

2022 CONTRIBUTION TO CLIMATE PROTECTION IN THE EUROPEAN UNION, THE USA AND CHINA.



The BMW Group sees the consequences of climate change as a major challenge for the future. As governments around the world work to translate the goals of the Paris Climate Agreement into national laws, investors are increasingly evaluating companies and their business models according to ESG criteria (Environment, Social, Governance).

With respect to CO₂ emissions from new vehicles, medium- to long-term targets have already been set in Europe, North America, Japan, China and other countries. However, these cannot be directly compared at an international level, as the test cycles and the test procedures in the individual countries are different, and segment and drivetrain mixes also tend to vary considerably.

The BMW Group is committed to achieving ambitious yet realistic environmental policy targets worldwide. A key concern for the Group is the creation of the right framework conditions to boost the ramp-up of electromobility and facilitate the transition towards climate-neutral transport, so that the now broad range of models is, in turn, met with the required levels of market acceptance and customer demand.

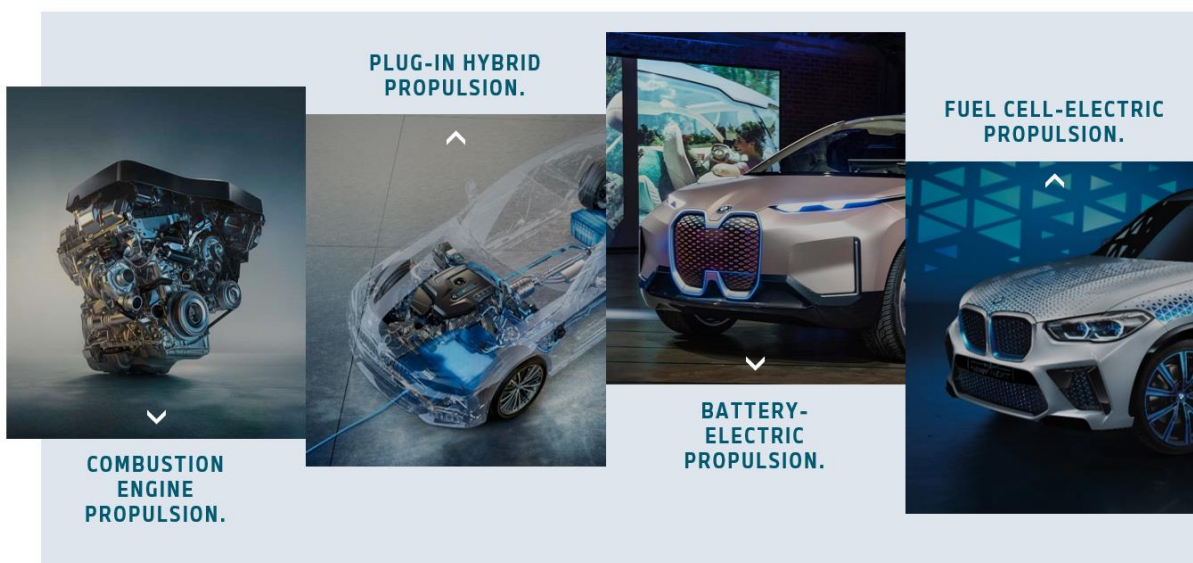
► European Union

Carbon emission fleet regulation for new cars is at the very centre of the European Union's (EU) climate policy. Following an extensive decision-making process in 2021 and 2022, both in the EU Parliament and on the part of the 27 EU member states, an agreement was reached on a carbon reduction target of 55% for new passenger cars and 50% for light trucks by 2030, compared to 2021 as the base year. It was also decided that newly registered vehicles in these classes should be emission-free by 2035, which equates to a 100% reduction in fleet carbon emissions.

The BMW Group has been closely involved in this political decision-making process, both at association level and as an individual enterprise. The focus fell in particular on the cornerstones needed to implement these targets, namely the expansion of charging infrastructure, the availability of renewable energy and reliable access to key raw materials even in times of crisis.

As in previous years, the BMW Group again surpassed its carbon emission targets in the EU in 2022. The reduction target of -55% by 2030 was accepted as feasible early on, as the BMW Group has been making consistent strides towards electromobility since the market launch of the BMW i3 in 2013. However, the BMW Group has not seen the necessary framework conditions being put in place to achieve the carbon target adopted for 2035. It is the view of the BMW Group that each type of drive must be allowed to play its part in decarbonisation with continued openness to different technologies. Certainly, effective climate protection implies the systematic use of all available technologies with ongoing improvements, rather than simply setting a long-term target. Hydrogen-electric vehicles are the ideal complement to solely battery-powered vehicles, as a system with two complementary all-electric drive systems increases resilience and should convince greater numbers of customers to make the switch to electric vehicles.

Achieving the target set for 2030 already presupposes a vast increase in electric vehicles where two out of three newly registered vehicles in the EU will have to be electric vehicles.



In view of significant uncertainties with regard to the required framework conditions, no drive train technology can currently be ruled out.

The legislative initiatives on the public charging infrastructure (Alternative Fuel Infrastructure Regulation, or AFIR) and the private charging infrastructure (Energy Performance of Buildings Directive, or EPBD), which are being negotiated concurrently, are failing to keep pace with the high level of ambition expressed in CO₂ fleet regulation. Both initiatives lag far behind the level of ambition needed to successfully ramp up electromobility, which in turn risks a severely inadequate charging network from the customer's perspective.

In 2022, the second year of his ACEA presidency, Oliver Zipse, Chairman of the Board of Management of the BMW AG, continued to hold talks with a number of EU commissioners and parliamentarians on the "Fit for 55" legislative package and other relevant dossiers. A range of topics were up for discussion, including the need to follow up CO₂ fleet targets in the EU with an equivalent expansion of the charging infrastructure as well as the design of an ambitious, effective and yet realistic Euro7 passenger car emissions standard.

The BMW Group also affirms that achieving the climate targets requires a holistic approach to CO₂ reduction across the entire value chain. In particular, this includes efforts to establish a circular economy. With this in mind, the company is committed to achieving international standards and harmonising carbon emissions recording.

► USA

In the United States vehicle emissions and related fuel economy standards are regulated at both the state and federal level. At the federal level, the US Environmental Protection Agency (EPA) regulates vehicle emission criteria, including CO₂, pursuant to authority granted by the federal Clean Air Act (CAA). The National Highway Traffic and Safety Administration (NHTSA) regulates motor vehicle fuel efficiency standards pursuant to authority granted under the Energy Policy and Conservation Act of 1975 (EPCA). At the state level, California vehicle emissions are regulated by the California Air Resources Board (CARB). CARB is the lead agency for climate change programs and oversees all air pollution control efforts in California to attain and maintain health-based air quality standards.

BMW of North America continues to be in alliance with the State of California in adherence to the California Framework Agreement, signed in 2019, which put into place significantly higher stringency levels than the GHG levels of the former Trump Administration. The continued cooperation with California has allowed the

BMW Group to enhance its already constructive working-level dialogue with both the California Air Resources Board and the EPA.

In 2022, CARB unanimously passed the Advanced Clean Cars 2 (ACC2) regulations – notably the decision to enforce 100 percent zero emission vehicle (ZEV) sales from 2035*) in California and to codify Governor Newsom’s Executive Order. California’s Office of Administrative Law approved the regulation in November 2022. ACC2 will be implemented in 2026 and will impact vehicle model years 2026 – 2035.

On 12 April 2023, the EPA announced the highly anticipated Notice of Proposed Rulemaking (NPRM) regarding the Green House Gas (GHG) emission standards and the Tier 4 federal emission regulation for model years 2027 to 2032.

The proposed rule aims to reduce the average fleet target for new passenger cars and light trucks to 102g/mile in 2030 and 82 g/mile in 2032. EPA assumes as basis for the feasibility calculation an EV rate of 60% in 2030 and a 67% EV share by 2032. The proposal would provide an average year-over-year stringency of minus 13% through the rulemaking timeframe.

As always, BMW of North America is in direct discussions with our partners at the EPA, CARB and NHTSA. These are valuable and critical conversations regarding the technical aspects of the proposals and rules put out by the agencies. Like in the EU, the main concern of the BMW Group is that preconditions like green energy resources, charging infrastructure and the critical mineral supply chain could not sufficiently be in place within the projected timeframe.

Finally, in 2022, during the consideration of the Inflation Reduction Act (IRA), specifically the extension of the 30(d) EV consumer incentives and the general transition to sustainable mobility, the industry was pivotal in determining the path forward on electric vehicle consumer incentives. The sector has advocated for the extension of tax benefits for electrified vehicles while working to ensure all makes, models and consumers would be eligible for the incentives to further increase consumer acceptance.

*) includes BEV, qualifying PHEV and H₂ FCEV

► **China**

In China, the fuel efficiency of the vehicle fleet is also regulated. For 2020, an average fleet consumption target of 5 liters per 100 kilometers was set. The consumption limits refer to the standardized test cycle NEDC (New European Driving Cycle). A fuel consumption standard for 2021 to 2025 in China was released in 2019. 4.6 liters per 100 kilometers is set as the target for 2025, under the new test cycle of WLTC (Worldwide Harmonized Light-duty Test Cycle). From 2021 onwards, the test cycle for internal combustion engine vehicles and PHEVs switched from NEDC to WLTC, whereas BEVs transitioned from NEDC to China cycle (CLTC). The introduction of a New Energy Vehicle (NEV) mandate started in 2018. The NEV mandate for 2021 to 2023 was officially released and set the NEV quota to 14% in 2021, 16% in 2022 and 18% in 2023. The NEV volume in new car sales is expected to reach 20% in 2025 in the passenger vehicle segment as national target.

Above and beyond national regulations, measures are increasingly being taken at regional and municipal levels. Varying requirements for drive-train technologies will start to have considerable influence on product strategy (e.g. the limited quota on ICE vehicle registration plates in Chinese metropolitan areas while offering waivers for NEVs).

At several meetings, the BMW Group spoke with representatives of the Chinese government about climate policy, e.g. with the Ministry of Industry and Information Technology and the Ministry of Commerce. The focus was on the further expansion of fast charging stations, incentives for increasing the market acceptance of electric vehicles, and the decarbonisation of supply chains.

During the 2021 World NEV Congress, the BMW Group suggested policies on continuing government incentives for NEVs to support the market uptake, remove unnecessary technical requirements for such vehicles and advocated for transparent local requirements for a swift and reliable NEV ramp up. The

BMW Group also supports a clear direction for a high-power charging roadmap in China to further support acceptance and usability of NEVs.

The BMW Group officially co-chaired the 2021 China Development Forum that gathered executives of over one hundred foreign corporations. Oliver Zipse, Chairman of the Board of Management of BMW AG, represented the international delegation, where he proposed the establishment of a joint platform to promote low-carbon supply chains, which subsequently has been implemented.

At the China Electric Vehicle Association's (EV100) 2022 annual conference, a global initiative to promote the scaling up of electromobility and the expansion of charging infrastructure, the BMW Group outlined its perspective and actions towards a sustainable future at a Chinese and international level, sharing its carbon reduction targets throughout the entire vehicle lifecycle and the company's vision on circular economy. The BMW Group also advocated for a predictable decarbonization policy scheme, for collaboration amongst policy makers, businesses and research institutes, and government's enhanced efforts in infrastructure for e-mobility.

At the 2023 EV100 annual conference, BMW Group called for joint efforts from energy industry, infrastructure providers, and automotive OEMs to define the technology roadmap and to facilitate green energy integration with NEV. Green hydrogen as well as easy and reliable access to refueling network is advocated to speed up fuel cell electric vehicle (FCEV) relevance to passenger vehicle customers.

BMW AG, May 2023

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