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U.S. Environmental Protection Agency  
Office of Transportation Air Quality  
Assessment and Standards Division  
2000 Traverwood Drive  
Ann Arbor, MI 48105

Porsche Cars North America, Inc.  
Michael Scott, Director Regulatory Affairs  
One Porsche Drive  
Atlanta, GA 30354  
Telephone: 770-290-2726  
Email: michael.scott@porsche.us

**Comments to the Notice of Proposed Rulemaking for the Multi-pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles**

EPA-HQ-OAR-2022-0829

To whom it may concern,

Porsche Cars North America (PCNA) appreciates the opportunity to submit the following comments with regards to the United States Environmental Protection Agency (EPA) Notice of Proposed Rulemaking (NPRM) for Multi-pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles (MPR). These comments are submitted by PCNA for itself and on behalf of Porsche AG (collectively, "Porsche").

Porsche Cars North America, based in Atlanta, Georgia, is an Original Equipment Manufacturer of light-duty vehicles and trucks. Porsche imports and certifies a variety of premium performance and luxury electrified and advanced combustion vehicles for sale in the United States. As Porsche does not currently market medium-duty vehicles, these comments are primarily focused on sections of this proposal related to light-duty requirements that Porsche vehicles will be subjected to. Appendices to these comments contain Confidential Business Information (CBI) and have been marked accordingly. The redacted version of these comments will be submitted via the Docket at regulations.gov with the confidential version submitted to EPA's Office of General Counsel. Porsche also participated in the development of comments submitted by the Alliance for Automotive Innovation (AAI) and supports those positions.

**Porsche is implementing an ambitious, global strategy for the decarbonization of our vehicles and operations.**

Porsche has developed a holistic, comprehensive sustainability strategy that is being implemented across our global operations, services, and products. Through this strategy, Porsche seeks to ensure that the company continues to be a positive partner to society and that our vehicles will meet the needs and desires of our customers while contributing to the environmental and energy policy goals being established by governments in the markets Porsche serves. The decarbonization of Porsche vehicles is a central element within this comprehensive strategy.

Porsche's approach to vehicle decarbonization rests upon three technology pillars including electrification, hybridization and advanced combustion. Through these three pillars, Porsche aims to provide diversity in the choice of clean, low-carbon mobility for our customers. Electrification is increasingly becoming the focal point of Porsche development activities and is projected to be the majority solution for many of our future products. Electrification can provide Porsche customers with the premium high-performance and luxury attributes they seek, while also directly contributing to environmental goals. Alongside electrification, Porsche continues to see opportunity for a limited selection of future vehicles to continue to leverage advanced combustion and hybrid technologies with the opportunity for new, highly innovative near carbon-neutral fuels to help contribute to decarbonization goals.

**EPA's proposal reflects a historic level of ambition for low-carbon, low-emission mobility.**

EPA has proposed ambitious targets within this NPRM for the accelerated decarbonization of the light- and medium-duty vehicle segments, in addition to incremental reductions in criteria pollutants from remaining combustion models. This proposal represents one of the most stringent and technologically demanding regulatory frameworks in the history of US automotive emissions regulations. EPA projects that to achieve these requirements, consumer adoption of electric vehicles must quadruple over the next 3-4 model years from current rates of approximately 8% to nearly one-third of new vehicle sales by 2027. Over the next six model years, this growth must double again, with electric vehicles comprising of over two-thirds of annual new vehicle sales by 2032. The extent of this proposal reflects the urgency and magnitude in carbon reductions being sought by EPA to address potential impacts of climate change.

EPA's proposal also reflects the historic and transformative investments being made across the auto industry by OEMs like Porsche into electromobility. As noted in the comments from AFAL, the auto industry is projected to invest over \$1.2 trillion in the development and production of electric vehicles by 2030. As AFAL outlines, this investment and commitment must be matched by an equal level of effort from segments outside of the auto industry for the range of electrification goals within this proposal to have a chance at being successfully achieved. Many other sectors will play an increasingly important role in enabling the electric vehicle transition. Utilities, charging infrastructure providers, and raw material suppliers will need to execute their own transformative plans at unprecedented speed. Sustained, supportive public policy will be critical in forming a robust foundation across many sectors that need to scale up growth and capacity.

### **Electromobility will need continued support from public policy.**

Recent legislative actions have seeded the ground with support for electric vehicles and the beginning of a robust nationwide charging network. With specifics that continue to be defined, stakeholders are working to maximize the opportunity under these new laws to support customers with valuable purchase incentives, and to help spur the development of new electric vehicle component production and material sourcing. Understandably, the complexity of these laws results in a process that requires careful deliberation with industry representatives working hard to ensure customers have a clear understanding of the support available. Nevertheless, the support within these programs will be critical to the growth rates EPA envisions in this proposal.

Other areas important to consumer adoption can benefit from additional policy development. Further work is needed to reduce barriers to electrification such as streamlining building codes to futureproof new construction to ease the installation of charging at homes, apartments, and workplaces. The magnitude of the challenge related to a robust charging infrastructure is becoming increasingly clear with updated reports such as the Department of Energy's 2030 assessment<sup>1</sup>. This single report indicates a total investment of \$53-127 billion dollars for private and public charging which does not even include costs associated with grid upgrades to support the 26 million plus ports that are estimated to be needed. Consumers won't be satisfied with roadblocks that make owning an electric car more complicated than a gasoline model. Actions are also needed to help lower the cost of electricity as a fuel to ensure that EVs are competitive and attractive against gasoline models. Policy makers and the auto industry must also continue to find wins in other regulatory programs. EPA's recently finalized Renewable Fuel Standard for 2023-2025 regrettably was unable to finalize the innovative and robust proposal for "eRINs". This proposal that was supported by Porsche could have opened the door for continued growth in electricity derived from biogas and used transportation fuel and to further incentivize growth in the electric vehicle market. Porsche appreciates the need for EPA to consider the wide range of input they received on this proposal and will work proactively to support near-term regulatory actions to finalize this valuable, supportive policy.

### **Porsche's double-E strategy of electromobility and near carbon-neutral combustion**

As stated above, Porsche has established an ambitious goal for the electrification of our cars and trucks over the next several years. This goal builds upon the range of electrified models that Porsche has offered in the United States for the past decade. Within the premium, high-performance and luxury segments in which Porsche competes, Porsche has delivered almost 45,000 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

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<sup>1</sup> The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure, US Department of Energy, 2023

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 non-fossil carbon dioxide, commonly referred to as “eFuels”, can enable advanced combustion and hybrid technologies to operate in near-zero manner. Porsche refers to this emerging strategy as our double-e strategy: electromobility and eFuels.

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 meet market gasoline standards and offer a drop-in solution that requires no unique fueling infrastructure or vehicle modifications. Because eFuel will meet market fuel standards, the near carbon-neutral benefits can be applicable to new vehicles and many of the existing, on-road legacy combustion cars.

Porsche recognizes that within the context of this specific proposal, EPA has not sought comment on how to include the benefits of innovative, near carbon-neutral liquid fuels within the structure of the light-duty greenhouse gas program for 2027 through 2032. Porsche recognizes that innovations like eFuels are still an emerging development and may take time to reach market scale. Porsche looks to future opportunities with EPA and other policy stakeholders to explore how these fuels in a limited number of vehicles, with potentially near carbon-neutral properties, could work within the range of Federal and State regulations. Porsche recognizes that these strategies may extend into future updates to EPA’s GHG regulation as well as for other Federal and State regulations. Nevertheless, Porsche very much appreciates the foresight of governments who may consider an inclusive regulatory framework.

**Porsche supports the development of an alternative compliance pathways, providing additional flexibility within the overall suite of light-duty regulation.**

Porsche appreciates EPA including within the MPR preamble reference to alternative compliance pathways that may be considered and included within the Final Rule. Porsche agrees with the agency that an alternative pathway could be developed to help encourage earlier adoption of zero- and near-zero emission technologies that would match or even accelerate GHG and criteria emission reductions beyond the levels proposed within the various scenarios in the proposal. Alternative compliance pathways have been, and can continue to be, a pragmatic regulatory tool that helps agencies achieve their desired policy outcomes while providing manufacturers with greater choice and potentially improved alignment with their individual product strategies.

Porsche would support the development of an alternative pathway for this final rule. An alternative pathway could be an option available to any Original Equipment Manufacturer that would establish requirements that could be met in lieu of primary vehicle certification and fleet average performance-based standards. Each manufacturer would have an equal opportunity to review and participate in this pathway. Porsche believes that an alternative pathway could be developed that would be equitable in terms of manufacturers contributing to the policy goals of the NPRM. Furthermore, Porsche believes that an alternative pathway could be structured such that regardless of how many manufacturers chose to participate, there would be no incremental burden on non-participating manufacturers. Porsche respects that manufacturers serve very different market segments and that an alternative pathway may not be appropriate for all manufacturers.

An alternative pathway that focuses on the deployment of zero- and near-zero emission vehicles will directly contribute to the carbon and pollution reduction policy goals of this MPR, in addition to the petroleum reduction goals of DOT's CAFE regulation and with the air quality goals within California's recently adopted Advanced Clean Cars 2 regulations. In addition, this pathway will help manufacturers concentrate their human and financial resources into the development and manufacturing capacity of zero- and near-zero emission vehicles, potentially leading to accelerated deployment of such vehicles and with the greater potential for cost reductions. This type of pragmatic focused pathway can deliver regulatory certainty, compliance streamlining, and increased environmental and energy benefits.

In general, like the primary suite of regulations, Porsche believes an alternative pathway would center upon an annual compliance requirement that would contain a mix of targets, boundary conditions, and flexibilities. Manufacturers would commit to utilizing this pathway the details of which could be defined within a new Subpart. Compliance with the terms within this new Subpart would be in lieu of compliance with the primary performance-based fleet average and vehicle certification requirements.

With regards to form and structure, Porsche generally views an alternative pathway that would likely be centered on an accelerated ramp rate of zero- and near-zero emission vehicles and technologies. The alternative pathway could include annual targets for the nationwide deployment of zero- and near-zero emission vehicles. The targets could reflect an incremental level above the industrywide projected rates of zero- and near-zero emission vehicles needed to comply with finalized performance-based standards. In addition, Porsche believes that the pathway could provide recognition for actions from manufacturers that support electrification through complementary measures such as deployment of charging infrastructure or customer education programs that would both be helpful to increasing consumer adoption.

Porsche recognizes that this type of pathway may be characterized as a Nationwide "EV mandate" which could negatively impact consumer choice and remove other technologies from the market. Porsche believes that the alternative pathway could be structured with flexibility to include technologies that are able to demonstrate significant and meaningful emissions benefits. Porsche recognizes that certain vehicle segments may better achieve emissions goals and customer acceptance through technologies other than full electrification. As such, a flexibility for being inclusive, even if for a limited portion of the overall requirement, may be a pragmatic and helpful approach.

Porsche is aware of discussions associated with these types of zero-emission vehicle policies regarding the performance requirements for the remaining combustion models that would continue to be sold. The dialogue being that combustion models would be free to “backslide” in their emission performance or fuel efficiency should they no longer be subjected to stringent certification and fleet average requirements. Stakeholders have contended that this potential “backsliding” could erode or otherwise offset the benefits being achieved even with increased zero-emission vehicle sales. Porsche believes that a reasonable set of boundary conditions could be developed as part of the alternative pathway that would help ensure policy outcomes by preventing backsliding of the remaining combustion fleet. There are likely a series of measures that could be implemented to protect against such erosion of emissions or fuel economy performance that would allow manufactures to focus on their zero-emission fleet, but not at the expense of reduced combustion vehicle performance. These types of “anti-backslide” measures have been used in the past within vehicle regulations. Manufacturers could outline their roadmap of remaining combustion models and demonstrate to the Administrator how the manufacturer would preserve the level of performance for each remaining vehicle over the duration of the regulation. Porsche believes there could also be some requirements for limited, targeted improvements in these combustion concepts that may help achieve incremental emissions benefits without major redesign or certification resources. Overall, this approach could effectively “snap a chalk line” for each manufacturer to preserve combustion vehicle performance as the vehicles phase-down in a manufacturers fleet.

As mentioned above, Porsche believes it is likely that the terms of an alternative pathway would need to be consistent for each participating manufacturer regardless of overall size within the US market. Because smaller volume-based manufacturers already are provided limited flexibilities for annual compliance, it is unlikely that additional flexibilities would be needed within an alternative pathway. As such, EPA could consider whether it remains appropriate to maintain provisions for related entities as such provisions may no longer serve a purpose. Manufacturers could be provided the option to participate in the alternative pathway on an individual basis or to continue with the current coordinated compliance.

Porsche also believes that the potential benefits of an alternative pathway could extend beyond the boundaries of this specific NPRM. Porsche recognizes that an alternative pathway developed within this rulemaking would necessarily be limited to acting in lieu of regulatory requirements directly under EPA’s management. However, Porsche recognizes that an alternative pathway could provide similar benefits within the regulatory structure of other related State and Federal regulations. As noted earlier, an accelerated ramp rate of zero- and near-zero emission technologies could equally serve these programs. As such, Porsche recommends that an alternative pathway be structured and coordinated across agencies to provide manufacturers with a holistic, comprehensive compliance strategy that would significantly improve regulatory certainty and streamlined implementation. Porsche believes it could be possible for California and NHTSA to coordinate with EPA to develop equivalent alternative pathways that would work separately under each agencies own statutory authority, but aligned to ensure that a manufacturer who brings an accelerated rate of zero- and near-zero emission vehicles to market can achieve compliance with the full range of requirements.

Porsche acknowledges that this would be an extensive investment in agency resources to define the specifics of an alternative path in time for a Final Rule as projected in CY2024. Nevertheless, Porsche hopes that these comments are

sufficiently responsive to the request for comment by EPA which could create the opportunity for details to be developed by EPA. Porsche would seek to be an active, constructive resource for the agency in helping to inform the details on such an alternative pathway.

### **Importance of Monitoring Progress on the Advancement of Electrification**

EPA's proposal includes a wide array of assumptions related to the development of the electrification market, costs of components, supply chain readiness, and charging infrastructure. These assumptions each contribute towards the percent of electrification that was used to inform the overall stringency of the targets. As outlined by the AFAL, Porsche supports the concept of a holistic program to monitor the overall progress of each of these assumptions and their related impacts on electrification readiness and adoption. Monitoring progress with transparent reporting is a pragmatic policy decision that does not cast doubt on the success of each of the assumptions. Rather, monitoring and reporting establishes a clear and transparent basis for ongoing dialogue between stakeholders and the EPA. This type of monitoring can provide early awareness of unexpected challenges or disruption and allow stakeholders to understand how requirements may need to be adjusted to help ensure that the requirements remain achievable.

### **Comments specific to the proposed Criteria Exhaust Emission Standards for Model Years 2027 and Later**

Porsche provides the following comments in supplement to the comments from the AFAl specific to the proposed Tier-4 standards for light-duty vehicles. As noted earlier, Porsche does not currently market medium-duty vehicles in the United States and offers no input for those regulatory requirements.

In general, Porsche continues to maintain that the vast majority of emission reduction opportunity will be realized through the deployment of zero- and near-zero emission technology vehicles. As projected within the NPRM and the support documents, the bulk of emissions benefits should be achieved through the significant growth in electric vehicles projected by EPA for the US market.

While focusing on a majority electrification strategy, Porsche continues to see a role for future advanced combustion engines in limited applications. As such, Porsche appreciates the sections of the proposal that align with California's recently adopted Advanced Clean Cars II LEV-IV program and supports comments that seek additional alignment between the two programs. This alignment will help manufacturers optimize resources and streamline planning.

As EPA notes in the NPRM, even with increasing sales of electric vehicles, there will be a portion of new vehicle sales that will continue to be combustion albeit at decreasing rates. Porsche believes it is important to recognize that these future combustion vehicles will include fully phased-in Tier-3 and LEV-III program requirements. As such, these vehicles will be certified to emissions levels and fleet averages that both EPA and CARB have projected to deliver significant, meaningful reductions in pollutants from new light-duty vehicles. Across the industry, fully phased-in Tier-3 and LEV-III fleets will reflect fleet average performance equivalent to Super Ultra Low Emissions Vehicle performance, commonly referred to as SULEV. Many of these new vehicle sales will replace older, higher emitting models often characterized as "gross emitters". Porsche recognizes that both LEV-IV and Tier-4 have sought to identify opportunities for further, incremental improvements in emissions control. Some of these proposals are projected by CARB and EPA to be achievable through changes in emissions control algorithms (i.e., software or calibration strategies), while others may need to rely on new emissions control hardware or other physical changes to emissions control systems. Porsche recommends that EPA carefully consider the extent to which these potential incremental gains beyond the foundational benefits of Tier-3 may consume engineering resources and drive increased costs considering the industry's general shift towards electrification. Porsche offers these comments to help inform a balanced outcome that identifies cost-effective improvements in emissions performance that will allow manufacturers to focus resources on the expansion of zero-emission electrification.

#### **1. Porsche seeks to confirm NMOG+NOx fleet average credits continue to act as a single averaging set.**

Porsche seeks to confirm it's understanding of the NMOG+NOx credit flexibilities under the default phase-in scenario for vehicles >6000 pounds defined in 86.1811-27(b)(6)(ii). Under this scenario, Porsche recognizes that all Tier-4 and Interim Tier-4 light-duty program vehicles (LDV, LDT1, LDT2) below 6000 pounds would be averaged together to



assess compliance with the declining NMOG+NOx fleet average outlined in Table 3 of 86.1811-27(b)(6)(ii) and that this averaging set would only include vehicles below 6000 pounds. Porsche further understands that the default scenario would create a second averaging set for Interim Tier-4 vehicles over 6000 pounds (LDT3, LDT4, and MDPVs) and that these vehicles would be assessed against the Tier-3 fleet average NMOG+NOx standard of 30mg for model years 2027-2029. Porsche recognizes that EPA is not proposing changes to the credit operations outlined in 86.1861-17(b)(1)(ii) which states that:

*"Except as specified in paragraph (b)(1)(iii) of this section, **LDV and LDT represent a single averaging set** with respect to all emission standards."*

Because EPA is continuing to view the LDV and LDT as a single averaging set for NMOG+NOx fleet average compliance, Porsche seeks to confirm that credits generated within a model year (i.e., for MY2027-2029) in either the under 6000 pound or over 6000 pounds averaging set can be used between the two averaging sets should manufacturers have a deficit in either set. Furthermore, Porsche seeks to confirm that manufacturers can apply carry-forward Tier-3 credits within both the under and over 6000 pounds averaging sets (setting aside the MDV restriction) to also cover any deficits. Finally, Porsche seeks to confirm that any deficit in either the over or under 6000 pounds averaging set would have to be covered with credits earned in the same model year from the other averaging set prior to utilizing banked, carry-forward credits from earlier model years.

## **2. Porsche supports an extended phase-in timeline and alternative phase-in for Tier-4 Compliance**

Porsche supports the comments from AFACI regarding an extended phase-in for the percentage of projected new vehicles that must comply with Tier-4 standards. As recommended by the AFACI, Porsche supports a revision to the proposed language in 86.1811-27(b)(6)(i) to require 25% in MY2027, 50% in MY2028, 75% in MY2029 and 100% in MY2030. Porsche supports this extension given the requirement in (b)(6)(i) for a vehicle to meet all the proposed standards to be considered within the phase-in. As AFACI notes, manufacturers may have difficulty in meeting narrow elements of the overall proposal, especially elements that are not aligned with California's LEV-IV programs. Because EPA is requiring vehicles to meet Tier-4 in its entirety, regardless of which part is unable to be achieved, the vehicle would not be included in the phase-in. The longer phase-in could provide additional flexibility for vehicles that need time to meet all the requirements, especially the newer requirements being proposed by EPA.

In addition, Porsche supports the addition of a point-based alternative phase-in option available to manufacturers to use for determining compliance with the phase-in in lieu of the annual percent-based compliance. The point-based system could utilize previous examples in which the percentage of a manufacturers fleet that meets the standards is multiplied by a declining annual value, with a minimum points requirement that must be achieved by a future date. The exact function can be developed to ensure that the alternative point-based system delivers consistent emissions reductions with the percent-based system. The opportunity to earn higher points in earlier model years would incentivize early Tier-4 concepts, which could in turn provide additional flexibility for concepts that may need to comply later either due

to their redesign cycle, or for concepts which may be having challenges with specific portions of the Tier-4 package and simply need additional development time.

### **3. Porsche supports flexibility to include zero emission vehicles within NMOG+NOx fleet averages as an option**

As described within III.C.2.iii. of the preamble<sup>2</sup>, EPA has proposed that the declining NMOG+NOx fleet average should continue to include all vehicle types, including BEVs and other Bin 0 powertrains. Consistent with comments from the AFIA, Porsche recognizes that there is value in aligning the Tier-4 structure with CARB's LEV-IV, which excludes ZEVs from the LEV-IV fleet average, but maintains a consistent annual target of 30mg/mile. Porsche recommends that should EPA considering aligning the Tier-4 fleet average approach with CARB, that EPA offer manufacturers the option to include BEVs within the fleet average and use the declining annual targets similar to as it is proposed in the NPRM. The two options would provide additional flexibility for manufacturers without disrupting the requested alignment with LEV-IV.

### **4. In the default pathway, Porsche supports adding the opportunity for early, optional Tier-4 compliance for light-duty program vehicles over 6000 pounds.**

Porsche supports the position of the AFIA to include within the default compliance pathway outlined in 86.1811-27(b)(6)(ii) the ability for LDT3, LDT4, and MDPV vehicles (i.e., vehicles over 6000 pounds) to optionally comply with Tier-4 requirements prior to the 2030 model year requirement. These vehicles could be referred to as "Default Path Early Tier-4" vehicles which could then be included within the Tier-4 phase-in percentages in 86.1811-27 for vehicles under 6000 pounds. The volumes used for determining compliance to the Tier-4 phase-in would include the projected volume for these Default Path Early Tier-4 vehicles and the compliance percentages would be calculated accordingly.

Porsche recognizes that some manufacturers may find that the default pathway better aligns with their future product portfolio versus the alternative early pathway in 86.1811-27(b)(6)(iii) (i.e., including all vehicles under 8500 pounds vehicles together). Porsche appreciates that the default pathway was defined to reflect the Clean Air Act minimum lead time for vehicles over 6000 pounds and thus reflects that there is no obligation for those vehicles to meet Tier-4 standards prior to model year 2030. This proposal for Default Path Early Tier-4 vehicles should continue to align with the Clean Air Act in that manufacturers in the default pathway are not required to choose to declare these vehicles as Default Path Early Tier-4s, but if they do, then the vehicles could be counted in the Tier-4 phase-in.

The option for over 6000 pounds vehicles to be included early could provide manufacturers who have selected the default pathway with some additional flexibility for complying with the Tier-4 phase-in, without having to fully reject the default pathway altogether. As noted by the AFIA, future electric vehicles are likely to incorporate larger traction

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<sup>2</sup> 88 FR 29261

batteries to meet customer demand for increasing range or utility. A manufacturer in the default pathway may find they are at risk of compliance with the under 6000 pounds Tier-4 phase-in should an electric vehicle that was intended to be part of the phase-in begin to approach the 6000 pounds threshold as product teams demand more range or utility. By allowing over 6000 pounds vehicles to still be counted in the Tier-4 phase-in, this flexibility would provide greater freedom to product teams balancing phase-in compliance with increasing customer needs.

## **5. Porsche recommends continuity for current enrichment strategies.**

Porsche recommends that EPA not adopt the proposal to broadly eliminate enrichment for Tier-4 vehicles. Porsche maintains the current approach used by industry and the agency to consider enrichment strategies within current certification processes should continue to be sufficient to provide the opportunity to review the appropriateness of commanded enrichment. Porsche, like many manufacturers, has evolved its powertrain offerings in response to greenhouse gas and fuel economy goals to adopt a range of highly charged, downsized engines that provide increased efficiency and customer demanded power. These highly charged, downsized motors continue to utilize enrichment to limit the potential for thermal damage from elevated exhaust temperatures. In addition, customers continue to demand increasing levels of performance and enrichment can enable customers to have their needs met with an efficient downsized engine rather than otherwise having to revert to larger, less efficient engines.

Porsche supports comments from the AFAL specific to this topic and provides additional information, found in **Appendix-A** (section marked confidential). This data illustrates that the potential opportunity for overall emissions reductions from eliminating enrichment may be very narrow given that the cumulative operation of sample vehicles driving under real-world conditions in which enrichment may be triggered is infrequent. Porsche recognizes that the data set is limited in the range of models and total trips and that the vehicles that were instrumented reflect European driving conditions. However, Porsche contends that the variation in overall driving conditions is not that significant, and that this data provides a reasonable proxy for expected US conditions.

Porsche recommends that EPA convene a test program to instrument vehicles in the US to gather similar data across a wider range of vehicle types, powertrains, and driving environments. The benefits of this broad data program would be to provide estimates on the overall opportunity for emissions reductions and to weigh this against the impacts of eliminating enrichment. Porsche contends that without such US specific data, it is unclear what the potential benefits may be against the potential negative side effects of increased cost, reduced power, and possible consumer backsliding on the adoption of downsized engines.

Porsche supports the position outlined in the AFAL comments regarding EPA's arbitrary declaration that "Modern vehicles have sufficient power without the use of enrichment". Most Porsche models marketed in the US are made available with an assortment of engines spanning a wide range of power options that customers can choose from. Porsche has been successful in the past several years in expanding the offering of high power, downsized engine options for our customers. These downsized engines are becoming increasingly prevalent within the overall sales mix as

customers have responded positively to the balance of power and improved fuel economy. This trend has also been positive in contributing to improved greenhouse gas emissions and aligns with previous agency analysis that projected the benefits of highly charged downsized engines.

Porsche, like many manufacturers, is in the midst of a broad shift towards electrification. Developing new engineering solutions to achieve the goal of this proposal from EPA would be difficult to implement and not deliver significant emissions reductions relative to the cost and complexity. Porsche is concerned that consumers who continue to seek out combustion vehicles would reduce their consideration of downsized engine options if those engines are unable to meet the customers desired power level. The elimination of enrichment and the infrequent emissions benefits may outweigh the daily benefits of reduced GHG emissions and improved fuel economy from downsized engines if customers end up shifting back into larger displacement options.

#### **6. Porsche seeks to clarify the intended scope of the proposed definition for "Normal Operation" to reflect expected operation on US public roads.**

Within the NPRM, EPA proposes to add the definition of "Normal Operation" to 86.1803-01. Porsche seeks to clarify the intended scope of this definition with respect to the conditions expected to be seen in US operation on public roads. In the preamble for the NPRM<sup>3</sup>, EPA describes their intent to eliminate the use of commanded enrichment "during normal operation and use". EPA then describes normal operation "...to include vehicle speeds and grades of public roads, and vehicle loading and towing within manufacturer recommendations, even if the operation occurs infrequently".

Given the focus on enrichment, Porsche understands the reasoning from EPA to define more clearly the term "Normal Operation". Porsche supports the term reflecting operation that can reasonably be expected on public roadways in the United States as described in the preamble. Specific to acceleration, Porsche recognizes that certain models may have acceleration capabilities that very quickly will approach speed limits for most US roadways. Porsche also recognizes that the maximum vehicle velocity for many models far exceeds the legal limits on most US highways. Many of the high acceleration and high-speed operation may only be used by customers on closed tracks or off-highway events.

Porsche seeks to clarify that the definition proposed for "Normal Operation" in 86.1803-01 is intended to reflect "vehicle speeds and grades of public roads", meaning that the range of speeds and grades of US roadways would generally define boundary conditions on the new definition. The purpose for this clarification is related to the DRIA which seems to indicate a more expansive view than what is expressed by EPA in the preamble. In the DRIA, EPA states that the agency *"...considers normal operation and use to include ... driving at sustained high speeds, maximum acceleration at wide open throttle"*. For example, Porsche would view the term "sustained high speeds" as referenced in the DRIA as indicating sustained high speeds on US roadways, not for example extreme speeds far in excess of legal limits that would likely only ever be seen on closed racing tracks.

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<sup>3</sup> 88 FR 29277

To help with clarity, Porsche recommends that EPA modify the proposed definition for Normal Operation in 86.1811-03 to include the following amendment to (3).

*Normal operation* means any vehicle operating modes meeting all the following conditions:

...

(3) Any ambient conditions during any season for operation at allowable vehicle speeds and grades commonly found on public roads in the United States

## **7. Porsche recommends aligning with the PM standards of California's Advanced Clean Cars I and II regulations.**

Porsche does not support the adoption of EPA's proposal for 0.5mg PM standard starting in MY2027. As outlined in AFAC comments, Porsche does not understand the basis for this acceleration in Federal PM policy especially given California's recent LEV-IV rulemaking which reaffirmed and retained California's previously adopted LEV-III PM roadmap of 1.0mg. Relative to the potential costs and implementation challenges that this all-new proposal could create, it is unclear of the incremental value that EPA's proposal seeks to achieve by surpassing standards that California confirmed as being effective and appropriate in reducing PM. This is especially important considering California being the state which has the most prevalent challenges with PM emissions nationwide. Considering the overall transition towards electrification, the long-standing 1.0mg policy of California, the uncertainty regarding measurement and certification reliability, and in the minority role that new light-duty vehicles play in the overall PM inventory, Porsche is not supportive of EPA's PM proposal. Instead, Porsche recommends EPA transition to adopt the LEV-III 1.0mg in the timing and context of Tier-4.

As shown in Figure 8.1 of the DRIA (captured below in Figure 1), EPA illustrates the counties which are in nonattainment with the variety of PM standards. EPA makes note of the estimated populations that live within these various counties, however as shown in the illustration below, the vast majority of that population likely reside in California and in several States that already follow California motor vehicle emissions regulations (i.e., Pennsylvania, Oregon, Washington State). Very few of the states with counties highlighted below are in Federal emissions states. As noted previously, the states who are shown in this figure as having the highest proportion of challenges with PM attainment, were the States who maintained the 1.0mg PM roadmap in LEV-III.

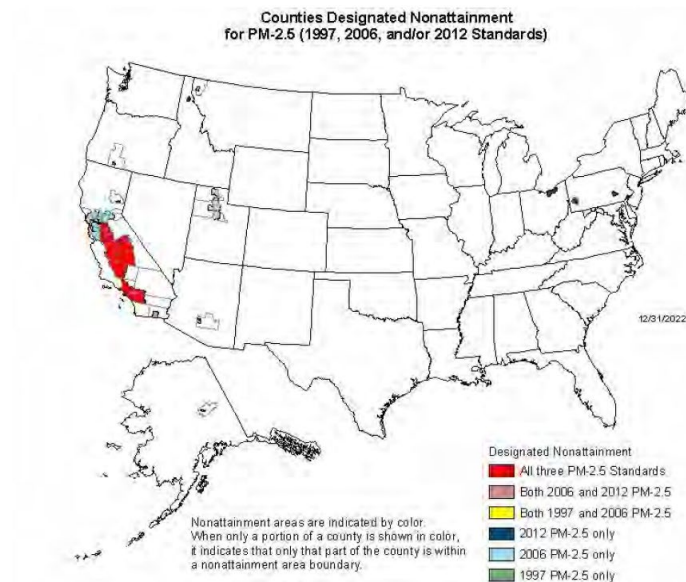


Figure 1 EPA designated PM nonattainment zones (From Section 8 DRIA)

Over 10 years ago, CARB finalized their landmark Advanced Clean Cars I regulation which included an all-new PM reduction update for light-duty vehicles. The 1.0mg standard was approved by the Board and waived by EPA, thus establishing the 1.0mg roadmap with a 2025MY start date. The timing for the standard was again reviewed as part of a technical assessment by CARB to determine if an accelerated timeline was appropriate. CARB maintained the 2025MY start date and phase-in to provide additional, cost-effective opportunities to develop PM control technologies. In 2022, CARB finalized their Advanced Clean Cars II regulation and once again the 1.0mg PM standard was maintained as being an appropriate balance of air quality improvement, cost and feasibility especially in light of the States roadmap towards electrification.

Considering CARB's leadership and stability in PM requirements for the US, Porsche created a PM control technology roadmap that incorporated CARB's requirements together in consideration with other global PM requirements. CARB's regulatory timeline has influenced the product development timelines for PM control. This is important in light of EPA's previous Tier-3 rulemaking where EPA specifically did not adopt the CARB 1.0mg FTP PM standard at that time. While EPA concluded Tier-3 with the 3.0mg standard, the agency provided clear indication that future work would continue to assess lower standards. EPA concluded that looking ahead *"We will continue to work closely with CARB in this area."*<sup>4</sup> As such, Porsche recommends that EPA can best deliver on the stated intention to "work closely with CARB" by fully align with CARB on a nationwide implementation of the 1.0mg FTP standard for PM. This alignment would maintain the established PM control roadmaps and provide meaningful, cost-effective PM control for the portions of the US who continue to face challenges with PM inventories.

When looking across the sources of PM emissions within the total inventory, light duty vehicles are by far a minority contributor. As both EPA and CARB have noted in previous rulemakings, achieving broad reductions of PM inventory

<sup>4</sup> 79 FR 23454 Tier-3 Final Rule

requires a vast collection of policies aimed at reducing PM emissions from other mobile sources (e.g., heavy-duty and I/M programs) and from non-transportation sectors, such as agriculture. CARB has implemented a broad suite of policies aimed at reducing PM emissions within their state and for light-duty vehicles, recognizes that beyond the 1mg standard from LEV-III, most additional PM reductions will be derived from their aggressive electrification policy. Given that EPA's MPR proposal generally follows California's electrification ambitions, it would make sense for EPA to align on California's 1mg roadmap in the final rule for the MPR. Even if EPA were to finalize lower levels of electrification, the 1mg roadmap continues to make sense given that most of the PM non-attainment areas are in California. EPA does not appear to have provided sufficient evidence that aiming for reductions on a Nationwide basis beyond the reductions sought in California, is cost effective and practicable, and whether after ten years of PM regulatory stability in LEV-III and LEV-IV, that it now makes sense to disrupt the implementation pathway that industry has been aiming for. This sudden acceleration from EPA creates significant compliance risk with many measurement and test repeatability issues still being questioned. California has determined that the 1mg standard, combined with growth in electrification, reflects a good balance in PM air quality improvements and cost-effective control. Porsche recommends EPA align with CARB.

#### **8. No projected need for Infrequent Regeneration Adjustment Factor (IRAF) for gasoline particulate filters**

Within the DRIA, EPA made mention of adopting IRAF for gasoline combustion GPF equipped vehicles like what is currently required for diesel vehicles. Porsche does not believe at this time that an IRAF is necessary due to the unique characteristics of gasoline versus diesel and the higher control of soot through passive regeneration. Due to the higher exhaust temperature of gasoline otto-cycle engines, the anticipated frequency of active regenerations for gasoline particulate filter (GPF) equipped vehicles is significantly less than diesel fueled compression engines equipped with diesel particulate filters (DPF). Porsche provides confidential test data in **Appendix-B** to demonstrate anticipated soot loading and burn off over a variety of test cycles for an example GPF equipped vehicle.

Porsche anticipates that active regeneration for gasoline GPF equipped vehicles will be very infrequent, and through vehicle operation on highways and with potential staged regeneration strategies, Porsche does not believe that the heightened emissions released during an active regeneration will occur sufficiently to warrant the need for gasoline GPF IRAF. Porsche recommends EPA continue to monitor the topic as more GPF equipped vehicles enter the US market.

#### **9. Porsche recommends maintaining the current definitions for Light-Duty Truck (LDT)**

Porsche does not support EPA's proposal to amend the definition of Light-Duty Truck in 86.1803-01 to include the provision that for Tier-4 (i.e., starting in MY2027), light-duty truck should use the definition in Part 600.002. The definition in Part 600 reflects the definition used within the NHTSA's CAFE regulation for non-passenger automobiles under that regulation's vehicle classification terms. Vehicle classification under CAFE has a long statutory history reflecting the congressional requirement for non-passenger automobiles (otherwise referred to as "light trucks") to have

unique fuel economy requirements specific to that category of automobile. This statutory history reflects energy related policies specific to CAFE. Over the past several decades, NHTSA has updated their regulatory definition and policy interpretation of non-passenger automobile to reflect changes in vehicle designs and ongoing considerations of industry usage of the classification for determining fuel economy compliance.

NHTSA's CAFE regulation has a long-standing history that reflects a much higher degree of differential in the fuel economy targets between passenger automobiles and non-passenger automobiles. As such, NHTSA has been careful to consider vehicle classification throughout the regulatory history of their program and in changing how the agency views the applicability of the class by industry. Even during the most recent updates to CAFE, NHTSA continues to discuss future changes to the definition and such topics as physical measurement validations, applicability to accessories and build tolerance variation.

NHTSA's policy can result in manufacturers having to split individual vehicles within a model type into passenger and non-passenger versions based on issues such as having to account for dealer installed accessories. For example, under recent NHTSA rulemaking discussions, the agency clarified that a non-passenger automobile that had an optional tow-hitch installed would have to be reclassified as a passenger automobile if the hitch violated the ground clearance requirements. While this reclassification may impact end of year CAFE compliance accounting, these vehicles would otherwise need no updates that would affect certification.

However, EPA's emissions certification program needs more stability in the determination of vehicle classification. For example, if EPA were to abdicate vehicle classification for Light-Duty Truck to NHTSA, the vehicle that had to change from non-passenger automobile to passenger automobile for CAFE, and thus from Light-Duty Truck (LDT) to Light-Duty Vehicle (LDV) for emissions would face certification challenges. One example would be that this unique vehicle would require a new under hood VECI label. This would mean that the installation of an optional part could trigger relabeling for the vehicle or a whole new certification application. These types of sudden changes in classification could disrupt processes and, given that the emissions programs now have minimal differences in technical standards, would have no effect on environmental outcomes.

EPA's definition has provided industry and the agency with a stable, consistent basis for vehicle classification for several decades. Porsche sees no value in EPA now handing over their authority for vehicle classification for systems to NHTSA, especially as the difference between light duty vehicle and light-duty truck requirements continue to converge. NHTSA has already signaled that they will seek further changes to classification, both in regulatory updates, test procedures and policy interpretation. NHTSA will pursue these with regards to their statutory fuel economy policy and would be unaware, and not responsible for, any disruptions this might create for exhaust and evaporative emissions compliance. While it may appear convenient to harmonize definitions, in this instance, given the unique statutory goals specific to fuel economy, Porsche recommends EPA stay the course with their existing LDT definition. Porsche sees no added value specific to EPA's air quality program in changing definitions, and to avoid any complications, proposes that EPA continue to utilize their existing definition and industry practice in Part 86.



# **10. Porsche recommends streamlining the FTP test procedure to remove the initial 6-hour minimum vehicle soak.**

In identifying further opportunities for test streamlining, Porsche reviewed the FTP test procedure flow-chart illustrated in 1066.801(e) and analyzed the relevancy of the initial 6-hour minimum soak period that follows the initial drain-and-fill. Porsche understands that the specific role of this initial 6-hour minimum soak period may have been to account for the possibility that fuel added to the vehicle could have been stored at different temperatures than the vehicle, for example if the fuel was in an underground tank. Or if the vehicle itself was stored at a temperature outside of the lab temperature and needed time to stabilize prior to preconditioning. In situations where the vehicle and fuel are otherwise already stabilized, it is unclear if this initial soak is relevant. Porsche recommends that EPA provide flexibility to manufacturers to use good engineering judgement to determine if the initial 6-hour minimum soak period can be skipped in order to help improve test facility efficiencies. Porsche recognizes that EPA, specific to confirmatory testing, would continue to use the 6-hour minimum soak period in order to have a consistent confirmatory process.

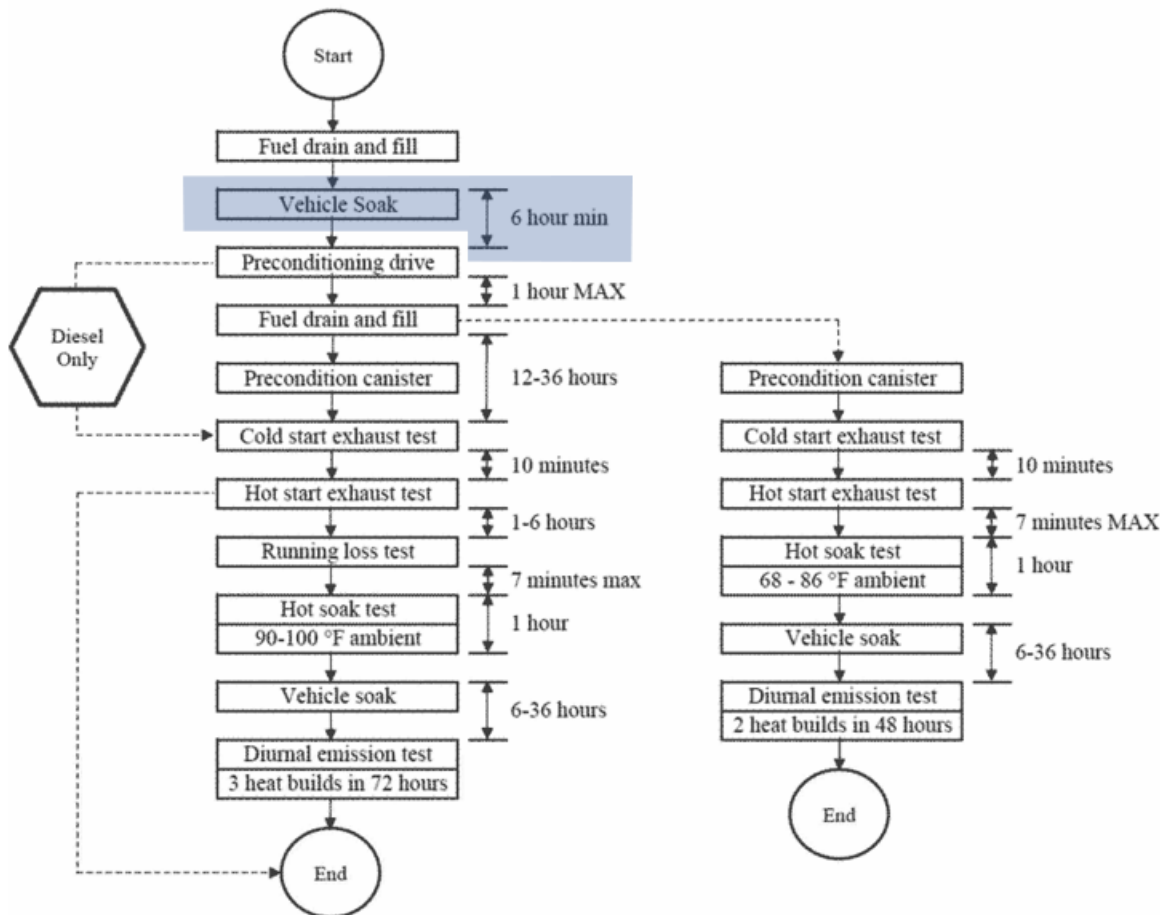


Figure 2 EPA FTP test procedure flow-chart from 1066.801

**Comments specific to the proposed Light-Duty Vehicle and Light-Duty Truck Greenhouse Gas Standards for MY2027 and Later**

As noted in the opening section of these comments, Porsche views EPA's proposed GHG standards for MY2027-2032 as a highly ambitious package of increasing annual stringency combined with overall reductions in program flexibilities. In total this proposal presents a highly challenging set of standards for the industry that will demand an unprecedented rate of electrified vehicle development, production, and consumer adoption. This proposal appears to exceed what may be achievable for the light-duty industry as a whole across all vehicle segments, price points, and utility.

In less than 10 years, EPA projects that 2 out of 3 new vehicles sold to American individuals, families and businesses will need to be fully electric. The importance of this statement cannot be underestimated as vehicle purchases remain one of the most, if not the most, expensive purchase that a consumer will ever make in their lifetime. In 10 years, two out of three customers must view electrification as a completely superior mobility choice that outshines any competitive combustion vehicle in the class in which that customer is shopping. EPA's regulations create no binding obligation on consumer adoption or on matching policy requirements of other sectors who will contribute to the success of electrification. Customers cannot broadly be expected to adopt technologies that are inconvenient, difficult to live with, or ultimately more expensive to own and operate. Auto manufacturers like Porsche are investing unprecedented levels of funding to provide exciting, electrified vehicle products to meet the needs of our customers. However, manufacturers will in part be reliant on the action of other sectors to help reduce the cost of electrification and to ensure that once a consumer purchases an EV that they are supported with a reliable, convenient, and affordable charging ecosystem.

EPA has described throughout the NPRM and its supporting materials, that the agency believes these standards to be achievable based upon assumptions that outline ambitious improvements in electrification costs and supply chain readiness and in the rapid deployment of affordable, accessible nationwide charging infrastructure. These assumptions are being used by EPA to justify legally binding, regulatory compliance obligations on the auto industry. Obligations that rely significantly on the successful execution of policy and development by sectors outside of the auto industry's control. Shortfalls in any number of these underlying assumptions could have direct influence on future electrified vehicle costs and readiness which in turn would negatively impact consumer adoption and future compliance. Given the extent to which the standards are premised on high levels of electrification, it is unlikely that non-electrified technologies could be deployed to make up a significant compliance shortfall should EVs fail to achieve the levels of adoption assumed by EPA.

Porsche recognizes the urgency underlying the magnitude of EPA's proposal to address the agency's concerns related to the effects of climate change. Porsche, like many other manufacturers, has established holistic decarbonization goals throughout our products and business operations. Porsche supports the goal of increasing the level of electrification within the light duty car park and views electrification as a key enabler for achieving climate and energy security benefits. Nevertheless, the rate of transformation inherent within regional regulations must ultimately be achievable within the boundary conditions of each market.

Porsche provides the following comments in support of and in conjunction with the AFAL. These comments seek to define a more achievable regulatory package that makes meaningful progress towards decarbonization goals. Furthermore, Porsche supports the concept of broadly monitoring our collective progress across all sectors involved in the march towards electrification.

**1. Porsche supports the AFAL proposal for an annual GHG reduction goal that aligns with the 40-50% electrification industry position.**

As described within the AFAL comments, Porsche is supportive of a piecewise linear annual compliance pathway that is a logical extension of the three alternative pathways proposed within the NPRM. The piecewise linear pathway could be designed with stringency levels that reflect the industrywide anticipated levels of electrification at various years from 2027-2032MY. The estimated annual compliance curve (reflecting industry average annual fleet average targets) would consist of two linear phases. The phases would essentially reflect industry wide annual percent levels of electrification that would include both pure battery electric and plug-in hybrid electric. The first phase of the piecewise linear curve defining stringency for MY2027-2030 would extend from MY2026 estimated levels of industrywide electrification and arrive at GHG targets that reflect 40-50% of industrywide electrification. The second phase of the piecewise curve could then extend from those targets in MY2030 to a more ambitious level of stringency in MY2032 that best reflects an achievable level of industrywide electrification.

The importance of having a clear touch point in 2030 model year is that it reflects general industry wide positioning regarding support for an ambitious goal of 40-50% of new electrified vehicle sales at that time. This goal is aligned with the President's Executive Order and with the National Blueprint for Electrification. The range of 40 to 50% reflects a reasonable variance for such an ambitious transformative goal and as such Porsche believes that it would be reasonable to select the midpoint of this range to inform the program stringency in MY2030. In addition, Porsche believes it is reasonable for the 40-50% to include within it a mix of BEVs and PHEVs that reflects the anticipated allowance of PHEVs within CARB's ACC2 ZEV mandate (i.e., approximately 20% PHEV within the 40-50% of total BEV/FCV/PHEV portion of new vehicle sales).

Beyond 2030, the pathway should again use a linear progression, but towards a more ambitious level of electrification. The appropriate level of electrification should reflect a reasonable assessment of consumer adoption and industry readiness that pushes electrification. This target could again include a mix of BEV and PHEV vehicles consistent with the consideration during the initial phase and reflective of the continued allowance for PHEVs within CARB's ACC2 ZEV mandate (i.e., 20% PHEV of the total % of BEV/FCV/PHEV).

**2. Porsche supports continued availability of flexibilities for electrified vehicles.**

Porsche supports the continued allowance for electric vehicles to participate in the off-cycle and air conditioning related GHG flexibilities. Porsche does not support the proposal from EPA to remove both for electric vehicles beginning in model year 2027. Off-cycle technology and air conditioning credits have been a pragmatic and supportive pillar within the suite of flexibilities in EPA's GHG regulation for many years and Porsche believes that these flexibilities can continue to provide value within the overall construct of the GHG fleet regulation, even for fully electrified vehicles.

Porsche supports the zero upstream accounting of emissions for pure electric vehicles (and FCVs) and recognizes that stakeholders may view additional credit opportunities for these vehicles as resulting in vehicles with "negative CO<sub>2</sub>" values. Stakeholders may claim that the optics of having a vehicle with "negative CO<sub>2</sub>" appears nonsensical. However, Porsche contends that it is appropriate to step back and reconsider that the GHG fleet average regulations are not intended to be, and do not operate as, individual vehicle regulations. The program is not designed to reflect individual real-world performance of such vehicles. Rather, the CO<sub>2</sub> regulation is a fleet level policy that operates in essence as an accounting program that utilizes a variety of calculations and credit mechanisms to drive down the overall annual CO<sub>2</sub> emissions of a manufacturer's fleet.

Electric vehicles operate as a supportive element within a manufacturers GHG fleet and should provide a compliance incentivize intended to increase production of EVs. Electric vehicles like any other vehicle should have the opportunity to leverage additional off-cycle or air conditioning technologies that further contribute to CO<sub>2</sub> reduction goals and for those credits to be equally available for use within a manufacturers fleet. These types of credits act as an internal flexibility for the manufacturer to manage their overall annual compliance.

Furthermore, these types of credits will help leverage the averaging, banking, and trading (ABT) portion of the CO<sub>2</sub> regulation that EPA notes in the NPRM as being an important and successful part of the regulation. The extent to which electric vehicles can earn additional credits through flexibilities will further enhance the benefits of ABT by providing additional credit liquidity to be traded by manufacturers. ABT is a successful incentive for manufacturers to over comply and an important flexibility for manufacturers who may fall short in a single year. Porsche does not see the programmatic value in reducing liquidity within the ABT market, especially given the ambition of the future proposed standards.

Porsche recognizes that the current menu-based credit system may not be appropriate for electric vehicles. As such, Porsche thinks it would be reasonable for manufacturers to continue to be able to leverage the application type pathway to seek off-cycle credits for EVs on a case-by-case basis. Efforts could be made to establish a revised menu-based credit system in the future, like what was envisioned in the California Framework Agreement.

The GHG program leverages other broad assumptions that are equally applied to all vehicles that are also not representative of real-world usage. For example, many Porsche vehicles have very low annual vehicle miles traveled. As such, the assumed lifetime miles used within the GHG regulation to determine debits or credits (i.e., 195k for LDV and 225k for LDT) are nowhere near reflective of the miles that an average Porsche will likely ever see in its lifetime. A Porsche model type that underperforms relative to gram/mile CO<sub>2</sub> footprint target would have to purchase credits in megatons that are likely far in excess of the actual potential overage of megatons emitted by the vehicle over its lifetime.

Nevertheless, these common accounting methods are embedded within the regulation to give consistent calculations for all OEMs.

### **3. Porsche supports continued availability of GHG credits for newer, low-GWP air conditioning systems.**

Specific to air conditioning leakage credits, Porsche recommends EPA retain the provision for new, low GWP refrigerants such as R-744 that offer even lower global warming potential (GWP) values than the commonly used 1234-YF refrigerant. Porsche recommends that a credit be provided that reflects the GWP of 1.0 for R-744 versus the 4.0 of 1234-YF. Furthermore, Porsche recommends EPA revisit the *HiLeakDis* equation and associated values as defined in 86.1867-12 to establish an appropriate set of values *HiLeakDis* equation for R-744 systems. R-744 is a smaller molecule than 1234-yf and R-744 systems operate at a much higher pressure. As such, the values reflected in the current *HiLeakDis* do not provide a benchmark system leakage rate appropriate to benchmark R-744 systems. The current values reduce the overall credit available for R-744 systems even though the R-744 has a lower GWP than 1234-YF. The values within the current *HiLeakDis* were established to reflect average system leakage rates for 1234-YF in order to prevent backsliding in system leakage control. A similar *HiLeakDis* may be appropriate to ensure quality R-744 systems but would need to be established to set a benchmark for reasonable leak control specific to R-744.

### **4. Porsche does not support the proposed reduction in the PHEV utility factor.**

EPA's proposed reduction in the utility factor for PHEVs will reduce the weighting for electric operation which will negatively impact the GHG compliance value for PHEVs. This is an unfortunate proposal to undercut an incentive to deploy electrified vehicles especially in the context of the MPR that is premised on a fleet that in less than 10 years must have 2 out of every 3 new cars sold be electrified. 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. For a regulation as aggressive as this proposal, a regulation that seeks to transform 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 not leveraging the anticipated future charging environment included within the assumptions of the MPR. A future that EPA projects will greatly expand the availability, reliability, and usage of electric vehicle charging.

EPA's proposal devalues future PHEV performance based on historic charging behavior of existing on-road PHEV drivers. Porsche has not reviewed the details of the California BAR or *fuely.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, the entire foundation of this MPR and the dramatic shift towards electrification rests upon assumptions regarding improvements in electric vehicles and more specifically in the availability and reliability of public and private electric vehicle charging. Issues that past owners of PHEVs may have experienced that likely led to the examples of lower-than-expected usage of electric drive would be addressed according to EPA's assumptions on improved charging. 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 given EPA's projections for rapidly expanding charging infrastructure.

It is nonsensical that future PHEV drivers would continue to pass up on charging opportunities once charging is more ubiquitous in the public, at home and at work. In fact, this would be counter to EPA's assumed consumer valuation of fuel savings that has been consistently referred to in GHG rulemakings. If consumers value fuel savings, and if charging availability is no longer a barrier to usage, EPA 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 EPA 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.

EPA acknowledges uncertainty regarding future charging usage by stating that the agency could revisit the utility factor once again in a future rulemaking if it appears that PHEVs are using more electric operation due to improved vehicle technology and greater charging infrastructure. However, undercutting PHEVs in this rulemaking, only to increase the value of PHEVs in a future rulemaking creates too much uncertainty. If EPA expects the charging environment to improve, why reduce the assumed driving usage now only to increase it again later? This back-and-forth uncertainty on utility factor would not be helpful since the current proposal would so undercut the incentive for PHEVs that manufacturers would have likely reconsidered continued support for the technology. If the agency is concerned about the actual real-world usage of PHEV electric operation, it seems that the approach would be to work with stakeholders to improve the charging experience today while the charging infrastructure is expanding over the next few years. "Fixing" the issue by undercutting the technology in regulation neither improves the technology, nor helps address charging challenges customers are facing.

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 EPA 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. 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.

Porsche notes that EPA's proposed update to the PHEV utility factor will also influence CAFE compliance calculations due to the allowance within statute and regulation for manufacturers to optionally select weighted operation. EPA did not provide analysis as to how this change would affect CAFE compliance especially considering Department of Energy (DOE) recent NPRM to reduce the Petroleum Equivalence Factor (PEF) by 72% for electric vehicles. This dramatic proposal from DOE to undercut the incentive for electric vehicles within CAFE is premature given that proposed CAFE standards for model years 2027 and later have not yet been released by NHTSA. Porsche recommended in comments to DOE for their NPRM that DOE include the assessment of EPA's proposed change in the utility factor to better understand the combined effect of lower PEF and lower utility factor. DOE did not acknowledge, or was unaware of, the proposed reduction in utility factor from EPA. The PEF statutory basis requires DOE, as it has done for over 40 years, to incentivize electrified vehicles in CAFE. This statute also requires DOE, NHTSA and EPA to consult on changes related to PEF and CAFE. Neither the EPA MPR NPRM nor the DOE PEF NPRM appear to discuss the mutual impacts that each other's proposed updates could have on future CAFE compliance. As NHTSA has yet to release their CAFE proposal, it is unclear if NHTSA will address both the EPA and DOE proposals and how both could impact CAFE compliance. To Porsche, it is unclear as to why these NPRMs appear disjointed and so far, have failed to discuss the impacts of each other's proposals on the other regulations. Porsche recommends EPA provide analysis of the impact of the reduced utility factor on the PEF and CAFE compliance in coordination with DOE and NHTSA. Ideally, all the proposals would have been released together to provide manufacturers with the ability to understand how each of the agency's actions would interact with each other and continue to support and incentivize technologies such as PHEV. This is especially relevant considering the overarching goal to achieve a dramatic increase in light-duty electrification.

### **Summary of Porsche proposals for the MPR**

Porsche appreciates the opportunity to provide these comments to EPA and seeks to improve the overall achievability of the proposed regulations for MY2027-2032. This proposal reflects the transformative ambition towards electrification that the agency has expressed as being necessary to achieve its air quality and climate goals. As described throughout, Porsche is committed to electrifying a broad portion of its light duty fleet and to developing other zero and near-zero options for our US customers. Porsche believes that these comments, together with comments from the AFAI, can help deliver a comprehensive program that will advance electrification and provide an achievable path forward for auto manufacturers.

In summary, Porsche's comments have reflected on the following:

- 1) Support the development of an alternative compliance pathway focused on nationwide zero- and near-zero emission vehicle deployment to streamline the range of regulatory programs and accelerate air quality and climate goals.

- 2) Support for implementing a broad electrification readiness monitoring program to help create transparent indicators for the successful transition towards electrification.
- 3) Support for EPA to broadly align the Tier-4 program with the recently finalized CARB LEV-IV program to streamline emissions compliance and planning and deliver cost-effective air quality improvements nationwide.
- 4) Maintain long-standing policy regarding fuel enrichment and PM emissions.
- 5) Support for a piecewise linear annual GHG stringency curve aligning with industry electrification commitments.
- 6) Support for continued availability of GHG credit flexibilities for electrified vehicles and novel A/C systems
- 7) Support for the continued incentive for PHEVs within the GHG regulation to reflect future, expanded public and private charging opportunities.

Thank you for your consideration of these comments. Should you have any questions, please contact myself or Nick Tamborra at [nicholas.tamborra@porsche.us](mailto:nicholas.tamborra@porsche.us), or 248-464-1836.

Sincerely,

Michael Scott  
Director, Regulatory Affairs, AfterSales  
Porsche Cars North America



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**—Appendix B, Confidential—**

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