

# VOLKSWAGEN

GROUP OF AMERICA

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## Comments on the California Air Resources Board Proposed Advanced Clean Cars II Amendments

To the Clean Cars Staff at the California Air Resources Board,

Volkswagen Group of America, Inc. (Volkswagen) is a wholly owned subsidiary of Volkswagen AG, one of the world's leading automobile manufacturers and the largest carmaker in Europe. Volkswagen houses the U.S. operations of a worldwide family of distinguished and exciting brands including Audi, Bentley, Lamborghini, and Volkswagen. Volkswagen is the sole importer and distributor of Bugatti and Bugatti Rimac vehicles in the U.S. Volkswagen operates a state-of-the-art assembly facility in Chattanooga, Tennessee. Volkswagen is pleased to submit the following written comments regarding potential amendments to the Advanced Clean Cars II (ACC II) regulations. In addition to these specific comments, Volkswagen participated in the development of the comments submitted by the Alliance for Automotive Innovation (AAI) and supports those comments and positions.

Volkswagen is committed to electrification as evidenced by the support of future reductions in light-duty greenhouse emissions through its California Framework agreement and recognizes California's authority to regulate greenhouse gas emissions in support of its climate and air quality targets. There are clear benefits to aligning and harmonizing Federal and State policies to the greatest extent possible to effectively meet these necessary aggressive environmental goals.

Successful consumer adoption of electric vehicles (EVs) hinges on the cohesiveness of these programs and others defined by President Biden's Investing in America Agenda. Volkswagen has invested in a global electrification strategy that will provide an increasing variety of EVs with greater utility, higher ranges and at attainable costs to U.S. customers. To ensure electrification reaches its full potential, State and Federal programs are required to support, not only the supply of, but also the consumer demand for EVs.

## **Proposed Amendments**

Program harmonization is paramount for a smooth transition to a successfully electrified market. Volkswagen supports CARB's commitment to reducing light-duty criteria and CO<sub>2</sub> emissions, and CARB's alignment with other Federal programs. CARB intends to align, where possible, with the EPA Multi-Pollutant Rule when finalized. However, the historically ambitious and stringent standards proposed by EPA heavily rely on equal commitment of segments on the periphery of the automotive manufacturers (e.g., infrastructure development, local and state vehicle and utility rebates/incentive programs further supporting consumer adoption). Sustained, complementary and supportive policy is foundational to forming the cross-sector platform required to scale up EV growth and infrastructure.

## **CA GHG Standards**

### **Alignment with EPA's Finalized Multi-Pollutant Rule**

CARB has proposed utilizing EPA's finalized Multi-Pollutant Rule as the basis for a new phase of California GHG rulemaking. Volkswagen supports CARB's intent to align with Federal programs; however, EPA's proposed rule is overly stringent and extremely ambitious. Manufacturers cannot focus significant investment and development efforts on vehicle electrification, while simultaneously making overly stringent emissions reductions. Volkswagen agrees with AFAI that additional CARB-specific GHG regulations as a backstop are unnecessary and agrees that related program complexities (additional certification, test procedures, data reporting, etc.) will increase costs for both manufacturers and consumers while diverting resources away from electrification transition. Volkswagen requests that CARB and EPA work together to align on programs to reduce complexity in Federal and State programs, therefore eliminating specific reporting burdens and redundancies.

### **Potential Mechanisms to Prevent GHG Backsliding**

CARB requested input regarding additional California GHG regulations. Volkswagen suggests that an effective alternative to any performance based GHG standard is to set the focus completely on the ZEV mandate and to combine it with a *de minimis* GHG emission back-stop for the remaining non-electrified portion of the fleet ensuring that GHG performance is maintained.

Volkswagen recognizes that these comments do not provide exact suggestions for structure and requirements of a potential anti-backsliding GHG approach, however, Volkswagen requests further discussion to combine the existing ZEV Mandate with a backstop GHG regulation that does not require further year-over-year decreases in stringency. This will support CARB's ultimate objective towards a fully zero-emission fleet target while avoiding complexities for GHG optimization of the internal combustion engine (ICE) fleet and diverting resources away from EV implementation.

### **GHG Fleet Average**

CARB requested feedback on implementing a new GHG program. EPA's proposed Multi-Pollutant Rule excludes plug-in hybrid electric vehicle (PHEV) electric operation in their GHG fleet average. Volkswagen recommends that CARB include PHEV electric operation in the GHG fleet average requirement of any new GHG program. Volkswagen opposes adoption of a version of EPA's proposed Multi-Pollutant Rule that excludes PHEV electric operation.

## **PHEV Utility Factor**

CARB is seeking input and additional data regarding the PHEV fleet utility factor (FUF). In addition to AFAI's comments regarding FUF, Volkswagen requests CARB align with PHEV fleet requirements in EPA's finalized Multi-Pollutant Rule. As stated in Volkswagen's comments on EPA's proposed Multi-Pollutant Rule, there are ongoing discussions in the U.S. and Europe to modify the FUF. Both regions are comparing the current FUF with newly collected real world data. Europe is updating its FUF on January 1<sup>st</sup>, 2028<sup>1</sup>. The methodology and the factor defined in the legislation will be dependent upon data collected over the next several years. Volkswagen recommends that the current FUF remain in place until this new data is incorporated.

## **A/C Leakage Credits**

CARB proposes an A/C leakage design requirement or standard. Volkswagen supports continuing leakage credits, as do the comments provided by AFAI. Maintaining an A/C leakage credit program further encourages manufacturers to invest and develop improved A/C systems. For example, Volkswagen utilizes R744 in A/C systems, which has a global warming potential (GWP) of 1. Volkswagen recommends that CARB deem refrigerants with a low GWP automatically receive full credit.

## **Ethanol**

CARB has requested input on the availability of ethanol (i.e., E-85) at fueling stations, its GHG and equity impacts, and the costs associated with retrofitting vehicles to have flex-fuel capacity. Volkswagen requests that CARB does not require flex-fuel vehicles (FFV), or modification packages necessary to retrofit vehicles into flex-fuel compatible. A failed, third-party modified FFV is an overall detriment to the environment, when compared to the minor benefit FFVs provide in emissions reductions. Volkswagen supports low carbon liquid fuel as an *optional* incentive for GHG emission reduction.

## **LEV IV**

Volkswagen requests harmonization between California's LEV IV regulation and EPA's regulations to enable manufacturers to focus on a single technical solution for the U.S. market. As stated in AFAI's comments, EPA's proposed Multi-Pollutant Rule is concerning due to its misalignment with CARB's already finalized ACC II regulations. Alignment between Federal and State regulations is imperative. Volkswagen agrees with AFAI that, once EPA issues its final regulation, CARB align its LEV IV requirements as appropriate, subject to the exceptions noted below.

## **Harmonization of Bin Structure**

CARB's LEV IV regulation includes Bin 15 and Bin 25, but EPA's proposed Multi-Pollutant Rule does not include these Bins. Volkswagen suggests that CARB and EPA align their Bin structures. Additionally, the fleet average cannot be aligned unless the Bin structure is aligned. Lack of coordination between the programs yields additional testing burdens and certification misalignment. Volkswagen agrees with AFAI that CARB should ensure the bins available in Tier 4 are also available in LEV IV.

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<sup>1</sup> Commission Regulation (EU) 2023/443 of 8 February 2023 amending Regulation (EU) 2017/1151 as regards the emission type approval procedures for light passenger and commercial vehicles [Regulation - 2023/443 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/eli/reg/2023/443/oj)

## **Particulate Matter (PM)**

CARB finalized a 1 mg/mile standard in its LEV IV regulation. EPA's Multi-Pollutant Rule proposes a 0.5 mg/mile standard for light-duty vehicles that must be met across three test cycles, creating additional burden on manufacturers. This includes significant facility investment for improved accuracy and application for various environmental conditions, infrastructure, and expensive (not readily available) technology that will result in higher-priced vehicles.

Volkswagen is continuing to mitigate PM pollution by phase-in of gasoline particulate filter (GPF) technology. Volkswagen requests that CARB maintains its PM standard and not align with EPA's proposed Multi-Pollutant Rule, as there is a lack of environmental value beyond a 1 mg/mile standard.

## **ZEV Assurance Measures & ZEV III**

### **Data Standardization**

Volkswagen requests that CARB adopt an extended phase-in for the Data Standardization requirements (1962.5). CARB finalized a two-year phase-in that starts at 40 percent in MY2026 and is fully phased-in, at 100 percent, in MY2027. This is not a feasible transition for the reasons stated below. Volkswagen suggests a four-year extended phase-in starting in MY2026 with a 40/60/80/100 percent requirement, and a fully phased-in requirement in MY2029. Further, carryover and newly introduced MY2027 vehicles would require infeasible cycle-plan software updates. The originally proposed phase-in from CARB will deter new models from being introduced into the market and may require cancelling some carryover models, due to this requirement.

The proposed four-year phase-in would allow for new model introductions and continuation of end-of-production of current models while still retaining environmental benefits of these carryover EVs. It also provides CARB more time to analyze and review the data and implementation as best fits for all key players. The focus on new projects will allow Volkswagen to maintain current offerings while allowing rapid deployment of new ZEV offerings.

### **Battery State of Health (SOH)**

Batteries degrade over time. Knowing and monitoring a battery's SOH, while insightful, may only be a short-term solution. Volkswagen agrees that a percentage of degradation threshold should be transparent to the customer, however high resolution between new battery SOH and the warranty threshold is of less value. Vehicle electrification is evolving and technological advancements towards solid-state batteries are being made. Future technology degradation performance will improve. Perfecting an algorithm that solves a temporary concern could prove futile on a technology that may quickly become obsolete.

### **Harmonization of SOH Requirements**

Volkswagen requests harmonization of CARB's SOH requirements with EPA's proposed Multi-Pollutant Rule requirements. CARB's ACC II SOH requirements define use from mileage alone, while EPA's proposed Multi-Pollutant Rule defines usage as mileage and virtual mileage. This results in differing references for durability. CARB does not define vehicle to 'x' (V2X: vehicle to grid, home, etc.) usage, only via an excessive usage approach. Therefore, the manufacturer needs to implement a safety buffer into the battery, to consider the V2X usage of customers, and subsequent over-aging impacts.

Volkswagen would like to bring attention to the discrepancy between EPA's proposed Multi-Pollutant Rule and the requirements of CARB's ACC II SOH regulation as it relates to the treatment of how battery reserve capacity is utilized. CARB's ACC II regulation utilizes the SOH calculation that includes the reserve capacity (SAE J1979-DA).<sup>2</sup> This would require displaying two different health monitor results when a reserve capacity is used. Note that EPA's proposed Multi-Pollutant Rule adheres to the United Nations Global Technical Regulation on In-Vehicle Battery Durability for Electrified Vehicles ("GTR 22"),<sup>3</sup> which excludes battery reserve capacity in the SOH calculation. Leaving out reserve capacity adds no environmental advantage and could easily lead to confusion for consumers. Volkswagen strongly encourages CARB to work with EPA to collaborate on a single solution regarding SOH approach.

### **In-Use**

The current ACC II regulations and proposed EPA Multi-Pollutant requirements for in-use verification procedures have varying statistical methods. CARB has an ACC II-specific statistical method, with unique parameters to test a minimum of ten vehicles. Alternatively, EPA has proposed utilizing the GTR 22 method, involving more in-depth testing. This creates a critical issue as two vastly different approaches may exist for the same requirement. There could be variability between these results of the statistical methods. Volkswagen recommends that CARB and EPA align to have one harmonized approach.

Various excessive usage exemptions are listed in the ACC II regulations. Volkswagen requests CARB consider above average energy throughput (high-rate charge, high-rate discharge) as excessive usage. It is widely known, based on data collected, that excessive energy throughput is a significant contributor to battery degradation.

There is no required range testing in current ACC II regulations (1962.7). Manufacturers are to submit a Sampling Plan with a proposed sampling method meeting the sample size requirements. The data requirements for each vehicle could be collected OTA. Volkswagen proposes that CARB allow for data collection to be performed outside of the laboratory (i.e., OTA when available).

### **Usage of Converted ZEV Credits**

ACC II's ZEV III Mandate starts in MY2026 with a 35% requirement in ZEVs delivered for sale. This is a 13% increase from the requirement in MY2025. ZEV III has provisions prohibiting the use of converted credits (from ZEV II) unless a deficit exists. Volkswagen sees this as a critical flexibility and requests that CARB allow converted credits to be utilized whenever needed without expiration.

### **Battery Labeling**

CARB finalized battery labeling requirements (1962.6) for BEVs and PHEVs, starting in MY2026. Though CARB's labeling requirements are unique; Europe has a similar requirement, the EU Battery Passport (EU 2023/1542),<sup>4</sup> involving more data and various steps, starting after February 18, 2027. As a global automotive manufacturer with significant volume in Europe, it is critical that our internal processes are harmonized and coordinated to reduce complexity and therefore the possibility of inaccuracies. The

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<sup>2</sup> SAE J1979-DA, Digital Annex of E/E Diagnostic Test Modes. (May 2023).

<sup>3</sup> [https://unece.org/sites/default/files/2023-01/ECE\\_TRANS\\_180a22e.pdf](https://unece.org/sites/default/files/2023-01/ECE_TRANS_180a22e.pdf)

<sup>4</sup> Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC (Text with EEA relevance). (2023). Official Journal, L 191, 1-117. ELI: <http://data.europa.eu/eli/reg/2023/1542/oj/legislation>

1962.6 requirements will cause duplicative work streams, without producing any additional benefit to consumers. Volkswagen requests that CARB allow for a deemed to comply mechanism if precursory steps to EU Battery Passport are met. Volkswagen also requests that CARB both coordinate and align its rule with the EU requirements and allow for phased-in implementation dates.

### **Charging Requirements & Interoperability**

Beginning in 2026, CARB requires charging cords to be provided in BEVs and PHEVs. If a charger does not meet SAE J1772<sup>5</sup> standards, an adaptor must also be provided. Any adaptor in the interim, until SAE standards are adopted, should not be the responsibility of the manufacturer, but rather the responsibility of the consumer or the charging infrastructure provider. Volkswagen requests that CARB adopt SAE J3400<sup>6</sup> (NACS), when finalized, as the industry standard for charging requirements. This would eliminate some inconsistency with charging interoperability, leading to fewer consumer usage concerns. Furthermore, Volkswagen agrees with the comments provided by AFAI, and looks forward to future coordination with CARB and industry experts on interoperability.

### **Environmental Performance Label**

Volkswagen is aligned with AFAI's comments regarding an Environmental Performance Label. Vehicle electrification is the future. Understandably, consumers need metrics to better comprehend the vehicles they intend to purchase, and how exactly they will operate. Volkswagen requests CARB coordinate with Federal agencies regarding consumer-facing labels.

EVs are a rapidly evolving technology. It is unknown which requirements consumers may need to understand the performance of their new vehicle. Further, new information is not always significant, and the updated Petroleum Equivalency Factor (PEF) will optically change the same vehicle's efficiency year-over-year. Volkswagen requests that CARB provide clear and consistent requirements, so that consumers do not get confused if information varies across manufacturers and from year to year.

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<sup>5</sup> SAE J1772 - SAE Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charge Coupler. (October 2017).

<sup>6</sup> SAE J3400 - NACS Electric Vehicle Coupler. (December 2023).

Volkswagen appreciates the opportunity to provide comments and feedback to CARB on the ACC II regulatory package amendments. Thank you for your consideration of these comments. Should you have any questions, please contact Emma Oshnock (Emma.Oshnock@vw.com) or me directly.

Sincerely,

Rob Sutschek

Vice President, Engineering and Environmental Office

Volkswagen Group of America, Inc.