

Advanced Clean Cars II Amendments: McLaren Automotive comments

As you will be aware, McLaren Group is globally renowned as one of the world's most illustrious high-technology brands. Headquartered in Woking, Surrey, UK the Group encompasses McLaren Racing and McLaren Automotive, designing and hand assembling high-performance technologically advanced supercars in the UK and exporting over 90% of our products.

McLaren is supportive of the global drive to decarbonisation and has welcomed the technology challenge that this presents. As a technology pioneer McLaren unveiled the P1™ in 2012, the world's first hybrid hypercar.

We appreciate the opportunity to collaborate with the California Air Resources Board (CARB) staff in the development of amendments to the Advanced Clean Cars II regulations (ACC II). From discussions at the ACCII workshops, we understood that Small-Volume Manufacturer provisions had not yet been considered. Our comments are focused on areas we believe CARB staff could consider to support alignment with EPA's final rule.

Background

Given that we are significantly below the 5,000 USA sales per year, we fall within the Small-volume manufacturer (SVM) definition. As a SVM we have limited product portfolios, limited number of drivetrains, limited financial and human resources, and longer product development times and vehicle life cycles. Unlike other parts of the market, given our limited product portfolio we do not have the ability to make significant redesigns each year and as such we are unable to take advantage of fleet emission averaging programs.

Criteria Emissions: Alignment with EPA Tier 4, PM Standards:

For SVMs, we recommend CARB harmonize with EPA's provision that allows SVMs to meet the 0.5 mg/mile PM standards in 100% of their vehicles starting in 2032 MY.

GHG Regulations:

As outlined above as a SVM the need for additional flexibilities and lead-times remains exceptionally high for the following reasons:

1. Electrification remains extremely challenging given limited resources available and the lack of technological developments in battery technology to produce the lightweight high-density batteries required to electrify a high-performance supercar.
2. Battery technology has not developed enough for application within high-performance lightweight supercars. Technology is developing and we have plans to electrify further, however time is needed.
3. Limited product portfolio and longer product life cycles mean that making regular improvements to products is exceptionally challenge for SVMs like McLaren. When electrification is available, there is limited ability to rapidly roll out technology across the whole product portfolio – time will be needed.

While technology is developing and there are plans for electrification in the future, it still remains that time is needed for technology to catch up to the needs of a lightweight high-performance super

car. Furthermore, with low production volumes our ability to amortize expensive product development costs is also limited, our R&D paybacks are far longer. At McLaren, our journey to electrification will be challenging given the pressures we see in the market, the demand for battery components and key materials, furthermore, we are without a larger OEM partner to share the development burden or to take external technology.

Electrifying lightweight high-performance supers is exceptionally challenging. While there has been greater electrification of mass market vehicles, as outlined above, it is important to note that battery technology has not developed enough for application within high-performance supercars. Technology is developing and we have plans to electrify further; however, time is needed.

This is further evident when looking at the market for BEV supercars and the current and potential market offerings which are around the \$1m plus price bracket. Lightweight BEV supercars must compete with ICE/PHEVs for all performance attributes. Below the \$1m+ low volume segment, there are currently no lightweight high-performance BEV Supercars in the 'series production' category, which for brands such as McLaren, are products that contribute the majority of our annual production volume.

Emissions from vehicles sold by SVMs are negligible as their average annual mileage accumulation is extremely low – approximately 2,543 miles. This has already been acknowledged by CARB in the ACC II Final Statement of Reason , indicating that small volume manufacturers represent less than 2% of total new vehicle sales in California and therefore have a limited impact on California's emission inventory.

CARB's current GHG emission regulation allows manufacturers with limited U.S. sales to comply with alternative targets (13 CCR 1961.3(a)(3)), in recognition of their unique design and compliance challenges. We recommend that CARB retains this option through at least 2034 MY.