



May 31, 2022

Ms. Liane Randolph
Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Stellantis Comments on CARB's Advanced Clean Cars II

Stellantis respectfully submits the following comments in response to CARB's proposed Advanced Clean Cars II rule. Stellantis also helped compile and supports the comments submitted by the Alliance for Automotive Innovation (AAI).

Introduction to Stellantis

On January 16, 2021, Fiat Chrysler Automobiles N.V. merged with Peugeot S.A. The following day, the newly merged entity changed its name to Stellantis N.V.¹ The merger allows for the efficient allocation of resources for large-scale investments in platforms, powertrains and technology. The merged entity makes Stellantis a leading global mobility player guided by a clear mission: to provide freedom of movement for all – through electrified vehicles, autonomous driving and digital connectivity. Stellantis employs more than 61,000 workers in the U.S., including more than 46,000 UAW partners, and produces over 1.4 million vehicles domestically every year.

Our Company's strength lies in the breadth of our iconic brand portfolio and our deep roots and commitment to the communities in which we operate. Stellantis designs, manufactures, and sells or distributes vehicles in North America under the Chrysler, Dodge, Jeep, Ram, Fiat, Alfa Romeo and Maserati brands. Since 2009, the Company has created more than 30,000 jobs, including 22,500 hourly positions. In July 2021, Stellantis committed to invest over \$30 billion globally in vehicle electrification to help reduce greenhouse gas emissions – an important consideration for our customers, U.S. energy security, and the environment.

Stellantis is Committed to Developing the Needed Electrified Products

On July 8th, 2021, Stellantis reconfirmed its commitment to spend over \$30 billion to support a targeted 40% electric vehicle mix – consisting of plug-in hybrid and battery electric vehicles – in the U.S. by 2030. This includes investments in developing four all-new electric platforms. These platforms will unlock new facets of our brands, taking their efficiency and performance to the next level.

On August 5th, 2021, Stellantis, the UAW, and others from industry joined President Biden at the White House and supported his new call to achieve 40-50% electrified vehicle sales by 2030. These are ambitious targets that will require a comprehensive strategy to build a robust market. Stellantis is committed to do its part to execute an unprecedented transformation of our products to support President Biden's U.S. electrification targets, and we are optimistic that other stakeholders will do their part to help drive consumer demand or remove barriers to EV market success.

¹ Despite the merger, FCA US LLC remains the primary subsidiary doing business in the United States. The company is hereinafter referred to as "Stellantis."

The Transition to 100% Electrification Will Need an All-In Approach

The proposed Advanced Clean Cars II rule requires transforming the electric vehicle market. In California, the state with the most successful electric vehicle market, the rule proposes to more than triple the current new EV sales rate in its first year. In states that follow California's rules and where EV markets are less developed, the proposed standard for 2026MY would be an even greater increase, starting just three model years from today. Moving further into the future, the proposed 68% sales requirement in 2030 is a 36% increase over the highest goals set out on the national level by federal agencies in 2021.

While these targets will be challenging, Stellantis is committed to meet this challenge and have products in place that will meet consumer needs and technical requirements. However, it will take more than actions by manufacturers and the mandates of the proposed rule alone to create a successful electric vehicle market. Meeting the goals of the Advanced Clean Cars II program will take support from all stakeholders.

We are committed to an electrified future, as shown by our significant investments and commitments mentioned above. In turn, we are relying on a commitment from the California government and all stakeholders to support the full suite of policies and actions necessary to further enable EV market growth. While CARB is not directly responsible for all of these needed actions, the unprecedented increases in electrification required by rule cannot happen without enabling market actions:

Continued Support for EV Incentives at Point of Purchase - EV technology continues to cost thousands more than comparable internal combustion engine (ICE) models,² making affordability a key headwind to increased sales. For many popular vehicle segments, price parity between EVs and internal combustion engine vehicles may not be achieved until 2030 or later – a projection highly dependent on future battery costs.

Financial incentives have shown to be effective in overcoming this gap, and California has historically been a leader in creating and maintaining incentive programs for EV technology. For instance, the Clean Vehicle Rebate Project (CVRP) has issued over \$1 billion in EV rebates to consumers to date.³ Looking forward to the timeframe of this rulemaking, the greatest market transformation is yet to come, and California must continue to be a leader in its vehicle incentives. Unfortunately, the recent CVRP changes have limited the vehicles eligible to receive a rebate, and the California Clean Fuel Reward (CFR) incentive for PHEVs and BEVs was cut in half. Changes like these make the programs less predictable for consumers and exclude key market-enabling technologies (like PHEVs) at a time when we need to grow the EV market as much as possible. Predictable, point-of-sale incentives are necessary to close the cost gap between electrified technology and traditional ICEs.

Expand and Scale the Charging Network to EV Volumes Required by Proposed Rule - Availability and accessibility of an electric vehicle refueling infrastructure are critical to address consumer concerns over range limitations and re-fueling access, both key barriers to EV market growth. The recent California Energy Commission's Electric Vehicle Charging Infrastructure Assessment projects that for passenger vehicles, over 700,000 chargers are needed to support 5 million ZEVs and nearly 1.2 million public and shared private chargers are needed to support almost 8 million ZEVs by 2030 – a significant increase from the estimated 70,000 public and shared private chargers in place as of January 4, 2021.⁴ California's state and local

² National Academies of Sciences, Engineering, and Medicine, *Assessment of Technologies for Improving Light-Duty Vehicle Fuel Economy 2025-2035*, Washington, DC: The National Academies Press, (2021): 5-139. Available at <https://doi.org/10.17226/26092>.

³ California Clean Vehicle Rebate Project, "Rebate Map." Available at <https://cleanvehiclerebate.org/en/rebate-map> (accessed May 16, 2022).

⁴ California Energy Commission, *Electric Vehicle Charging Infrastructure Assessment - AB 2127*, Commission Report (July 14, 2021). Available at: <https://www.energy.ca.gov/programs-and-topics/programs/electric-vehicle-charging-infrastructure-assessment-ab-2127>.

governments, together with regional charging companies and utilities, need to establish a comprehensive charging infrastructure plan to meet these needs and provide confidence to potential EV consumers.

Implement Fleet Purchase Requirements - Over 8 million cars and trucks are owned by fleet operators in the U.S. today.⁵ Fleets are generally more suitable to early electrification because of consistent routes and centralized charging points – where it is easier to predict and plan for the total infrastructure needs. In the medium- and heavy- duty sectors, California is implementing the Advanced Clean Fleets rule, a fleet purchase requirement intended to help build this part of the market. This same approach should be considered in the light-duty segment for public and private fleets to further promote the needed transition to electrification.

Expand LCFS to Support ZEV Purchase and Infrastructure Incentives - The California Low Carbon Fuel Standard (LCFS) is designed to reduce the carbon intensity of California’s transportation fuel pool, thereby reducing GHG emissions from the use of transportation fuels. The LCFS funds the CFR that incentivizes ZEV sales and infrastructure deployment. The CFR launched in November 2020 and has provided more than \$319 million in rewards to more than 250,000 Californians leasing or purchasing a new EV. Successful programs like this should be expanded through additional revenue sources in support of EV purchase incentives. LCFS can also help improve the availability of ZEV refueling infrastructure, a critical barrier to addressing customer concerns over range limitation and refueling access. LCFS ZEV infrastructure credits help support ZEV infrastructure deployment. California should look for ways to expand LCFS ZEV infrastructure credit programs.

Increase EV Awareness and Education for Consumers - Educating consumers on the benefit of EVs is needed. Additional efforts such as Veloz’s “Electric for All” campaign in California need to be expanded. Stellantis continues to participate as a member of Veloz, recognizing that programs like it foster collaboration among a broad group of stakeholders to help understand and overcome critical barriers and promote the purchase of EVs nationwide.

Stellantis Recommendations

Stellantis has worked with industry and CARB staff throughout the ACC II rulemaking process and is ready to continue that work to ensure the final rule achieves our mutual goals and does not ignore the necessary technologies (i.e., PHEV). Stellantis offers the following recommendations specific to ZEV battery durability, PHEV technical requirements, and medium-duty PEMS.

ZEV Battery Durability

The new durability proposal for battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs) requires at least 80% of original certified range for 10 years or 150,000 miles, whichever occurs first. The decrease in EV range is due to unavoidable battery degradation (i.e., loss of useable battery energy). We agree with AAI’s comments that current commercially available battery technology does not exist to meet the proposed ZEV durability requirements.

Without changes to the proposed regulation, manufacturers will be forced to restrict the total battery energy available to customers resulting in reduced range. To maintain the intended range OEMs would need to redesign the vehicle to incorporate more battery capacity. This will result in higher cost, reduced vehicle efficiency due to increased battery weight, and additional stress on limited critical mineral supply. In either case the customer will pay for capability that they will not be able to realize.

Stellantis agrees with AAI comments and recommends that CARB realign their durability requirements with the United Nations In-Vehicle Battery Durability Global Technical Regulations (UN GTR) recently published on April

⁵ Bureau of Transportation Statistics, “U.S. Automobile and Truck Fleets by Use,” United States Department of Transportation. Available at <https://www.bts.gov/content/us-automobile-and-truck-fleets-use-thousands> (accessed September 9, 2021).

19, 2022.⁶ While the ability to achieve the UN GTR $\geq 70\%$ remaining useable battery energy for 8 years or 100,000 miles will be challenging, this requirement was co-developed with industry and regulatory agencies over the past few years. Aligning to the global technical regulation will also streamline design requirements, avoid a patchwork of requirements, and provide data to enable future consideration of a range durability requirement. Regulatory bodies from the European Commission, United Kingdom, and Japan have indicated their intention to adopt UN GTR recommendations and more countries are expected to follow in their future regulations.

PHEV Technical Requirements

Class 2a vehicles, such as large SUVs and pickups, represent a segment of the market that will be challenging to electrify given unique needs for higher payload and towing long distances. PHEV technology can provide this capability and can serve as a bridge for consumers to a fully electrified product. We agree with AAI's comments that the 26-28MY PHEV partial ZEV credit allowance should be extended for Class 2a PHEVs by two model years through 30MY. This will allow further innovation and development time to improve battery technology (increase energy density) and focus on a more cost-effective implementation (reduce battery cost). This extension would also serve to increase consumer confidence with electrification while still providing environmental improvements.

Medium-Duty PEMS

The proposed rule includes new, more stringent on-cycle FTP/SFTP requirements for medium-duty vehicle (MDV) chassis certified vehicles. Additionally, MDVs with a GCWR over 14,000 lbs. are required to meet in-use standards not based upon the new FTP/SFTP chassis requirements, but instead based on a new test procedure and standards from CARB's engine-only Heavy-Duty Low NOx Omnibus regulation. To date, technical feasibility for MDVs has not been demonstrated for the proposed in-use PEMS requirements. Similarly, industry has highlighted significant concerns with meeting the 2027MY step to 0.020 g/bhp-hr NOx level in CARB's Omnibus regulation.⁷

Criteria emissions requirements between heavy-duty engine certified and medium-duty chassis certified vehicles are not equivalent. Medium-duty requirements emphasize cold start emissions (higher cold emissions weighting) versus heavy-duty requirements that are focused on higher load operation. As a result, engine and emissions systems for medium-duty chassis certified applications are fundamentally different.

Additional research and development are needed, well beyond the scope of calibration or controls changes, to design all-new engines and aftertreatment systems that meet a combination of ACCII and heavy-duty Omnibus Low NOx PEMS requirements for medium-duty vehicles. Stellantis recommends that CARB update the proposed rule to allow the same phase-in approach included in the 24-26MY heavy-duty Omnibus regulation starting in 27MY at 0.050 g/bhp-hr NOx with a Conformity Factor of 2.0 for the first three model years (27-29MY). We also recommend that CARB include compliance testing "guard-rails" to represent typical use and avoid over-focus on "corner-case" (max engine power / max road grade) testing for the entire PEMS test duration (i.e., $\leq 5\%$ total test time above 90% GCWR and $\geq 5\%$ grade). As proposed, the current PEMS Moving Average Window test procedure and emissions limits will drive significant investment that risks diverting resources that are otherwise focused on electrification efforts.

⁶ UN GTR No.22, "In-vehicle Battery Durability for Electrified Vehicles," UNECE (April 19, 2022). Available at:

<https://unece.org/transport/documents/2022/04/standards/un-gtr-no22-vehicle-battery-durability-electrified-vehicles>

⁷ Truck & Engine Manufacturers Association, "EMA Comments on CARB's HD Engine and Vehicle Omnibus Regulation and Associated Amendments," (August 13, 2020), p. 3. Available at: https://www.arb.ca.gov/lispub/comm/iframe_bccomdisp.php?listname=hdomnibus2020&comment_num=8&virt_num=7

Conclusion

Stellantis is committed to executing an electrified future pledging over \$30 billion of investment through 2025 to electrify all 14 Stellantis brands offering best in class solutions. Our actions and the proposed sales quotas will require a host of other stakeholders and complimentary policies to help create a robust ZEV market and meet our electrification goals.

We offer our three main technical recommendations to the proposed rule in the areas of ZEV battery durability, PHEV technical requirements, and medium-duty PEMS. In addition to the above recommendations, Stellantis supports the comments made by the Alliance for Automotive Innovation, including but not limited to the topics of battery durability, ZEV market enablers, and criteria stringency limitations.

We thank CARB staff for their engagement on this rule and for their consideration of our recommendations.



Thomas McCarthy
Head of Technical Safety and Regulatory Compliance
Technical Safety and Regulatory Compliance
Stellantis