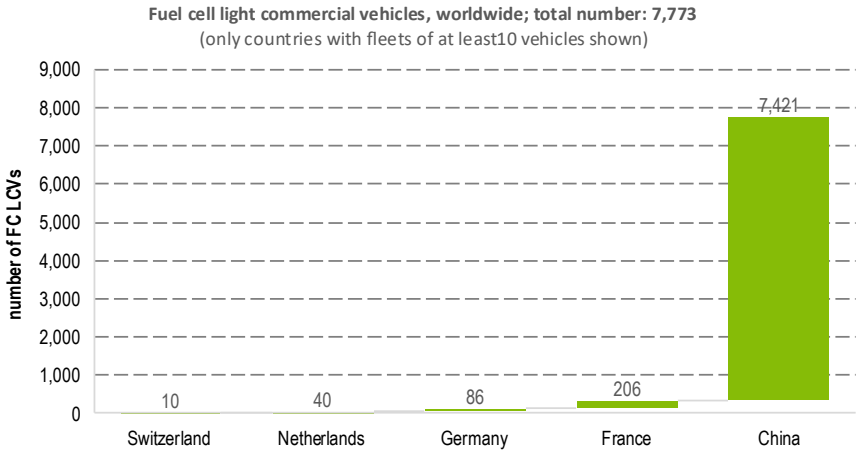


Figure 3-6. Fuel cell light commercial vehicles by country at the end of 2025.

Figure 3-7 shows the distribution of fuel cell buses by country. South Korea leads with 2936 buses, more than quadrupling its fleet compared to the previous year. China is in second place with 2596 buses, a 64% decrease compared to the previous year. Finally, the USA are in third place with 855 buses, showing an almost sixfold increase compared to the previous year. Germany, Japan, France, the UK, and Poland follow with fleets of more than 100 fuel cell buses, and Italy, Spain, the Netherlands, and India each have fleets of more than 50 vehicles. China, Germany, the UK, and Spain show a decreased fleet compared to the previous year.

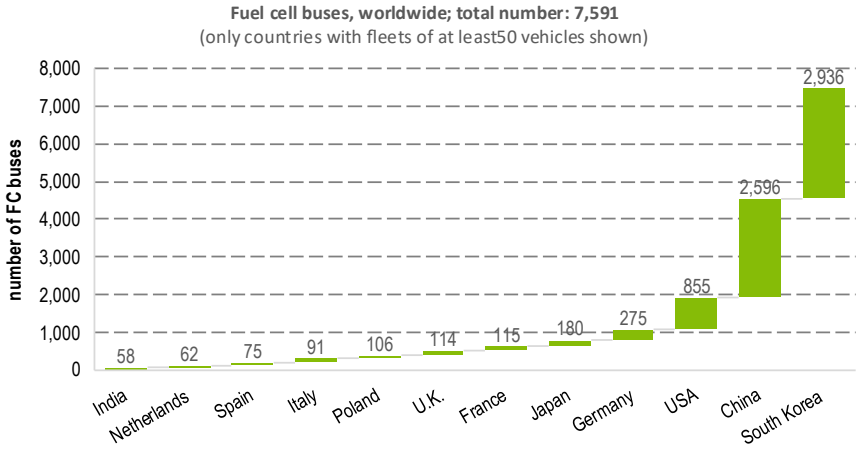


Figure 3-7. Fuel cell buses by country at the end of 2025.

Figure 3-8 shows the distribution of fuel cell medium-duty trucks by country. China dominates the segment with 3789 vehicles, corresponding to a share of 94%. Japan has the second largest fleet with 215 vehicles (95%), followed by France with 8 vehicles (0.2%), and Spain with 2 vehicles (<0.1%). Compared to the previous report, China's fleet increased by 390 vehicles (11%), Japan's fleet by 56 vehicles (35%), and France's fleet by 4 vehicles (100%). Additionally, the Netherlands dropped out with previously 39 reported vehicles, while Spain entered with 2 reported vehicles.

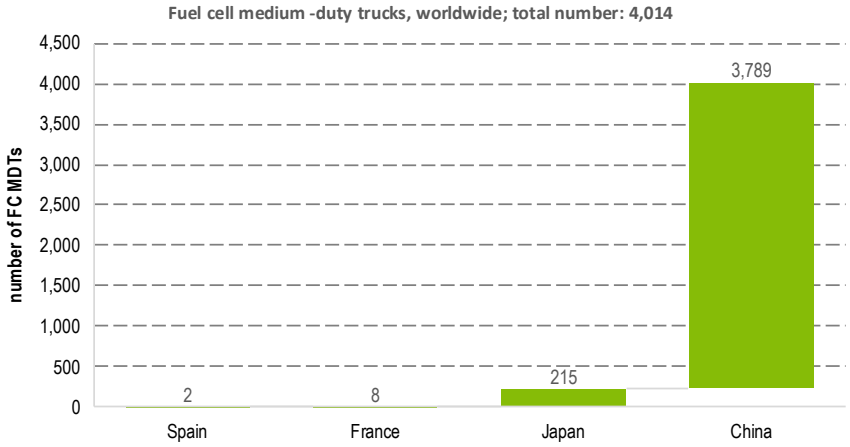


Figure 3-8. Fuel cell medium-duty trucks by country at the end of 2025.

Figure 3-9 shows the distribution of fuel cell heavy-duty trucks by country. China has the largest fleet with 12,598 vehicles, growing 11% year-on-year. Overall, while China continues to dominate the fuel cell heavy-duty truck segment, its fleet share decreased to 94%, compared to 98% in the previous report. Germany follows in second place with 269 vehicles, closely followed by the USA with 197 vehicles. With 134 vehicles, the UK is the last country with a fleet of at least 100 vehicles. Switzerland has 61 vehicles, the Netherlands 50, France 13, and the Czech Republic 10. Seven more countries have fleets of less than 10 vehicles each.

A complete overview of the vehicle numbers is given in Table A1-1 in the Appendix.

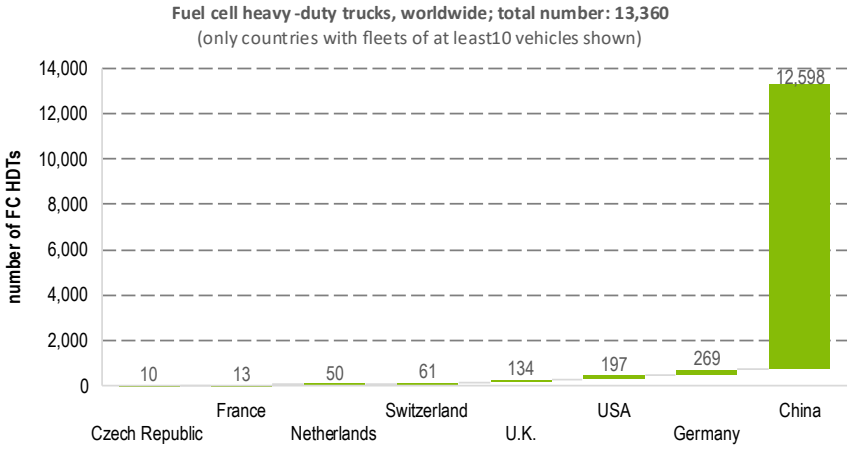


Figure 3-9. Fuel cell heavy-duty trucks by country at the end of 2025.

4 Hydrogen Refueling Stations

In addition to fuel cell vehicles, the FCE TCP update covers hydrogen refueling stations (HRS). At the end of 2025, a total of 1604 hydrogen refueling stations are reported in operation throughout 25 countries. We focus on public refueling stations, however, due to reporting issues, reporting for some countries might include private refueling stations for example at bus depots that are not publicly accessible.

Figure 4-1 shows the distribution of hydrogen refueling stations by country. China has the largest number of hydrogen refueling stations with 630, representing 39% worldwide. South Korea follows in second place with 453 stations (28%), and Japan in third place with 156 stations (10%). Germany, the Netherland, France, and the USA follow with 86, 50, 50, and 47 stations each. Eight more countries have at least 5 stations, thereof six European countries, ranging from 8 to 25 stations.

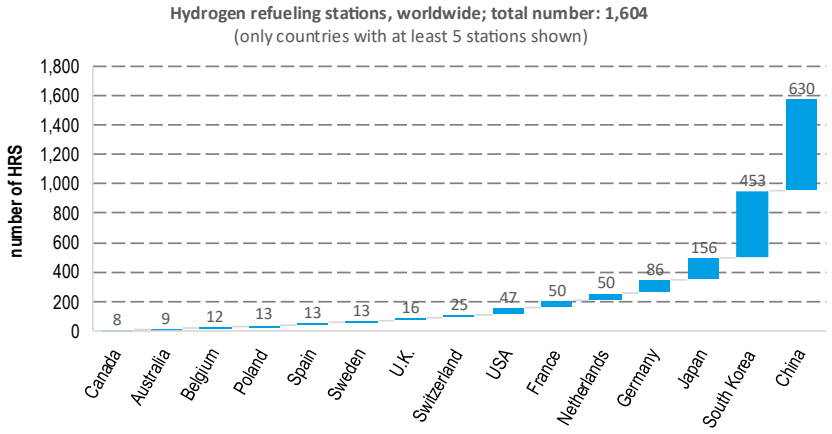


Figure 4-1. Hydrogen refueling stations by country at the end of 2025.

The number of hydrogen refueling stations reported in operation in China and South Korea, increased significantly compared to the previous report. China reported 630 stations, a 21% increase compared to 522 station in the previous year, and South Korea reported 453 stations, a 58% increase compared to 286 stations in the previous year. In contrast to that, in Germany stations originally dedicated to fuel cell passenger car refueling are being temporarily or permanently shut down because the fuel cell passenger car fleet is not expanding as quickly as expected. Some of these stations are being adapted to accommodate truck refueling. Additionally, new truck refueling stations are being built, though the process is rather slow. Some countries may have reported figures that include hydrogen refueling stations that are fully constructed but not yet operational. For example, this was the case for China in some

reporting periods. Nevertheless, the trend of an increasing global number of hydrogen refueling stations is considered stable.

The distribution of hydrogen refueling stations by world region is displayed in Figure 4-2. Country-specific data is provided for Asia, Europe, and North America. Australia, Africa, and Latin America have only 9, 2, and 1 hydrogen refueling stations in operation and are therefore not shown.

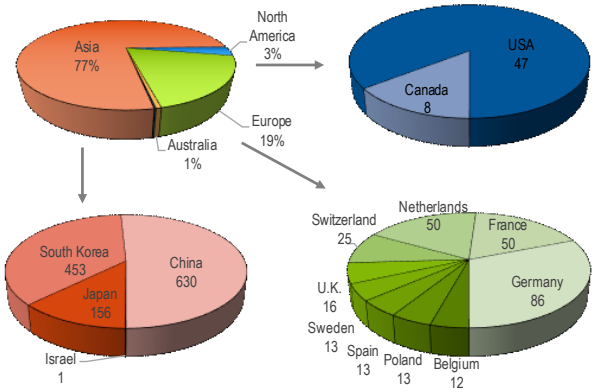


Figure 4-2. Hydrogen refueling stations by world region at the end of 2025. Total number of hydrogen refueling stations: 1604

Asia has the most hydrogen refueling stations of all world regions with 1240 stations, increasing 28% compared to the previous year. Followed by Europe with 297 stations, increasing 13%, and North America with 55 stations, decreasing 11%. Stations in Europe are primarily located in Germany, France and the Netherlands, accounting for a combined 62% of the European total. Switzerland, the UK, Sweden, Spain, Poland, and Belgium have between 12 and 25 stations each. The remaining seven European countries operating hydrogen refueling stations have less than 5 stations each.

A complete overview of the number of hydrogen refueling stations per country is given in Table A1-2 in the Appendix.

5 Analysis

The following analysis provides more details on the timeline of the deployment of fuel cell vehicles and hydrogen refueling stations from 2017 to 2025, based on the data from our previous annual FCE TCP data reports. Minor differences from the data presented in our 2025 report might occur, as some countries' data was only updated after publication of the report.

Figure 5-1 shows the global development of fuel cell vehicles by vehicle segment from 2017 to 2025. In the figure, the commercial vehicle segments of light-duty, medium-duty, and heavy-duty vehicles are grouped together under commercial vehicles. Fuel cell vehicle deployment is mainly driven by passenger cars until 2022. After that, the growth of the passenger car fleet became slower, and the commercial vehicle segment made a stronger contribution to the overall growth of the fleet, accounting for almost three quarters of the overall fleet growth, while accounting for only about one fifth of the fleet from 2023 to 2024. In the latest reporting period, 2024 to 2025, the fuel cell bus fleet decreased (-13%), while the passenger car segment grew by the same amount (+14%), and the commercial vehicle segment grew strongest (+20%).

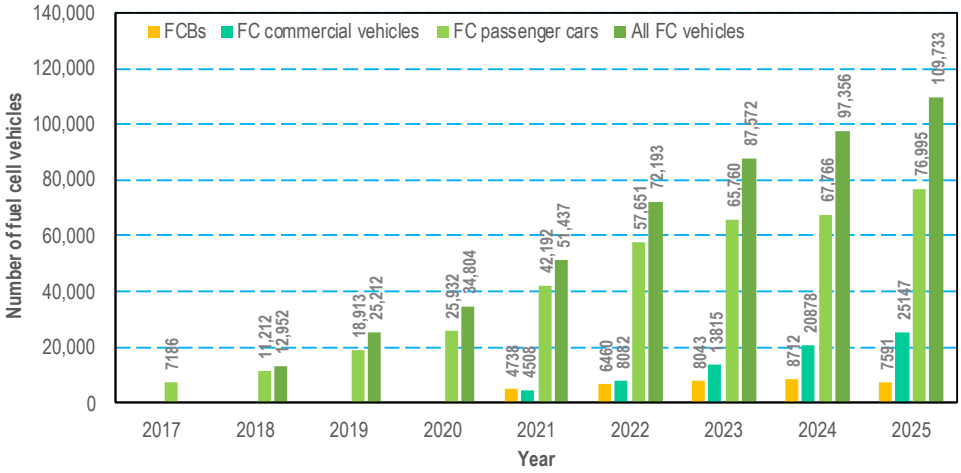


Figure 5-1. Global development of deployed fuel cell vehicles in the period from 2017 to 2025.

In absolute numbers, fuel cell buses show the first fleet decrease ever recorded for this segment with -1121 vehicles. At the same time, commercial vehicles showed the second smallest increase ever recorded for this segment with 4269 vehicles, decreasing by 40% compared to the previous year. The fuel cell passenger car fleet development recovered from a slump in the previous year with 9229 new vehicles.

In relative numbers, fuel cell buses continued their downward trend with a fleet decrease of 13%, after an all-time low growth of 8% in the previous year. Besides being the strongest

growing segment, commercial vehicles showed an all-time low increase at 20%, continuing a downward trend from 79% in 2021/22 to 70% in 2022/23 and 51% in 2023/24. The fuel cell passenger car fleet increase returned to its 2022/23 level of 14%, after an all-time low increase of 3% in 2023/24.

Figure 5-2 shows the national fleet shares of fuel cell vehicles across all segments in 2024 and 2025 for the top six countries. South Korea is the only country showing an increase, growing 5% to reach 41% in total. The shares of China and the USA decrease by 3% and 1%, respectively. All other countries' shares remain unchanged compared to the previous year. According to these developments, no sudden changes are to be expected in the overall fuel cell vehicle shares. South Korea continues to be the strong leader with China following in second place, and the USA in a comfortable third place.

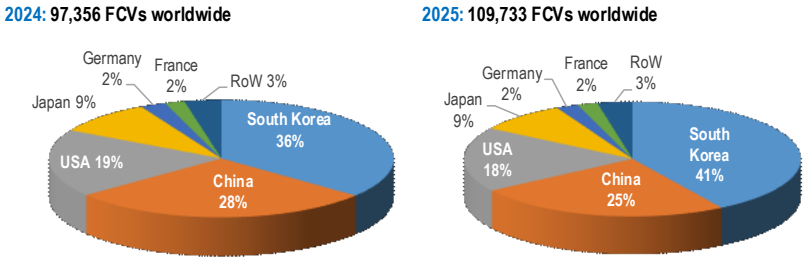


Figure 5-2. National shares of fuel cell vehicle across all vehicle segments for the years 2024 and 2025 for the top six countries. "RoW" rest of world

Figure 5-3 shows the number hydrogen refueling stations in operation globally from 2017 to 2025. After a weak growth period in 2023/24 at 6%, growth picked up again with the number of hydrogen refueling stations increasing 23% in 2024/25. The strongest growth periods were recorded in 2020/21 and 2021/22 with increases of 35% and 40% respectively. In Absolute numbers, the period 2024/25 showed the largest increase ever recorded with 302 stations.

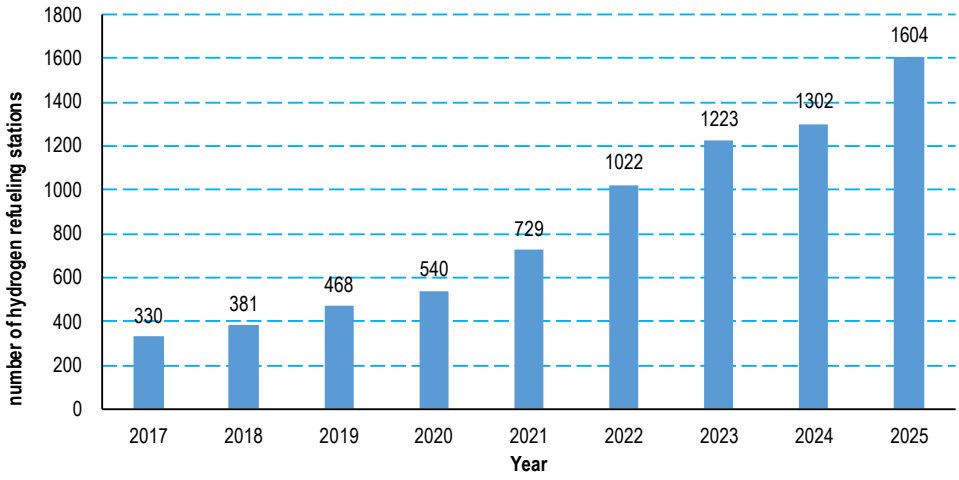


Figure 5-3. Hydrogen refueling stations in operation globally for 2017–2025.

Figure 5-4 shows the national shares of the top six countries operating hydrogen refueling stations in 2024 and 2025. China is still the number one seat with 39%, losing 1% overall share compared to the previous year. South Korea is in second place and increased its share significantly from 22% to 36%. All other nations lost market shares. Japan has a market share of 10% (-2%), Germany 5% (-1%), the USA 3% (-1%), and France 2% (-3%). Finally, the rest of world ("RoW") has a market share of 12% increasing by 1%. In total numbers, China leads with 630 hydrogen refueling stations in 2025 up from 522 stations in 2024. South Korea comes in second with 453 hydrogen refueling stations and a 167-station increase compared to 2024. Japan is third with 156 hydrogen refueling stations with no change compared to the previous year. Germany has 86 hydrogen refueling stations, 8 stations more than in 2024. Finally, France and the USA show decreasing numbers of hydrogen refueling stations. The number of stations in the USA declined by 3 (from 50 to 47 stations) in 2025, and the number of stations in France declined by 25 (from 64 to 39 stations).

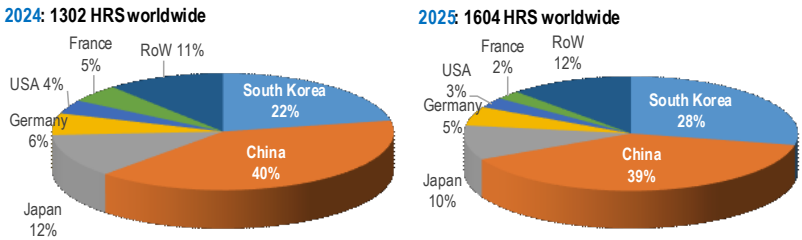


Figure 5-4. National shares of hydrogen refueling stations in operation for the years 2024 and 2025 for the top six countries. "RoW" rest of world

Figure 5-5 shows the ratio of fuel cell electric vehicles to the number of hydrogen refueling stations in each of the top six countries with regards to the fuel cell vehicle fleet size. The figure shows the average number of fuel cell vehicles served by each hydrogen refueling station. However, only national averages were considered, the geographic location of fueling stations or individual vehicle fleets, were not taken into account. The countries are ordered by fuel cell vehicle fleet size. South Korea has the largest fleet and is therefore first, France has the smallest fleet and is therefore last. The USA stands out with a ratio of 426 fuel cell vehicles served by each station, followed by South Korea at 100 vehicles per station. Japan, France, and China show lower ratios of 60, 55, and 43 vehicles per station, respectively. Finally, Germany has the lowest ratio at 27 vehicles per station. Compared to the previous year, the ratio increased strongly France from 28 to 55 vehicles per station. This is mainly due to the reduction of stations operating from 64 to 39. The ratio of the USA also shows a strong increase from 363 in 2024 to 426 in 2025. This is caused by a slight decline in the number of stations operating combined with an increase in the total fuel cell vehicle fleet. For Japan, the ratio only increased slightly, while for Germany it decreased slightly. For these countries the development of the fuel cell vehicle fleet and hydrogen refueling stations is almost in sync, respectively. For South Korea and China, the ratio decreased strongly. This is caused by the strong increase in the number of hydrogen refueling stations in operation 2024 to 2025.

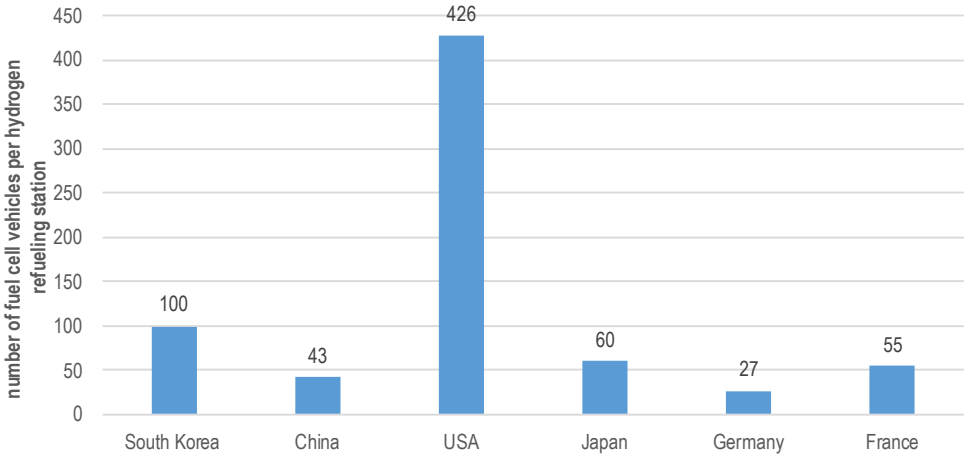


Figure 5-5. Number of fuel cell vehicles per hydrogen refueling station for the top six countries with regards to fuel cell vehicle fleet size as of the end of 2025.

Figure 5-6 shows the fuel cell vehicle fleet sizes and the number of hydrogen refueling stations for South Korea, China, the USA, and Japan, the four countries with the largest fuel cell vehicle fleets, from 2017 to 2025.

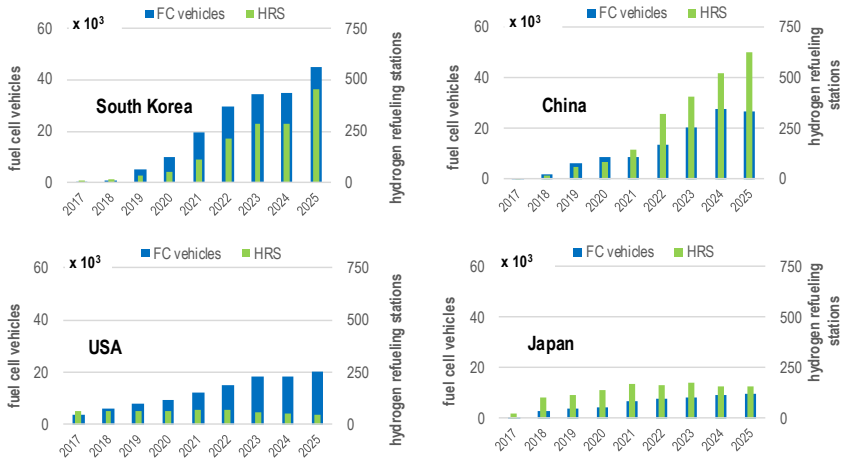


Figure 5-6. Development of the fuel cell vehicle fleets and hydrogen refueling infrastructure from 2017 to 2025 in the four countries with the largest fuel cell vehicle fleets at the end of 2025.

In South Korea, the fuel cell vehicle fleet and the number of hydrogen refueling stations are growing since 2017. The fuel cell vehicle fleet grew stronger than the number of hydrogen refueling stations in the period from 2017 to 2020. Since 2021, however, the number of hydrogen refueling stations grew stronger than the fuel cell vehicle fleet. Therefore, the number of fuel cell vehicles served by each hydrogen refueling station peaked in 2020 at 194 vehicles per station and has been declining since then. The year 2024 marks an exemption as both fuel cell vehicle and hydrogen refueling station deployment stagnated with almost no growth in either. In China, the development of the fuel cell vehicle fleet and hydrogen refueling stations is much more dynamic. Both are increasing since 2017, with the fuel cell vehicle fleet only stagnating once in 2021. In 2017 and 2018, fuel cell vehicle fleet growth outpaced hydrogen refueling station growth, leading to a peak 119 vehicles per station in 2018. However, in the period 2019 to 2022, the trend was reversed, leading to a low 42 vehicles per station in 2022. After 2022, the trend reversed again, this time with growth rates of the fuel cell vehicle fleet and hydrogen refueling stations closer together, leading to a slower increase in the number of vehicles per station over time. In the latest period, the overall fleet decreased slightly, while the number of hydrogen refueling stations increased strongly, leading to a strong decrease in the number of vehicles per station to 43 vehicles per station, almost matching the 2022 low of 42 vehicles per station. In the USA the situation is entirely different. The fuel cell vehicle fleet has been growing each year since 2017, with an exception only in 2024 when growth stagnated. Hydrogen refueling station deployment, on the other hand, showed only much lower growth rates from 2017 to 2022, with even a negative rate in 2020, and negative growth rates since 2023. The number of vehicles per station is therefore steadily increasing from 58 vehicles

in 2017 to 426 vehicles in 2025. In Japan, the situation is like in the USA with an increasing fuel cell vehicle fleet since 2017 and a diverse development for hydrogen refueling stations. Fleet growth rates in Japan are on average the lowest of the top 4 countries, showing the maximum growth rate of 61% in 2021. Except for 2020, fleet growth rates were higher than deployment rates of hydrogen refueling stations, leading to a steady increase in the number of vehicles per station from 29 vehicles in 2018 to 60 vehicles in 2025.

Overall, the fuel cell vehicle fleet and the number of hydrogen refueling stations increase steadily since 2017. The overall fleet reached 109,733 vehicles in 2025 and the number of hydrogen refueling stations 1604 in 2025. For the vehicle fleet, the overall growth rate has slowed over the past three years to a current rate of 13%. For hydrogen refueling stations, the growth rate increased to 23% after an all time low of 6% in the previous year. South Korea has the most fuel cell vehicles of all countries with 45,143 vehicles in 2025, consisting of fuel cell passenger cars to 93% and fuel cell buses to 7%. The fuel cell vehicle fleet has grown strongest in South Korea in the past year compared to all other countries. China has the second largest fuel cell vehicle fleet with 26,957 vehicles. In contrast to South Korea, this fleet consists only to 2% of passenger cars, and to a major part of commercial vehicles with light-, medium-, and heavy-duty commercial vehicles having a 28%, 14%, and 47% share, respectively. China dominates these three commercial vehicle segments. China also has the largest number of hydrogen refueling stations with 630 stations, however South Korea showed the largest increase in the number of stations reaching 453 stations from 286 stations in the previous year. The number of hydrogen refueling stations in each country grows with the vehicle fleet, except for the USA, where hydrogen refueling stations have been constructed in advance and have been stable since then.

There may be several reasons why the growth in the adoption of fuel cell vehicles has slowed, and why battery electric vehicle technology is now preferred as a practical zero-emission propulsion alternative. Policy support measures for battery electric vehicles, advances in battery technology, and the availability of a wide variety of vehicle models may have contributed to this trend. Key legal measures and incentives include purchase price subsidies, tax breaks, and incentives such as free parking in urban areas. These measures typically apply to fuel cell vehicles as well. However, the expanding variety of BEV models and improvements in driving range—which now approach that of typical fuel cell vehicles—may have influenced consumers to choose BEVs. Furthermore, the limited availability of hydrogen infrastructure in some regions and the sharp rise in hydrogen prices may also be contributing factors to the decline in fuel cell vehicle sales. In the commercial vehicle sector, OEMs continue to show interest in fuel cell technology, with the current focus centered on heavy-duty freight transport. However, battery technology is also being actively promoted in this market segment. Globally, automakers are launching new vehicle models with technical and economic performance that

appears suitable for many transportation services in the short and medium term. For fuel cell vehicles to play a significant role in the decarbonization of the transportation sector, efforts from both automakers and hydrogen suppliers will need to be intensified significantly.

6 Summary and conclusion

In this report, updated figures for the global deployment of fuel cell electric vehicles in road transport and hydrogen refueling stations are given. Data were collected through the Fuel Cells and Electrolyzers IEA Technology Collaboration Programme Data Survey. Data and trend analyses were performed based on data from previous reports.

In 2025, the global number of fuel cell vehicles broke the 100,000 vehicle mark, reaching 109,733 vehicles. These vehicles are served by a total of 1604 hydrogen refueling stations. The top four countries hold more than 90% of the global fuel cell electric vehicle fleet. South Korea has the largest fuel cell vehicle fleet with 41% of the global fleet, China follows in second place with 25%, the USA in third place with 18%, and Japan in fourth place with 9%. The two largest fleets, however, have an entirely different structure. South Korea's fleet consists to the largest part of fuel cell passenger cars (93%) and fuel cell buses make up the remainder (7%). China's fleet, on the other hand, has a low share of fuel cell passenger cars (2%) and is instead dominated by commercial vehicles such as fuel cell heavy-duty vehicles (47%), medium-duty vehicles (14%), and light commercial vehicles (28%), as well as fuel cell buses (10%). China dominates the commercial vehicle segment with light-, medium, and heavy-duty vehicle segment shares of more than 94%, each. China has the largest number of hydrogen refueling station with 39% of the global total, followed by South Korea with 28%, and Japan with 10%.

After a decline in the fleet expansion during the previous years, in which fleet growth was driven by commercial vehicles and buses, fleet expansion picked up again in 2025, especially the passenger car segment. Declining growth rates in the fuel cell vehicle market can in part be attributed to the strong battery electric vehicle market. Battery electric vehicles show a wider variety of vehicle models throughout all segments, lower variable costs, and purchase incentives or other regulatory measures. Heavy-duty transportation may still be an exception with fuel cell vehicles showing a range benefit compared the battery electric vehicles.

7 Acknowledgements and Disclaimer

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The data presented in this work is intended to provide an overview of the current status and perspectives and was prepared using available sources. The FCE TCP does not claim that the data provided is complete.

The FCE TCP functions within a framework created by the IEA. The views, findings and publications of the FCE TCP do not necessarily represent the views or policies of the IEA Secretariat or of its individual member countries.

8 Declaration of the Use of Generative AI and AI-assisted Technologies

During the preparation of this work the authors used DeepL in order to improve the readability and language of their own texts. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published work.

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10 Appendix

Table A1-1. Fuel cell vehicles on the roads by country and vehicle segment. Sources: See chapter 2.

Region	Country	Passenger cars	Buses	Light commercial	Medium-duty trucks	Heavy-duty trucks	Total
Africa	South Africa	2	0	0	0	0	2
Asia	China	553	2596	7421	3789	12598	26957
Asia	India	0	58	0	0	0	58
Asia	Isreal	0	1	0	0	3	4
Asia	Japan	9035	180	0	215	5	9435
Asia	South Korea	42207	2936	0	0	0	45143
Australia	Australia	197	0	1	0	0	198
Europe	Austria	53	18	0	0	2	73
Europe	Belgium	110	4	1	0	0	115
Europe	Bulgaria	1	0	0	0	0	1
Europe	Croatia	0	0	0	0	0	0
Europe	Czech Rep.	29	10	0	0	10	49
Europe	Denmark	14	4	0	0	2	20
Europe	Estonia	41	0	0	0	4	45
Europe	Finland	17	5	0	0	0	22
Europe	France	1804	115	206	8	13	2146
Europe	Germany	1692	275	86	0	269	2322
Europe	Greece	0	0	0	0	0	0
Europe	Hungary	11	2	0	0	0	13
Europe	Iceland	26	0	0	0	0	26
Europe	Ireland	0	0	0	0	0	0
Europe	Italy	59	91	0	0	0	150
Europe	Latvia	0	22	0	0	0	22
Europe	Luxemburg	5	0	0	0	0	5
Europe	Netherlands	647	62	40	0	50	799
Europe	Norway	153	33	1	0	4	191
Europe	Poland	340	106	0	0	0	446
Europe	Portugal	7	2	0	0	0	9
Europe	Romania	0	0	0	0	0	0
Europe	Slovakia	1	0	0	0	0	1
Europe	Slovenia	0	0	0	0	0	0
Europe	Spain	43	75	0	2	0	120
Europe	Sweden	46	2	0	0	0	48
Europe	Switzerland	290	20	10	0	61	381
Europe	Turkey	0	0	0	0	0	0
Europe	U.K.	270	114	7	0	134	525
Latin America	Brazil	0	5	0		0	5
North America	Canada	350	0	0	0	8	358
North America	USA	18992	855	0	0	197	20044
	Worldwide	**76995**	**7591**	**7773**	**4014**	**13360**	**109733**

Table A1-2. Hydrogen refueling stations in operation by country. Sources: See chapter 2.

Region	Country	Number of HRS
Africa	South Africa	2
Asia	China	630
Asia	India	0
Asia	Israel	1
Asia	Japan	156
Asia	Saudi Arabia	0
Asia	South Korea	453
Asia	United Arab Emirates	0
Australia	Australia	9
Europe	Austria	3
Europe	Belgium	12
Europe	Czech Republic	4
Europe	Denmark	4
Europe	France	50
Europe	Germany	86
Europe	Hungary	2
Europe	Iceland	1
Europe	Italy	3
Europe	Netherlands	50
Europe	Norway	2
Europe	Poland	13
Europe	Spain	13
Europe	Sweden	13
Europe	Switzerland	25
Europe	U.K.	16
Latin America	Brazil	1
North America	Canada	8
North America	USA	47
	Worldwide	**1604**

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