

July 26, 2024

Belinda Chen
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Lucid Comments on the Advanced Clean Cars II (ACC II) Amendments Second Public Workshop

Dear Ms. Chen:

Please find below the comments of Lucid Group, Inc. (Lucid) in response to the June 26, 2024, ACC II Second Public Workshop. Lucid appreciates the opportunity to comment and supports CARB revisiting ACC II to incorporate greenhouse gas (GHG) emissions standards and minor adjustments to the ZEV regulations, including new ZEV labeling metrics. In response to the workshop materials, we offer the following high-level comments and recommendations, which are elaborated upon below:

1. We encourage CARB to support state goals through strong GHG standards that align with California’s ZEV ambitions, avoid backsliding and account for the costs of direct air capture (DAC) associated with the ongoing use of internal combustion engine (ICE) vehicles.
2. We recommend directly linking the ZEV and GHG provisions of ACC II through a new GHG-ZEV under compliance mechanism.
3. We support changes that reflect recent conclusions that PHEVs produce greater emissions than currently assumed in the regulation.
4. We support new ZEV label metrics that elevate ZEV efficiency, charge speed, and other aspects of a ZEV impacting consumer buying decisions.

Finally, we appreciate the opportunity to provide input on the forthcoming SRIA, and we encourage CARB to incorporate the concepts presented here into the SRIA analysis.

Our Mission and Technology

Lucid is a California-based electric vehicle manufacturer, with headquarters in Newark, CA. Our flagship vehicle, Lucid Air, is the world’s most powerful and efficient electric sedan with a range of 516 miles and the ability to charge 200 miles in 12 minutes. With efficiency at its core, the Lucid Air Grand Touring can travel 4.6 miles per kilowatt hour (m/kWh)—a remarkable achievement for a vehicle with a full-size interior space in a mid-size exterior footprint. That same technology has led to the production of our Air Pure RWD, which can charge up to 150 miles in 12 minutes, has an EPA-estimated range of 419 miles, and can travel an EPA-certified 5 m/kWh. This is a monumental achievement and further demonstrates our technological superiority. Air Pure RWD demonstrates the application of the underpinning efficiency

technology in lower priced models. Our technology is scalable and increasingly accessible. A focus on efficiency, or doing more with less, is a crucial element of achieving the decarbonization and sustainability goals that will reduce emissions to protect public health and welfare and combat the climate crisis.

Our second vehicle, Lucid Gravity, will have similar class-leading EV range and redefine the SUV segment when it goes into production later this year. Our vehicles include an onboard, bi-directional charger that can be currently used to charge other electric vehicles (V2V). In the future, this technology will be advanced to enable additional bi-directional features. Attributes like vehicle-to-grid (V2G) will not only support the grid and California's energy goals, but also add new, potentially valuable attributes to EVs that further enhance the consumer proposition and potentially reduce the total cost of EV ownership even further.

1. GHG Standards – Best way to support state goals is strong GHG standards that align with California's ZEV ambitions.

California's regulatory framework is critical to reducing pollution and protecting public health. As noted in both ACC II amendment workshops, California's current vehicle GHG standards need to be updated to align with state goals, protect against federal volatility, and avoid backsliding as more ZEVs enter the fleet. Further, also as noted in the previous workshop, ICE vehicles will continue to constitute a significant portion of the fleet (about 55%) in 2035, when ACC II requires 100% of new car sales to be ZEVs, and even in 2045 (close to 20%), when California must achieve net-zero greenhouse gas emissions.¹ As identified in the 2022 Scoping Plan,² virtually all remaining emissions in 2045 will have to be balanced with carbon removals via DAC, which is currently, and expected to continue to be, one of the most expensive carbon reduction strategies available.³ Accordingly, the GHG standards set in this rulemaking will not only have an important impact on GHG emissions in the mid-term (and our ability to meet our 2030 climate change targets), but also through mid-century, and the costs and pace with which we achieve carbon neutrality in California.

We strongly support amending ACC II to strengthen GHG standards in a manner that aligns with California's climate change goals. In developing the ACC II regulatory proposal, we encourage CARB to consider the following objectives in setting GHG standards pursuant to ACC II Amendments:

- Maximize cumulative GHG reductions and align with statutory requirements to achieve carbon neutrality in the State as soon as possible, and no later than 2045.⁴

¹ November 15, 2023 ACC II Amendments Kickoff Workshop, slide 14.

² <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

³ CARB estimates DAC will cost \$1,000/metric ton CO₂ sequestered in 2030, declining to \$236/metric ton CO₂ sequestered in 2045. See 'Fuel Production Worksheet' at: https://ww2.arb.ca.gov/sites/default/files/2023-08/scenario_inputs_Aug2023_0.xlsx

⁴ https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB1279

- Ensure continual improvements in ICE vehicle emissions and avoids backsliding as more ZEVs enter the fleet.
- Account for actual and expected ZEV sales in developing the GHG regulation and backsliding provisions, rather than regulatory minimums.⁵
- Account for the costs of direct air capture associated with remaining emissions from ICE vehicles.

2. GHG Standards – Directly link ZEV and GHG provisions of ACC II through a new GHG-ZEV under compliance mechanism

As described in previous comments pursuant to the original ACC II rulemaking and 2022 Scoping Plan process, we encourage CARB to consider directly linking the ZEV and GHG provisions under ACC II by developing a GHG-ZEV under compliance mechanism. This provision would build from the original (ACC I) regulation, which included a GHG-ZEV overcompliance mechanism, whereby automakers who over-comply with GHG provisions of ACC I could reduce their ZEV obligations under the rule. This was a reasonable element of the program at the time, as it reduced overall GHG emissions while the ZEV market was still in its infancy. However, now that accelerating ZEV sales is the priority, CARB should consider how to leverage similar GHG-ZEV interactions to bolster ZEV sales.

CARB can do so by adopting an inverse mechanism that would, instead of rewarding GHG overcompliance with fewer ZEV requirements, discourage GHG under compliance by generating additional ZEV credit obligations. This rule would be applied on a vehicle-specific basis, rather than a fleet average basis, so that every vehicle that underperforms the GHG standards generates additional ZEV credit obligations.

In particular, we recommend requiring that sales of conventional vehicles with emissions higher than the fleet average requirement are offset with incremental emissions savings from ZEVs. For example, if the fleet average greenhouse gas standard were 150 gCO₂e/mi and a ZEV is 0 gCO₂e/mi, a vehicle with an emissions level of 200 gCO₂e/mi would generate an incremental ZEV credit requirement of $(200-150)/150 = 0.33$ credits. So, for every three of those vehicles sold, an automaker would have an increased obligation to sell an additional ZEV.

This mechanism would deliver additional environmental benefits, just as the original GHG- ZEV overcompliance provision did, by accelerating ZEV deployment beyond baseline regulatory requirements and serving to further reduce fleet average GHG emissions. We believe this mechanism could be most powerful in the 2026-2030 timeframe, when ZEV overcompliance and threats of backsliding are likely to be high, ample opportunity exists to support additional ZEV sales above regulatory minimums, and before dwindling ICE fleets may present potential challenges explored in the workshop.

⁵ For example, while the Scoping Plan reflects the ACC II regulations and envisions fewer than 6 million ZEVs on the road in 2030 and fewer than 13 million in 2035, CEC’s more recent analysis in the AB 2127 Report estimates there will be over 7.1 million ZEVs on the road in 2030 and over 15 million in 2035.

3. GHG Standards – We support addressing the overstated benefits of PHEVs in the current regulation

As CARB has clearly indicated in this workshop, the emissions benefits of PHEVs are often overstated, and end up being less than reflected in current regulatory programs and policy planning. We support improving the representation of PHEVs under ACC II and other provisions described in the workshop, including removing the fleet utility factor in PHEVs and setting standards based on the charge-sustaining/ICE emissions. We encourage requiring charge sustaining emissions rates for PHEVs to be no less stringent than requirements for conventional ICE vehicles.

Further, CARB should set a standard in such a way as to maximize cost-effective emissions reductions. As part of the calculation of cost effectiveness to determine stringency, CARB should include the cost for Disadvantaged Communities (DAC) to remove remaining emissions associated with ICE engines. Under the state's climate framework this will represent a direct cost imposed on Californians associated with legacy vehicles and their emissions during the lifetime of most ICE vehicles sold.

4. ZEV Assurance Measures – Support new ZEV label metrics that elevate ZEV efficiency, charge speed, and other aspects of a ZEV affecting consumers

We strongly support new ZEV metrics that provide clear and concise information regarding the efficiency and other performance characteristics of ZEVs, not only compared against average new vehicles, but also against average new ZEVs. Highlighting these metrics will help consumers understand the role that vehicle efficiency continues to play in terms of total costs of ownership and environmental impacts associated with their vehicle choice, even when choosing among ZEV options.

We appreciate CARB distributing the survey to solicit widespread input from a variety of stakeholders regarding a potential new ZEV label. We are not surprised by the results, which highlighted that respondents care strongly about real world range, DC fast charging capabilities and speed, vehicle efficiency, and other metrics.

We strongly agree with elevating ZEV vehicle efficiency as a key metric for consumers, so buyers can clearly compare range, cost, performance and environmental impacts of vehicles. Just like conventional vehicles, improved ZEV efficiency delivers significant consumer and societal benefits – including improved environmental performance, enhanced national security, and lower operating costs. It reduces electricity grid impacts, upstream emissions, and the amount of additional energy resources needed to support the state's electrification priorities. It reduces demand for lithium and critical materials, along with potential supply chain bottlenecks. Unlike for conventional vehicles, where improved efficiency tends to increase production costs, ZEV efficiency has the added benefit of reducing vehicle production costs and purchase prices, by reducing the amount of batteries needed to achieve a targeted range and

reducing the cost of the battery itself by putting downward pressure on commodity prices for lithium and other critical materials.

We believe other metrics, such as V2X capability, should be reflected as well, and will be highly valued by consumers as they become more familiar with the technology. Specifically, we support including the following metrics on a ZEV label:

- ZEV efficiency, measured in miles/kWh, and compared to the average new ZEV.
- The DC (X miles added/10 minutes) and AC charge metrics (X miles added/1 hour) and methods (SAE J2953/4) described in the workshop.
- Average charging costs, measured in \$/year, and compared to the average new ZEV.
- ZEV-specific global warming score, showing the relative efficiency-weighted greenhouse gas emissions associated with fuel use (e.g., electricity emissions) among ZEVs.
- An indicator or score which identifies the bidirectional capabilities of the vehicle (Vehicle-to-Grid, Vehicle-to-Load, etc.).

Conclusion

Thank you again for the opportunity to comment on the ACC II Amendments Second Public Workshop. We appreciate the ongoing opportunity to weigh in on the development of potential ACC II amendments, as well as your ongoing efforts to reduce mobile source emissions and support the growing ZEV market. We look forward to working with you through this process to support strong rules that are maximally protective of public health while remaining practical to implement.

Sincerely,

Daniel Witt
Director, State & Local Public Policy
Lucid Group, Inc