

PORSCHE

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California Air Resources Board
Anna Scodel
Mobile Source Division
10011 Street
Sacramento, CA 95814



Porsche Cars North America, Inc.
Nick Tamborra, Manager Regulatory Affairs
One Porsche Drive
Atlanta, GA 30354
Telephone: 248-464-1836
Email: nicholas.tamborra@porsche.us

Comments to the Public Workshop for Future Amendments to the California Advanced Clean Cars II Regulation

Ms. Scodel,

Porsche Cars North America, Inc. (PCNA) appreciates the opportunity to submit the following comments to the California Air Resources Board (CARB) regarding potential future amendments to the Advanced Clean Cars II (ACC2) suite of regulations. These comments are in response to early-stage concepts communicated at the public workshop in November 2023 and are submitted by PCNA for itself and on behalf of Porsche AG (collectively, "Porsche"). In addition to these comments, Porsche also participated in the development of comments submitted by the Alliance for Automotive Innovation (AFAI) and supports those positions.

Porsche is an original equipment manufacturer of light-duty vehicles and trucks and imports a variety of premium electrified and advanced combustion vehicles for sale in the State of California and other Section 177 States. As Porsche does not currently market medium-duty vehicles, these comments are primarily focused on topics related to light-duty requirements that Porsche vehicles will be subjected to.

Porsche appreciates CARB staff taking the time in November to present their initial thoughts on potential amendments at the public workshop. This early dialogue is helpful and will provide stakeholders with time to generate constructive feedback and technical information that can help support the Board's review and approval projected to take place in CY2025.

Porsche is supportive of CARB's effort to review and amend ACC2, especially in light of ongoing Federal rulemaking and given the wide range of new and complex requirements in ACC2 itself. These amendments can help improve the existing regulations and provide an opportunity to ensure alignment with Federal regulations currently being finalized by the US

Environmental Protection Agency (EPA). Maintaining alignment between State and Federal policies helps speed new products to market and reduces costs for consumers by reducing regulatory complexity.

CARB's workshop focused on amendments to their finalized LEV-IV and ZEV programs and outlined high-level concepts for future updates to the State's GHG fleet regulation. As noted above, EPA is in process of finalizing their parallel Multipollutant rulemaking for their Tier-4 and GHG fleet average regulations. Porsche provided extensive comments to EPA regarding their 2027-2032 model year proposals and expects that these regulations will be finalized in early CY2024. Several of the amendments being discussed in the workshop, especially areas focusing on aligning with EPA's Tier-4 program, may be dependent on what standards and timelines are finalized by EPA. As these comments are being submitted before seeing EPA's final rules, Porsche may provide additional feedback to CARB later in CY2024 depending on the outcome of EPA's work. Porsche appreciates that CARB has projected a timeline in 2024 and into 2025 that should provide sufficient time for amendment development and review.

California continues to demonstrate the importance of robust policy support in growing consumer adoption of electromobility.

In the development of ACC2, CARB identified that achieving the State's environmental and climate goals will depend heavily on the market adoption of advanced zero- and near-zero emission vehicles. Central to ACC2 was the landmark decision to drive the Zero Emission Vehicle (ZEV) mandate towards 100% of new vehicle sales by MY2035. Achieving this vision (and regulatory requirement) will depend on many factors aligning to help ensure sufficient industrialization and sustainable consumer demand for these advanced vehicles. As reported in AFAI's Electric Vehicle Quarterly Report 2023 (Q3)¹ and shown below in Figure 1, the light-duty EV marketshare has demonstrated sustained growth over the past few quarters. The combination of exciting new electric models, improved technology and supportive policies is creating consumer confidence in EVs. As outlined further below, Porsche is committed to expanding electric offerings in the US market and building upon success of current electric and plug-in hybrid electric Porsche models.



Figure 1 Nationwide EV marketshare (Alliance for Automotive Innovation, Q3 Electric Vehicle Quarterly Report)

¹ <https://www.autosinnovate.org/posts/papers-reports/get-connected-q3-2023>

California's marketshare for new light-duty EV sales, now exceeding 25%, continues to lead the Nation. California's success is in part built upon a strong historic foundation of supportive EV policies that the state has maintained for many years. California consumers and businesses continue to benefit from a wide variety of policies that directly incentivize new EV sales, expand public charging infrastructure, and incentivize low-carbon transportation fuels. Maintaining this robust rate of growth for new EVs in California will be important given the ambitious air quality and climate benefits the state seeks to achieve from ACC2 and the ZEV regulatory requirement for new vehicle sales to be 100% electrified by model year 2035, only 10 years into the future.

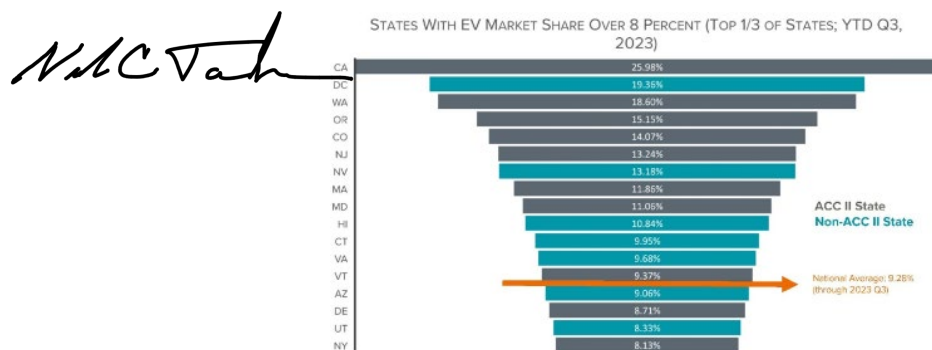


Figure 2 State EV market shares (Alliance for Automotive Innovation, Q3 Electric Vehicle Quarterly Report)

As shown above in Figure 2, across the range of Section 177 States that have adopted, or are in process of adopting, California's ACC2 regulations, the market is demonstrating mixed outcomes. While not yet as successful as California, some Section 177 ZEV States are seeing high rates of growth in electric vehicle sales with market shares approaching 20%. Similar to California, many of these states have implemented wide ranging policies supporting EV adoption and providing consumers with public charging infrastructure. However, in other Section 177 ZEV States, sales of EVs, while improving, continue to demonstrate the historic pattern of lagging California's marketshare. In some cases, sales of new EVs are only one-third, or even less, the sales rates in California.

For states such as California, finding ways to maintain their high rates of growth will be crucial for the State to realize their projected air quality and climate benefits in ACC2. For States who have adopted ZEV, but so far been challenged to achieve similar marketshare gains, the goal will be to find ways to maximize the effects of State and Federal policies to accelerate consumer adoption and increase EV sales rates quickly. For manufacturers, compliance with annual ZEV obligations are the same in each ZEV State as they are in California, regardless of local consumer adoption or the successful implementation of supportive policies. Coordinated monitoring of the overall progress of industry towards annual ZEV compliance in California and all applicable Section 177 ZEV States will be important to ensure that the program remains on track to be achievable.

Adoption of California standards by Section 177 States is becoming increasingly complex.

For many years the roster of Section 177 States had been stable, and those states have adopted updated regulations finalized by California in a manner which provided continuous and aligned applicability of California standards. Within the past several years, several new Section 177 States have adopted California ACC1 policies and implemented such regulations with various start dates during the ACC1 timeline.

With California's adoption of ACC2 in late CY2022, many of the Section 177 States initiated their processes to adopt the new ACC2 requirements. However, states that adopt new or revised California standards must provide the Clean Air Act statutory lead-time and only a handful of states adopted ACC2 during CY2022 to have an effective start date concurrent with California (i.e., MY2026). Other states who completed rulemaking during CY2023 will be required to start no earlier than MY2027, and a few remaining states still in the process of rulemaking will now be required to start no earlier than MY2028 (assuming completion of rulemaking during CY2024). Because ACC1 regulations now effectively end with MY2025, the states with the "gap" in California policies will revert to being fully Federal until their new ACC2 effective start date.

In addition, what has been relatively new is for several Section 177 States to propose adoption of California standards, but to do so with predetermined exit timelines (e.g., Colorado adopting ACC2, but only through MY2032), after which the state would revert once again to being solely a Federal state. As shown below in Figure 3, the delayed start of ACC2, and predetermined exit timelines will result in States such as Colorado shifting between Federal and California jurisdiction four times over a span of 10-12 years.

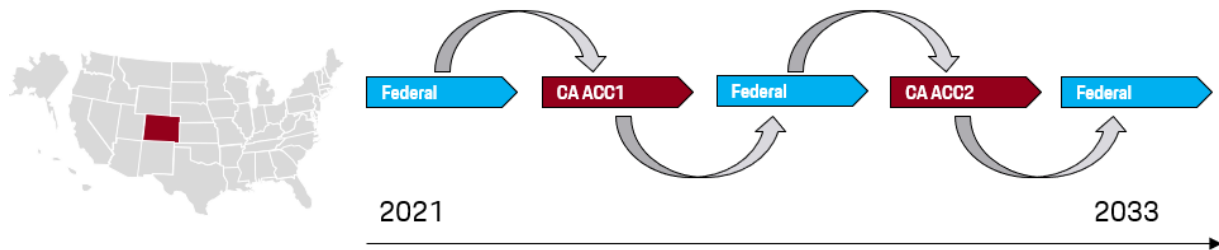


Figure 3 Projected jurisdictional outlook for Colorado (MY2021-2033)

Porsche recognizes that each State has varying legislative and administrative processes that can contribute to these complex timelines and that future goals related to electrification are being assessed within the context of each State's deliberations. Nevertheless, the oscillation between California and Federal policies in each individual state during the overall ACC2 timeline is creating compliance planning complexity for Porsche. The varying timelines can impact topics such as the applicable volumes for each regulatory domain, the availability and use of CARB specific compliance flexibilities, pooling options with other Section 177 States (each with their own timelines) and CARB and Federal credit/deficit management.

The example illustrated below in Figure 4 outlines the projected timelines for California and Colorado. Until recently, Colorado was a Federal State and had adopted elements of the ACC1 regulatory package effective with the MY2022

(MY2023 for ZEV) and recently completed adoption of ACC2. Due to lead-time in Section 177, Colorado will not be able to begin ACC2 LEV-IV and ZEV until the MY2027, reverting to Federal Tier-3 for MY2026. However, the State may be able to continue with enforcement of ACC1 GHG through MY2026. The exact start time for ACC2 GHG will depend on the completion timeline by CARB and the subsequent Colorado rulemaking which could delay ACC2 GHG in CO until MY2029 or 2030 (again, due to the Section 177 lead-time). In adopting ACC2, Colorado limited the duration of LEV-IV, ZEV, and the current ACC1 GHG (and any subsequent ACC2 GHG) programs through 2032 model year, after which the State would revert to being Federal only. As California standards are defined per model year, a State exiting California regulations would not be able to carry-forward into future model years California requirements from the State's last applicable model year (i.e., MY2032 standards would not carry forward in Colorado for MY2033 and beyond).

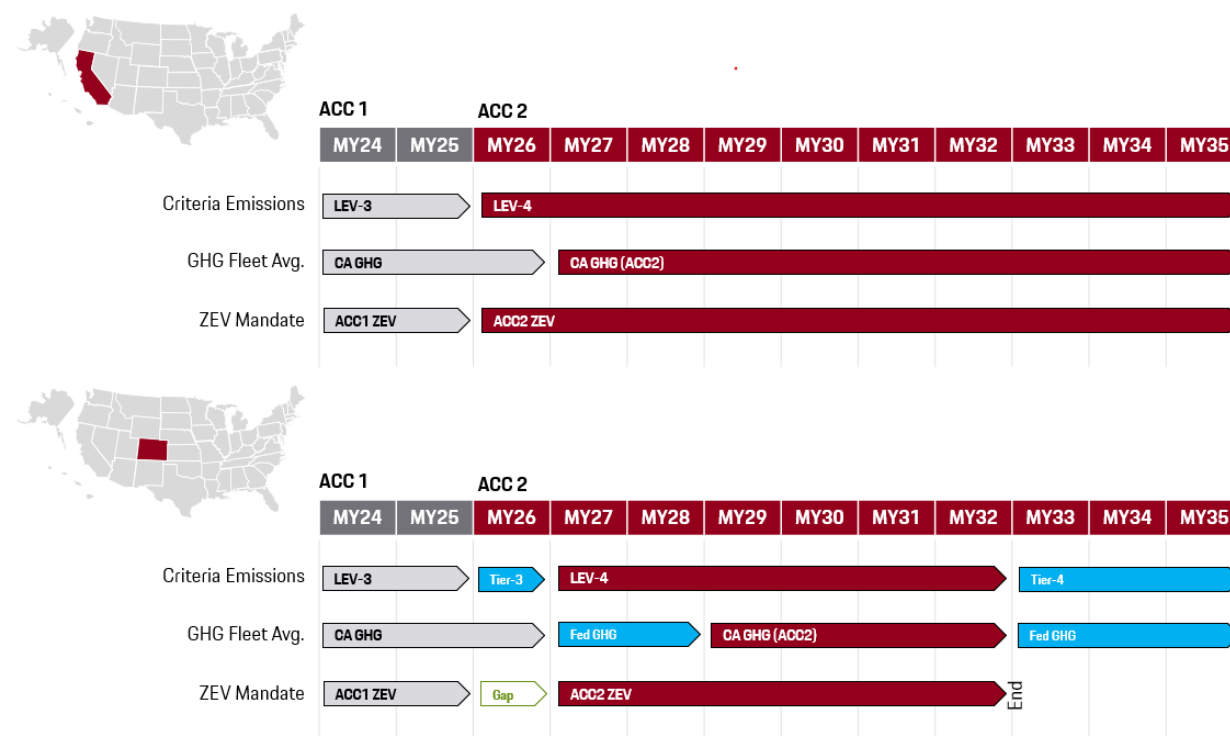


Figure 4 Projected California standards applicability in California and an example Section 177 State (Colorado)

1. Formalize flexibilities for earning credits in State implementation “gap” years.

Specific to the “gap” years between the phases of applicable California regulations, Porsche notes that the lack of continuity could impact manufacturers who may have been projecting credit earnings in those years. To date, States have provided guidance to manufacturers on opportunities to do this, however, given the projected future gaps years, Porsche recommends that CARB may seek to implement direct regulatory language, as a flexibility, to give manufacturers the opportunity to earn credits during such “gap” years. By having this flexibility with California's regulatory text, the applicability of this flexibility could be assured for all States, and this could streamline discussions with each jurisdiction.

Recommendation:

As a program flexibility, provide regulatory certainty for manufacturers to earn credits in States that are between applicable California regulatory programs.

2. Align the duration of available flexibilities with program start dates in State implementations in order to provide equal duration of flexibilities.

Furthermore, program timing mismatch can impact the availability and effect of various credit flexibilities and credit/deficit management for a manufacturer. With respect to flexibilities, ACC2 includes flexibilities such as those in the ZEV mandate which are available for specific model years prior to program start, and flexibilities that time-out at specific model years. As these years are defined in regulation, the availability and length of effect would be unlinked to the actual program start date in each state. As a result, a manufacturer may have access to a flexibility for 5 years in one state and only 4 years in another. Flexibilities are analyzed during CARB's deliberation in the development of future program stringency with projections that manufacturers can and would maximize the effects as part of compliance planning. One concept could be for CARB to consider adjusting flexibilities to be available for a specific number of model years rather than specifying the effective years themselves. This way if a State begins a regulation later than California, the manufacturer will still have the same available duration for the flexibility.

Recommendation:

For program flexibilities that are associated with specific model years, determine if the availability of those flexibilities should rather be in relation to program start years in order to ensure that manufacturers can fully utilize flexibilities over the same total number of model years.

With regards to credit/deficit management, there are three issues to consider. The first is having a stable planning basis in each state for future model years so that manufacturers can plan with regards to which volumes will be in or out of CARB regulations in any given model year. This impacts compliance account planning especially as some credits and deficits are based on currency related to "tons" or vehicles (i.e., values that are linked to volume and not based on a rate of emission). For example, if a manufacturer was projecting to generate GHG credits in a model year, the manufacturer may earn fewer total gross credits (in tons) if fewer states are in effect for that year. In a subsequent year where more states have the ZEV program in effect, a manufacturer who might then generate deficits may have insufficient credits due to the higher volume of vehicles now subject to the deficits than had been available to earning credits. CARB may wish to consider developing flexibilities for manufacturers to formalize a method to earn credits in states with a projected "gap" year if the manufacturer finds that the years could be important in terms of compliance planning. This mechanism could provide a more stable basis for planning.

3. Develop credit pooling flexibilities for overcompliance in States that are exiting California regulations.

Additionally, Porsche recommends that CARB consider the effects of credit and deficit management for states that are leaving California jurisdiction and then returning to California jurisdiction, or that have otherwise adopted California standards with a predetermined exit date. In terms of states that are exiting California regulations and in which a manufacturer has over-complied and earned credits, California may wish to consider providing a mechanism for manufacturers to shift those credits into states continuing with California regulations.

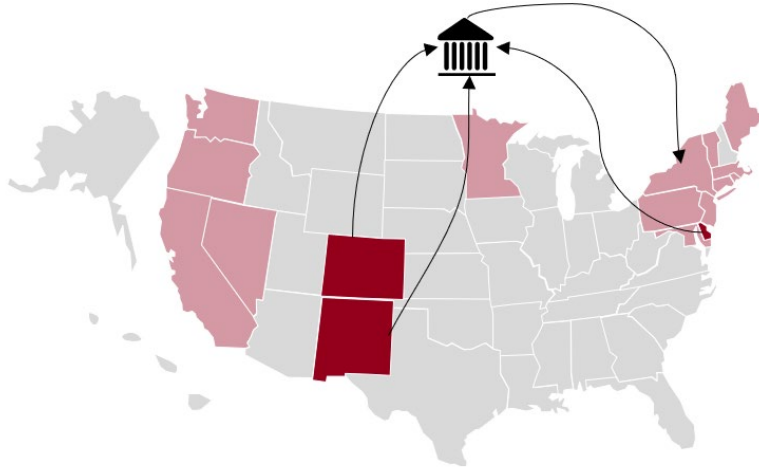


Figure 5 Allowance for reallocation of ACC2 overcompliance credits from exiting States into continuing States

Over-compliance with a standard indicates that a manufacturer delivered benefits in excess of what otherwise would have been required. A manufacturer who might otherwise lose those credits in a State exiting the program would be disincentivized from over-complying in the first place. Having the flexibility to transfer credits would recognize the environmental benefits and provide the manufacturer with planning stability when viewing the California state volumes as a whole. In addition, this would protect manufacturer investments in compliance plans for states that might unexpectedly exit the program (e.g., a political shift). Understandably this may also apply to deficit considerations.

Recommendation:

As illustrated above in Figure 5, For manufacturers with credit balances in States that are exiting California regulations, CARB should consider providing the opportunity for over-compliance values to be shifted into other States that will be continuing with California standards.

4. Develop credit/deficit end-of-program management provisions for States exiting California regulations.

As most ACC2 regulations provide deficit management mechanisms for manufacturers (i.e., deficit carry-forward), CARB may consider formalizing deficit management exit clauses so as a manufacturer working through a compliance shortfall (i.e., deficit) would be provided the same amount of time to manage their deficit following the State's exit from

California standards. As shown below in Figure 6, using MY2032 as an example, a manufacturer earning a deficit in MY2032 would have the following three model years available to “carry-back” credits as a viable strategy to fill this deficit before the State would consider the manufacturer as being out of compliance with MY2032 standards. Porsche contends that for State adoption of ACC2 to be on par with that of California, the State should provide the three years following State exit for a manufacturer to eliminate the deficit prior to that State initiating enforcement proceedings. If the manufacturer were to suddenly face immediate enforcement provisions following the State exit from California standards (e.g., MY2032), this could reflect a more stringent program in that State due to the loss of a core compliance flexibility that would otherwise continue to exist in California and other continuing Section 177 States.

Similarly, a manufacturer earning a credit in MY2032 would normally have the following five model years to use internally or to transfer that credit to another manufacturer. As an alternative to what was recommended above, a manufacturer should retain the right to use the credit for the following five model years in case another manufacturer seeks a credit purchase as a means to eliminate a previous deficit.

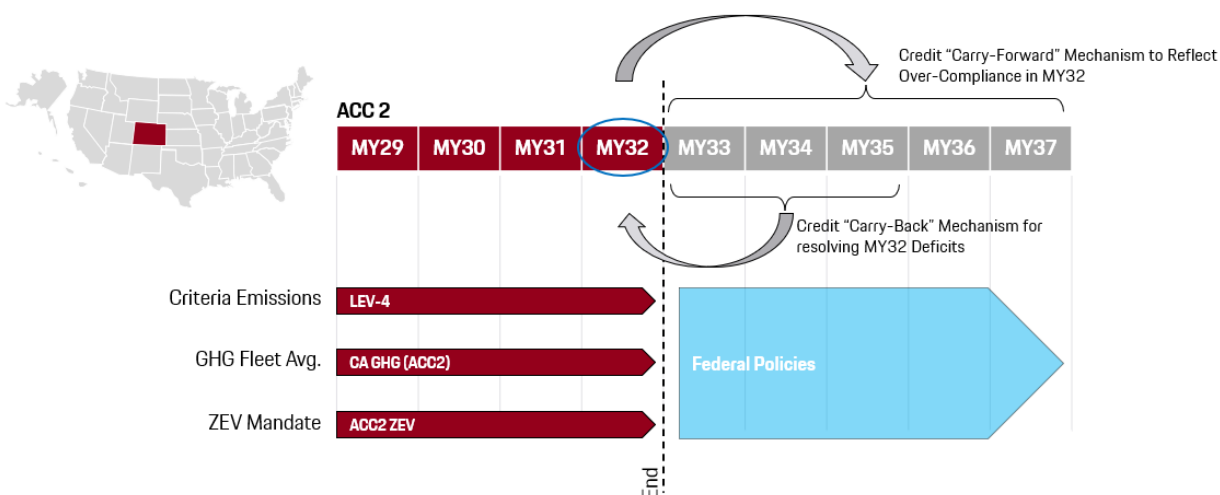


Figure 6 Example of allowances within ACC2 for credit carry-forward/back mechanisms and recommended applicability in final year of ACC2 implementation.

Recommendation:

For manufacturers who may have deficits in States that are exiting California standards, ACC2 regulations should implement measures that provide manufacturers with the same duration of deficit management as allowed in California and other States continuing with the regulations.

Both, the credit and deficit management elements, could be referred to as “exit clauses” for States departing the California regulations. While some may view that these provisions might need to be adopted at the State level, it may be more appropriate for California to implement these provisions directly within ACC2 as mechanisms to provide consistency across States and to ensure that State actions are not inadvertently complicating manufacturer flexibilities that would otherwise be afforded under the regulations.

5. Update CRDT for full and comprehensive support of ACC2 reporting

Finally, Porsche recommends that California coordinate with all Section 177 States to fully implement all reporting requirements and associated rules within the online CRDT California ZEV reporting system. As a pragmatic IT solution, the CRDT system has proven helpful for manufacturers and regulators in ensuring high-quality and consistent reporting and in communicating compliance status. Porsche recognizes that these systems take resources to maintain, and that the complexity discussed above with various state timelines and flexibilities will make robust implementation a challenge. Nevertheless, States who have committed to ambitious high-technology electrification goals can make an equal and commensurate commitment to high-technology reporting tools. Reverting back to “spreadsheet” reporting would be a step backwards in that having to supply over a dozen individual reports to each and every individual Section 177 State agency opens the door to errors and delays. Porsche recommends that CARB immediately began implementation of updates to the CRDT system in preparation to fully support ACC2 for MY2026 reporting.

Recommendation:

Update CRDT for complete and comprehensive ACC1 and ACC2 reporting for the MY2026 model year and beyond.

Highly innovative, low-carbon eFuels can provide a pathway for all vehicles to contribute to California's decarbonization goals.

Porsche has established an ambitious goal for the electrification of our cars and trucks over the next several years. This goal builds upon the expanding range of electrified models that Porsche is offering in California and across the US. Within the premium, high-performance and luxury segments in which Porsche competes, Porsche has delivered over 50,000 BEVs and PHEVs to our US customers. These vehicles have brought a new level of complexity in development and manufacturing and continue to incur higher costs associated with batteries and electric drive componentry. Nevertheless, with continued innovation, Porsche is confident that the expanding range of electrified models, with continuously improving technical performance, will meet the needs and desires of many of our customers for the high degree of utility and performance that they demand.

Porsche recognizes that a portion of our customers may continue to seek out the qualities of advanced combustion vehicles and is working both internally and with external partners to find opportunities for these vehicles to contribute to decarbonization goals. Porsche believes that a limited suite of advanced combustion vehicles, powered by highly innovative, near carbon-neutral fuels can coexist alongside electrification and positively contribute to environmental and energy goals. Near carbon-neutral fuels derived from renewable electricity, water, and ideally non-fossil carbon dioxide,

commonly referred to as “eFuels”, can enable advanced combustion and hybrid technologies to operate in near-zero manner.

As CARB noted in the workshop, the on-road fleet of vehicles is projected to have ICE models being operated in California into the mid-century. Electric vehicles will gradually “flip the fleet”, but in the meantime, eFuels could provide an opportunity for legacy combustion vehicles to contribute to decarbonization goals without the need for vehicle modifications or unique fueling infrastructure. Porsche is working together with external partners who have successfully launched an eFuel pilot project and are now developing strategies to bring these fuels to global markets at scale. eFuels can be processed along with additives to match market gasoline standards and offer a “drop-in” solution that requires no unique fueling infrastructure or vehicle modifications. Because eFuels is chemically similar to current gasoline, potential near carbon-neutral benefits can be realized by new vehicles and existing, on-road legacy combustion cars. The use of eFuel would be transparent to drivers who would not need to find dedicated fuel pumps.

In the workshop, CARB sought comment from stakeholders on how low carbon fuels could be considered in the context of future ACC2 GHG fleet regulations, in addition to understanding the potential impact of these fuels on equity. Porsche supports the focus on decarbonization as centering on electrification, but does see opportunity for a role with eFuels in diversifying the technology options available to consumers that can contribute to decarbonization goals. This may be especially helpful for consumers who are economically challenged in affording new vehicles, or who may not have ready access to new electrification charging infrastructure. Providing a means to decarbonize existing vehicles by using innovative, potential near carbon-neutral liquid fuels could be a pragmatic policy solution that could fit within the structure of the light-duty greenhouse gas program for MY2027 and later. Porsche recognizes that innovations like eFuels are still an emerging development and may take time to reach market scale. Nevertheless, Porsche appreciates CARB’s consideration for low-carbon fuels and will seek to further explore the topic with agency staff.

Comments specific to potential amendments to ACC2 Zero Emission Vehicle Standards for Model Years 2026 and Later

In addition to supporting comments submitted by the AFAL, Porsche provides the following input regarding potential amendments to the ZEV regulations found primarily in 1962.4 and in other sections of 1962 generally referred to as “ZEV Assurance” policies.

1. Porsche recommends a modification to the onboard vehicle charging requirements in 1962.3 to eliminate the need to install A/C charger inlet and associated charging equipment for limited, low-volume models.

Porsche requests CARB to consider including a flexibility within 1962.3 for a manufacturer to omit the installation of an *Alternating Current (AC) Charger Inlet* and associated charging equipment as would otherwise be required in 1962.3(c)(1) and (2). The purpose of this would be to reduce vehicle weight and system complexity for a limited line (i.e., low-volume) of EVs which may be specifically developed for high-performance use. Reducing weight and complexity for such performance-oriented vehicles is an important utility enhancement for certain customers who value the effects of weight reduction under extreme driving dynamics. These types of vehicles may be commonly used in track or off-highway autocross type events.

Porsche recognizes that 1962.3 is an important part of the “ZEV Assurance” policies that were aimed at improving the broad market appeal for ZEVs. 1962.3 sought to ensure that new, mainstream EV owners would have access to a greater variety of charging opportunities. As such, Porsche believes that this modification would be appropriate only for specialty focused vehicles with low annual sales volumes and not as a modification for “mainstream” vehicles. To protect the policy intention behind 1962.3, Porsche recommends that the allowance be limited to vehicle lines with annual sales in California which the manufacturer could demonstrate would be under a minimal threshold. This limitation would allow the flexibility for the specialty models without negatively impact the ZEV Assurance goals.

Recommendation:

For electric vehicle models with sales up to 2000 units per year in California, manufacturers may omit compliance with 1962.3(c)(1) and (2).

2. Porsche recommends additional flexibility in the provision of charging cables as required in 1962.3(c)(3)

Like the topic described above, Porsche recognizes that as part of the ZEV Assurance policies in ACC2, CARB had sought to ensure a better EV driver charging experience by including a requirement for charging cables to be supplied as standard with all new electric vehicles. Porsche understands that for some EV purchasers, especially first-time buyers, having charging cables be supplied with the new vehicle can enhance the ownership experience by ensuring that customers who may not have established home charging, or ready access to public charging, can immediately start using

their vehicles and charging right away. However, as the EV market is maturing, Porsche is seeing an increasing number of customers who are repeat EV buyers, or may have multiple EVs in a household, and who may have already invested in home wall box charging. In addition, as public and workplace EV charging improves, customers have increasing access to charging options that do not rely on cables supplied with the vehicle. For customers with established home charging options or ready access to public and workplace charging, the use of the supplied charge cables is likely to decrease. In the future, more and more customers may start to remove the bulky cables from their trunks (or frunks) leaving the cables going unused.

Supplying cables with each-and-every new EV increases the costs of vehicles across the board for all consumers, whether they use the cables or not. In addition, the cables can be heavy, take up significant vehicle storage, and eventually would need to be disposed of. Given that fewer and fewer future EV buyers are likely to need a standalone cable, Porsche recommends that CARB consider modifying the cable requirement in 1962.3(c)(3) to require that cables must be made available to consumers at the time of vehicle purchase (or delivery). With this approach, consumers can “opt in” for the cable if they feel that the cable would be useful, or “opt-out” should they already be satisfied with their current charging options. This approach would be akin to making the cable a “no cost accessory” as opposed to being standard equipment in the car.

Porsche recognizes that there could be a concern that EVs entering the secondary market would be less likely to have the cable with the car when sold as used and that this could negatively affect EV adoption as used buyers may have less readily available charging options. However, even with the cables being mandated as standard and provided to the buyer when new, this does not guarantee that the initial buyer when selling the vehicle in the secondary market would then supply the cable to the used buyer. The cable may have been removed, damaged, or lost and not replaced. With either approach of having the cable be standard equipment or as an available accessory, there is no guarantee for the cable in the vehicle when sold used.

Finally, even with this modification, manufacturers or dealers could continue to provide the cables as standard equipment if they chose to. This would not impede those manufacturers who feel that all their customers may be better served with a standard charging cable.

Recommendation:

Update 1962.3(c)(3) to be that manufacturers shall make available charging cables to new electrified vehicle purchasers. If customers select to take possession at purchase, dealers shall supply the cables to the purchaser at delivery.

3. Porsche recommends CARB review the phase-in time for Data Standardization requirements 1962.5.

One of the other key ZEV Assurance policies was the implementation of 1962.5 requiring standardized data protocols for new electrified vehicles. As is consistent with many new requirements, CARB provided manufacturers with a standard

and alternative phase-in in order for manufacturers to introduce the requirements into vehicles over several model years. Porsche recognizes the value of this policy, but also notes the high level of technical complexity in fully meeting the various requirements in the timeframe allotted. Porsche recommends that CARB review the progress of manufacturers and their projected outlook for complying with the allocated phase-ins and whether a minor extension, or additional flexibility in the timelines may be warranted. The goal would be to determine if data standardization, while useful for service and customer information, may be impacting plans for manufacturers to bring more electrified models to market as soon as possible. Alternatively, or in combination with a modified phase-in, CARB may consider reviewing deficiency allowances in (g) to determine if greater flexibility in this space could be helpful.

Recommendation:

Porsche recommends a review of phase-in timelines in 1962.5(a) to add a minor extension, or enhanced flexibility, to the existing phase-in.

Comments specific to potential amendments to LEV-IV Criteria Exhaust Emission Standards for Model Years 2026 and Later

Porsche supports the extensive input provided by AFAI with specific recommendations for amendments to the LEV-IV regulations. As noted by AFAI, many of the amendments can seek to align LEV-IV with the pending EPA Tier-4 program. Aligning standards across the State and Federal domain is an important element for manufacturers who normally seek to minimize differences in vehicles across the regulatory boundaries that mismatched standards might otherwise drive. This alignment and ability to focus on developing common emissions control solutions ultimately helps reduce costs for manufacturers which then lowers barriers to entry for new car shoppers. Lower costs help ensure that newer vehicles can replace older vehicles which in many cases have outlived the expected useful life of emissions control equipment and in some cases may have become "gross emitters".

In addition to the comments provided by AFAI, Porsche recommends the following suggestion:

1. Porsche recommends updating Incorporation by Reference with Part 86 to maintain alignment.

In 2022, EPA finalized several technical amendments to Part 86 including the deadline for manufacturer submissions of the Part 1 and Part 2 certification applications. 86.1843-01(f)(2) was updated to reflect May 1 as the final deadline. However, CARB's incorporation by reference of 86.1843 includes specific reference to the version in effect as of April

28, 2014 which would then not include the updated May 1 deadline. In order to maintain alignment of deadlines, Porsche recommends that CARB update their incorporation by reference of 86/1843 to align with EPA's latest 2022 Final Rule, thereby aligning the submission deadlines.

2. Porsche recommends a minor extension of the maximum allowable ZEVs in the NMOG+NOx fleet average.

One of the key changes within LEV-IV was the removal of ZEVs from the NMOG+NOx annual fleet average calculation. Porsche recognizes the policy decisions CARB took in passing this new approach. To provide compliance flexibility for manufacturers transitioning from LEV-III to LEV-IV, CARB included an allowance within 1961.2(d)(1)(A) for manufacturers to include a declining portion of ZEVs within the calculation. Porsche that during the deliberations on LEV-IV amendments that CARB review the progress of manufacturers and their projected outlook for complying with the SULEV fleet average. For manufacturers such as Porsche, with a limited range of remaining ICE models, it may be appropriate for CARB to consider a minor extension of this phase-down allowance with a linear ramp rate reduction from 2026MY to 2030MY. This additional flexibility could assist manufacturers who are managing competing resources and planning for EV transitions.

Recommendation:

Porsche recommends a review and extension of the "*Maximum Percent ZEVs+emission-adjusted PHEVs*" as allowed in 1961.2(d)(1)(A)

Comments specific to potential Light-Duty Vehicle and Light-Duty Truck ACC2 Greenhouse Gas standards.

Porsche supports the comments provided by the AFAl regarding future potential elements of an ACC2 GHG regulation. As discussed during the development of ACC2, CARB projects that the vast majority of CO₂ reductions will be delivered by California's ambitious electrification plans embedded within the ACC2 ZEV mandate. That being said, Porsche recognizes that CARB has expressed concerns at the workshop with the potential for backsliding on carbon reductions from the remaining, albeit declining, portion of the fleet that will continue to use combustion. As noted earlier, Porsche sees an opportunity for the use of eFuels to help provide a pathway for decarbonization from combustion vehicles and will provide additional dialogue on this topic in future meetings.

Porsche will focus on two key technical elements below, in addition to reiterating comments provided earlier on timelines and flexibilities associated with the delayed adoption of future ACC2 GHG by Section 177 States. The first technical point will expand on the discussion from the AFAl related to CARB's consideration of an anti-backsliding mechanism.

The second technical point will reinforce Porsche's position stated in comments to the EPA² (and discussed here by CARB) related to projected future PHEV driver behavior and preserving the value of this important electrification technology. With regards to future Section 177 State adoption, Porsche projects that State's who chose to follow California in the adoption of ACC2 GHG may not be able to begin enforcement of this portion of the regulation until MY2029-2030 (assuming Board adoption of these amendments in CY2025). As described above, this would lead to a second round of "gap" years and delayed State implementation. Similar to ZEV and LEV-IV, States would once again be moving in-and-out of California GHG jurisdiction, with some States reverting back to Federal jurisdiction due to preplanned exit years. Given the pooled nature of GHG fleet averaging, Porsche recommends CARB provide extensive analysis on the impact of these mismatched state adoption timelines and the need for flexibilities to provide a stable and consistent planning basis.

1. CARB's discussion of implementing GHG Anti-Backsliding mechanisms into ACC2 GHG

As described in the workshop, CARB is considering that ACC2 GHG could potentially transition to an ICE-Only "Anti-Backslide" focused regulation. As ZEVs are projected to increase with each model year due to the ZEV mandate, CARB posited that if ZEVs were to continue to be included in the GHG fleet average, ICE models could increase CO₂ emissions and with the overall fleet remaining compliant with GHG fleet average standards. To prevent this, CARB discussed the potential for ZEVs to be removed from the GHG compliance fleet, and for an anti-backsliding mechanism to be developed that could prevent ICE vehicles from increasing CO₂ emissions. Porsche understood CARB's discussion to mean that two separate approaches with an anti-backsliding mechanism could be used, one which would apply to the fleet of ICEs, and the other to individual ICE models. Reflecting on the discussion, Porsche interpreted CARB's thinking in the two potential approaches as shown in Figure 7 below.

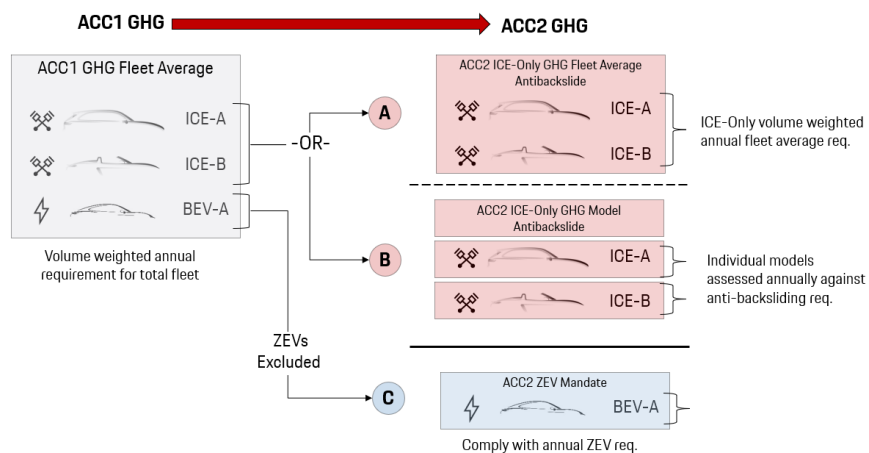


Figure 7 CARB described ICE only GHG regulation focused on "anti-backsliding."

² Comments from Porsche Cars North America to EPA Multipollutant Notice of Proposed Rulemaking (2023)

As discussed above, Porsche assumes that CARB's first intention would be for ZEV vehicles to be no longer regulated under ACC2 GHG. As shown in "C", these models would be removed from the regulated GHG fleet. Remaining ICE models, including pure ICE, HEV, and PHEV (including ZEV Vehicle Value PHEVs) would then either be regulated as a combined fleet (As shown in "A") or as separate models (as shown in "B"). The premise of the anti-backslide mechanism being that in either "A" or "B", a baseline year would be selected in which a CO₂ emission level for the fleet in "A" or for each model in "B" that would reflect the actual CO₂ emission levels of the manufacturer's fleet or individual models in the baseline year. Porsche believes that CARB was considering that the baseline year would be the last year of ACC1.

Combined ICE Fleet GHG Average with Fleetwide Anti-backsliding

The first approach shown in Figure 8 below is for the remaining ICE vehicles to be segregated into a sub-fleet of vehicles with annual GHG performance being calculated using the existing volume weighted averaging and flexibilities for those models in a similar manner as current ACC1 GHG. Under this approach a fleet average CO₂ Anti-backsliding target would be established from a baseline year against which ICE fleets in future years would not be allowed to exceed (i.e., would earn deficits).

While many details of this approach would need to be proposed and reviewed, one point of consideration is that of the baseline year and the fleet which would be used to determine the baseline. Given the pooled allowance in ACC1 GHG, Porsche recommends that CARB provide manufacturers with the option to use either California volumes in determining the baseline fleet, or to use "pooled" volumes including all applicable Section 177 States. Another point of consideration would be regarding flexibilities within ACC1. As flexibilities are part of the overall fleet average CO₂ emissions level, CARB should consider providing a stable suite of flexibilities to have consistency between ACC1 and ACC2. Alternatively, rebaselining of ACC1 would be necessary.

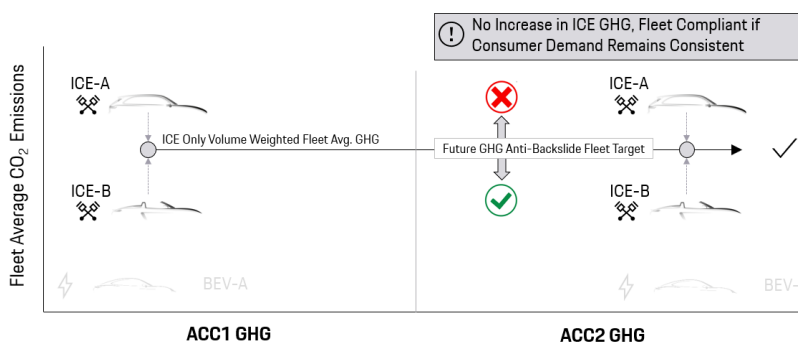


Figure 8 Illustration of ICE-Only GHG Fleet Average with Anti-Backsliding Requirement

As noted in AFAL comments, there are several points to consider in transitioning to a sub-fleet average with anti-backslide approach. The first is to ensure that the fleet average anti-backslide target does not introduce unintended consequences associated with changes in consumer demands. As illustrated in the simplified example below in Figure 9, this fleet features two ICE models with CO₂ emissions that did not change from year to year. From an anti-backsliding consideration, neither model increased emissions. However, because the baseline model year target is derived from volume-based averaging, should the ratio of consumer demand between the two models shift (i.e., consumers seek out

additional utility models versus sedans), the risk could be that a manufacturer no longer complies with the anti-backsliding target. Under the current ACC1 GHG (and EPA regulations), if the consumer mix-shift changed from year to year, the target would also change as both the target and performance are volume weighted. In this example a fleet with stable technology (no change in vehicle CO₂ levels) could become non-compliant.

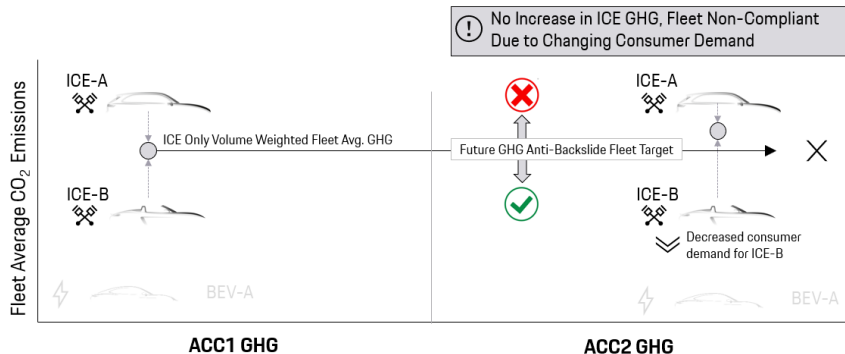


Figure 9 Example of potential non-compliance with ICE only fleet average GHG with anti-backsliding requirement due to changes in consumer demand, not due to increases in vehicle CO₂ emissions.

The next point is with regards to the impact this approach could have on manufacturer decisions in transitioning vehicles from ICE to zero-emissions models. Under the sub-fleet average with anti-backsliding, as manufacturers remove ICE models from the fleet and replace them with zero-emission models, those ZEV models would no longer be part of the regulated fleet. The fleet average emissions of the remaining ICE vehicles would change due to fewer vehicles being in the average, all without the actual ICE vehicle emission levels changing themselves. As shown below in the simplified example in Figure 10, if a manufacturer selected to transition a lower emitting ICE model to BEV (e.g., to broader availability of lower cost BEVs, or entry-level models), the remaining ICE model would no longer comply with the anti-backsliding requirement even though the remaining ICE model CO₂ did not change. This outcome could create a restriction on model planning for manufacturers that otherwise would not exist under the current ACC1 GHG program. Manufacturers who see greater market opportunity in transitioning specific ICE models to BEV could be restricted in making these choices if there would be a resulting non-compliance risk. This non-compliance could occur even though the manufacturers gross fleet actually reduced overall CO₂ emissions because of the additional BEV.

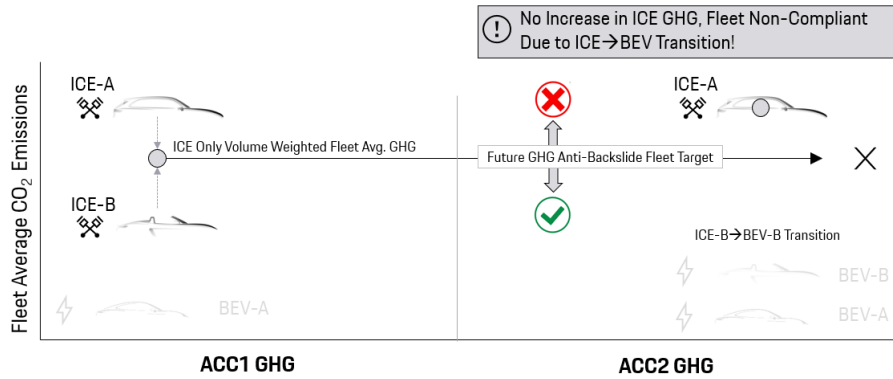


Figure 10 Example of non-compliance with fleet average anti-backsliding due to transition of an ICE model to BEV (unintended consequence)

In summary, while this approach may have merit, CARB should consider the impacts on consumer choice and on potential manufacturer planning restrictions. Porsche notes that recently in 2023, the United Kingdom enacted a similar package of policies which include both a zero-emission vehicle mandate and a ICE fleet average anti-backslide. Porsche recommends that CARB review the discussions that led to the development of these programs and consider lessons learned from the UK which may be relevant for California.

Combined ICE Fleet GHG Average with Fleetwide Anti-backsliding

Alternatively, as shown below in Figure 11, the remaining ICE vehicles could be segregated into individual models with the requirement that each model not be able to backslide against its individual baseline model year emissions level (i.e., would earn deficits against a its baseline performance). Under this approach, each model would set its own anti-backsliding target that would be equal to that vehicles CO2 emissions level in the baseline year.

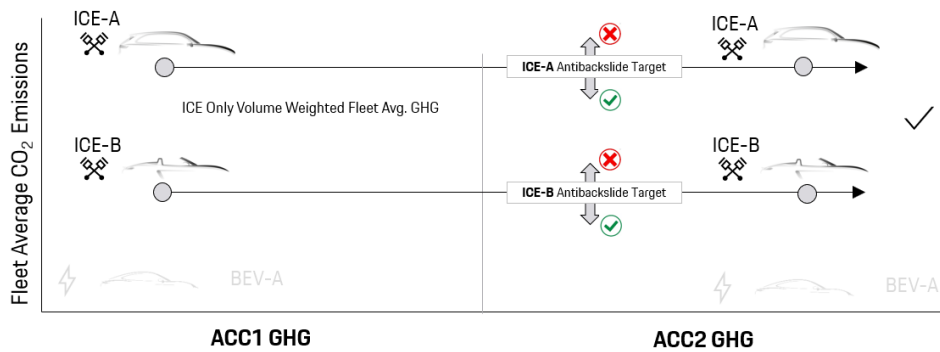


Figure 11 Example of Anti-backsliding applied at a per vehicle level, featuring requirements derived from baseline model year

This approach could reduce the risks noted above with the sub-fleet average approach. The first would be that approach would be agnostic to volume shifts across models as the compliance to the anti-backslide target would no longer be a volume weighted. (Noting however that volume shifts could still impact credit/deficit generation should ACC2 incorporate credit currency calculated in “tons” rather than CO₂ gram/mile rate of emissions). Manufacturers may not

be out of compliance when consumers chose to purchase more of a particular model so long as each model meets the anti-backslide requirement. Furthermore, this approach would also not impact decisions regarding ICE to BEV transition planning. As shown below in Figure 12, models that transitioned from ICE to BEV would no longer be regulated under ACC2 GHG and the remaining ICE models would not have their individual anti-backslide targets impacted.

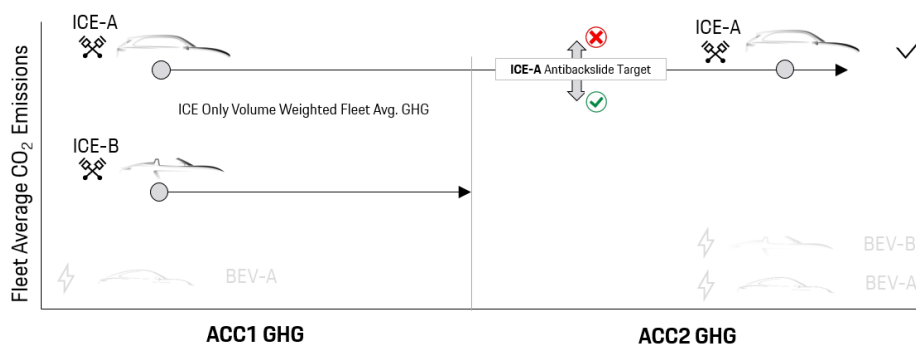


Figure 12 Example of vehicle level anti-backsliding unaffected by product electrification decisions

However, there are certain year-to-year changes that could impact annual CO₂ emission levels for each model. Changes in consumer adoption of option content, tires, or other features on the cars could impact testing conditions and other elements within the model type CO₂ calculations. For example, if the customer take-rate on a certain option increased, the manufacturer may have to include this option in determining test weight. CARB may consider a certain bandwidth of variation around the model level target, or a flexibility to manufacturers to apply for an updated target, if there are demonstratable changes in how the model type CO₂ was determined. This would provide some flexibility for customer preferences to still be met without having to restrict content and features. This bandwidth could also help account for typical test-to-test variability.

One point to note is that this approach does fundamentally deviate from the long-standing regulatory precedent for the inherent flexibility associated with fleet averaging. Many mobile source regulations utilize fleet averaging as a way to obtain environmental benefits while also preserving the ability for manufacturers to deliver a range of vehicle types and utility to customers. Fleet average standards typically create no specific requirement at a “per vehicle” level. Rather, the manufacturer is required to comply with an overall fleet target, but is otherwise left to manage compliance across their full range of models. Vehicles over-complying can be used to compensate for vehicles under-complying. This degree of freedom within fleet averaging continues to be an important part of preserving vehicle consumer choice by being able to offer some vehicles with higher levels of utility and functionality (and emissions), so long as they are offset with more efficient models. Shifting away for fleet averaging could lead to more granular restrictions on available vehicle utility features for consumers.

2. Porsche does not support the proposed reduction in the PHEV utility factor.

In the workshop, CARB referenced discussions related to reducing the utility factor (UF) for PHEVs which will decrease the assumed portion of electric operation used to determine the GHG compliance values for PHEVs. Porsche provided comment to EPA as this was also included the proposed modifications to Part 600 in the Multipollutant rule. From a compliance standpoint, reductions to the UF will undercut the incentive to deploy these electrified vehicles.

Porsche recognizes that PHEVs may play a minority role in the overall composition of future electrified vehicles sales, but nevertheless continues to see an important market role for PHEVs. PHEVs expand the range of electrification choice for consumers, choice that provides access to the benefits of electrification in cases where a consumer may be unable or unwilling to adopt fully electrified vehicles. Given the aggressive stringencies within CARB's ACC2 and as proposed in various Federal regulations, all of which are encouraging the transformation of the US light-duty market towards electrification, adopting this change would simply be counter to that effort. Worse yet, it's a change whose entire premise is based on looking backward on PHEV recharging and vehicle capabilities, and not leveraging the anticipated future charging environment (included within the assumptions of the MPR) and in the increased level of PHEV capabilities being driven by CARB's ZEV mandate.

EPA's proposal devalues future PHEV driving usage based on historic driver usage, early-generation PHEV capability, and yesterday's charging environment, all of which do not reflect the shared outlook for future conditions. Porsche has not reviewed the details of the California BAR or *fuelly.com* data but can understand if in some cases consumer use of electric drive has been lower than expected. This is not surprising given the well-documented challenges and complaints related to the general lack of public charging infrastructure in the past few years. Besides challenges within finding reliable public charging, many consumers have faced difficulties in installing home charging, especially for multifamily and rental dwellers, and have complained about the general lack of workplace charging. However, ACC2 and the newer Federal proposals are premised on overall dramatic shift towards electrification which in turn heavily relies on assumptions regarding significant improvements in electric vehicle capabilities (i.e., greater range and capability of PHEVs) and on significantly improved availability and reliability of public and private electric vehicle charging. Issues that past owners of PHEVs may have experienced in years gone by should not be issues that future drivers face. As such, the decision to alter the utility factor for future PHEVs should not focus on decreasing the utility factor due to challenges customers experienced in the past, but rather should maintain the existing utility factor based on improved usage of charging in 2027 and later.

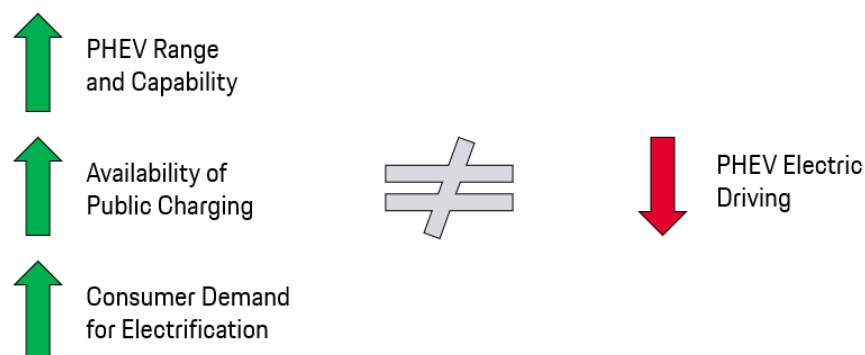


Figure 13 Increasing capability of PHEVs, along with expanding charging options, plus higher demand from consumers should not lead to decreased EV driving in PHEVs.

Based on long-standing regulatory history from State and Federal agencies that assume customers highly value fuel savings, it is nonsensical to assume that future drivers in more capable PHEVs, operating in an environment with more ubiquitous charging, would forfeit those cost savings by passing up on the use of electric drive. If consumers value fuel savings, and if charging availability is a decreasing barrier to usage, agencies would have to assume that PHEV drivers would naturally seek to maximize their usage of electric drive if the cost per mile to drive electric is less than that of gasoline. If for some reason drivers continued to avoid using electric operation, then agencies would have to reevaluate the entire premise of consumer demanded fuel savings. As charging resources increase, utility factor should increase along with it, not go down.

Porsche anticipates that with improved electric ranges and greatly increased charging opportunities, PHEVs electric operation should increase in the future. The White House reported on June 27 that the goal to achieve 500,000 public chargers remains on track and the 2030 DOE report on nationwide charging supports the point that current public and private investment into charging also appears on track to support projected EV penetrations. Why would State or Federal agencies undercut a class of electrified vehicles based on yesterday's charging challenges, when other government entities are increasingly declaring charging challenges to be on track to being solved?

Porsche continues to offer PHEVs in the US market and has recently launched an upgraded version of a PHEV utility that features significantly increased electric range and electric drive capability. Porsche recognizes that PHEVs can play a valuable role in helping our customers achieve the benefits that even partial electrification can provide in terms of improved efficiency, reduced petroleum consumption and dynamic performance.

Recommendation:

- Maintain current PHEV UF for ACC2 GHG regulations.
- Review future updated PHEV driver patterns incorporating the effects of expanded charging infrastructure, update vehicle capabilities and increased consumer acceptance of electrification.

Summary of Porsche input to the range of potential ACC2 amendments

Porsche appreciates the opportunity to provide these comments to CARB as staff begins the process to consider future amendments to the ACC2 program. Thank you for your consideration of these comments. Should you have any questions, please contact me at nicholas.tamborra@porsche.us, or 248-464-1836.

Sincerely,

A handwritten signature in black ink, appearing to read "Nick Tamborra". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Nick Tamborra
Manager, Regulatory Affairs, AfterSales
Porsche Cars North America, Inc.