

Alliance for Automotive Innovation

Comments to U.S. Environmental Protection Agency

**Multi-Pollutant Emissions Standards for Model Years 2027 and Later
Light-Duty and Medium-Duty Vehicles**

Proposed Rule

**Docket ID No.
EPA-HQ-OAR-2022-0829**

Introduction and Summary

The Alliance for Automotive Innovation (Auto Innovators),¹ representing 42 car companies, automotive suppliers, and automotive technology companies that produce about 97 percent of the new vehicles sold in the United States, offers these comments on the United States Environmental Protection Agency (EPA) Proposed Rule: Multi-Pollutant Emissions Standards for Model Years 2027-2032 Light-Duty and Medium-Duty Vehicles (NPRM or “Proposed Rule”).²

Auto Innovators and our members appreciate EPA’s work developing the NPRM, and we share EPA’s and the Biden administration’s goals to accelerate the transition to zero-emission vehicles. We also support continued efforts to reduce the emissions of internal combustion engine (ICE) vehicles that will continue to be produced during the transition to electrification.

Neither reasonable nor achievable in the timeframe provided

With that said, as proposed, the NPRM standards—both greenhouse gas (GHG) and criteria—are neither reasonable nor achievable in the timeframe covered in this proposal. Auto Innovators does not believe they can be met without substantially increasing the cost of vehicles, reducing consumer choice, and disadvantaging major portions of the United States population and territory. EPA’s proposed rules effectively assume that everything will go perfectly in the transformation to electric vehicles (EVs)³ between now and 2032. For example, the NPRM appears to assume that:

- An over-abundance of battery critical mineral mines, critical mineral processing capacity, and battery component, cell, and pack production facilities leads to continued battery price reductions.
- Most critical minerals for light- and medium-duty vehicles (LDVs and MDVs) are sourced and processed from the U.S. or countries with which we have a free trade agreement (FTA).

¹ From the manufacturers producing most vehicles sold in the U.S. to autonomous vehicle innovators to equipment suppliers, battery producers and semiconductor makers – Alliance for Automotive Innovation represents the full auto industry, a sector supporting 10 million American jobs and 5 percent of the U.S. economy. Active in Washington, D.C. and all 50 states, the association is committed to a cleaner, safer and smarter personal transportation future. www.autosinnovate.org.

² U.S. Environmental Protection Agency, Proposed Rule: Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, 88 *Fed. Reg.* 29184 (May 5, 2023). Hereinafter “NPRM”.

³ The term “electric vehicles” as used herein refers collectively to battery electric, plug-in hybrid electric, and fuel cell electric vehicles.

- Every EV battery is produced in the U.S. by 2027 and receives the maximum Inflation Reduction Act (IRA)⁴ Section 45X manufacturing tax credit.
- Most battery electric vehicle (BEV) and most BEV buyers qualify for maximum tax credits when purchasing or leasing a BEV under the IRA 30D and 45W.
- Congress makes no future changes to the federal law that reduces tax credits for BEVs or BEV batteries.
- Apartments, condominiums, and residential street parking throughout the U.S. (roughly half of the U.S. housing stock) are retrofitted to provide convenient, low-cost, reliable BEV charging.
- Public and workplace charging infrastructure deployment keeps pace with vastly increased BEV deployments.
- Utilities and their regulators in all 50 states request, approve, and build out the needed power generation, service lines, and the corresponding connections to charge not only the proposed light-duty BEVs but also medium-duty and heavy-duty BEVs required in this proposal and other state regulations.
- Electricians and construction professionals are available nationwide to install, maintain, and repair electric vehicle chargers.
- New criteria emission requirements involve “off the shelf” technology and will not draw resources away from the industry transformation to EVs.

A de facto battery electric vehicle mandate

Our concerns cover both the GHG requirements and the criteria emission requirements. Taken together, the proposed GHG and criteria pollutant standards are so stringent as to set a de facto BEV mandate.

GHG Standards

Leap-frogs Biden administration’s own 50 percent executive order

The stringency of the NPRM proposed standards increases faster than at any time in history. In fact, by assuming BEVs alone will make up 60 percent of the new vehicles sold in 2030 and 67 percent of new vehicles just two years later, the proposed requirements leap-frog even President Biden’s ambitious 2030 target of 50 percent, which included BEVs, fuel cell electric vehicles (FCEVs), and plug-in hybrid electric vehicles (PHEVs) by 2030. The 60 percent BEV-only proposal also goes beyond the same goal of 50 percent electric vehicles by 2030 (which again included BEVs, PHEVs, and FCEVs) described in *The U.S. National Blueprint for Transportation*

⁴ H.R.5376 - 117th Congress (2021-2022): Inflation Reduction Act. (2022, August 16). Available at <https://www.congress.gov/bill/117th-congress/house-bill/5376/text>.

Decarbonization, authored by four cabinet level agencies including EPA and issued in January 2023 – just a few months before this proposal was published.

Unlike EPA’s past regulations that could be met by automaker action alone and without consumer participation or even knowledge, these standards require large numbers of BEVs and are based on many assumptions that are largely outside the control of either EPA or individual automakers. Getting these standards right is critical not only to the automakers that must comply with them, but also to the U.S. global competitiveness and the U.S. economy. If the standards push too fast, too soon, we risk relying on other nations to supply the minerals and batteries needed to produce more EVs. If the standards push too slowly, there is less incentive to develop the necessary supply chain capacity in the U.S. Balancing the requirements with the realities of the marketplace and the supply chain will be key to a successful rule that also solidifies our nation’s electric vehicle competitiveness and leadership.

Successfully transitioning from ICE vehicles to electric vehicles—a goal we share with EPA—requires massive changes from all sectors of the U.S. economy: from automotive suppliers to home builders to utilities, labor to mining to mineral processing. Successful implementation also requires substantial consumer changes such as installing home charging and pre-planning long trips to ensure adequate fueling infrastructure along the way.

For our part, automakers can produce electric vehicles, but the proposed regulations are only feasible if we can address and affirmatively answer these questions:

1. Can people afford EVs?
2. Can people fuel EVs?
3. Can automakers obtain the battery critical minerals to power EVs?
4. Will customers embrace the technology on such a large scale in such a short time?

The answers to these questions are not yet known, but lead to the fundamental question and the substance of these comments: Is the U.S. ready for the transformation in the timeframe the NPRM lays out? No. We are not.

EPA underestimates battery costs; unrealistic BEV sales assumptions

The NPRM substantially underestimates the cost of batteries while overestimating the availability of consumer and manufacturing tax credits. For example, the Proposed Rule assumes that in 2029, the combination of cost reductions from installing larger batteries in BEVs and incentives from Inflation Reduction Act (IRA)⁵ Sections 30D, 45W, and 45X results in consumer incentives and battery production tax credits that substantially exceed the battery

⁵ *H.R.5376 - 117th Congress (2021-2022): Inflation Reduction Act.* (2022, August 16). Available at <https://www.congress.gov/bill/117th-congress/house-bill/5376/text>.

cost. If cost reductions and incentives eliminate the entire cost of EV batteries, it is little wonder the EPA model suggests a massive increase in sales of long-range BEVs. However, we do not believe these assumptions are realistic. Moreover, while vehicle cost and affordability are critical to success, they are just one set of factors in the transformation to electric vehicles.

Beyond BEV affordability, success of this regulation will be determined by factors outside of the vehicle; the U.S. is sorely behind in this effort (despite over the \$150 billion of private sector investment thus far) and the NPRM does little to address these factors. Current charging and fueling infrastructure is inadequate (particularly residential charging), the grid resources are at least 5 to 10 years away (without even factoring in the additional demand for grid resources from the heavy-duty vehicle sector facing similar concerns in a concurrent EPA rulemaking⁶), and battery critical minerals (except lithium), which primarily determine the affordability and availability of EVs, are minimally addressed in the NPRM.

No requirements to support required EVs or the drivers that must buy them

The NPRM and all the requirements set forth to date focus solely on the sale of BEVs. They propose no requirements to ensure that infrastructure will be available at homes, businesses, public event venues, highway corridors, transportation hubs, or other public locations. They contain no requirements to provide hydrogen or hydrogen fueling stations, or for utilities to quickly bring reasonably priced high-power charging (5-20 megawatts (MW)) to highway service plazas, fleet locations, city centers, or transportation hubs. They do not address the need for battery critical minerals to power everything from light-, medium-, and heavy-duty vehicles, energy storage systems (ESS), lawn and garden equipment, laptops, cell phones, forklifts, and airport services—not just in the United States, but around the world.

To support the vehicle requirements proposed, all these changes are necessary in under 10 years. For perspective, 10 years is the time required to obtain the necessary permits for a mine in the United States. Once permitted, another ten years could elapse before the mine produces at capacity. Ten years is also close to the time required to bring 20 MWs of power to a single location in the United States. Consequently, to the extent we need critical minerals and high-power charging, we must start today. Yet, there is no plan to do so. There is no roadmap to developing these essential pieces necessary for the transformation. Nor is there a commitment from EPA for ongoing monitoring of these factors as the EV market develops over the duration of EPA's proposed standards.

Automakers are committed to electrification. The industry publicly agreed in August 2021 that BEVs, PHEVs, and FCEVs could constitute 40 to 50 percent of new vehicle sales by 2030 with the

⁶ U.S. Environmental Protection Agency, Proposed Rule: Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3 (for Model Years 2027-2032), 88 *Fed. Reg.* 25926 (April 27, 2023). Hereinafter “EPA HD GHG NPRM.”

right combination of supportive measures. Some, but not all, of those supportive measures have started, but they are nowhere near complete and certainly not sufficient to support the even higher requirements in the proposed regulations that substantially leapfrog that target.

Criteria Emission Standards

Automakers will spend \$1.2 trillion by 2030 as a down payment on a net-zero future, but far more will be needed. If we hope to succeed, automakers must focus resources on the EV transformation rather than incremental changes to existing, very near-zero (criteria) emission ICE vehicles.

This should not be interpreted as automakers requesting no criteria emission reductions or regulations. We support changes that can be made cost-effectively through software calibration changes to the vehicle. For example, we support and recommend EPA adopt the criteria emission standards California adopted under Advanced Clean Cars II (i.e., LEV IV). We worked with California over several years to develop these standards that substantially reduce real-world criteria pollutants (nonmethane organic gas (NMOG), nitrogen oxides (NOx), particulate matter (PM)), as rapidly as possible without stranding technology or diverting resources from electrification.

However, some of the changes proposed in the NPRM go far beyond California's LEV IV program and would require large human and capital resources. For example, all-new engine designs, retooling of engine and vehicle production facilities, new hardware on vehicles, and additional testing laboratories are required at the same time the EPA expects 67 percent of new vehicles to be BEVs. These simultaneous ICE-focused activities will distract from efforts to electrify light-duty vehicles.

Enrichment Prohibition Outright and Using US06 CO Standards

Automakers use enrichment only as needed, and its use must be reported as an auxiliary emissions control device (AECD) during certification. EPA proposes to eliminate enrichment both outright and by setting such stringent US06 CO standards that no vehicle could use enrichment and meet the US06 CO standards even if allowed. Both changes lead to the same end – elimination of enrichment. EPA errs in stating that it is no longer needed for component protection. Under limited circumstances, enrichment is needed for component protection. The alternative is to derate the engine and reduce the vehicle's capability, not by a small amount as asserted by EPA, but by a large amount, which would have a profound impact on consumers. EPA's enrichment proposal effectively prohibits modern, high specific output engines.

Manufacturers would need to either build a larger displacement engine that could provide the capability needed by the vehicle, or the customer could just opt for a larger engine (if available).

Both cases result in higher overall GHG and criteria emissions to prevent minimal NMOG+NOx and CO emission increases in limited circumstances.

PM Standards

Auto Innovators and our members understand the importance of particulate matter (PM) standards. In fact, we've worked with both California and EPA to develop and adopt standards as part of ACC II that result in a 90 percent reduction in PM emissions (from 10 mg/mile to 3 mg/mile to just 1 mg/mile when fully phased in (2028 model year)). However, the NPRM proposes a new standard of 0.5 mg/mile, which will effectively necessitate a gasoline particulate filter (GPF) system with on-board monitoring that is unique to the U.S. on every ICE vehicle. This new standard also takes place in the middle of the phase-in for California's new PM standards.

The NPRM rightly notes that GPFs are not new technology and have been used in China and the EU. However, this is not an apples-to-apples comparison. China and EU PM standards are based on particle count instead of mass. Their NMOG+NOx standards and on-board diagnostic (OBD) requirements are also not as stringent as EPA's (or California's). Moreover, the GPF used elsewhere cannot simply be pulled off the shelf and installed; rather capital resources would be required for re-tooling, redesign, testing and other requirements, including inventing a new sensing technology to address the proposed filtration efficiency monitor requirement and lab testing capabilities at the proposed levels. The significant development time, resources and investment required to meet the proposed PM standard will disrupt the focus on electrification, particularly when adoption of California's LEV IV 1 mg/mile PM standard will provide substantial nationwide benefits.

NMOG + NOx Fleet Average

Unlike California, EPA proposes a performance-based standard that counts zero-emission vehicles in the NMOG+NOx fleet average. While EPA calls this a performance-based standard, it assumes a high BEV penetration rate for setting the standard (i.e., a light-duty vehicle at 12 mg/mi fleet average assumes 60% of the fleet are BEVs). This is more akin to a design requirement. Regulating criteria emissions from vehicles with criteria emissions (i.e., excluding ZEVs from the fleet and regulating that fleet at 30 mg/mile) is a more appropriate performance-based method. Like EPA's proposed GHG requirements, it is unknown if market sales of BEVs will achieve the specified targets. Making up for reduced BEV sales by reducing emissions from ICE vehicles will take years of development and cannot be altered on an annual basis. To avoid risk of an uncertain BEV market, major ICE investments and diverting resources from focused electrification efforts, we recommend EPA adopt the California Air Resources Board's (CARB) stringent LEV IV regulatory framework that phases-out BEVs in the NMOG + NOx fleet average. This will provide planning stability and an insurance policy from market conditions that OEMs have no control over. Adopting CARB's requirements will ensure significant reductions in

tailpipe emissions while avoiding major ICE investments and maintaining the focus on electrification that will have a great reduction in criteria emissions over time.

Recommendation

GHG – Better align to President Biden’s 2030 electrification goal

To address the concerns identified above, Auto Innovators and our members recommend EPA reevaluate the GHG standards and more closely align with President Biden’s 2030 goal. Thus, we recommend adopting requirements for 40 to 50 percent BEV, PHEV, and FCEVs in 2030 with continued increases through 2032. These standards should be coupled with and connected to regularly measured infrastructure deployment and battery critical mineral supply levels available during this rule.

Criteria – Adopt California’s LEV IV Standards

For the Tier 4 criteria pollution standards, we recommend that EPA adopt California’s LEV IV exhaust and evaporative emission standards adopted just seven months ago and begin in 2026MY. LEV IV standards were adopted by California last year as an effective and appropriate path forward to address the toughest in the nation air quality challenges. EPA should align with this comprehensive strategy to enable a nationwide criteria emissions program.

If EPA finalized the multi-pollutant regulations with these two recommendations, the final regulations would still be the most aggressive and challenging in U.S. history, and they would provide dramatic reductions in GHG and criteria emissions. However, EPA would reduce the risk of potential harmful consequences to both the EV market, and the new vehicle market in general, by forcing BEVs at a rate that outpaces the EV supply chain, infrastructure, critical mineral supplies, and customer acceptance. Getting the pace right is critical to the success of the automakers and to U.S. leadership and competitiveness.