Input Provided to the Pennsylvania Citizens Advisory Council and Environmental Justice Advisory Board Regarding the Commonwealth's Planned Adoption of the California Zero Emission Vehicle Regulations

November 16, 2021

The Alliance for Automotive Innovation (Auto Innovators) appreciates the opportunity to provide input to the Citizens Advisory Council and Environmental Justice Advisory Board on the Pennsylvania Department of Environmental Protection's (DEP) proposed regulation to adopt the California light-duty Zero Emission Vehicle (ZEV) Program. This regulation, if adopted, will require automakers to produce for sale increasing volumes of electric vehicles, including battery, plug-in hybrid, and fuel cell electric vehicles (collectively, "EVs"), each year, regardless of customer demand, infrastructure availability, or other state-based efforts to prepare the market for EVs.

1. WHO WE ARE

Formed in 2020, Auto Innovators is the singular, authoritative and respected voice of the automotive industry. Focused on creating a safe and transformative path for sustainable industry growth, the Alliance for Automotive Innovation represents the manufacturers producing nearly 99 percent of cars and light trucks sold in the U.S. The organization, a combination of the Association of Global Automakers and the Alliance of Automobile Manufacturers, is directly involved in regulatory and policy matters impacting the light-duty vehicle market across the country. Members include motor vehicle manufacturers, original equipment suppliers, technology and other automotive-related companies and trade associations. The Alliance for Automotive Innovation is headquartered in Washington, DC, with offices in Detroit, MI and Sacramento, CA.[1]

Auto Innovators, our predecessor organizations, and our members have long worked with regulatory agencies at the federal and state level to develop and implement regulations that reduce emissions, increase efficiency, and improve safety and reliability. As a result, today's new vehicles are the cleanest, most efficient, safest, and most reliable in history. In addition, our industry will invest over $330 billion in electrification and bring over 130 EV models to market by 2026. Our goal is a vibrant, growing, and sustainable electric vehicle market.

2. CONCERNS WITH REGULATIONS AS DRAFTED

Implementation Timing

The DEP's adoption of California's Advanced Clean Cars 1.0 (ACC1) ZEV regulation is subject to an unfortunate situation outside of the Commonwealth's control. The DEP is correct in saying the earliest vehicle model year (MY) to which newly adopted regulations could apply is MY 2026, assuming the rulemaking is completed prior to the end of calendar year 2022. This delayed implementation timing is necessary to meet the Clean Air Act's (CAA) requirements as explained below.

[1] For more information, visit our website http://www.autosinnovate.org.

There are several pertinent sections of the CAA that apply here. First, Section 209(a) prohibits any state from adopting or attempting to enforce vehicle emission standards.[2] Section 209(b) then provides an exception to that prohibition, allowing EPA to grant California a waiver of Section 209(a) so that the state may adopt separate vehicle emission standards.[3] Finally, Section 177 of the CAA allows other states with nonattainment areas to adopt those California standards, provided:

1. Such standards are identical to the California standards; and
2. The standards are adopted at least two years before commencement of the model year to which they will apply.[4]

For clarity, it is important to note that the proposed ZEV standard, if put into place in Pennsylvania, would be an "emission standard" and therefore governed by Sections 177 and 209.[5]

Simultaneously with the DEP's rulemaking, however, the California Air Resources Board (CARB) is actively pursuing new ZEV regulations, under the Advanced Clean Cars 2.0 (ACC2) ZEV regulations, that would begin with MY 2026.[6] CARB expects to adopt these regulations in June 2022, but the regulations will not be finalized until late 2022 or possibly early 2023. The proposed regulations are expected to make California's ACC1 ZEV provisions at 13 CCR 1962.2 obsolete and outdated. As a result, California's new ACC2 ZEV regulation would start at the exact same time that Pennsylvania plans to implement the then-superseded ACC1 ZEV. To comply with Section 177 and implement ACC2 in MY 2026, the DEP would need to adopt ACC2 before the end of 2022. This is likely not possible given DEP's rulemaking timeline, and at best, the DEP would not be able to implement the ACC2 regulations until MY 2027, leaving a gap between unenforceable compliance requirements on the books and actually implementing a ZEV rule.

This scenario creates a problem, because in MY 2026 California would have ACC2 regulations, but Pennsylvania regulations would have ACC1 regulations in conflict with Section 177 of the Clean Air Act. Section 177 prohibits states from implementing a regulation different than California's. Thus, Pennsylvania would not have an enforceable rule. This situation will also leave the Commonwealth, and automakers, with a high level of regulatory uncertainty, after requiring automakers to prepare for compliance with a rule that no longer exists. Either way, this lack of regulatory certainty results in unnecessary and high regulatory implementation costs for the Commonwealth's ZEV program.

Again, while much of this situation is outside of Pennsylvania's control, the simplest option is to hold on adoption of ZEV at this time, review the ACC2 regulations once officially proposed and/or finalized, and instead begin a *de novo* rulemaking process to adopt ACC2, with the statutorily required two years of lead time prior to implementation.

If instead the DEP moves forward with adoption of the current ACC1 ZEV program, then the regulations as drafted should be updated to ensure the maximum flexibility to address regulatory uncertainties, and to ensure that Pennsylvania's ZEV rule is not more stringent than California's.

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[2] 42 U.S.C. § 7543(a).
[3] 42 U.S.C. § 7543(b).
[4] 42 U.S.C. § 7507.
[5] Memorandum of Notice (May 10, 2019) ("A ZEV requirement is also an option pursuant to section 177").
[6] See California Air Resources Board ACC II public meetings and workshops, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/advanced-clean-cars-ii-meetings-workshops.

Limited Regulatory Compliance Tools

Proportional Credit Banks - As states adopt the ZEV regulations "mid-stream", or perhaps even "end of the stream" as Pennsylvania is proposing to do here, these states must do so in a manner that follows the requirements of the Clean Air Act. The adopting state must fully align its rules with California's, and it must ensure that automakers are not unduly burdened at the onset of the new regulation by placing manufacturers in a comparable position to their compliance status in California at that time.

In interpreting the Clean Air Act, EPA has long held that "states that choose to take advantage of the California standards option bear the burden of ensuring their efforts do not create any undue burden for the auto manufacturers."

Pennsylvania would be implementing its ZEV standard "mid-stream," meaning about 20 years after California first implemented the ZEV standard. Yet Pennsylvania proposes to do so without a critical piece of the California ZEV program—specifically, one-time proportional credit banks that acknowledge existing credit levels in California banks. Adoption of a ZEV regulation without including proportional credits would not be consistent with the Clean Air Act and would place an undue burden on auto manufacturers. It also is unwise public policy that will unnecessarily create undue burden and hardship on Auto Innovators' members with no attendant economic or environmental benefit.

Automakers rely on the ZEV credit banks and make long-term plans accordingly. Starting "mid-stream" without any consideration of the ZEV credit banks in California would result in Pennsylvania having the most stringent ZEV regulations in the nation—far more stringent than California. Such an outcome was never envisioned or intended by the Clean Air Act.

For over 15 years, nearly every state that adopted California's ZEV regulations "mid-stream" has started its program by establishing each automaker's ZEV credit bank with a balance proportional to that automaker's California credit bank. The credits are proportional to the automaker's new vehicle sales in the adopting state compared to California. They provide a one-time starting balance to ensure that a manufacturer's task under the proposed Pennsylvania ZEV standard is comparable to its task under California's ZEV standard and would not place an undue burden on automakers.[7] After the ZEV credit banks are open, ZEV credits in Pennsylvania would be based solely on the vehicles produced and delivered for sale in Pennsylvania. For Pennsylvania, the starting ZEV credit bank balance would be calculated with the following equation:

$$\boldsymbol{PA\ Starting\ ZEV\ Credit\ Bank = CA\ ZEV\ Credit\ Bank\ x \frac{PA\ Vehicle\ Sales}{CA\ New\ Vehicle\ Sales}}$$

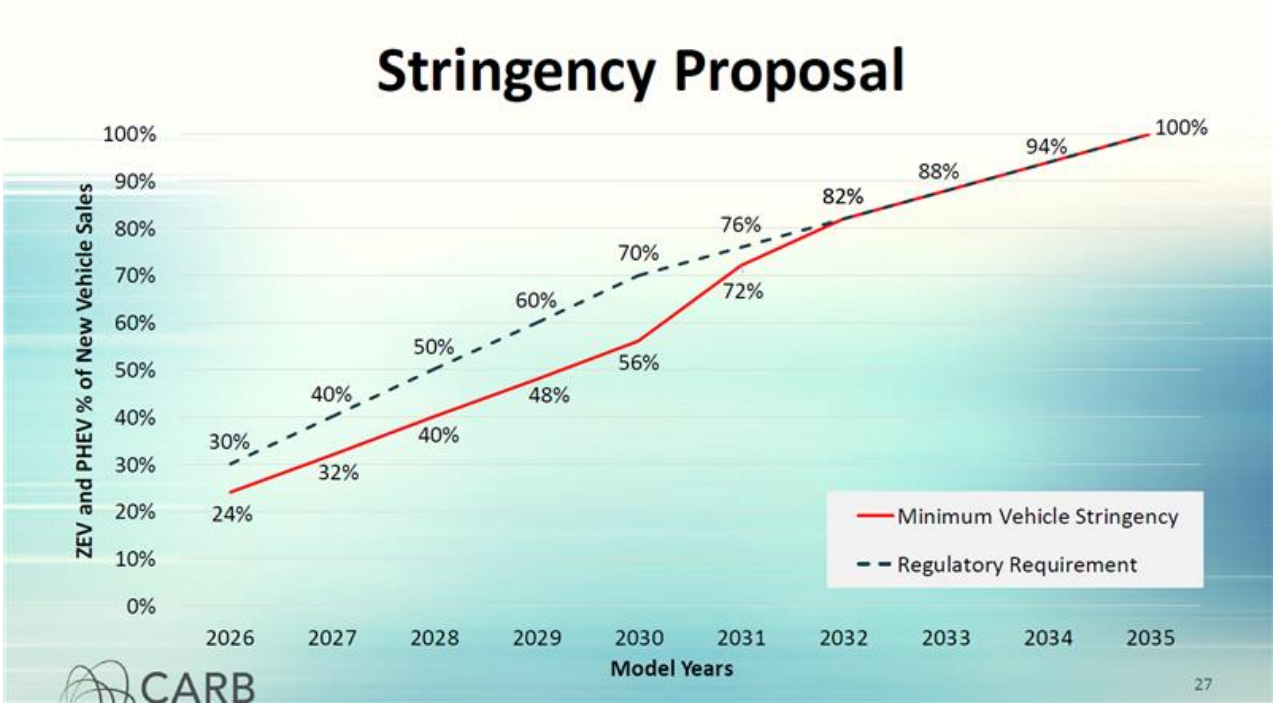
A refusal to adopt proportional credits would fail to recognize the substantial efforts that many manufacturers have been making to over-comply with the ZEV standard to date, thereby mitigating their compliance burden for the future. The task that a manufacturer faces under the ZEV standard at any given time is heavily dependent upon, and cannot be divorced from, the number of credits that manufacturer has in its credit bank. In a credit-based program like the ZEV standard, adopting ZEV requirements "mid-stream" without accounting for a manufacturer's past efforts to generate credits has the effect of creating a new and more severe program. As a practical matter, it can have the same

[7] If Pennsylvania had adopted ZEV years ago, the state would have earned traveled credits and credits for any sales exceeding requirements. In other words, the establishment of a proportional credit bank in many ways is recognizing the progress already made in the state.

effect on a manufacturer as increasing the stringency of the ZEV sales percentages themselves. One-time proportional credits also provide a way to reduce the implementation costs of the ZEV program.[8]

Another example of the practical implication of the need for proportional credits is to look at California's ACC2 proposal. In Figure 1, there are two lines depicted on the graph. The dashed line represents the intended proposed standard that would require ZEV sales of 30% in MY 2026 and 70% in MY 2030, for example. As part of this proposal, however, California is designing into its program mechanisms that allow, but limit, the number of additional credits that can be used in any given model year, including existing banked credits and environmental justice credits. As a result, based on the estimated usage of existing credits (15%) and environmental justice credits (5%), California provides the red line, which predicts the ACC2 ZEV requirements will result in ZEV sales of 24% in MY 2026 and 56% in MY 2030. Absent proportional credit banks at the start of ZEV for Pennsylvania, the requirements for automakers in Pennsylvania will be much closer to the ZEV requirements of 30% and 70% compared to California's 24% and 56%, respectively, for MYs 2026 and 2030.

***Figure 1*: California Proposed Stringency under ACC2 ZEV Program Accounting for Credit Banks**



Source: CARB, "Public Workshop for Advanced Clean Cars II," 13-October 2021.

This difference in compliance tools would result in Pennsylvania having a far more stringent program than the state of California and would be in violation of the identicality requirements of the Clean Air Act. The requirement to make proportional credits available is not simply a proposal for the convenience of automakers. Auto Innovators believes it is essential for Pennsylvania to provide

[8] A regulatory analysis performed for Colorado's program showed that early action credits combined with capped proportional credits would reduce the regulatory cost of Colorado's ZEV program to $788 million from the $1.2 billion that was estimated by the Colorado Department of Public Health and Environment. These regulatory cost savings would be applicable for Pennsylvania, particularly given the size of its new vehicle market, if one-time proportional credits are provided in the regulations.

proportional credits in order to meet the letter and the spirit of the Clean Air Act, and to act in good faith to prepare in the event the state also adopts ACC2. It also provides recognition that while Pennsylvania's ZEV market today is behind that of California, automakers are actively working and investing – over $330 billion through 2025 –in more ZEVs; the requirement to buy credits to fill the gap adds unnecessary cost and burden, while detracting from the goal of more EVs nationwide held by all automakers.

Early Action Credits – While the DEP did not include proportional credits in its draft proposal, it wisely opted to include early action credits. These credits allow automakers to *voluntarily* earn ZEV credits for EV sales in advance of implementation of the ZEV program. Auto Innovators has supported the inclusion of early action credits in all states including and since Colorado's adoption of the ZEV program. Early action credits are an important, modern tool to encourage more EVs sooner, and each early action credit is earned from actual EVs delivered for sale into Pennsylvania prior to the ability to implement ZEV requirements. When paired with state purchase incentives, early action credits can be an extremely beneficial and effective tool for encouraging EV sales to grow more quickly than they might otherwise with current customer adoption rates.

For interested automakers, early action credits encourage automakers to produce and deliver EVs prior to when the state can legally implement the ZEV regulations, and to earn credits in the bank for doing so. They also provide a way for automakers to smoothly transition into the ZEV requirements – to begin the ramp-up from 2.3% today (Pennsylvania's Q1 2021 EV sales rates) up to the required 6-10% in MY 2026.

While Auto Innovators supports this addition, it is not sufficient on its own to address our concerns about feasibility and alignment with implementation of California's ZEV program. Early action credits do not and cannot replace proportional credits, because absent proportional credits, early action credits then become a *de facto* requirement to sell EVs in the early years to generate a set of credits in Pennsylvania. If automakers must sell EVs early, in order to generate credits to assist in the transition into the ZEV program and in preparation for the steep increase requirements in ZEV under ACC2, then such a provision would likely be in violation of the two-year lead time requirements required by the CAA.

Auto Innovators continues to recommend the successful approach implemented in Colorado and Nevada[9], which incorporates early action credits *and* full proportional credit banks but temporarily restricts usage of the proportional credit banks. Auto Innovators continues to believe that early action credits are an important and necessary flexibility that enhances the ZEV program and results in more EVs on the road sooner than otherwise would be the case, while proportional credit banks are necessary for reducing programmatic costs and burden and aligning Pennsylvania's ZEV program, to the extent possible, with California's.[10]

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[9] At the beginning of Nevada's program implementation (2025MY), each automaker would get a starting balance of credits proportional to their CA ZEV credit banks. These credits could not be used for any MY prior to when California changes its ZEV regulations. After the California regulations are updated, the state regulations would set a cap on the use of these (proportional) credits to ensure equivalent stringency to California (i.e., if an OEM is required to deliver 25% ZEVs in CA, it would be required to deliver 25% ZEVs in Nevada – no more, no less).

[10] Even with proportional credit banks, the disparity in annual ZEV sales in California (11.4%) compared to Pennsylvania (2.3%) remains inequivalent.

3. RESPONSE TO DEP'S PRESENTATION

Historic Challenges of EV Availability State to State

In its presentation to the Air Quality Technical Advisory Committee (AQTAC), similar to that being provided to the Clean Advisory Council and Environmental Justice Advisory Board, the DEP pointed to historic availability of EVs within the state as a necessary reason to adopt ACC1. Such assertions fail to acknowledge the changing realities of a maturing marketplace.

Beyond our members' commitments to ongoing improvements for ICE vehicles,[11] our members are committed to net-zero carbon goals and electrification of the vehicle fleet. The landscape for all electrified or electric vehicles– including battery, plug-in hybrid and fuel cell EVs -- is changing at an increasing rate, and while we appreciate Pennsylvania's consideration of a ZEV program, it is important to keep in mind that adoption of these standards comes on the heels of significant announcements to grow EV sales across the entire nation. Virtually every automaker has announced broad electrification plans and significant EV investments totaling over $330 billion for the industry, with several automakers setting aspirational targets of 100 percent ZEVs in the 2035 to 2045 timeframe.

More recently, in August, when the United States Environmental Protection Agency (U.S. EPA) released its proposed greenhouse gas rule for light-duty vehicles, Auto Innovators announced that "[w]ith the right complementary policies in place, the auto industry is poised to accept the challenge of driving EV purchases to between 40 and 50 percent of new vehicle sales by the end of the decade." This announcement highlights that the expected shift to electrification will be happening nationwide, and that additional efforts across the nation are needed to support this shift. In support of these efforts, automakers expect to bring over 130 electric vehicle models to the market by 2026. Concurrently, the Biden Administration announced goals to achieve up to 50 percent EV sales nationwide by 2030.[12]

Air Quality & a ZEV Standard

In its presentation, the DEP identifies modest air quality benefits associated with adopting the ZEV regulations. While a seemingly logical conclusion to infer, the reality is that due to the nature of fleet average measurements for light-duty vehicle criteria and greenhouse gas emissions, the ZEV program overall will have little impact on air quality. This outcome results from the fleet average emission standards designed to control light-duty vehicle criteria and greenhouse gas emissions, which average all vehicles sold in California and the Section 177 states, as opposed to individual state-by-state fleet averages. As a result, a state's air quality benefits are minimally, if at all, affected by the number of EVs placed in a state as a result of ZEV adoption. EVs' inclusion in a stringent fleet average program means those vehicles can be used to offset higher emissions of other vehicles in the Pennsylvania, California or Section 177 states. For this same reason, air quality benefits from the vehicle tailpipe do not suffer as a result of automakers placing fewer EVs in Pennsylvania. Thus, there is also no guarantee that the proposed ZEV Program would result in lower criteria or lower greenhouse gas emissions on a fleet-wide basis.

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[11] Our members have reduced criteria emissions from internal combustion engines (ICEs) to levels not measurable in the lab in the early 2000s, while also making tremendous advancements reducing greenhouse gas emissions from ICE vehicles.
[12] "FACT SHEET: President Biden Announces Steps to Drive American Leadership Forward on Clean Cars and Trucks." *Statements and Releases*, 05 August 2021. https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/05/fact-sheet-president-biden-announces-steps-to-drive-american-leadership-forward-on-clean-cars-and-trucks/.

California has acknowledged this outcome as well, noting that the purpose of the ZEV standard is to advance commercialization of the technology, and explaining that, due to the fleet average criteria emission and GHG emission standards, EV sales will not result in reduced fleet emissions at this time. The CARB staff reached this conclusion in its September 2, 2014 Initial Statement of Reasons (ISOR),[13] which contained planned changes to the ZEV regulations. One of the changes would reduce the number of ZEVs from intermediate volume manufacturers (e.g., Mitsubishi, Volvo, Jaguar Land Rover, Subaru, and Mazda), if the ZEV standard had been in place in any of these years prior to this.

This CARB text (below) explains that one of the 2014 proposed regulatory changes would reduce the number of ZEVs from intermediate volume manufacturers by 26,000 ZEVs and transitional-ZEVs (TZEVs, which includes plug-in hybrid electric vehicles). It further explains that even though there will be fewer EVs sold, as a result of this regulatory change, there will be no impact on air quality, because criteria and greenhouse gas emissions are controlled using fleet averages that operate regardless of whether more or fewer ZEVs are sold. Consequently, the addition or subtraction of EV sales at this time has minimal impact on air quality benefits. This impact will change over time as EVs become more prominent in the fleet, assuming the corresponding utility emissions are also becoming cleaner.

Air Quality Benefits

As described in Section III.C., under a likely compliance scenario, the proposed modifications could result in about 26,000 fewer ZEVs and TZEVs being delivered to California from 2018 through 2025 compared to the existing regulation. This represents a decrease in total deliveries of fewer than two percent versus what would be expected under the existing regulation. There could be a similar reduction in projected future emission benefits associated with these modifications to the ZEV Regulation. However, the ZEV Regulation resides within the LEV III Regulation as discussed in Section I.B., and the LEV III Regulation establishes fleet average requirements for automakers. Under these requirements, fleet-average emission standards apply to the average emission rates of the various vehicle models marketed by a manufacturer, weighted by the number of vehicles sold or leased by the manufacturer in each vehicle class. In meeting the fleet-average standards, manufacturers may certify their vehicles to any of the applicable emission standards as long as the fleet-average emissions of their new vehicles meet the fleet-average emission requirements for that model year. This flexibility enables a manufacturer to sell some higher-emitting vehicle models as long as enough lower-emitting vehicle models are sold to achieve the applicable fleet-average emission standards for the particular vehicle type and model year. The fleet average requirements ensure that air quality benefits do not suffer as a result of an automaker producing fewer ZEVs. Therefore, although the proposed amendments could lead to fewer ZEVs and TZEVs being delivered to California from 2018 to 2025, since the amendments do not modify the in-place fleet average emission standards, the air quality benefits of the ACC Program as analyzed in 2011 in the ACC EA will still be realized.

Source: CARB 2014 ISOR, p. 17.

Plans to Only Adopt ACC1 Not ACC2

As discussed above, CARB is actively engaged in the development in its ACC2 rules. It is anticipated that the new ZEV regulations will include 100% EVs by 2035.[14] As part of the AQTAC hearing on October 14th, however, the DEP reiterated many times over that there were no plans to move to 100%

[13] California Air Resources Board. "Staff Report: Initial Statement of Reasons for Rulemaking, Proposed 2014 Amendments to the Zero Emission Vehicle Regulation." 02 September 2014. http://www.arb.ca.gov/regact/2014/zev2014/zev14isor.pdf. hereinafter "2014 ISOR".

[14] California Air Resources Board ("CARB"), "Public Workshop for Advanced Clean Cars II," 13-October 2021.

ZEV nor were there plans to adopt ACC2 without another regulatory process. Given the timing challenges previously outlined with adopting ACC1, an overt and stated plan to not adopt ACC2 draws into question what goal this DEP rulemaking intends to achieve. Auto Innovators recommends that if the state proceeds with adoption of ACC1 ZEV, then additional regulatory updates are needed to:

- Ensure alignment to the extent possible with the stringency of California's ZEV mandate
- Reduce unnecessary regulatory burden
- Prepare the market to support more EVs and in the event Pennsylvania also proceeds with ACC2 adoption

4. NECESSARY CONDITIONS TO WIDESPREAD EV ADOPTION

While the above outlines a collection of concerns with the specific draft regulations currently proposed, we are not suggesting the state hold off on all action in this area. On the contrary, Auto Innovators welcomes opportunities to work with the Administration and legislature on ways to boost EV sales in the Commonwealth – incentives for EV purchases; incentives for charging and hydrogen fueling infrastructure; development of EV requirements for fleets; updates to the Commonwealth's building code; implementation of consumer awareness programs; and a host of other market-building items that will support increase EV sales far more than the implementation of a ZEV mandate.

As proof, one only needs to look at the most recent EV sales rates by state, as shown in Table 1. Of the top 10 states with the highest ZEV adoption rates, five have a ZEV mandate currently in effect.

TABLE 1: Top 10 States/Jurisdictions for EV Sales Rates (January-July 2021)

State/Jurisdiction	Percent EV Sales
California*	11.4%
District of Columbia	9.3%
Hawaii	6.8%
Oregon*	6.3%
Washington	6.3%
Colorado	5.1%
Vermont*	4.8%
Massachusetts*	4.6%
Nevada	4.2%
Maryland*	4.1%
*ZEV program currently enforced.	

Source: Compiled from Auto Innovators' "Get Connected" Report.[15]

Many of these non-ZEV states have consistently been among the leaders for EV sales, absent a mandate, in part because they have also led in EV purchase incentives and infrastructure development. This data shows that a mandate is not needed to increase or encourage EV sales.

For comparison, Pennsylvania sales have lingered around 1.5 to two percent the past couple of years. For the first quarter of 2021, however new EV sales have increased to 2.3 percent of total light-duty

[15] Get Connected Report, p. 6.

vehicle sales, and this market growth is occurring absent a ZEV mandate.[16] While not captured in the above data, it is necessary to note that Colorado, Washington, and Nevada have now adopted the ZEV program starting in model years 2023, 2025, and 2025, respectively.

If Pennsylvania is considering adopting the ZEV mandate, the state should also be prepared to commit to the implementation of a suite of complementary public policy initiatives that (1) encourage consumers to buy electric cars, (2) develop a network of charging and hydrogen refueling infrastructure, and (3) include additional complementary measures aimed at market readiness and consumer awareness.

Initiate and Find Sustained Funding for EV Purchase Incentives.

Unlike many of the leading markets for EVs (i.e., California, Washington, Colorado, and Oregon), Pennsylvania does not currently offer purchase incentives. EV purchase incentives should be supported because of their positive consumer-based and environmental impact. Recent data suggests that EVs cost, on average, $12,000 more than conventional vehicles.[17] Therefore, a combination of federal, state, automaker, and other purchase incentives (i.e., utilities) are critical to reducing EV costs and for persuading customers to buy these vehicles.

Recent, publicly available studies suggest battery technology costs will continue to reduce and be at $100 per kWh in 2025 (the price often associated with cost parity between electric and gasoline vehicles). While Auto Innovators agrees that battery costs are reducing, the price per kWh is only part of the story. Power electronics remain costly, efforts to offer expanded all-electric vehicle range continue, and the unique engineering required for EVs is high compared to the high-volume, mass-market and profitable conventional vehicles. Plus, from a consumer perspective, there are a suite of factors that impact decision-making, everything from all-electric range to utility to cost-to-operate to performance to refueling convenience. This point suggests that even as technology costs lower and range increases, additional efforts to support the EV market will still be needed.

EV sales in Pennsylvania qualify for the federal tax credit of up to $7,500, but the future of this purchase incentive remains unclear. The federal tax credit has effectively played the role of lowering EV costs compared to gasoline vehicles but has not necessarily on its own increased consumer demand in individual states. The addition of state-based incentives can be persuasive for residents considering purchasing or leasing an EV and for closing the gap between comparative EV and conventional vehicle prices.[18] For instance, when New York implemented a purchase incentive, EV sales increased by nearly 75 percent.

Moreover, as past experiences demonstrate, it can be detrimental when incentives go away. We witnessed this firsthand in the state of Georgia, which repealed a $5,000 rebate in 2013 and at the same time implemented one of the most stringent additional EV registration fees. Following the repeal, the Georgia EV market dropped from a high of three percent of total vehicle sales (nearly exceeding California's market at the time) to less than one-half of one percent; a 90 percent decrease in sales in the number two market at the time. Georgia's EV market has still not rebounded and today remains

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[16] Auto Innovators. "Get Connected." *Report*, 12-October 2021 ("Get Connected Report"). Found at: https://www.autosinnovate.org/posts/market-report/q2-2021-ev-quarterly-report.
[17] Baik, Yeon, et. al. "Making Electric Vehicles Profitable." *McKinsey & Company*. https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/making-electric-vehicles-profitable.
[18] Based on a review of the Department of Energy's Alternative Fuels Data Center, Pennsylvania seemingly has some incentives—it appears three utilities in the state provide incentives for EV purchases. Two offer one-time credits of $50-60, while the third offers a rebate up to $2,000. *See* https://afdc.energy.gov/laws/state_summary?state=PA.

below the national average. Likewise, the potential loss of federal EV tax credits could significantly impact sales across the country and will put increasing pressure on states that want EVs to develop well-funded and continued purchase incentives.[19]

Increased Public Charging and Hydrogen Fueling Infrastructure

Pennsylvania **needs a roadmap for developing infrastructure**, including along roadways/highways, fast recharging, and critical needs for other public charging. Based on a review of the Department of Energy's Alternative Fuels Data Center, it appears that Pennsylvania has some incentives for charging and hydrogen fueling infrastructure development.[20] We also understand that Pennsylvania has been pursuing using some of its VW Settlement Funds to fund development of this infrastructure. These are positive steps to developing a network of chargers and hydrogen stations.

To assist in these efforts, Auto Innovators recommends that the Commonwealth undertake an assessment and develop a plan or roadmap. Without such efforts, it is difficult to understand Pennsylvania's needs for public (urban and rural), highway, and private charging, both to support EV volumes on the roads today and also to prepare to support increasing future EV sales, as would be required by adoption of the ZEV program. Additional engagement from utilities is critical here as well to address home charging (especially at multi-unit dwellings), grid updates, and charging rates and transition to renewable electricity sources.

Comprehensive Approach Needed for Success

Pennsylvania needs to **commit a minimum of $1.2 billion** to grow its market over the next five years and work with the legislature and governor to enact **complementary policies** that will increase electrification of the fleet. Such policies include, but are not limited to:

- Creating programs aimed at educating and encouraging consumers to buy electric[21]
- Implementing state programs aimed at overcoming EV barriers
- Requiring state fleets to buy increasing volumes of EVs[22]
- Coordinating with dealers, the vehicle repair industry, and emergency responders
- Supporting utility efforts to grow infrastructure, offer incentives, and educate customers
- Supporting the transition to a cleaner, more renewable grid
- Implementing a low carbon fuels program to make sure all fuel sources are reducing carbon intensity, so that even gasoline vehicles are benefiting from fuel-related improvements

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[19] Another cost-focused consideration is an additional registration fee on EVs. While Pennsylvania does not currently include such a fee, many states view these fees as necessary to help pay for roadways – and we agree that EVs should contribute their share. In reality, with sales barely over two percent per year, these fees do little to supplement roadway funding at this time. The nearly 98 percent of new gasoline vehicles each year continue to make up the bulk of the roadway usage. Thus, many gaps in roadway funding are the direct result of insufficient increases in gas taxes and a 30 percent increase in vehicle fuel economy since 2004. (U.S. EPA. "Automotive Trends Report: Highlights of the Automotive Trends Report." https://www.epa.gov/automotive-trends/highlights-automotive-trends-report.) More importantly, additional registration fees can act as disincentives to customers planning to buy EVs, who are turned off by the larger annual registration fee. A careful analysis of necessary incentives and potential disincentives needs to be conducted if the goal is to increase sales.

[20] U.S. Department of Energy. "Alternative Fuels Data Center: Pennsylvania Laws and Incentives." https://afdc.energy.gov/laws/state_summary?state=PA.

[21] *See,* "Drive Change. Drive Electric." ZEV consumer awareness campaign. This public-private partnership is currently funded by six northeastern states and 11 automakers. More information can be found at www.driveelectricus.com.

[22] Auto Innovators is pleased to see the Commonwealth already has a goal of 25% PEVs in the state fleet by 2025 and encourages additional action to further increase incorporation of EVs going forward. *See* https://afdc.energy.gov/laws/12146.

- Exploring alternative funding sources, like revenue from a low carbon fuels program, to support electrification of the transportation network
- Expanding charging infrastructure on state roads and highways and at key state destinations
- Building hydrogen refueling stations. Note, Pennsylvania's EV market currently lacks California's three available FCEVs due to a lack of infrastructure
- Implementing building codes
- Improving and streamlining building and permitting processes
- Ensuring that all customers, including those in underserved communities, benefit from transportation electrification

All in, Pennsylvania needs the legislature and Governor to take immediate action to enact such policies and identify funding to support them. Auto Innovators' estimates suggest that the state needs a minimum of $1.2 billion to support these efforts through 2025. This spending would be consistent, based on a comparison of vehicle market sizes, with California's state-dedicated spending expected by 2025.[23] These funds do not automatically appear along with a ZEV rule; they will need to be appropriated by the legislature and need to happen well in advance of any mandates.

As the above makes abundantly clear, Auto Innovators wants to stress that our members cannot meet these targets alone. Active and full support of federal, state, and local governments, labor groups, commercial and residential builders, suppliers, dealers, utilities, battery manufacturers, hydrogen providers, and most importantly customers will be needed. These efforts increase in importance as the auto industry sets aspirations to move the market to 50% sales in less than nine years, and as states, like California, seek to achieve 100% sales by 2035. Adopting new vehicle regulations is just the first step, and far more work is needed by many other sectors if we hope to succeed. Auto Innovators is committed to working with Pennsylvania, its Governor, legislature, and agencies to develop, adopt, and implement the support measures necessary for a successful EV market.

CONCLUSION

While Auto Innovators understands there will be a long and thoughtful process as the state of Pennsylvania contemplates adoption of the California ZEV program, Auto Innovators recommends action now to address the concerns with the proposed draft rule. Some of our concerns – like the implementation timing – are challenging to address due to the unfortunate timing as California simultaneously works to adopt its next regulations. This challenge suggests the best approach may be to wait to evaluate the ACC2 regulations when released, and then consider whether the regulations should be adopted in Pennsylvania, while remembering that all states will benefit from recent

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[23] By way of example, a conservative estimate, as of 2020, of California's financial commitment to its ZEV market is roughly $3.5 billion by 2025:

- California has spent nearly $1 billion over the past 10 years to help support and grow its electric vehicle market. This includes over $570 million in vehicle rebates, over $35 million in additional rebates for low-income residents, $135 million for hydrogen refueling infrastructure, $80 million for charging stations, and other electrification projects.
- California will also commit at least another $2.5 billion dollars over eight years for incentives and infrastructure to support the rollout of five million electric vehicles by 2030.
- This spending does not include:
    - Additional money spent and resources expended by agencies to create, implement, and further these programs and development necessary action plans to support activities,
    - Nearly $200 million approved projects under separate utility efforts in California to build out infrastructure, address social equity, and develop consumer programs,
    - Electrify America funding or
    - California's separately managed consumer education program, *Veloz*.

announcements from the Biden Administration, supported by both member company and Auto Innovators' announcements.

If the DEP decides to move forward with adoption of the current ACC1 ZEV program, then the regulations as drafted should be updated to ensure the maximum flexibility to address regulatory uncertainties, and to ensure that Pennsylvania's ZEV rule is not more stringent than California's. Auto Innovators would strongly recommend that the draft regulations be updated to follow the best practices from states like Colorado and Nevada, which maximize EV sales, while also reducing regulatory implementation costs, providing necessary flexibility, and appropriately aligning with California stringency requirements. As such, the DEP's regulations should include both full proportional credit banks at the start of the ZEV program, as well as a voluntary option for automakers to earn early action credits in the three years prior to implementation of the ZEV program.

Regardless, the ZEV mandate alone will not generate a vibrant and growing EV marketplace. If Pennsylvania wants a viable EV market to grow, which is what our members have committed to, then it will take a collection of policy changes and strong leadership by all public officials in the state to get there. A vehicle market at the scale of Pennsylvania's quite simply cannot fail, and all efforts should be made to ensure successful growth of EV sales, including necessary regulatory provisions as well as market-building investments by the state.

Auto Innovators has been working with officials in other states on this very issue and welcomes the opportunity to do so in Pennsylvania. We will happily make our staff and member company experts available as necessary to work toward our shared goals in this area.