

# IEA-Advanced Motor Fuels ANNUAL REPORT 2023

## CHINA



## China

### ***Drivers and Policies***

In order to achieve China's peak carbon dioxide emissions goal before 2030 and carbon neutrality goal before 2060, China issued a series of related policies to promote both carbon reduction and green development. The automotive industry is an important area for green and low-carbon development, and advanced motor fuels will contribute significantly to reducing pollutant emissions in the transportation sector and promoting carbon neutrality.

#### **Notice on Organizing and Carrying out the Pilot Work of the Comprehensive Electrification of Vehicles in the Public Domain**

To further accelerate the pace of comprehensive electrification of vehicles in the public domain, eight ministries, such as the Ministry of Industry and Information Technology and the Ministry of Transport, jointly issued the "Notice on Organizing and Carrying Out the Pilot Work of the Comprehensive Electrification of Vehicles in the Public Domain" on February 3, 2023. The objectives of the Notice are to promote the electrification of vehicles in the public sector, accelerate the construction of a green and low-carbon transportation system, and implement China's national peak carbon and carbon neutrality strategies. The main goal is to significantly increase the proportion (by 80%) of clean energy vehicles in the nation's fleet of newly added and updated vehicles, including urban public buses, taxis, sanitation vehicles, postal express vehicles, and urban logistics and distribution vehicles. The Notice encourages local governments to improve (1) the comprehensive electrification support system for vehicles in the public domain, (2) promotion of new energy vehicles, (3) construction of charging and swapping infrastructure, (4) application of new technologies and new models, and (5) green policies, standards, and regulations.

#### **Announcement on Matters Concerning the Implementation of China 6 Emission Standards for Automobiles**

On May 9, 2023, five ministries, such as the Ministry of Ecology and Environment, the Ministry of Industry and Information Technology, and the Ministry of Commerce, jointly issued the "Announcement on Matters Concerning the Implementation of the China 6 Emission Standards for Automobiles." The China 6b emission standard, implemented nationwide on July 1, 2023, prohibits the production, import, and sale of vehicles that do not meet the China 6b emission standard. In accordance with the "Law of the People's Republic of China on the Prevention and Control of Air Pollution" and other relevant provisions, automobile production and import enterprises — the organizations primarily responsible for the consistency management of environment protection production — must disclose vehicle emission inspection information and pollution control technical information before a vehicle leaves the factory or enters the country to ensure that vehicles produced in or imported into China meet the requirements.

#### **Announcement on the Extension and Optimization of the Vehicle Purchase Tax Reduction and Exemption Policy for New Energy Vehicles**

On June 21, 2023, the Ministry of Finance, the State Administration of Taxation, and the Ministry of Industry and Information Technology jointly issued the "Announcement on the Extension and Optimization of the Vehicle Purchase Tax Reduction and Exemption Policy for New Energy Vehicles." New energy vehicles with a purchase date between January 1, 2024, and December 31, 2025, are exempt from vehicle purchase tax; the tax exemption for each new energy passenger vehicle shall not exceed RMB30,000 yuan. The vehicle purchase tax will be halved for new energy vehicles purchased between January 1, 2026, and December 31, 2027; the tax reduction for each new energy passenger vehicle shall not exceed RMB15,000 yuan. Preferential tax is provided to battery swapping vehicle models.

#### **Opinions of the National Development and Reform Commission and Other Ministries on Accelerating the Establishment of a Product Carbon Footprint Management System**

On November 24, 2023, the National Development and Reform Commission and other ministries issued their opinions on accelerating the establishment of a product carbon footprint management system. The goals of such a system are to improve the rules and standards for carbon footprint accounting methods for key products, establish a product carbon footprint background database, promote the construction of a product carbon label certification system, expand and enrich application scenarios, and expand the role of the product carbon footprint management system in promoting a

green and low-carbon production and lifestyle, thereby helping China achieve its peak carbon and carbon neutrality objectives. The main goal is that by 2025, carbon footprint accounting rules and standards for about 50 key products will be issued at the national level. New energy vehicles (including power batteries) are one of the key products, and the construction and improvement of their carbon footprint management system will be further accelerated under the guidance contained in the Opinions.

#### **Existing National Standards on Alternative Motor Fuels**

- GB/T 42416-2023, “M100 methanol fuel for motor vehicles,” was released on May 23, 2023, and implemented on September 1, 2023.
- GB/T 42436-2023, “Additives for vehicular M100 methanol fuel,” was released on May 23, 2023, and implemented on September 1, 2023.
- GB/T 23510-2009, “Fuel methanol for motor vehicles,” was released on April 8, 2009, and implemented on November 1, 2009.
- GB/T 23799-2021, “Methanol gasoline (M85),” for motor vehicles was released on October 11, 2021, and implemented on May 1, 2022.
- GB/T 34548-2017, “The additive of methanol gasoline for vehicles,” was released on October 14, 2017, and implemented on May 1, 2018.
- GB/T 31776-2015, “Determination method of methanol content in methanol gasoline for motor vehicles,” was released on July 3, 2015, and implemented on October 1, 2015.
- GB/T 26127-2010, “Compressed coalbed methane as vehicle fuel,” was released on January 14, 2011, and implemented on June 1, 2011.
- GB/T 26605-2011, “Dimethyl ether for motor vehicle fuel,” was released on June 16, 2011, and implemented on November 1, 2011.
- GB 19159-2012, “Automotive liquefied petroleum gases,” was released on November 5, 2012, and implemented on April 1, 2013.
- GB 25199-2017, “B5 diesel fuels,” was released and implemented on September 7, 2017.
- GB 18351-2017, “Ethanol gasoline for motor vehicles (E10),” was released and implemented on September 7, 2017.
- GB/T 22030-2017, “Blendstocks of ethanol gasoline for motor vehicles,” was released and implemented on September 7, 2017.
- GB 35793-2018, “Ethanol gasoline for motor vehicles E85,” was released on February 6, 2018, and implemented on September 1, 2018.
- GB 18047-2017, “Compressed natural gas as vehicle fuel,” was released on September 7, 2017, and implemented on April 1, 2018.
- GB/T 40510-2021, “Bio-natural gas as vehicle fuel,” was released on August 20, 2021, and implemented on March 1, 2022.
- GB/T 34537-2017, “Hydrogen and compressed natural gas (HCNG) blended as vehicle fuel,” was released on October 14, 2017, and implemented on May 1, 2018.
- GB/T 37178-2018, “Coal-based synthetic natural gas for vehicle,” was released on December 28, 2018, and implemented on July 1, 2019.
- GB/T 37244-2018, “Fuel specification for proton exchange membrane fuel cell vehicles – Hydrogen,” was released on December 28, 2018, and implemented on July 1, 2019.
- GB/T 40045-2021, “Fuel specification for hydrogen powered vehicles – Liquid hydrogen (LH<sub>2</sub>),” was released on April 30, 2021, and implemented on November 1, 2021.

#### **Advanced Motor Fuels Statistics**

In 2023, non-fossil energy accounted for more than 40% of China’s total new energy production, and the energy production and supply system is developing toward low carbon. China has continuously improved the level of greening and modernization of the energy industry chain and accelerated the formation of a diversified supply and consumption system. China 6b standard motor gasoline is supplied nationwide, and about 8.6 million charging pillar units had been built around the country.

In 2023, China’s auto production and sales volume were 30.261 million units and 30.094 million units, with a year-on-year increase of 11.6% for production and 12% for sales. The volumes of new energy vehicles were 9.587 million units (production) and 9.495 million units (sales), accounting for 31.6% of market share. The volumes of battery electric vehicles were 6.704 million units (production) and

6.685 million units (sales); the volumes of plug-in hybrid electric vehicles were 2.877 million units (production) and 2.804 million units (sales); and the production and sales volume of hydrogen fuel cell electric vehicles were both 6,000 units. The sales volume of natural-gas-powered heavy-duty vehicles was 151,900 units. The top five provinces of natural-gas-powered heavy-duty vehicles by sales were Shanxi, Hebei, Ningxia, Henan, and Xinjiang.

## **Research and Demonstration Focus**

### **Promotion of Methanol Gasoline Vehicles Pilot Project**

In 2019, the Ministry of Industry and Information Technology and other relevant ministries jointly issued the “Guiding Opinions on the Application of Methanol Vehicles in Some Areas”, supporting areas (such as Shanxi, Shaanxi, Guizhou, and Gansu provinces) with resources and experiences in operating methanol vehicles, to accelerate the application of M100 methanol vehicles.

In May 2023, Shanxi Province issued “Several Measures on Accelerating the Promotion and Application of Methanol Vehicles in the Province,” which was officially implemented on June 18, 2023, and is valid for 5 years. Shanxi Province will accelerate the construction of a green transportation system for methanol vehicles based on heavy truck freight to help achieve China’s peak carbon and carbon neutrality goals. Shanxi Province encourages provincial state-owned enterprises and municipal and county state-owned enterprises, especially large energy enterprises, to accelerate the construction of methanol heavy-truck application scenarios and take the lead in promoting the application of methanol heavy trucks. Shanxi Province promotes the green and clean replacement of vehicles in the public sector by encouraging organizations in the province to update existing gasoline and diesel-powered urban logistics vehicles, urban construction muck trucks, cement mixer trucks, and garbage removal trucks to methanol-powered vehicle models. Shanxi Province provides purchase subsidies and right-of-way preferential policies for methanol vehicles and is improving the construction of methanol refueling system for vehicles.

Guizhou Province has a large number of methanol vehicles, including commercial vehicles, taxis, special vehicles, etc. By the end of 2023, Guizhou had more than 18,000 methanol vehicles and operated more than 80 methanol refueling stations.

### **Promotion of Hydrogen Fuel Cell Electric Vehicles Pilot Project**

In September 2020, the Ministry of Finance, Ministry of Industry and Information Technology, Ministry of Science and Technology, National Development and Reform Commission, and the National Energy Administration jointly issued the “Notice on Developing Demonstrative Application of Hydrogen Fuel Cell Electric Vehicles,” supporting the key technology breakthrough and application of hydrogen fuel cell electric vehicles in China.

Up to now, five fuel cell vehicle demonstration city groups have been approved: the Beijing-Tianjin-Hebei city group, led by Beijing together with 12 cities or districts; the Shanghai city group, led by Shanghai together with 7 cities or districts; the Guangdong city group, led by Foshan together with 12 cities; the Hebei city group, led by Zhangjiakou together with 13 cities or districts; and the Henan city group, led by Zhengzhou together with 11 cities or districts.

During a four-year demonstration period, more than 30,000 units of hydrogen fuel cell electric vehicles would be promoted.

By the end of 2023, the population of hydrogen fuel cell electric vehicles in China had exceeded 18,000 units, and 407 hydrogen refueling stations were built. Most of the fuel cell electric vehicles on road are commercial vehicles. The demonstration covers multiple scenarios such as urban buses, logistics vehicles, trucks, engineering vehicles, and vehicles operated in ports and industrial parks.

#### **Outlook**

China actively develops clean energy, accelerates the introduction of green and low-carbon policies, promotes the “carbon peaking and carbon neutrality” work in an orderly manner, and promotes industry transformation and development toward green and low-carbon solutions.

China will build a carbon footprint management system for automotive products. Meanwhile, the industry will increase investment in green manufacturing, low-carbon product research and development (R&D) and supply, green materials and energy applications, and a circular economy to drive the green and low-carbon development of the whole industry chain. New energy vehicles will accelerate the replacement of fossil fuel vehicles.

#### **Additional Information Sources**

- [National Development and Reform Commission \(NDRC\)](#)
- [Ministry of Industry and Information Technology \(MIIT\)](#)
- [Ministry of Ecology and Environment \(MEE\)](#)
- [China Association of Automobile Manufacturers \(CAAM\)](#)
- [CV World](#)