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**MECA COMMENTS
ON THE
CALIFORNIA AIR RESOURCES BOARD'S
ADVANCED CLEAN CARS II REGULATION
PROPOSED 15-DAY CHANGES**

MECA appreciates the opportunity to provide comments on the California Air Resources Board's Advanced Clean Car II (ACC II) regulations proposed 15-day changes.

MECA is a non-profit association of the world's leading suppliers of clean mobility technologies for light-, medium- and heavy-duty highway vehicles and off-road equipment in North America. Our members have over 45 years of experience and a proven track record in developing and manufacturing emission control, engine efficiency, battery materials and components, chargers and electric propulsion technologies that will continue to play an important role in the emissions success story in all world markets.

MECA supports CARB's low emission vehicle (LEV) and zero-emission vehicle (ZEV) regulations to develop innovative, technology advancing, emission reduction programs to improve ambient and local urban air quality while reducing greenhouse gases.

MECA is happy to provide our comments limited to the proposed ACC II 15-day changes, which we feel will ensure its intended environmental protections. These recommendations include;

- The latest proposed revision of CARB's design-based evaporative emissions canister sizing equation further increases the potential for evaporative canister undersizing for vehicles employing sealed fuel tanks.
- The proposal includes changes that will result in additional ZEV credits which will delay increased ZEV sales and faster implementation of PHEVs, BEVs and FCEVs.

Evaporative Controls

MECA thanks staff for continuing to review the stakeholder input on this provision to ensure that plug-in vehicles, such as PHEVs are as clean as possible. CARB's leadership on evaporative control is causing Europe and China to consider strengthening their position in controlling VOC in addition to NOx as a way to combat ozone pollution.

Our position remains that the most effective approach to achieve puff loss control, and ensure emission reductions over the certified vehicle's full useful life, is to establish a test procedure to determine control of puff loss emissions.

To avoid adding testing burden on the automotive manufacturers, CARB staff proposed an equation which is intended to serve as an engineering design criterion to control puff losses. This equation is intended to provide an estimate of the minimum canister capacity that would be necessary to adsorb the hydrocarbon vapors from a puff loss load followed by a refueling load.

In the proposed 15-day changes, CARB staff have proposed to further revise the value for the carbon "aging factor" from 1.2 which was originally based on butane working capacity (BWC) down to a value of 1.08 based on gasoline working capacity (GWC) data.

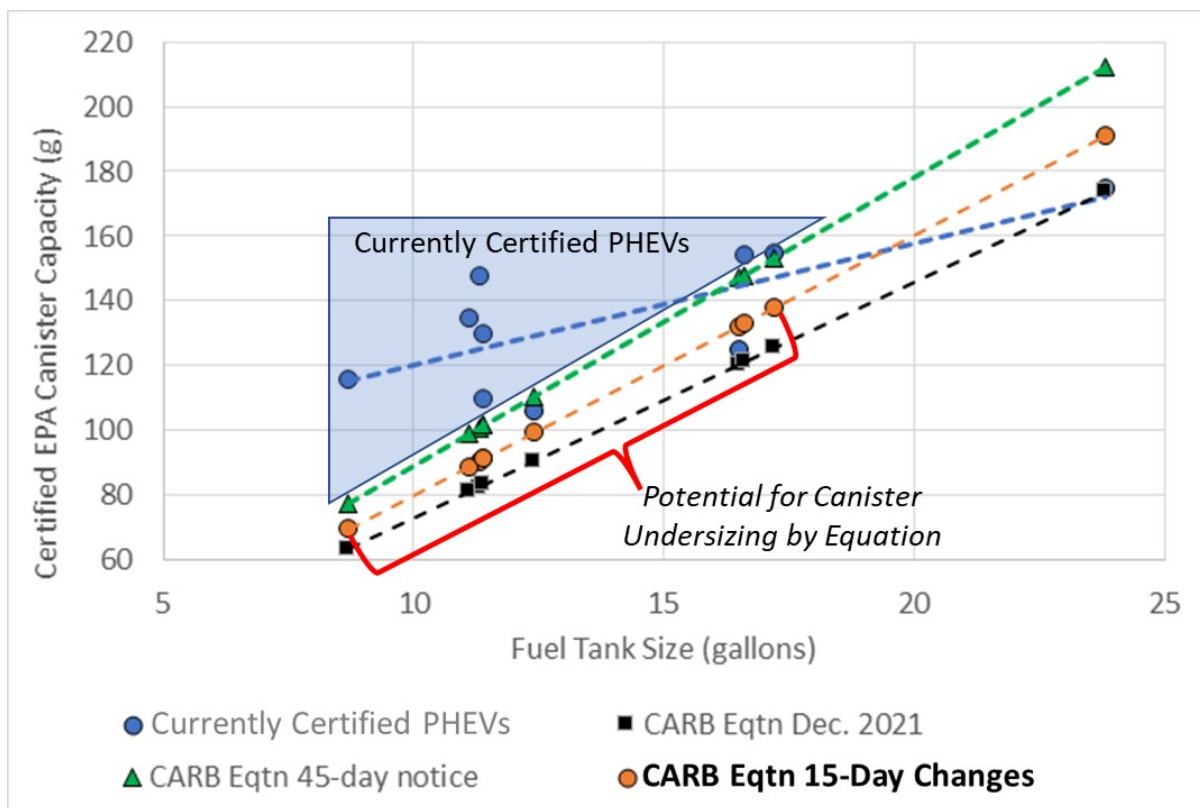


Figure. Proposed Canister Sizing to Control Puff Losses

MECA has compared the latest proposed version of the equation in the figure above and compared it with previous equation versions and actual canister size values from certified vehicles (see our 45-day comments for details of the vehicles). As can be seen, the proposed reduction in the “carbon aging factor” from 1.2 to 1.08, represented by the orange line, lowers canister sizing below that of existing certified vehicles. Thus, rather than representing a suitable fit to today’s certified vehicles, it would represent an increased risk of undersizing evaporative canisters for vehicles with fuel tanks smaller than 15 gallons. Given that the majority of vehicles employ smaller sealed NIRCOS fuel tanks, we believe it is vital that the equation be further refined to more accurately represent the certification data of smaller NIRCOS fuel tank sizes. The previous carbon aging factor of 1.2 used in the equation proposed under the 45-day changes was based on data from BWC measurements, and therefore, we believe it provides a better fit to the data for smaller fuel tanks as shown by the green line in the figure.

We also believe that the proposed change in the evaporative aging factor warrants further review for the following two reasons;

- GWC is a parameter used in canister effectiveness assessments by suppliers and OEMs but it has no regulatory basis and is not referenced in any regulatory requirement or provision that MECA is aware of. GWC is not defined in current regulations and there is no established test procedure, whereas the concept of BWC is addressed by both ASTM test procedures and EPA/CARB regulations. The lack of an established correlation between GWC and BWC provides a further complication to the proposed change.
- the compliance with the “minimum canister nominal working capacity” requirement should be based on canister BWC as the other terms in the equation are based on BWC. There is an established requirement for canister nominal working capacity measurement based on canister BWC (see Part III.D.3.3.4) which has been part of the CARB/EPA evaporative emission regulations for decades. CARB first proposed an “aging factor” of 1.2 based on BWC data which was acquired from in-use canisters. Therefore, it is not technically appropriate to use GWC data for the aging factor in the above equation, but to then use BWC for compliance.

Proposed ZEV Credit Revisions and Flexibilities

MECA is concerned with the 15-day revision that allows ACC credits to be carried over to ACC2 at a multiplier of 2.1 as opposed to the original 45-day proposal to eliminate the use of a multiplier on carry-over credits. Analyses by ICCT and researchers at Carnegie Mellon¹ have shown that extended use of multiplier or super credits in the light-duty sector has resulted in the unintended consequence of reduced ZEV sales. Consumers do not buy ZEVs for their credit value and until a time of profit parity with combustion engines, manufacturers may be motivated to sell the minimum number of ZEVs needed to meet their compliance obligation. Given the current number of passenger electric vehicle model offerings, declining costs of these vehicles and projected growing sales, credit multipliers are not needed to incentivize

¹ Alternative-fuel-vehicle policy interactions increase U.S. greenhouse gas emissions, Alan Jenn, Inês L.Azevedo, Jeremy J.Michalek, Transportation Research Part A: Policy and Practice, Volume 124, June 2019, Pages 396-407.

production. Furthermore, an over-incentivized credit scheme for ZEVs could instead result in erosion of ZEV sales and thus the benefits anticipated by the standards (Jenn, Azevedo, & Michalek, 2019).

As a result, MECA opposes the proposed 15-day changes which would implement a common 2.1 conversion factor for both ZEV and PHEV values. As BEVs have been and are projected to out-sell PHEVs in the coming years, the newly proposed common 2.1 conversion factor for ACC I credits will result in higher ZEV values arising from ACC I credits to be used by manufacturers and could lead to reduced ZEV sales.

Conclusion

In conclusion, MECA appreciates staff's dedication in developing the proposed Advanced Clean Cars II regulation and these 15-day modifications to the proposal. We recommend consideration of our suggested modifications as they would result in cost effective air quality benefits for millions of Californians in the coming years. Most importantly, MECA believes that the standards are technically achievable on the timelines proposed for implementation. Our industry remains committed and is prepared to do its part and deliver cost-effective and durable advanced technologies to the light-duty sector to assist in simultaneously advancing electrification of new vehicles while reducing criteria and GHG emissions from, the last remaining engine-equipped vehicles, to levels that represent existing technology performance.

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