

Date: December 8, 2023

Chair Randolph and Members of the Board
California Air Resources Board
1001 I Street Sacramento, CA, 95814

Subject: Public Comments on the Advanced Clean Cars II Amendments

Dear Chair Randolph and Members of the Board,

My name is John Cadiz, and I am a current Ph.D. student studying Transportation Technology and Policy at UC Davis with a research focus on alternative fuel infrastructure implementation, specifically hydrogen. Thank you for your continued efforts to strengthen California's efforts to decarbonize the transportation industry. Also, thank you for the opportunity to submit comments on the proposed Advanced Clean Cars II Amendments. California continues to serve as a leader in the zero-emission (ZEVs) and electric vehicle (EVs) space, and I appreciate the efforts being undertaken to decrease the barriers to accessing ZEVs. In my letter, I will focus on the consumer-facing labels of ZEVs.

Accounting for Impacts to Driving Range in Different Weather Conditions

Electric vehicles are often left outside, which leads these vehicles to be potentially exposed to extreme weather that may impact the overall performance of the battery-powered vehicles. This results in an electric vehicle failing to meet range claims year-round. During colder weather, the car must manage both battery and cabin temperature.¹ In places where heat waves commonly occur (i.e., the Central Valley and Southern California), lithium-ion batteries see accelerated aging and degradation once temperatures reach above 85 degrees Fahrenheit, and there are inconsistencies within the industry for thermal management systems.² By being more transparent on consumer labels regarding battery degradation, consumers can make a much more informed decision on which vehicle would work best within their geographic location and needs.

Maintenance and Cost Requirements

Additionally, maintenance costs and requirements should be included in the consumer label. There are advantages with EVs since they have a simpler drivetrain and fewer moving parts than an internal combustion engine (ICE), which typically result in lower maintenance costs.³

¹ Bartlett, Jeff, and Gabe Shenhar. "CR Tests Show Electric Car Range Can Fall Far Short of Claims." Consumer Reports, July 28, 2023.

<https://www.consumerreports.org/cars/hybrids-evs/how-temperature-affects-electric-vehicle-range-a4873569949/>.

² Toussaint, Kristin. "It's 100 Degrees out, What's Happening to Your EV's Battery?" fastcompany.com, July 18, 2023. <https://www.fastcompany.com/90923968/ev-batteries-extreme-heat-charging-longevity>.

³ York, Catherine. "Beyond the Sticker Price: The Cost of Ownership of EVs V. ICE Vehicles." NADA, June 30, 2023. <https://www.nada.org/nada/nada-headlines/beyond-sticker-price-cost-ownership-evs-v-ice-vehicles>.

Rather than consumers needing to perform a total cost of ownership analysis by themselves to see if buying an electric vehicle is worth the extra money, rather than pursuing an ICE vehicle is essential for consumers to feel comfortable when purchasing a vehicle. This process would require comparing similarly sized vehicles, making it more straightforward when cross-comparing different fuel-type vehicles.

Accessibility to Infrastructure Metric or Tool

Another improvement to the consumer label would be to find ways of integrating an accessibility to refueling infrastructure metric. When buying a zero-emission vehicle, owners tend to have limited choices on when and where to refuel their vehicles. Even when they can find places to refuel, “one recent study found that about a quarter of the public charging outlets in the San Francisco Bay Area, where electric cars are commonplace, were not working.”⁴ It is fundamental during the consumer buying process to show how accessible the infrastructure is around a particular location or address that a consumer may provide and to see if the infrastructure works in an area. Much strife can come from consumers being unable to operate infrastructure, which may hinder the overall consumer experience.

The agency must address a big issue: battery technology is continually being developed and improved. The consumer label needs to be flexible enough to accommodate these changes to be updated as new infrastructure, technologies, and practices are adopted. It is essential that the agency continually find ways to account for this when they are designing and improving the consumer labels for vehicles. This is the end of my remarks.

I look forward to continuing to work with CARB as it develops these rules. Thank you again for your leadership and the opportunity to comment on this.

Best regards,

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⁴ Chokshi, Niraj. “A Frustrating Hassle Holding Electric Cars Back: Broken Chargers.” The New York Times, August 16, 2022.
<https://www.nytimes.com/2022/08/16/business/energy-environment/electric-vehicles-broken-chargers.html>.