BASIS STATEMENT and RESPONSE TO COMMENTS
06-096 C.M.R. Chapter 127-A Advanced Clean Cars II Program

BASIS STATEMENT

On May 23, 2023, the Department received a citizen petition to initiate rulemaking pursuant to 5 M.R.S. § 8055. The petition proposed to promulgate a rule establishing motor vehicle emission standards for new passenger cars, light-duty trucks, and medium-duty vehicles by incorporating the requirements of the California Advanced Clean Cars II (ACC II) regulations, beginning with the 2027 model year and continuing through the 2032 model year.

The ACC II Program requires an increasing percentage of new light-duty vehicle sales to be zero emission vehicles (ZEV) sales each year, starting with 43 percent ZEV sales in model year 2027, and increasing to 82 percent in model year 2032. The program also includes revised pollutant standards for passenger cars, light-duty trucks, and medium-duty vehicles with internal combustion engines.

In accordance with 5 M.R.S. § 8055(3), the Department initiated rulemaking on this proposal on July 20, 2023, when the Department presented the petitioner's proposal to the Board of Environmental Protection (Board) and requested that a public hearing be held on August 17, 2023. During the August 17th public hearing, the Board heard testimony from the regulated community, interested parties, and the public. Comments were also received during the written comment period, which closed on August 28, 2023. The Department received comments on this proposal from 1,084 interested persons and parties during the public comment period. The final proposed rule incorporates several suggested changes, including:

- Adding definitions for clarification;
- Clarifying that the proposed rule applies to model years 2027-2032;
- In response to a comment, including for clarity in Appendix A of the proposed rule California Code of Regulations (C.C.R.) Title 13 Section 1905 and defining in Section 4(B) of the text of the proposed rule a military tactical vehicle or equipment;
- Including annual due dates for fleet reporting requirements;
- Including reference to Title 13 C.C.R. Section 2169, California's most recently adopted provisions for recall reporting, in the list of recall reporting provisions referenced in Subsection 8(C) of the proposed rule and in Appendix A;
- Including in the text of the proposed rule Add-On Parts and Modified Parts, which was incorporated by reference in Appendix A but not previously stated in the text of the proposed rule; and
- Revising the section regarding incorporation by reference to include all statutory requirements and removing language that would have required any potential inconsistencies between the incorporated C.C.R. provisions and the text of the proposed Maine rule be resolved in favor of the C.C.R. provisions.

The public comments and the Department's responses and changes to the proposed rule are provided below. In addition, the Department also made grammatical, formatting, and other non-substantive revisions to the final proposal.

RESPONSE TO COMMENTS

Table of Contents

Administrative Procedure Act Requirements

On May 23, 2023, the Department received a citizen petition pursuant to the Maine Administrative Procedures Act to promulgate a new rule establishing motor vehicle emission standards for new passenger cars, and light-duty trucks, and medium-duty vehicles by incorporating the requirements of the California Advanced Clean Cars II regulations, beginning with the 2027 model year and continuing through the 2032 model year. The Maine Administrative Procedures Act, 5 M.R.S. Chapter 375, Subchapter 2 establishes the procedures for state agency rulemaking. While most rulemaking activities are either agency-initiated or the result of legislative directives, 5 M.R.S. §8055 establishes a process where any person (or persons) may petition an agency for the adoption or modification of rules. 5 M.R.S. §8055 (in relevant part) states:

§8055. Petition for adoption or modification of rules

1. Petition. Any person may petition an agency for the adoption or modification of any rule.
[PL 1977, c. 551, §3 (NEW).]

2. Form designated. Each agency shall designate the form for such petitions and the procedure for their submission, consideration, and disposition.
[PL 1977, c. 551, §3 (NEW).]

3. Receipt of petition. Within 60 days after receipt of a petition, the agency shall either notify the petitioner in writing of its denial, stating the reasons therefore, or initiate appropriate rule-making proceedings. *Whenever a petition to adopt or modify a rule is submitted by 150 or more registered voters of the State, the agency shall initiate appropriate rulemaking proceedings within 60 days after receipt of the petition (emphasis added).* The petition must be verified and certified in the same manner provided in Title 21-A, section 354, subsection 7, prior to its presentation to the agency.
[PL 1985, c. 506, Pt. A, §4 (AMD).]

Whenever an agency receives a petition submitted with the signatures of 150 or more registered voters, it is statutorily obligated to initiate rulemaking. Although the term "initiate rulemaking" is not defined in statute, it is inferred that an agency must provide the public an opportunity to comment on the proposal through either a 30-day written public comment period or comment period with public hearing (5 M.R.S. §§ 8052, 8053). The petitioned rulemaking process does not obligate an agency to adopt the proposal.[1]

Acronyms

Advanced Clean Cars II (ACC II)

Battery Electric Vehicle (BEV)

California Air Resources Board (CARB)

Department of Environmental Protection (Department)

Direct current fast charger (DCFC)

Efficiency Maine Trust (EMT)

Electric vehicle (EV)

Environmental justice (EJ)

Environmental Protection Agency (EPA)

Fine particulate matter (PM2.5)

Greenhouse gas (GHG)

Gross Vehicle Weight Rating (GVWR)

Internal combustion engine vehicles (ICEVs)

International Center for Clean Transportation (ICCT)

Nitrogen oxide (NOx)

National Highway Traffic Safety Administration (NHTSA)

Northeast States for Coordinated Air Use Management (NESCAUM)

Original Equipment Manufacturers (OEM)

Particulate Matter (PM)

Plug-in hybrid vehicles (PHEV)

Total cost of ownership (TCO)

Zero emission vehicle (ZEV)

[1] The Department received this petition on May 23, 2023, and at its July 20, 2023, meeting, the Maine Board of Environmental Protection initiated rulemaking by posting the proposal to a public comment period and scheduling a public hearing.

Comments and Responses

General Comments

Comment #1: General opposition.
Commenters stated that the proposed rule would infringe on their basic Constitutional rights, take away their freedom of choice, and pander to special interests. Commenters stated that it would be bad for Maine, and that the required rapid imposition and rapid increase in required sales percentages are too much too soon and it would not be possible to meet those numbers. Commenters stated that allowing the market to adapt and transition naturally to EVs is preferable and will happen without government interference. Commenters stated that a rule designed by and for California will not work for Maine due to differences in climate, geography, lifestyle and income levels, and Maine should develop its own program based on its own circumstances.

Commenters 3, 5, 7, 9, 10, 12-19, 20, 22, 28, 30, 31, 37-41, 45, 46, 48, 49-52, 54-58, 60, 61, 64, 67, 68, 70-73, 74, 75, 79, 82, 83, 85, 88-91, 94, 96, 97, 99-102, 105-107, 109-111, 113-115, 117, 119, 120-122, 125, 126, 128-130, 132, 133, 134-136, 138-140, 141, 143-148, 150, 152-154, 156, 158, 159, 161, 163-165, 167, 170-176, 178-183, 186-192, 194-198, 201, 203- 207, 209, 211-216, 218, 220, 223, 224, 226-312, 708-725, 727-730, 732, 733, 735-739, 740, 742, 744-748, 750, 754, 759, 761, 763-765, 767, 769-772, 774, 776, 778, 780-783, 784, 785, 787, 788, 790, 791-796, 798, 800, 801, 803, 804, 806-809, 812-818, 820, 822, 825, 826, 828

Department Response: The Department thanks the commenters for participating in this important rulemaking process and addresses these general opposition comments in more detail, as applicable, in the comment categories set forth below, specifically the Department's response to comments #15, #66, and #68. Also please refer to the information in the Legal Authority section below.

No changes were made in response to this comment.

Comment #2: General support.
Commenters expressed support of the rule as proposed, citing concerns about climate change, air quality, and the benefits of phasing-in/transitioning to electric vehicle technology as a way to mitigate the impacts of climate change and improve air quality, specifically from the transportation sector in Maine.

Commenters 829-899, 905-984, 986-992, 994, 996-998, 1000-1014, 1016-1024, 1026-1030, 1048-1056, 1060-1063, 1065-1068, 1079

Department Response: The Department agrees with the Commenters' statement that adoption of the ACC II program would reduce GHG emissions that lead to climate change and help Maine meets its climate goals. In June 2019, Governor Mills signed LD 1679 into law[2], establishing statutorily mandated targets for the reduction of greenhouse gases in Maine statute. 38 M.R.S. § 576-A states (in relevant part):

> **§576-A. Greenhouse gas emissions reductions**
>
> **1. 2030 annual emissions level.** By January 1, 2030, the State shall reduce gross annual greenhouse gas emissions to at least 45% below the 1990 gross annual greenhouse gas emissions level.
>
> **2. Interim emissions level.** By January 1, 2040, the gross annual greenhouse gas emissions level

[2] P.L. 2019, ch. 476.

must, at a minimum, be on an annual trajectory sufficient to achieve the 2050 annual emissions level in accordance with subsection 3.

3. 2050 annual emissions level. By January 1, 2050, the State shall reduce gross annual greenhouse gas emissions to at least 80% below the 1990 gross annual greenhouse gas emissions level.

In addition to establishing GHG reduction requirements, LD 1679 also established the Maine Climate Council, an assembly of scientists, industry leaders, bipartisan local and state officials, and engaged citizens that was charged with developing a four-year Climate Action Plan to put Maine on a trajectory to meet these statutory obligations. Maine's 2020 Climate Action Plan, *Maine Won't Wait* [3], identified 8 major strategies for the reduction of GHG emissions in Maine, with the first strategy (Strategy A) focused on transportation.[4] While Strategy A outlines a number of transportation-related strategies, accelerating Maine's transition to electric vehicles and greatly increasing the percentage of light-duty EVs on the road in Maine was identified as key to meeting the statutory GHG reduction targets. As noted in *Maine Won't Wait:*

> "When emissions are analyzed by vehicle type, 59% of Maine's transportation-related emissions are from light-duty passenger cars and trucks; 27% are from medium- and heavy-duty trucks; and the remaining 14% come from rail, marine, aviation, and utility equipment vehicles. *The most significant reductions of greenhouse gas emissions in Maine's transportation sector will come through the long-term and large-scale electrification of our transportation systems* (emphasis added), combined with strategies to increase the efficiency of gas- and diesel-powered vehicles, and to reduce the number of miles Mainers drive through expanded options and funding for public transportation, increased broadband deployment across the state, and support for policies that encourage development of housing, schools, and shopping areas in pedestrian-friendly downtowns and villages."

In addition to reduced carbon dioxide (CO_2) emissions to achieve Maine's emissions-reduction goals, there are also major health benefits associated with cleaner air from reduced transportation emissions, including reduced nitrogen oxides, sulfur dioxide, and particulate matter. Maine's rural character and relatively low emissions from other sectors, such as electricity generation, make our transportation emissions disproportionately high compared to other states. The average Maine vehicle travels approximately 12,000 miles per year. An analysis of vehicle miles traveled (VMT) in Maine found that 65% of our driving occurs on rural roads, with 35% in urban and suburban areas. Most of these total miles are driven in the southern half of Maine.

Decarbonizing the transportation sector is a challenge, with emissions generated by over 1 million vehicles on the road and thousands of off-road vehicles, aircraft, and marine vessels. Light-duty cars and trucks are the source of approximately 60% of total sector GHG emissions. Given the cost and scarcity of low-carbon fuels, the light-duty vehicle (LDV) fleet must achieve near-zero emissions in the aggregate by 2050 for Maine to achieve its 2050 GHG goal. Although multiple strategies could reduce emissions to near-zero levels, deployment of electric vehicles (EVs) appears to be the most important technologically ready strategy for almost all modes, due to comparatively low fuel cost, high drive-train efficiency, and sustained falling costs of batteries.

If implemented, the ACC II program would have a profound effect on emissions from the transportation sector, and could reduce GHG emissions by approximately 2 million metric tons CO2e per year, as shown in the following figure:

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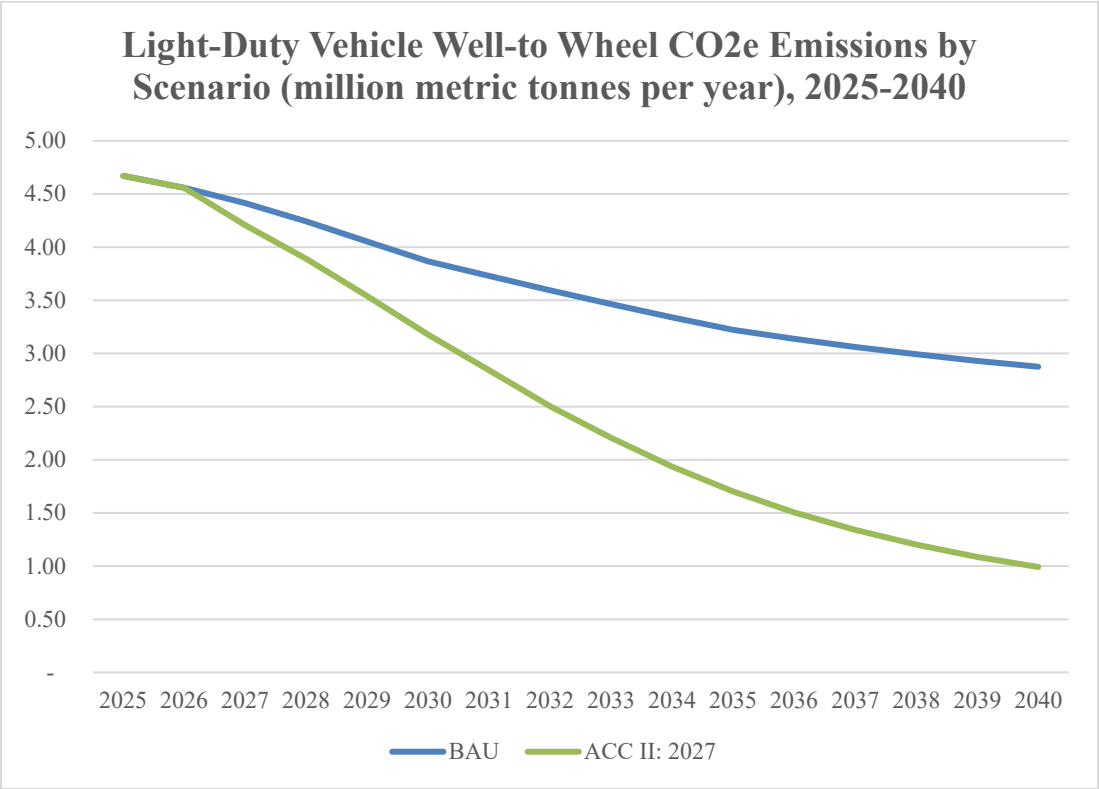
[3] https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020.pdf

[4] Transportation is the largest source of greenhouse gas emissions in Maine, accounting for 49% of all GHG emissions in 2022. (Ninth Biennial Report on Progress toward Greenhouse Gas reduction Goals, MEDEP, 7/25/2022. https://www.maine.gov/dep/publications/reports/index.html)



Source: International Council on Clean Transportation and Northeast States for Coordinated Air Use Management (NESCAUM), 2023.

Legend:
BAU - Business as usual
ACC II: 2027 - Implementation of the ACCI Program beginning model year 2027 and continuing through model year 2032.

Additional information on potential program emission reductions is provided in the Department's response to comment #14.

No changes were made in response to this comment.

Comment #3: Undue burden imposed.
Commenters expressed concerns that the rule will impose excessive costs on automobile dealerships and on the automobile industry in Maine generally. Commenters claim that dealers will be forced to maintain unsold inventory, requiring interest payments on that inventory, and taking up valuable lot space. Commenters stated that dealers will be forced to spend money on charging infrastructure and training mechanics to work on EVs. Commenters also stated that the rule will cause new automobile buyers to make their purchases out-of-state and that the absence of any registration denial provision in the rule will encourage this behavior.

Commenters 6, 8, 13, 16, 23-29, 38, 85, 92, 100, 102, 103, 121, 124, 144, 146, 149, 163, 185, 186, 204, 214, 313-706, 732, 737, 743, 748, 751, 765, 766, 809, 824

Department Response: The commenters contend that Maine vehicle dealerships will be at a competitive disadvantage with out-of-state dealerships. Cross-border sales of vehicles have always existed, with sales both into and from Maine (out-of-state consumers also purchase vehicles in Maine). Maine's regulations

require all new vehicles, defined as having an odometer reading of 7,500 miles or less, be CARB certified if sold for on-road use in Maine. All New England States with the exception of New Hampshire have adopted or plan to adopt ACC II. Unlike other States with registration denial, Maine has a decentralized registration process. This would require Maine's cities and towns to enforce any registration denial program.

For passenger cars and light-duty trucks, the phase-in proposed in ACC II reflects the fact that for EVs across all vehicle weight classes, consumers will have increased choice when making decisions about what vehicle will best suit their needs. Popular ICEV models will continue to be available.

There are new EV charging infrastructure technologies available that do not require phase three power for DCFC to provide 150 kW of electric vehicle charging to multiple EVs with as little as 30 kW of input from the grid using battery storage. This less expensive charging infrastructure would be suitable for dealerships.

No changes were made in response to this comment.

Comment #4: Increased options.
Commenters state that the proposed rule will maximize options and increase choices for new vehicle purchasers.

Commenters 900-981, 985, 986, 993, 995, 996, 1000, 1001, 1012, 1015, 1017, 1021, 1024, 1027, 1029-1048, 1051, 1053-1059. 1069, 1073

Department response: The Department agrees that the proposed rule will mean that consumers have increased choice when making decisions about what vehicle will best suit their needs. Rather than restricting consumer choice, ACC II will expand the number of EVs available for consumers as the market continues to transition to ZEVs. Also, new LEV IV-compliant ICEVs will be available throughout the proposed rule's implementation period.

As was seen during implementation of the first Clean Car Standards, auto manufacturers are more likely to send larger inventories and their newest ZEVs to states that have strong regulations on the books. Therefore, adoption of ACC II is a key strategy to ensure that Mainers will be able to purchase the vehicles they want to drive and will not have to go out of state to purchase their vehicle of choice.

The proposed rule provides many choices for the vehicle consumer. It will result in greater availability of a larger variety of ZEV and PHEV models, in addition to gasoline vehicles, through the 2032 model year implementation period. Additionally, the market choices for ZEVs will continue to increase with a wide variety of ZEV models available and many more planned in the next few years. This includes SUVs of varying sizes that are BEVs, a van that is a PHEV, and several BEV pickup trucks.

No changes were made in response to this comment.

Comment #5: Does not ban ICEVs.
Commenters stated that the rule does not ban ICEVs outright, allowing for a gradual transition to EVs and softening any negative impacts.

Commenters 900-904, 991, 993, 995, 1027, 1064, 1067, 1069

Department Response: The Department agrees with the commenters. The proposed rule implementing the ACC II program from model year 2027 through model year 2032 does not ban ICEVs, but instead phases in more stringent zero emission vehicle sales requirements, and requires 82% of 2032 model year light-duty motor vehicles sold in Maine to be ZEVs or to meet the requirements for a plug-in hybrid electric vehicle (anticipated to contain an ICE). It does not require replacement of existing vehicles in use by homeowners or

businesses, and the sale of new ICEVs remains permissible through the regulatory period.

No changes were made in response to this comment.

Comment #6: Credit trading.
Commenters state that the credit trading and credit pooling options allowed in the proposed rule make it more feasible.

Commenters 1051, 1053-1059, 1067

Department Response: The Department agrees with the commenters. The ACC II program provides OEMs with several ZEV compliance flexibilities. These flexibilities include PHEV values, value banking, value trading, proportional FCEV values, historical credits, pooling, early compliance values, environmental justice (EJ) values, and simplified ZEV value accounting. Starting with model-year 2027 ZEV values may be banked through the 2030 model-year. These values may be used to offset compliance shortfalls. Values may also be traded and transferred with other OEMs to offset compliance shortfalls. PHEVs that all-electric range of at least 50 miles (40 miles on an aggressive drive cycle) may be used to meet a portion of an OEM's ZEV requirement. PHEV value usage is capped at 20% per year and values will have a 5-year life.

FCEV values "travel" under ACC II standards. A FCEV placed in California, or any other Section 177 state that adopted California's ZEV standards, would earn a proportional value in all Section 177 states. This mechanism was utilized to support FCEVs as a viable transportation alternative. FCEVs have a higher purchase cost, and there is insufficient hydrogen refueling infrastructure within Section 177 states. Under ACC II, the use of proportional FCEV values will be capped at 10% of an OEM's annual ZEV requirement through model year 2030.

Historical credits represent existing ZEV and PHEV credits earned under the current ACC I program, which ends following the 2025 model year. Historical ACC I ZEV and PHEV credit balances for Maine would be converted to ACC II values by dividing each by 2.1. Starting with model-year 2027, an OEM may only use historical credits to offset a compliance deficit. Historical credits may not simultaneously be utilized to create or expand banked values and offset a deficit. Historical credit usage will be capped at 15% per year and will sunset following model year 2030.

OEMs will have the voluntary option of unlocking increased flexibility with historical credits through a cumulative credit cap on model-years 2027 through 2030. The cumulative cap totals 75% of historical credits. Under the cumulative cap, an OEM may exceed the 15% annual cap in a single year to meet a compliance deficit. For example, an OEM may utilize 25% historical credits in model-year 2026 (i.e., exceeds 15% cap), leaving them with 50% of their cumulative cap for the remaining model-years. An OEM's ability to access the full cumulative cap value will be linked to EJ flexibilities discussed in greater detail below. An OEM seeking to fully access the cumulative cap will be required to meet at least 0.5% of the annual ZEV requirement in a single year to exceed the annual historical credit cap for three model-years. Meeting this additional 0.5% for an additional one or two years will unlock an additional one or two years of exceeding the annual cap.

Pooling is a compliance flexibility that maintains the overall stringency of the ZEV regulation while allowing for minor state-to-state variability where vehicles are delivered for sale. This flexibility allows OEMs to transfer "pooled" or excess values in one state to meet their ZEV requirement in another state where they have difficulty demonstrating compliance. ACC I contains a pooling provision split into Eastern and Western pools. The Eastern pool consists of all Section 177 states east of the Mississippi River that have adopted the California ZEV regulations. The Western Pool is all Section 177 states west of the Mississippi River that have adopted the California ZEV regulations. California is not included in either pool. Currently, 15 states have adopted California's ZEV regulations. These states are California, Colorado, Connecticut,

Maine, Maryland, Massachusetts, Minnesota, Nevada, New Jersey, New Mexico, New York, Oregon, Rhode Island, Vermont, and Virginia.

ACC II will create a single pool of all states, including California, that have adopted California's ZEV regulation. The use of pooled ZEV values in a given state will be capped at 20% starting in model-year 2027 and will decline each year until sunsetting following model-year 2030. Historical and EJ credits are ineligible for pooling. The annual pooling percentage cap is shown in the following table[5]:

Table 2: Proposed Pooling Declining Cap Model Year	2026	2027	2028	2029	2030
Pooling Cap	20%	20%	15%	10%	5%

Early compliance values will allow OEMs to earn values for 2025 and 2026 model-year ACC I ZEVs and PHEVs that meet ACC II standards. To earn early compliance values, an OEM must voluntarily deliver ZEVs and PHEVs for sale in excess of 7% of their ACC I sales volume for model-years 2025 and 2026. ZEVs and PHEVs must also meet ACC II All Electric Range requirements. Early compliance values may be used to offset compliance deficits in model-years 2027 through 2029. The use of early compliance values will be capped at 15% per year of an OEM's ZEV obligation and will sunset following model-year 2028. Early compliance values will not count as historical credits, may be pooled, and may be traded to another OEM.

The ACC II program proposed in Chapter 127-A also has an EJ component to address vehicle emissions in low income and disadvantaged communities that have historically been disproportionately impacted by pollution. The ACC II EJ flexibility is voluntary for OEMs and is intended to award extra ZEV values to those OEMs that opt to undertake programs to expand ZEV availability to low income and disadvantaged communities. These optional EJ value programs include discounted price ZEVs/PHEVs placed in community-based clean mobility programs, used ZEVs/PHEVs re-sold in Maine following the expiration of their lease term, and making new, low-cost ZEVs available. EJ values will be capped at 5% per year of an OEM's ZEV obligation and would sunset following model-year 2031.

No changes were made in response to this comment.

Comment #7: Increased road wear.
Commenters stated that because EVs are much heavier than ICEVs, they will cause roads to wear out more quickly and require more frequent repairs and resurfacing.

Commenters 21, 43, 120, 149, 164, 173, 209, 732, 735, 745, 748, 749

Department Response: Although road wear and transportation infrastructure are outside the scope of this rulemaking, it may be useful to consider the relative impacts of EVs versus ICEVs. Due to their batteries, current EVs are generally heavier than their ICEV counterparts, often outweighing comparable gasoline -powered vehicles by as much as 30%. For example, according to the 2023 Kelley Blue Book [6], a Hyundai Kona Electric weighs 3,715 pounds, while the gasoline-powered Hyundai Kona weighs in at 2,899 pounds. There are similar weight disparities for other manufacturers and vehicles. At the same time, heavy trucks cause the vast majority of road damage, not light-duty cars and trucks.

[5] CARB, ISOR. Table III-2, p. 46.
[6] https://www.kbb.com/hyundai/

According to a recent article, a semitruck with eight axles weighing 80,000 pounds does 2,500 times more road damage than a two-axled, 4,000-pound sedan.[7]

No changes were made in response to this comment.

Comment #8: Noise generators.
Commenter states that the noise generators required for EVs to safely operate are much louder than normally-operating ICEVs.

Commenter 21

Department Response: In 2016, the National Highway Transportation Safety Administration (NHTSA) promulgated a rule[8] to reduce the risk of pedestrian crashes, especially for the blind and visually impaired, and to satisfy the mandate in the Pedestrian Safety Enhancement Act (PSEA) of 2010. The rule requires all hybrid and electric light vehicles with four wheels and a gross vehicle weight rating of 10,000 pounds or less to make audible noise when traveling in reverse or forward at speeds up to 30 kilometers per hour (about 19 miles per hour). At higher speeds, the sound alert is not required because other factors, such as tire and wind noise, provide adequate audible warning to pedestrians. The rule limits audible to noise to a range between 56 dB and 75db (comparable to an internal combustion engine vehicle[9]).

No changes were made in response to this comment.

Comment #9: Refineries.
Commenter states that switching to EVs will cause oil refineries to close, resulting in a shortage of tar for road paving.

Commenter 21

Department Response: The Department acknowledges this comment, and appreciates the commenter's interest and participation in the rulemaking process; however, any potential influence of the proposed regulation on out-of-state production facilities is outside the scope of this petitioned rulemaking.

No changes were made in response to this comment.

Comment #10: Gas stations.
Commenter claims that operation of the proposed rule will result in gas stations closing, making it difficult to find fuel for existing ICEVs.

Commenters 127, 799

Department response: Although analyzing the impact to gasoline service stations is beyond the scope of this rulemaking, the Department notes that if the ACC II program is adopted as proposed by the Petitioners, the Department expects the continued demand for gasoline and diesel motor vehicle fuel for ICEVs and PHEVs sold under the ACC II program, along with the fuel demand for medium- and heavy-duty on-road vehicles, off-road vehicles and non-road vehicles will be sufficient to ensure the continued availability of

[7] https://www.insidescience.org/news/how-much-damage-do-heavy-trucks-do-our-roads
[8] Standard No. 131; Minimum Sound Requirements for Hybrid and electric vehicles . 49 CFR § 571.141.
[9] U.S. EPA rules limit low-speed sound emissions for 1988 and later motor vehicles to no more than 80 dBA (40 CFR 205.52).

motor vehicle fuels.[10]

No changes were made in response to this comment.

Comment #11: Insufficient supply.
Commenters state that vehicle manufacturers will not be able to produce enough EVs to satisfy the rapid increase in demand that will be created across all the states that are adopting ACC II nationwide.

Commenters 74, 146, 737, 802

Department Response: The vehicle manufacturers and battery producers have pledged $210 billion for investment in the United States to transition to EVs by 2030. The number of EV models currently being offered for sale has steadily increased with each new model year. This trend is expected to continue based on manufacturer announcements. The Department did not receive any opposition from vehicle manufacturers related to the annual ZEV sales percentages of the ACC II regulation.

The expansion of electric vehicle production will preserve existing jobs and could create new jobs, depending on how quickly the nation transitions from gas engines to batteries.

According to the U.S. Energy Information Administration, hybrid, plug-in hybrid, and battery-electric vehicle sales in the United States have increased in recent years as sales have decreased for non-hybrid gasoline- or diesel-fueled vehicles. In the second quarter of 2023 (2Q23), hybrid, plug-in hybrid, and battery-electric vehicles collectively accounted for 16% of light-duty vehicle sales in the United States, according to data from Wards Intelligence.[11]

A large portion of the sales increase was due to new manufacturer offerings across different market segments, although existing models also accounted for some of the increase in sales. Manufacturers reduced the number of non-hybrid internal combustion engine (ICE) vehicle models from 318 to 297 between 2021 and 2Q23, and they increased the number of battery-electric models from 34 to 55.[12].

No changes were made in response to this comment.

Comment #12: Will increase availability of EVs.
Commenters stated that the proposed rule will create a demand in Maine for EVs and that manufacturers will respond by increasing the number and variety of EVs on dealers' lots in Maine. Commenters stated that the supply of EVs is already increasing.

Commenters 900-904, 985, 989, 991, 993-996, 1000-1002, 1004, 1010, 1021, 1022, 1024, 1027, 1029-1048, 1051, 1053-1059, 1061, 1064, 1067-1069, 1072, 1073, 1076

Department response: An April 2023 report done by the Environmental Defense Fund shows that the majority of manufacturers of light duty vehicles have committed to a significant percentage of new vehicles produced to be fully electric by 2030.[13]

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[10] The Northeast States for Coordinated Air Use Management (NESAUM) contracted with Sonoma Technology. Inc. (Sonoma), to model the emission reduction and health benefits from adopting the ACC II program. As part of this modeling, Sonoma forecast the in-use ZEV population (as a percentage of the light-duty vehicle fleet in Maine. Maine light-duty vehicle fleet would be composed of 22% ZEVs in 2032, and 58% in 2040.
[11] https://www.eia.gov/todayinenergy/detail.php?id=60321
[12] In this context, a single vehicle model includes one nameplate and all the available trim levels associated with that nameplate.
[13] https://www.edf.org/sites/default/files/2023-05/Electric%20Vehicle%20Market%20Update%20April%202023.pdf

No changes were made in response to this comment.

Comment #13: Public health benefits.
Commenters state that operation of the proposed rule will have significant benefits to public health, including up to $4.5 billion in public health benefits, 402 premature deaths avoided, 5,870 asthma attacks avoided, and 31,000 lost workdays avoided.

Commenters 829-899, 905-981, 983, 984, 986, 987, 990, 994-997, 999-1004, 1007-1009, 1012, 1013, 1015, 1017-1009, 1021-1027, 1029-1048, 1050-1062, 1065-1073, 1075, 1077, 1078

Department Response: The Department agrees with the commenters' statement that the proposed rule would have a significant positive impact on the health of Mainers. While the per-vehicle emissions of criteria pollutants have decreased since the passing of the Clean Air Act and the enforcement of stricter vehicle emission standards, transportation still has a significant impact on air quality. For example, operating ICEVs causes emissions of nitrogen oxide (NOx) and particulate matter (PM2.5). Prolonged exposure to these pollutants can cause significant health complications such as asthma, heart disease, and lung cancer, among others. These health risks are particularly prominent for overburdened communities that live near transportation corridors and pose the highest risk to children and the elderly.

The estimated total health cost savings due to a reduction in criteria pollutant emissions (PM2.5) resulting from the proposed ACC II regulation for the year 2040 in Maine is $16.8 Million. For additional details about the health benefits of the ACC II program, see the Department's response to Comment #14.

No changes were made in response to this comment.

Comment #14: Improved air quality.
Commenters state that operation of the proposed rule will reduce air pollution in Maine and improve overall air quality.

Commenters 900-904, 922-981, 983, 987, 990, 991, 993-997, 999-1004, 1006-1010, 1012, 1015-1019, 1021-1048, 1050-1060, 1062, 1064-1067

Department response: The Department agrees with the commenters' statement that the ACC II program will reduce air pollution in Maine. An analysis of the ACC II program benefits in Maine and other states was conducted by Sonoma Technology, Inc., in May 2023 with technical input on data and methods from the International Council on Clean Transportation and Northeast States for Coordinated Air Use Management (NESCAUM). The overall analytical approach is summarized below:

1. Baseline emissions modeling using the U.S. Environmental Protection Agency (EPA) MOVES3 model was conducted. MOVES was run at the county scale for the representative counties in Maine used in EPA's National Emissions Inventory (NEI). MOVES input data and growth rates relevant to the analysis were provided by Maine and were used along with NEI input data. Emissions modeling was conducted for a 2017 base year, 2030, and 2040. Results for the representative counties were scaled to the statewide level using apportionment factors developed for the NEI.

2. The baseline MOVES output was adjusted in post-processing to account for the benefits of ACC II. The adjustment factors for NOx, PM2.5, VOCs and CO2 were developed using baseline and ACC II rule emissions inventories provided by CARB. Adjustment factors for SO2 and NH3 were calculated from the in-use ZEV fractions resulting from the rule. The adjustments used in the health benefits analysis assume that the program starts with model year 2027.

3. The in-use ZEV fractions were used to calculate ZEV electricity consumption, and emissions factors from the U.S. Department of Energy's GREET 2021 model and EPA's eGRID database were used to calculate grid emission increases associated with ZEVs. In turn, the reductions in energy consumption from conventional LDVs and GREET emission factors for petroleum production and distribution were used to calculate emission decreases in the petroleum sector. Net well-to-wheel (WTW) emissions were calculated from the reductions in vehicle and petroleum-related emissions and the increase in grid emissions.

4. Projections of the light-duty ZEV population over time were generated using Maine's current in-use ZEV population, and CARB estimates of in-use ZEV increases due to the rule.

5. EPA's COBRA model was used to estimate the health benefits associated with implementation of the ACC II program in Maine.

Table 1 summarizes the emission benefits of adopting ACC II starting with model year 2027 compared to a business-as-usual scenario based on EPA projections of ZEV impacts under current LDV greenhouse gas rules. Cumulative reductions are provided for 2030, 2035, and 2040.

Table 1: Cumulative ACC II emission benefits compared to a business-as-usual scenario.

By 2030			By 2035			By 2040		
Well-to-wheel NO_x	Well-to-wheel $PM_{2.5}$	Well-to-wheel $CO2_e$	Well-to-wheel NO_x	Well-to-wheel $PM_{2.5}$	Well-to-wheel $CO2_e$	Well-to-wheel NO_x	Well-to-wheel $PM_{2.5}$	Well-to-wheel $CO2_e$
196	23	1.9	847	123	8.7	2056	296	18.5

Note: NOx and PM2.5 are expressed in U.S. tons, CO2e is expressed in million metric tons.

Current Maine tailpipe emissions of CO2e from light-duty on-road vehicles are projected to decrease in future years due to current regulations in the business-as-usual scenario and would decrease by increasing amounts if ACC II is adopted.

Table 2 provides CO2e emission reductions for selected years that were estimated for the BAU scenario and the additional CO2e emission reductions if ACC II is adopted and implemented through model year 2032.

Table 2: Projected annual on-road LDV CO2e emission reductions under business-as-usual and ACC II adoption scenarios, in million metric tons

Year	Business-as usual $CO2_e$ reductions		Additional $CO2_e$ reductions under ACC II	
	Tailpipe	Well-to-wheel	Tailpipe	Well-to-wheel
2030	0.6	0.9	0.6	0.8
2035	1.2	1.7	1.4	1.7
2040	1.4	2.1	1.6	2.1

The annual health benefits of Maine's adoption of ACC II beginning with model year 2027 and implemented through the 2032 model year were estimated with COBRA[14]. COBRA estimates the change in number of cases and their economic values for PM2.5-associated health effects. The aggregated economic values combining all health effects are summarized in Table 3. In general, adopting ACC II reduces on-road mobile source emissions but would increase electric generation emissions. The net benefit of these emission changes in Maine is $27.6 million dollars.

[14] CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool, https://www.epa.gov/cobra

Table 3: COBRA-estimated economic values of Maine adopting ACC II, in millions of U.S. dollars

Analysis year	Total NOx reductions[a]	Total PM2.5 reductions[a]	In-state benefit[b]	Out-of-state benefit[b]	In-state burden[c]	Out-of-state burden[c]	Net benefit[d]
2040	303	15	17.8	8.1	-1.0	-1.1	21.8

[a] Emission reductions in tons per year
[b] Benefit of reduced on-road emissions
[c] Burden of increased electric generation emissions
[d] Sum of in-state and out-of-state benefits and burdens

No changes were made in response to this comment.

Comment #15: Market forces.
Commenters state that any changeover to EVs should be market driven, government should not interfere with the free market system. Commenters further state that if EVs are a reasonable transportation alternative, people will buy them of their own free will with no need for artificial market constraints.

Commenters 1, 4, 8, 11-14, 16, 22-28, 32-34, 37, 39, 40, 44, 45, 47, 49, 50, 52, 53, 55, 57, 58, 60, 61, 63, 64, 66, 70, 76, 81, 91-93, 102, 103, 106, 107, 114, 118-122, 124, 125, 127, 131, 134, 136, 139, 144, 146, 149-153, 163, 167, 170, 173-175, 177, 179, 185, 186, 194, 200, 205, 209, 211, 213, 216, 218, 220, 224-227, 313-726, 730-732, 734-739, 741, 742, 744, 748-751, 753-755, 758, 762, 769, 776-778, 780, 784, 789, 791, 802, 805, 809, 824, 826-828

Department Response: While ZEVs are gaining popularity through the private market, adoption of the ACC II program would allow Maine to accelerate the transition in a way that is both convenient and affordable for residents and allows the state to meet its climate and environmental goals:

- First, it would keep Maine on track to meet its statutorily mandated greenhouse gas emission limits, which require the state to reach "net zero" emissions by 2045. It is critical that we take steps as soon as practical to reduce pollution from motor vehicles, given that transportation is Maine's largest source of greenhouse gas emissions from fossil fuel combustion. Adoption of the ACC II program through model year 2032 would allow Maine to begin reducing emissions while giving time for the market to adjust and produce ZEVs that will meet the needs of all Maine residents.
- Second, it would provide a signal to manufacturers to further increase ZEV production and to expand the types of ZEVs offered to potential buyers. Since manufacturers will have to sell ZEVs to a more diverse group of buyers, they will be incentivized to produce models that are affordable and meet unique use cases, such as towing and long-range trips. While these efforts are already ongoing, this rulemaking will further accelerate the trend and allow Mainers to realize the benefit of ZEV vehicles on an earlier timeline.

No changes were made in response to this comment.

Comment #16: Market influence.
Commenter states that the proposed rule would increase market certainty regarding EV supply, and would help to influence the market and increase availability of EVs.

Commenters 1030, 1051

Department Response: The Department agrees that adoption of the ACC II program would increase market certainty. Vermont, Oregon, Washington, Massachusetts, New York, Colorado, Maryland, Delaware, New Mexico, New Jersey and Virginia have also adopted California's ACC II standards, and more states are considering or completing adoption this year. California and the Section 177 states account for

approximately 35-40% of national vehicle sales and an increasing number of states adopting California's standards would provide manufacturers with regulatory certainty and economies of scale. Providing long-term certainty to the industry, as this proposed rule would do, will be important not only today, but in future political environments where federal inaction on climate may once again occur.

No changes were made in response to this comment.

Comment #17: Vulnerability.
Commenters state that requiring the purchase and operation of ever-increasing numbers of EVs will increase America's dependence on foreign nations like China as a source for the materials needed to manufacture batteries and other EV components. Commenters further stated that operation of the rule will increase Maine's exposure to supply chain vulnerabilities, both in the potential delayed acquisition of vehicles due to material shortages, and in the potential decreased ability for local suppliers to complete deliveries while subject to the limits imposed by battery capacity and charging infrastructure availability.

Commenters 7, 12, 13, 15, 40, 51, 67, 88, 99, 106, 109, 145, 157, 164, 172, 174, 178, 187, 188, 206, 748, 755, 770, 794, 807, 812, 824

Department Response: While supply chain issues are beyond the scope of this rulemaking, the Department recognizes that adoption of the ACC II Program may induce demand for both raw materials (e.g., metals including lithium, graphite, cobalt, nickel, copper, manganese, chromium, zinc, and aluminum) and EV-specific parts and technology (e.g., charging equipment). Adoption of the program could also induce increased demand for grid-related equipment such as transformers. The proposed program, however, is not solely responsible for an increase in demand for these metals. The federal government recently enacted legislation providing significant support for ZEVs. The Inflation Reduction Act of 2022 (IRA) provides significant tax credits for new and used ZEVs and electric vehicle charging infrastructure. It provides an advanced manufacturing tax credit for production of critical minerals used in ZEV batteries, appropriates $500 million for "enhanced use" under the Defense Production Act to incentivize critical mineral production. It authorizes the Department of Energy to commit up to an additional $40 billion in loan guarantees (on top of an existing program of $24 billion) for innovative technologies - which includes projects that avoid GHGs and other air pollutants or that employ new or improved technologies. Various international efforts are also underway to electrify the mobile-source sector pursuant to commitments made to address GHGs as well as to lessen dependence on foreign oil.

The U.S. is dependent on imports to meet at least half of current EV production, sourcing materials such as lithium, nickel, and cobalt from processers in other countries, including China. However, sources of key materials are not entirely reliant on China. In the recent past, the U.S. imported processed lithium primarily from Argentina (55%) and Chile (36%), with only 5% coming from China and 2% from Russia (pre-Ukraine invasion). While 30.7% of our imported refined lithium (further along in the process to becoming a battery than processed lithium) comes primarily from China, the U.S. is incentivizing both domestic lithium production and imports from Free Trade Agreement partner countries via tax credits in the IRA. Due to labor rights issues, cost, and the fact that China currently has 75% of the world's cobalt refining capacity, actions are also being taken to reduce cobalt dependency.

Mining and processing operations are also scaling up domestically in California and Idaho, and in nations and parties such as Canada, the E.U., Australia, and elsewhere. Deep sea mining offers another source of key minerals for EV batteries that is less dependent on foreign nations. Closer to home, Maine has significant lithium deposits and is revising its regulations to facilitate mining of non-sulfide minerals such as lithium containing spodumene. See also the Department's response to comments #55 and #56 on battery recycling, and comments #50 and #51 on grid infrastructure.

No changes were made in response to this comment.

Comment #18: Global warming is a hoax.
Commenters state that global warming is a hoax, or that if it is happening it is a natural process, and this rule will do nothing to mitigate it. Commenters further claim that air quality in Maine is excellent, and does not need to be addressed. Commenters also state that Earth will never run out of oil.

Commenters 47, 69, 72, 84, 94, 98, 99, 105, 108, 118, 119, 122, 124, 132, 133, 149, 153, 156, 168, 175, 176, 183, 206, 211, 212, 227, 731, 744, 748, 756, 766, 770, 796, 807, 828, 829

Department Response: The Department disagrees with the commenters' assertions regarding climate change. As noted by the Intergovernmental Panel on Climate Change (IPCC):

> "Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850-1900 in 2011-2020. Global greenhouse gas emissions have continued to increase, with unequal historical and ongoing contributions arising from unsustainable energy use, land use and land-use change, lifestyles and patterns of consumption and production across regions, between and within countries, and among individuals."[15]

With respect to the emissions reductions provided by EVs, adoption of the ACC II program for model year 2027 through 2032 would provide cumulative greenhouse emission reductions of 18.5 million metric tons CO2e in 2040, along with significant reductions of nitrogen oxides and fine particulates. For more detail on modeled emission reductions, see the Department's response to comment #14.

Although Maine is currently attaining all National Ambient Air Quality Standards for criteria pollutants, it is important to remember that the primary focus of the ACC II program is greenhouse gas emission reductions. Maine statute at 38 M.R.S. 576-A establishes the following greenhouse gas emission reduction mandates:

> **§576-A. Greenhouse gas emissions reductions**
> 1. **2030 annual emissions level.** By January 1, 2030, the State shall reduce gross annual greenhouse gas emissions to at least 45% below the 1990 gross annual greenhouse gas emissions level.
> 2. **Interim emissions level.** By January 1, 2040, the gross annual greenhouse gas emissions level must, at a minimum, be on an annual trajectory sufficient to achieve the 2050 annual emissions level in accordance with subsection 3.
> **2-A. Carbon neutrality.** Beginning January 1, 2045, net annual greenhouse gas emissions may not exceed zero metric tons.
> 3. **2050 annual emissions level.** By January 1, 2050, the State shall reduce gross annual greenhouse gas emissions to at least 80% below the 1990 gross annual greenhouse gas emissions level.

Transportation is responsible for 49% of Maine's GHG emissions from fossil fuels, of which 59% is attributed to the light-duty sector. Reducing emissions from this sector was prioritized by the Maine Climate Council in their report "Maine Won't Wait.'[16] See also the Department's response to comment #14.

No changes were made in response to this comment.

Comment #19: Global warming mitigation.
Commenters state that operation of the proposed rule will help mitigate the worst effects of global warming, especially in combination with other states' adoption of the same rule.

Commenters 829-899, 905-984, 986-992, 994, 996, 998, 1000-1004, 1006-1014, 1017-1024, 1026-1030, 1048-1056, 1060-1062, 1065-1068, 1079

[15] https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf
[16] https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020.pdf

Department Response: The Department acknowledges these comments, and appreciates the commenters' interest and participation in the rulemaking process. For a detailed discussion of the effects of the ACC II program on global warming, please see the Department's response to comment #2.

No changes were made in response to this comment.

Comment #20: Regional haze.
Commenters state that the reduction in particulate emissions under the rule will help reduce regional haze and generally improve visibility around the state.

Commenters 834-871, 1019, 1025, 1052

Department response: The Department agrees that implementation of the ACC II program in Maine would reduce visibility-impairing pollutants. In 1999, the Environmental Protection Agency (EPA) issued regulations to improve visibility in 156 national parks and wilderness areas across the United States, designating federally protected mandatory Class I areas. The affected areas include many of our best-known natural places, including the Grand Canyon, Yosemite, Yellowstone, Mount Rainier, Shenandoah, the Great Smoky Mountains, Acadia, and the Everglades. In Maine, the associated areas are Acadia National Park, Roosevelt Campobello International Park, and Moosehorn Wilderness Area.

Small particles and certain gaseous molecules in the atmosphere cause poor visibility by scattering and absorbing light, limiting the distance an observer can see and obscuring color and clarity. The small particles that commonly cause hazy conditions in the Northeast and Mid-Atlantic states are primarily composed of sulfates, nitrates, organic carbon, elemental carbon (soot), and crustal material (e.g., soil dust, sea salt, etc.). Implementation of the ACC II program in Maine would provide significant reductions of both oxides of nitrogen and fine particulates, both of which are visibility-impairing pollutants. For more detailed discussion of actual program reduction benefits, see the Department's response to comment #14.

Comment #21: Reductions uncertain.
Commenter states that because of displaced emissions due to electricity generation and emissions incurred during construction of EVs, the actual reduction in emissions due to implementation of the proposed rule is uncertain.

Commenter 1080

Department response: The Department acknowledges this comment, and appreciates the commenter's interest and participation in the rulemaking process. For a discussion of the air quality improvements and emissions reductions associated with implementation of this rule, please see the Department's response to comment #14: Improved air quality.

No changes were made in response to this comment.

Comment #22: Small contribution.
Commenters state that Maine is a small contributor to the overall GHG emissions load, and any reductions here will have no effect while other states and nations continue to emit so much more than Maine does.

Commenters 123, 155, 167, 174, 175, 210, 211, 226, 769, 806, 827, 828

Department Response: Although Maine's GHG emissions are small on a global scale, climate change is a worldwide problem that requires collective action across the globe. Reducing transportation emissions will also have co-benefits for the local environment, economy, and public health of Maine. Further, it will also send a positive signal to other states and countries that transportation decarbonization is achievable and that

Maine is willing to back up its public commitments. Accelerating the deployment of ZEVs and ZEV infrastructure in Maine may also facilitate technological improvements that result in positive externalities, i.e. have beneficial impacts far beyond the borders of Maine.

No changes were made in response to this comment.

Comment #23: Fossil fuel is a finite resource.
Commenter states that fossil fuel is a non-renewable resource, and that half of it has already been consumed. Commenter states that the proposed rule will ensure that Maine is able to make the transition to EVs in a just and equitable way.

Commenter 995

Department response: The Department agrees with this statement, although exactly how long it will take to exhaust these non-renewable resources is unknown and dependent upon use. Fossil fuels were formed under specific conditions that cannot be replicated. Indeed, there are many sources of fossil fuels that exist but are inaccessible due to cost and energy inputs for extraction or the environmental damage that would be caused by extraction.

No changes were made in response to this comment.

Comment #24: Corrosion.
Commenter stated that exposure to salt water will damage batteries in EVs owned by people who live near the ocean.

Commenter 774

Department Response: Although the potential for a vehicle to corrode is outside the scope of this rulemaking, the Department acknowledges that electric vehicles may be inherently more likely to experience corrosion due to a combination of factors. Electric vehicles are more prone to corrosion because they not only contain more parts (like batteries and wiring) are prone to corrosion, but also because manufacturers have worked to reduce vehicle weight through the use of lightweight metals and composites instead of steel for body panels. While some light metal alloys (e.g., 5052 aluminum) have high corrosion resistance, other grades and metals may be less so. Some manufacturers have substituted "hybrid" (aluminum and magnesium) structures for steel, but these hybrids can cause a difference in electrode potentials, ultimately increasing the likelihood of galvanic corrosion.[17]

In addition to structural and body components, EV batteries may be more prone to corrosion because they are usually placed closer to the wheels and face increased exposure to moisture, salt, and extreme temperature changes.

While probably not eliminating all corrosion, effective design (including the use of protective sealants) and avoiding galvanically dissimilar materials can significantly reduce most vehicle corrosion.[18]

No changes were made in response to this comment.

[17] Similar galvanic corrosion problems have been experienced in conventional vehicles using aluminum body parts that are in contact with dissimilar metals.

[18] Liu, M., Guo, Y., Wang, J. *et al.* Corrosion avoidance in lightweight materials for automotive applications. *npj Mater Degrad* **2**, 24 (2018). https://doi.org/10.1038/s41529-018-0045-2

Technology

Comment #25: Replacement batteries expensive.
Commenters claim that the high cost of replacement batteries makes EVs too expensive to own and operate.

Commenters 1, 22, 59, 63, 74, 122, 125, 142, 152, 156, 161, 173, 183, 205, 219, 221, 222, 777, 783, 798, 801, 810, 818, 827

Department response: The California Air Resources Board (CARB) estimated the cost of ZEVs for battery-electric and fuel cell powered vehicles by adding ZEV component costs, fuel cell component costs, and energy storage costs.[19] CARB notes that battery costs represent the largest component of the incremental cost of a BEV, and that battery costs have declined by almost 90 percent since 2010 and are expected to continue to drop from approximately $95.3/kWh in 2026 to $72.5/kWh in 2030. CARB estimated total battery costs through vehicle model 2035 for electric vehicles with ranges of 300 miles, (BEV300), 400 miles (BEV400) and 500 miles (BEV500). The following table presents their analysis for battery electric vehicles with a range of 300 miles:

BEV300 Total Battery Costs (2021$) for Model Years 2026 Through 2035

Vehicle Class	MY 2026	MY 2027	MY 2028	MY 2029	MY 2030	MY 2031	MY 2032	MY 2033	MY 2034	MY 2035
Small Car	6248	5782	5350	4951	4784	4522	4274	4040	3819	3610
Med Car	6450	5968	5523	5110	4938	4667	4412	4170	3942	3726
Small SUV	6727	62285	5761	5331	5151	4869	4602	4350	4112	3887
Med SUV	8138	7530	6968	6448	6230	5889	5567	5262	4974	4702
Pickup	10387	9612	8894	8230	7952	7517	7105	6716	6349	6001

The Department believes CARB's battery pack cost estimates would similarly apply to vehicles sold in Maine.

Warranty coverage will be 7 years or 70,000 miles, whichever comes first, for high-priced parts. BEV and FCEV traction batteries will be covered for 8 years or 100,000 miles, whichever comes first, with an 80% state of health warranty. While the cost of battery replacement may be incurred, it is important to note that the durability and warranty requirements of the proposed rule ensure that consumers will not have to bear the cost of a battery replacement in advance of the battery's useful life within the warranty period.

See also the Department's response to comment #26.

No changes were made in response to this comment.

Comment #26: EV batteries insufficient.
Commenters state that EV range is insufficient for safe and reliable use in rural areas of Maine. Commenters state that EV range is significantly compromised when carrying or towing a common load such as an RV trailer or skimobile trailer. Commenters also expressed concerns that EV batteries wear out too quickly, further reducing vehicle range.

Commenters 9, 14, 22, 28, 41, 48, 59, 66, 73-76, 83, 95, 103, 106, 108, 111, 122, 141, 142, 144, 147, 149, 152, 153, 156, 163, 173, 177, 180, 183, 185, 192, 199, 200, 203, 211, 212, 216-218, 221, 222, 224, 227-312, 725, 727, 730, 732, 741, 742, 754-756, 759, 762, 764, 779, 783, 786, 792, 793, 801, 803, 805, 813, 818

[19] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/fsorappf.pdf

Department response: Many EVs are suitable for rural conditions, including long commutes under inclement weather and while towing, but some use cases may require gas-powered vehicles, or heavy trucks that are not regulated by this rule. This rule allows flexibility for these purposes. According to the Natural Resources Defense Council, ZEVs generally can handle most local conditions as well as, if not better than, gas cars. Even in rural areas, most ZEVs are capable of meeting local residents' daily driving needs as their ranges typically exceed 200 miles. ZEVs might have slightly shorter ranges in cold weather, but generally still more than enough to meet most people's daily driving needs. In mountainous areas, ZEVs' high torque allows for rapid acceleration even on steep inclines. When going downhill, ZEVs' regenerative braking would help recharge their batteries, thereby extending their ranges.

The ACC II ZEV program includes ZEV assurance measures consisting of durability, warranty, service information/standardized data parameters, and battery label requirements. The intent of the ZEV assurance measures is to require ZEVs and PHEVs to meet durability and assurance requirements like those required for conventional ICEVs. The ZEV assurance measures will ensure that ZEVs retain functionality and reliability as ICEVs are transitioned out of the on-road fleet. The durability measure will require 2026 through 2029 model year BEVs and FCEVs to be designed to retain at least 70% of their combined city and highway test range for 10 years or 150,000 miles, whichever comes first. 2030 and subsequent model year BEVs and FCEVs will be required to retain at least 80% of their combined city and highway test range for 10 years or 150,000 miles, whichever comes first. OEMs will be required to collect and submit battery state of health data for 30 vehicles per test group when a vehicle's age is 3 years and 6 years to demonstrate compliance over the vehicle's useful life.

No changes were made in response to this comment.

Comment #27: EV owners happy with range.
Commenters state that EV owners are generally satisfied with vehicle range.

Commenters 982, 995, 1027, 1048, 1074

Department Response: The Department acknowledges this comment, and appreciates the commenters' interest and participation in the rulemaking process.

No changes were made in response to this comment.

Comment #28: Negative effects of cold weather.
Commenters state that cold weather significantly reduces EV range by as much as 50% and significantly increases the time required to obtain a full charge. Commenters further state that operating an EV in cold weather further reduces range by using battery power for heating the passenger compartment as well as other functions like defrosting the windows. Commenters claim that manufacturers will charge a monthly fee for operating a seat warmer in an EV. Commenters also stated that EVs ride closer to the ground than ICEVs, and are therefore less safe driving in snowy conditions.

Commenters 1, 7, 10, 14, 19, 19, 21, 30, 33-35, 48, 50, 57, 59, 62, 64, 67, 71, 74, 75, 86, 88, 91, 96, 106, 108, 109, 111, 120, 122, 125, 127, 141, 144, 152, 153, 156, 157, 160, 162, 171, 173-175, 184, 192, 193, 197, 199, 200, 202, 205, 208, 210, 211, 218, 223, 707-725, 727, 730, 732, 741, 744, 745, 752, 756, 760, 762, 764, 769, 779, 782, 783, 786, 788, 789, 791, 793, 794, 798, 801, 811, 813, 818, 823, 826-828

Department Response: According to the Department of Energy, cold weather and winter driving conditions can significantly reduce fuel economy, with the effects varying by vehicle model. However, drivers can also expect conventional gasoline vehicles to suffer a 10% to 20% fuel economy loss in city driving and a 15% to 33% loss on short trips in cold weather.

Cold weather does have effects on vehicle range and charging speeds. Cold temperatures, particularly those below freezing, slow down the chemical reactions in battery cells, which reduces vehicle range and increases charging times.[20] Several studies on EV performance during cold weather have been produced in Norway, a Scandinavian country with long, very cold winters and a very high percentage of EV sales. According to the Norwegian Automobile Federation, EVs can lose up to 20% of their range in sub-freezing weather. Similar results were reported by *Consumer Reports*, which urged EV buyers in cold weather areas to opt for larger batteries to compensate for the range reductions.

Note that some EVs do better in cold weather than others, especially those with more advanced battery thermal management systems that provide heating of the battery pack to reduce cold weather range reductions and increase charging speeds. Many of these vehicles also provide high efficiency heat pumps to provide cabin heating with less battery drain than conventional resistance heaters, along with seat and steering wheel heaters to more efficiently warm occupants with reduced battery impacts. According to an analysis of on-road EV data by Recurrent, EVs with advanced thermal management systems only lost about 5% – 10% of their range in freezing conditions, while those without those advanced systems lost 25 – 35% of their range in freezing conditions. See also the Department's response to comment #26.

With respect to cold weather handling characteristics, battery electric vehicles generally have a lower center of gravity than internal combustion engine vehicles, making their weight more evenly distributed. As a result, BEVs gain traction more easily and demonstrate superior handling on snow- and ice-covered roads. Additionally, many BEVs have dual motors on the front and back axles, making for better maneuverability in wintry conditions. High BEV sales in Quebec, Iceland and Norway speak to the ability of BEVs to perform in extreme winter climates.

No changes were made in response to this comment.

Comment #29: EVs work well in cold and snowy conditions.
Commenters stated that EVs are reliable and safe in cold or snowy conditions. Commenters stated that the extra weight, lower center of gravity, and the higher torque of the electric motors gives EVs better traction in snowy conditions. Commenters stated that EVs are simply better than ICEVs.

Commenters 995, 1002, 1019, 1048, 1053

Department Response: The Department acknowledges that EVs have several inherent advantages in comparison to ICEVs that go beyond lower emissions. The Department recognizes that cold weather impacts on vehicle efficiency is not unique to electric vehicles, all vehicle types are impacted. Electric vehicles can be driven in hot and cold weather, however cold weather does have effects on vehicle range and charging speeds. Cold temperatures, particularly those below freezing, slow down the chemical reactions in battery cells, which reduces vehicle range and increases charging times.

Manufacturers continue to conduct durability testing of their ZEV models in the same extreme weather environments that they test their conventional vehicle models in. Additionally, the SAE J1634 BEV range testing standard has an optional 5-cycle pathway which allows manufacturers to test in cold weather conditions to generate different range calculations than they would be able to on the more standard testing pathways. Some manufacturers have started to choose this pathway, because their cold weather performance is outperforming the standard reduction multiplier created with years of input testing vehicles of all types. ZEVs are also being deployed at very high market penetration percentages, particularly in countries like Norway, which sees extreme cold for large portions of the year. See also the Department's response to comment #28.

[20] It should be noted that gasoline vehicles also lose an average of 15% in fuel economy under 20 degrees F. (https://www.fueleconomy.gov/feg/coldweather.shtml)

No changes were made in response to this comment.

Comment #30: Pollution from EVs.
Commenters claim that EVs are bad for the environment due to particulates from increased tire wear and braking, as well as displaced emissions from fossil fuel-generated electricity used to charge them and increased industrial pollution from manufacturing them.

Commenters 4, 6, 7, 10, 11, 20, 30, 42, 43, 58, 69, 76, 80, 83, 88, 95, 104, 105, 108, 111, 122, 123, 131, 136, 144, 149, 156, 157, 160, 164, 167, 171, 173, 205, 206, 216, 225, 707-724, 727, 737, 743, 747, 754, 755, 775, 778, 791, 804-806, 811, 816, 818, 823, 825

Department response: The Department disagrees with the commenters' assertions that electric vehicles will have inherently higher fine particulate matter (PM2.5) emissions than ICEVs. Tire PM is an issue with all vehicles regardless of vehicle weight or propulsion system. The Department also disagrees with the assumption that PM2.5 emissions would automatically increase due to adoption of ACC II and the increasing percentage of electric vehicles in use. CARBs environmental impact analysis of ACC II found notable overall decreases in fine particulate emissions from ACC II even considering particulate matter emissions from tire wear that may be exacerbated by comparable vehicles that, all else being equal, are heavier for battery-electric versions than the corresponding conventional versions.[21]

Some electric vehicle components, such as battery packs, may be heavier than ICEV components, but OEMs may offset this increased weight by reducing the weight of other components or the vehicle body. OEMs may also opt to reduce tire wear, and associated PM, by utilizing increased regenerative braking and improved tire designs.

The Department recognizes commenters' concerns about the environmental impacts of raw material sourcing and battery manufacturing. The term "zero-emission vehicle" refers to harmful tailpipe emissions only, and there are emissions in the manufacturing process for electric vehicles. However, extensive research has been conducted on the environmental impacts of electric vehicles, and the results are clear: EVs produce far less emissions over their lifecycle than ICEVs, even accounting for emissions in the manufacturing stage.

Manufacturing emissions are generally higher for electric vehicles due to the smelting from mining for raw materials, the energy used for constructing batteries, and other reasons. However, studies and modeling show this initial deficit is quickly reversed as vehicles enter operation, or general use. Electric vehicles generate no tailpipe emissions; their only emissions are from the energy production needed to charge the vehicles, which is dependent on the proportion of fossil fuels in the grid an EV is charging from.

On a low-emissions grid like Maine's, ICEVs quickly overtake EVs in terms of lifecycle greenhouse gas emissions. EVs operating in higher-emission grids that rely on coal and natural gas have lower marginal benefits, but still produce fewer emissions than ICEVs over vehicle lifetime.

A study by the International Council on Clean Transportation (ICCT) also confirmed that electric vehicles produce substantially lower greenhouse gas emissions than ICEVs, even when accounting for battery manufacturing. The study found that using alternative liquid fuels such as e-fuels and biodiesel only produces marginal benefits, given the high electricity use needed for e-fuel production and the limited production availability of biofuels.

Maine has set robust standards to add further clean energy sources in the upcoming years with the passage of Public Law 2019, Chapter 377, *An Act To Reform Maine's Renewable Portfolio Standard.* The new renewable portfolio standard (RPS) sets goals of 80% renewable electricity by 2030 and 100% by 2050.

[21] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appd.pdf

Two years later, it expanded the RPS with new goals for energy storage. The state has pledged to build 300 MW of storage by the end of 2025 and 400 MW by 2030. These actions will likely decrease the GHG emissions from EV charging in Maine.

Finally, EVs are expected to become cleaner in the future due to more environmentally friendly mining practices, the addition of renewables and clean energy to energy portfolios, and the increased use of battery recycling and re-use of raw materials. New federal rules in the Inflation Reduction Act also heavily incentivize domestic raw material production or imports from countries with a free trade agreement with the United States, as automakers must comply with the new sourcing requirements to receive full tax credits. While the total impacts of this new policy are difficult to conclusively forecast at this point, it should serve to move mining to more geopolitically friendly countries with more stringent environmental and labor standards.[22]

No changes were made in response to this comment.

Comment #31: Higher repair and maintenance costs.
Commenters state that because EVs are much heavier than ICEVs they will require more frequent repairs for things like brakes and tires and bearings. Commenters claim that the lack of trained mechanics outside of dealerships will force EV owners to have service and repairs performed at dealerships at inflated prices. Commenters also state that the weight of EV passenger cars is high enough to require registration as a commercial vehicle, further increasing the cost of ownership.

Commenters 1, 14, 17, 19, 22, 31, 34, 36, 37, 40, 43, 47, 56, 58, 59, 66, 67, 69, 72, 74, 76, 82, 83, 88, 91, 96, 99, 103, 108, 110, 111, 114, 122, 135, 136, 138-144, 149-153, 156, 159, 160, 162, 164, 167, 168, 173, 178, 183, 185, 187, 192, 197, 199, 205, 209, 211, 213, 216, 218, 221-225, 227-312, 728, 729, 731, 732, 737, 739, 744, 745, 753, 754, 762, 767, 769, 771, 773, 775-777, 781, 786-789, 793, 794, 796, 798, 799, 801, 803, 804, 811, 812, 815, 818, 827, 1028

Department response: While analyzing specific repair costs is beyond the scope of this rulemaking, the costs of maintenance and scheduled repairs for ZEVs and PHEVs are expected to be lower than that of an equivalent ICEV. For BEVs, the average cost of maintenance and planned repairs is approximately 40% lower than a gasoline passenger car, for example, due to fewer oil changes, oil filters, timing belts and other replacement parts.

While the cost of battery replacement may be incurred, it is important to note that the durability and warranty requirements of the proposed rule ensure that consumers will not have to bear the cost of a battery replacement in advance of the battery's useful life within the warranty period. See also the Department's response to comments #55 and #56.

The proposed service information and standardized data parameters (13 CCR § 1962.5) measure will require OEMs to provide independent repair shops with the same access and disclosure of repair information required for ICEVs. This measure would also require OEMs to comply with ICEV tooling standardization requirements to allow independent repair shops to reprogram the vehicle's electronic control unit (ECU). This measure also requires a standardized onboard diagnostic data connector and the use of standardized communication protocols to access this information.

Maine's community colleges offer training in their automotive technician programs for electric vehicles. Southern Maine Community College and Eastern Maine Community College both have certificate programs that train vehicle repair technicians to diagnose and repair electric and hybrid vehicles, while Kennebec

[22] Maine recently amended its statutes to facilitate the extraction of common minerals, including lithium. See Public Law 2023, Chapter 398.

Community College offers courses in EV repair.

Finally, all passenger cars pay the same $35 Maine registration fee in accordance with Title 29-A, which is not based on vehicle weight.

No changes were made in response to this comment.

Comment #32: EVs unsafe in accidents.
Commenters state that because EVs are so heavy they will cause more damage to other vehicles and objects they might strike in a collision. Commenters further state that the excess weight will contribute to greater levels of injury and mortality to occupants of other vehicles and to bystanders involved in an accident. Commenters claim that batteries damaged in an accident will leak into the environment, causing any EV crashes to become hazmat events requiring Department response. Commenters also claim that EVs damaged in accidents will be too expensive to repair.

Commenters 36, 50, 111, 152, 202, 205, 754, 780, 803, 821

Department Response: Thank you for your comments on this issue. Vehicle safety issues are regulated by the National Highway Traffic Safety Administration (NHTSA) and are beyond the scope of Department rules specific to emission standards. Nevertheless, the following information is provided to explain potential safety issues with transitioning to EVs and other ZEVs.

As noted in the Department's response to comment 34, EVs are subject to the same safety standards as other vehicles, and crash tests from the Insurance Institute for Highway Safety (IIHS), a nonprofit focused on vehicle safety, have also found EVs to be at least as safe as conventionally powered cars. Although EVs are typically heavier than ICEVs for the same size class of vehicle (e.g., compact sedan), it is important to note that the proposed ZEV requirements only affect light-duty vehicles, or those with a gross vehicle weight rating of 8,500 pounds or less.

With respect to accidents involving pedestrians, a 2011 study by the National Bureau of Economic Research[23] looked at the potential safety impacts of heavier vehicles in general. The study found that "controlling for own-vehicle weight, being hit by a vehicle that is 1,000 pounds heavier results in a 47% increase in the baseline fatality probability." Although this study did not focus on EVs, it is reasonable to assume its findings would be relevant to all vehicles, regardless of locomotive power. With the national percentage of light-duty trucks increasing from less than 20% in 1970 to more than 60% in 2021[24], the average vehicle weight has increased significantly along with the attendant safety risks. Vehicle manufacturers recognize the numerous advantages of lighter vehicles and are working toward lighter and more sustainable alternatives to current battery technology.[25]

As noted in the Department's response to Comment 35, data shows EV fires to be rare compared to fires in gasoline- and diesel-powered vehicles, but these fires tend to burn longer and at a higher intensity. Toxic fume inhalation is a potential risk with being near lithium-ion battery fires. A recent study analyzed the combustion gases from electric vehicles and compared them with gasoline-fueled ICEVs.[26] The researchers found that the peak heat release rate and total heat release were affected by the fire scenario and

[23] https://www.nber.org/papers/w17170
[24] https://afdc.energy.gov/data/10306
[25] https://www.reuters.com/technology/ev-batteries-will-have-be-50-lighter-future-stellantis-tech-chief-says-2023-09-08/
[26] Jonna Hynynen, Ola Willstrand, Per Blomqvist, Petra Andersson, Analysis of combustion gases from large-scale electric vehicle fire tests, Fire Safety Journal, Volume 139, 2023, 103829, ISSN 0379-7112, https://doi.org/10.1016/j.firesaf.2023.103829.

vehicle model, but not significantly by the type of powertrain (e.g., ICEV or EV). Looking at combustion gases, the researchers found hydrogen fluoride emissions to represent the greatest difference between EVs and ICEVs. Battery-specific metals such as manganese, nickel, cobalt and lithium were also found in higher concentrations in the electric vehicle tests than in the ICEV test, where larger quantities of lead were found. In the rare event of a vehicle fire (either ICEV or EV), individuals should move away from the fire and call their local fire department.

The U.S. Department of Transportation regulates the transportation of hazardous materials and recently issued a Safety Advisory Notice[27] concerning the transportation of electric vehicles damaged by extreme weather events.[28] Damaged or defective lithium batteries pose a unique risk because they are more likely to experience thermal runaway and ignite during transportation. Consequently, shipments of damaged or defective lithium batteries have additional restrictions (see 49 CFR 173.185(f)) compared to newly manufactured, used, or undamaged/properly functioning batteries.

As noted in the Department's response to Comment 31, the costs of maintenance and scheduled repairs for EVs are expected to be lower than that of an equivalent ICEV. The Argonne National Laboratory (ANL) has provided estimates of incremental maintenance costs that are below that of an ICEV based on vehicle technology type and miles driven. For battery electric vehicles (BEVs), a type of ZEV, the average cost of maintenance and planned repairs is approximately 40% lower than a gasoline passenger car, for example, due to fewer oil changes, oil filters, timing belts and other replacement parts (spark plugs and oxygen sensors, for example).

Focusing on collision repairs, EVs are currently more expensive to repair than their ICEV counterparts. A recent analysis[29] shows that EVs tend to be designated non-drivable at a lower frequency than their ICEV counterparts, but repairable EVs faced additional costs averaging $963. The Department notes that ACC II program contains a service information and standardized data parameters measure will require OEMs focusing on repairs to provide independent repair shops with the same access and disclosure of repair information required for ICEVs. The ACC II program also requires OEMs to comply with ICEV tooling standardization requirements to allow independent repair shops to reprogram the vehicle's electronic control unit (ECU). This measure also requires a standardized onboard diagnostic data connector and the use of standardized communication protocols to access this information. Together, these measures should increase participation of small independent repair shops in the transition to ZEV technologies since these repair shops will now be guaranteed access to repair information for ZEVs. Their participation increases competition with dealer repair services and helps to lower overall repair costs of ZEVs.

No changes were made in response to this comment.

Comment #33: EVs promote environmental and social harm.
Commenters state that the materials needed to manufacture EV batteries are mined in areas without environmental oversight, resulting in excessive destructive pollution and environmental damage. Commenters further state that the workers at these mining operations are often young children or slaves forced to work in unsafe conditions for little or no pay. Commenters contend that operation of the ACC II program will encourage and perpetuate these conditions, as well as enrich the governments that allow them.

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[27] https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2023-04/PHMSA%20Safety%20Advisory%20-%20Transportation%20of%20EVs-Lithium%20Batteries%20-%20April%202023.pdf
[28] There have been fires associated with lithium batteries installed in EVs that were submerged in floodwaters following extreme weather events. Saltwater is especially harmful to lithium batteries as residual salt within the battery or battery components can form conductive bridges that can lead to short circuit and self-heating of the battery, resulting in fires.
[29] https://www.mitchell.com/insights/auto-physical-damage/article/plugged-in-ev-collision-insights-q2-2023

Commenters 1, 6, 9, 11, 12, 14, 39, 42, 50, 58, 66, 69, 87, 88, 95, 105, 108, 111, 136, 144, 149, 150, 152, 156, 157, 159, 167, 171, 173-177, 196, 200, 205, 216, 222, 227, 727, 747, 754, 769, 780, 791, 792, 799, 803, 804, 806, 811, 822, 823

Department Response: EV production can be more emission intensive than ICEV production due primarily to the mining of lithium, cobalt, and copper for batteries. While EV battery production can have higher emissions (vehicle production being the same), total well-to-wheels, or emissions over the life cycle of the vehicle, are significantly less.

The next-generation battery version will use lithium iron phosphate rather than lithium-ion chemistry, which offers 20 percent more range and is 40 percent cheaper to produce than current batteries, and can be charged from 10-80 percent in 30 minutes or less.

Toyota has announced plans to manufacture as soon as 2027 solid-state batteries which consist of solid electrolytes as opposed to liquid. These batteries are far more energy-dense than those used in current vehicles and have the potential to reduce the size, weight and cost of batteries by half. While cobalt is commonly used in the cathode of traditional lithium-ion batteries, solid-state batteries can be designed with or without cobalt, depending on the specific composition and design choices made by manufacturers.

Due to the scarcity of cobalt, it is the most expensive element by weight in a battery. The DROC is home to 50% – 70% of the world's production of battery-grade cobalt and much of the commercial mining operations are owned by foreign nations, excluding local workers. Some local workers and their families, including children, operate what are referred to as artisanal mines, which are inherently unsafe. 15% – 30% of cobalt from the DROC is estimated to come from these mines. This raises human and labor rights violation concerns with sourcing cobalt. This cobalt ends up in the same stream as other cobalt from the DROC, making it difficult for auto manufacturers to exclude cobalt mined under these conditions. Furthermore, many cobalt miners are economically reliant on the mineral, making it difficult to stop artisanal mining operations without reducing their limited income. Clearly, the use of child labor is abhorrent. However, this issue is ultimately beyond the ability of the Department to regulate and out of the scope of this rule.

The Department also notes that the use of rare and precious metals is not unique to EVs. Gasoline and diesel vehicles all have catalytic converters that are loaded with the rare and precious minerals platinum, palladium, and rhodium. In 2020, 32% of the total Pt, 85% of the total Pd, and 90% of the total Rh were consumed by the automotive catalyst industry. Rhodium is the most valuable metal in a catalytic converter. As the world's rarest precious metal, rhodium is also the most expensive. See also the Department's response to comment #17.

No changes were made in response to this comment.

Comment #34: Safety concerns.
Commenters state that EVs are unreliable, unsustainable and unsafe. Commenters state that the short range of an EV makes it unsafe for rural drivers because the potential exists for an emergency to develop while the vehicle is charging or undercharged. Commenters also stated that EV batteries are prone to spontaneous fire and explosion, and that battery fires are extremely difficult to extinguish.

Commenters 7, 10, 14, 21, 29, 34, 36, 50, 58, 60, 82, 83, 89, 97, 102, 105, 111, 131, 141, 149, 152, 153, 162, 168, 171, 173, 177, 179, 183, 185, 186, 202, 205, 211, 216, 224, 225, 726, 727, 730, 731, 733, 744, 752, 754, 762, 776, 782, 788, 791, 794, 803, 804, 810, 818, 821, 823

Department Response: For a discussion of battery reliability and sustainability issues, please see the Department's response to comments #17 and #26. Regarding commenter's concerns about EVs and fires,

there is scant evidence to suggest that EVs are more dangerous than ICEVs.[30,31] EVs must pass the same safety tests as other vehicles, and data shows EV fires are rare compared to fires in gasoline- and diesel-powered vehicles. One caveat is that EV fires tend to burn longer and at a higher intensity, although this is being addressed through safer battery designs and new fire management techniques.[32] Fire risks may also be mitigated by refraining from overcharging, which can place stress on a battery.[33]

The National Highway Traffic Safety Administration (NHTSA) has also established the Battery Safety Initiative for Electric Vehicles to address safety risks related to EV batteries.[34] Solid-state batteries which consists of solid electrolytes as opposed to liquid don't get as hot and can support a higher charging speed. Next-generation batteries, such as solid-state and metal-air batteries, are safer and demonstrate higher performance and shorter charging times than lithium-ion batteries.

No changes were made in response to this comment.

Comment #35: EVs less prone to fire.
Commenters state that EVs are less prone to fire than ICEVs.

Commenters 1010, 1027, 1048

Department response: The Department agrees that available evidence shows EVs are actually less prone to fires than ICEVs. EVs must pass the same safety tests as other vehicles, and data shows EV fires are rare compared to fires in gasoline-and diesel-powered vehicles.[35, 36] One caveat is that EV fires tend to burn longer and at a higher intensity, although this is being addressed through safer battery designs and new fire management techniques.[37] Fire risks may be mitigated by refraining from overcharging the battery, which can place stress on the battery system. The National Highway Traffic Safety Administration (NHTSA) has also established the Battery Safety Initiative for Electric Vehicles to address safety risks related to EV batteries.[38] See also the Department's response to comment #34.

No changes were made in response to this comment.

Comment #36: Power outage concerns.
Commenters stated that in an extended power outage EV drivers would not be able to rely on their vehicle for local transportation or for evacuation. Commenters stated that while owners can store spare containers of gasoline at home for emergency use, they cannot do so with electricity.

Commenters 35, 66, 78, 108, 116, 122, 135, 167, 193, 200, 707-724, 742, 780, 787, 790, 794, 811, 813, 826, 828

Department Response: Under the ACC II program, new gasoline fueled vehicles certified to meet the

[30] https://www.autoinsuranceez.com/gas-vs-electric-car-fires/
[31] https://electrek.co/2022/01/12/government-data-shows-gasoline-vehicles-are-significantly-more-prone-to-fires-than-evs/
[32] https://www.cnbc.com/2022/01/29/electric-vehicle-fires-are-rare-but-hard-to-fight-heres-why.html
[33] It should also be noted that Solid-state batteries which consists of solid electrolytes as opposed to liquid don't get as hot and can support a higher charging speed. Next-generation batteries, such as solid-state and metal-air batteries, are safer and demonstrate higher performance and shorter charging times than lithium-ion batteries.
[34] https://www.nhtsa.gov/battery-safety-initiative
[35] https://www.autoinsuranceez.com/gas-vs-electric-car-fires/
[36] https://electrek.co/2022/01/12/government-data-shows-gasoline-vehicles-are-significantly-more-prone-to-fires-than-evs/
[37] https://www.cnbc.com/2022/01/29/electric-vehicle-fires-are-rare-but-hard-to-fight-heres-why.html
[38] https://www.nhtsa.gov/battery-safety-initiative

program's tailpipe emission standards would be available from vehicle manufacturers throughout the program's term in Maine.[39] Although power outages are generally beyond the scope of this rulemaking, the Department notes that power outages are a concern for all vehicles regardless of fuel type as fuel pumps require electricity to dispense fuel. A gas station will not be able to dispense fuel during a power outage unless it has a standby generator. Also, EVs may be less impacted by power outages than ICEVs due to differences in operation and fueling practices. Most EVs are currently charged at home, usually overnight, to maintain full operating range. EVs may also be charged utilizing solar power generation or fossil fueled generators. Most ICEVs are not refueled every day and would likely not have full operating range in a power outage.

Furthermore, an EV may have an advantage in an emergency since EVs consume little energy when sitting in traffic, whereas ICEVs are consuming fuel constantly to idle the engine. EVs are arguably safer for occupants if the vehicle becomes stranded in blizzard conditions since the constant idling of ICEVs presents a lethal threat to occupants of stranded vehicles. Snow piling up and burying the vehicle's exhaust pipe allows vehicle exhaust, particularly carbon monoxide, to enter the vehicle cabin. Elevated carbon monoxide levels may lead to loss of consciousness and eventually death. That cannot happen in EVs due to the lack of internal combustion engines and associated noxious emissions. EVs also have the added benefit of instantaneous torque at low speeds, which may alleviate wheel spin in adverse snowy conditions and prevent the vehicle from becoming stranded in the first place.

No changes were made in response to this comment.

Comment #37: Effect on medical devices.
Commenter expressed concern regarding the possible effect of electromagnetic fields generated by the powerful batteries and electric motors in EVs on implanted medical devices such as pacemakers and defibrillators in drivers and passengers.

Commenter 77

Department Response: Although outside the scope of this rulemaking, the Department summarily reviewed several studies on the potential health risks from electromagnetic field exposure related to both the vehicles and charging equipment to persons with medical devices.

A 2019 study published in *Radiation Protection Dosimetry*[40] compared the magnetic fields inside electric, gasoline and hybrid vehicles while driving in urban environments. The researchers found that the magnitudes the magnetic fields of gasoline and hybrid cars were about the same, while the magnetic field was slightly lower for electric cars. Based on the researcher's measurements the magnetic field values were less than 3% of guidelines for the general population of people using pacemakers.

A recent study[41] published in *EP Europace*, a journal of the European Society of Cardiology (ESC), analyzed the impacts of using fast chargers on individuals with a pacemaker or defibrillator.

Participants had their cardiac devices programmed to optimize detection of electromagnetic interference and were then asked to plug in and charge each car with the charging cable placed directly over their cardiac device. Patients were monitored for any malfunction of their cardiac device such as a failure to deliver

[39] Note the proposed Chapter 127-A would implement the ACC II program in Maine through the 2032 model year.
[40] R Pääkkönen, L Korpinen, *Radiation Protection Dosimetry*, Volume 187, Issue 2, December 2019, Pages 268–271, https://doi.org/10.1093/rpd/ncz248

[41] Lennerz C, Schaarschmidt C, Blazek P, et al. High-power chargers for electric vehicles: Are they safe for patients with pacemakers and defibrillators? *EP Europace*, Volume 25, Issue 5, May 2023, euad042, https://doi.org/10.1093/europace/euad042

pacing therapy or inappropriately sensing abnormally fast heart rhythms. The cardiac devices were also checked for any change in their programming or damage after charging the cars.

In total, 561 charges were performed during which the researchers did not observe any adverse events caused by electromagnetic interference. As noted by the lead researcher, Dr. Lennerz:

> "This study was designed as a worst-case scenario to maximize the chance of electromagnetic interference. Despite this, we found no clinically relevant electromagnetic interference and no device malfunction during the use of high-power chargers, suggesting that no restrictions should be placed on their use for patients with cardiac devices."

Although the study focused on DC fast chargers rather than home charging systems, Lennerz also noted:

> "Home chargers use a smaller current, but AC generates a different magnetic field than DC," he said. "Home charging is likely safe with sensible precautions, such as not staying next to the charging cable for extended periods of time."

No changes were made in response to this comment.

Purchase Cost and Total Cost of Ownership

Comment #38: EVs more expensive.
Commenters claim that EVs cost significantly more than ICEVs to purchase, and will therefore also cost more to insure. Commenters further state that EVs are more expensive to operate than ICEVs due to the high cost of electricity in Maine.

Commenters 1, 14, 17, 19, 22, 31, 34, 36, 37, 40, 43, 47, 56, 58, 59, 66, 67, 69, 72, 74, 76, 82, 83, 88, 91, 96, 99, 103, 108, 110, 11, 114, 122, 135, 136, 138-144, 149-153, 156, 159, 160, 162, 164, 167, 168, 173, 178, 183, 185, 187, 192, 197, 199, 205, 209, 211, 213, 216, 218, 221-225, 227-312, 728, 729, 731, 732, 737, 739, 744, 745, 753, 754, 762, 767, 769, 771, 773, 775-777, 781, 786-789, 793, 794, 796, 798, 799, 801, 803, 804, 811, 812, 815, 818, 827

Department Response: The Department acknowledges that a significant barrier to EV adoption today is the increased upfront cost of an EV compared to a conventional fossil-fuel powered vehicle. However, as the cost of batteries continues to drop, the price of a battery-electric vehicle should eventually become the same as a combustion engine vehicle. And while, for now, the up-front cost is higher, CARB's analysis shows that the "total cost of ownership" or "TCO" of an EV compared to a conventional vehicle can be lower due to lower fuel and vehicle maintenance costs.[42] There are also several incentive programs available in Maine and from the federal government that help to bring the upfront costs of EVs down to be comparable to conventional vehicles, and in some cases less expensive.

As global electric vehicle production volumes proliferate, their costs will continue to decline. Improvements in battery and electric vehicle technology lead to research questions about how quickly electric vehicle costs will decline and reach price parity with conventional vehicles, and also about the magnitude of the associated fuel-saving benefits. ICCT reported in October 2022 that with declining electric vehicle battery and assembly costs, shorter-range BEVs of 150 to 200 miles are projected to reach price parity by 2024–2026, followed by mid-range BEVs with 250 to 300 miles around 2026–2029, and the longest-range BEVs with 350 to 400 miles around 2029–2033.[43] PHEV prices decline at a relatively slower rate due to their relatively smaller battery packs and the additional combustion powertrains; no PHEVs in any class reach price parity with conventional vehicles over the time frame of this analysis.

[42] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/fsorappa.pdf
[43] https://theicct.org/wp-content/uploads/2022/10/ev-cost-benefits-2035-oct22.pdf

CARB conducted an economic analysis that included the total cost of ownership as part of its ACC II rulemaking.[44] The results show that BEV owners will save $3,216 over ten years in the most conservative case evaluated (a 2026 model year BEV with higher electricity prices assuming no access to a home charger) and will realize savings within the first year of ownership. Ten-year savings are much larger, at $8,835, with the lower cost 2035 model year BEV coupled with access to a home charger. This total cost of ownership analysis accounts for a number of cost factors, including vehicle price, loan fees, sales taxes and registration fees, fuel costs, maintenance costs, and a home charger capital investment for some buyers.

OEMs may earn an additional 0.10 ZEV value for making low-cost 2026 through 2028 model year ZEVs and PHEVs available to Low Income and Disadvantaged Communities. Values may be earned for passenger cars with a manufacturer suggested retail price (MSRP) under $20,275 and for light-duty trucks with a MSRP under $26,670.

EMT also offers up to a $3,500 point of purchase rebate through the Electric Vehicle Rebate program which may be combined with the federal tax credit of up to $7,500.

See also the Department's response to comment #31.

No changes were made in response to this comment.

Comment #39: ICEV retention.
Commenters state that because of the higher cost of EVs, drivers will continue to drive their older and more-polluting ICEVs for longer than they would if more new less-polluting ICEVs were available.

Commenters 8, 13, 16, 23, 24, 26, 27, 119, 121, 149, 185, 205, 313-706, 732, 751, 777, 809, 824

Department Response: The Department disagrees with the commenters' assertion that adoption of the ACC II program would necessarily decrease vehicle sales, delay fleet turnover, and increase emissions. New York has implemented California new vehicle emissions standards since 1993, and the only significant decrease in new vehicle sales occurred in 2020 and 2021 due to the COVID pandemic and related supply chain issues. There is no evidence that adoption of the California regulations in Maine and in other Section 177 states has resulted in measurable or sustained decreases in vehicle sales, nor quantifiable data that residents are retaining older vehicles longer in response to regulatory adoptions. The ACC II standards would be but one factor in increasing vehicle prices. Over the last decade, vehicle manufacturers have slashed the number of passenger cars and low-cost vehicle models, particularly small cars.[45] This was a voluntary, business-oriented decision each manufacturer made to focus on pickup trucks, SUVs and crossovers with higher prices and higher profit margins. The manufacturers also benefited from this shift to larger vehicles due to less stringent footprint-based greenhouse gas and CAFE requirements for larger vehicles. Again, these were voluntary decisions driven by the pursuit of higher profit margins, not mandates from environmental regulations.

Some consumers may make the personal decision not to purchase a new vehicle due to the concern of overall increasing consumer prices, but the flexibilities afforded by the ACC II program in general, and adoption through model year 2032 in particular, should ensure the availability of motor vehicle purchasing options.

No changes were made in response to this comment.

Comment #40: EVs less expensive.

[44] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appc1.pdf
[45] https://www.managementstudyguide.com/why-are-american-companies-no-longer-manufacturing-cars.htm

Commenters stated that because electricity is less expensive than gasoline EVs will be less expensive to operate. Commenters also stated that the price of EVs is dropping as manufacturers bring more facilities on line, and that maintenance costs for EVs will be lower than for ICEVs due to the different technology (e.g. no oil changes, no tune-ups, etc.)

Commenters 900-904, 922-983, 989, 991, 993, 995, 1000-1002, 1004, 1006, 1007, 1012, 1015, 1017, 1021, 1023, 1024, 1027, 1029-1050, 1053-1059, 1062, 1064, 1066, 1067, 1073

Department Response: Although ZEVs will cost more upfront due to the increased cost of components and charging infrastructure, the total cost of ownership (TCO) is likely to be lower than ICEVs due to savings in operational costs from lower fuel and maintenance costs.

While manufacturers will see increased costs because of this rule and will likely pass the costs through to consumers, the total cost of ownership will likely be significantly lower than an equivalent ICEV. CARB analyzed the operating and ownership costs over a ten-year period for consumer vehicles with several interesting findings[46]. First, TCO results vary dramatically for a vehicle sold at the beginning of the regulation period (2026) as compared to the end of the regulation period (2035), primarily because the vehicle incremental price is substantially lower in the later years as the technology matures and costs decline. Second, although an EV owner with a home charger may incur an additional cost for its installation, they will have lower fuel costs given the cheaper retail price of residential electricity. The result of this tradeoff is that the payback period for a 2026MY BEV (with 300-mile range) with a home charger is two years shorter than for the same BEV without a home charger. For a 2035MY BEV the payback period is nearly the same given that the incremental vehicle cost is substantially lower. The ten-year TCO full cost savings are larger for the individual with a home charger in both model year examples. The third major finding was that in both the 2026 and 2035 analyses, the BEV technology has a payback period of ten years or less, whereas the FCEV and the PHEV in most of the model years will have a payback longer than ten years.

To date, many ZEV models have been marketed as luxury vehicles, which may have led to a public perception that ZEVs are not affordable for the average consumer. However, lower-cost models, in addition to high-end models, are increasingly available and industry trends indicate that they will become more prevalent, offer extended battery range, and cost less. Modeling conducted by CARB and by ICCT both project decreasing ZEV costs over the next decade.[47] This price decline is driven by falling battery costs and increased economies of scale as automakers increase production to meet market demand. Manufacturing and materials costs for lithium-ion batteries, the primary battery type used in current EV manufacturing, have also fallen significantly over the past decade.

Per the ICCT's analysis, lower-range EVs (i.e., 150-mile ranges) are projected to be at price parity with comparable classes of internal combustion engine vehicles (ICEVs) starting in 2024 while larger vehicles such as pickups with large ranges (e.g., 400-mile ranges) are projected to reach price parity around 2033. These cost estimates include the cost of installing home charging stations, such as Level 2 chargers. Note that this rule requires that a new ZEV include a convenience charging cable that supports Level 1 charging in a 120v outlet and Level 2 charging in a 240v outlet.

See also the Department's response to comment #31.

No changes were made in response to this comment.

Comment #41: Federal funding available.

[46] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/isor.pdf
[47] https://theicct.org/wp-content/uploads/2022/10/ev-cost-benefits-2035-oct22.pdf

Commenters state that federal funding is available and being accessed to help grow charging infrastructure across the state.

Commenters 982, 997, 1027, 1030-1048, 1053-1059, 1065, 1067

Department Response: Federal funding for infrastructure has been made available through the National Electric Vehicle Initiative (NEVI), part of the Infrastructure Investment and Jobs Act (IIJA) of 2021. The Maine Department of Transportation must submit an Energy Infrastructure Deployment Plan report to Federal DOE and DOT detailing how the funds will be spent for infrastructure in Maine.

Between 2018 and 2022, MaineDOT and Efficiency Maine Trust administered over $5 million in funds to install more than 28 DC fast charger plugs and more than 200 Level 2 plugs across the State. The State has received $8 million for public EV charging infrastructure through the Maine Jobs and Recovery Plan (MJRP), $19 million in funds from the National Electric Vehicle Infrastructure (NEVI) program to build a national network of EV chargers through the Bipartisan Infrastructure Law (BIL), and the State will also compete for additional funding through the BIL's NEVI Discretionary Program.

In addition to funding already awarded under NEVI and the IRA, Maine has applied for $15 million under the U.S. Department of Transportation's Charging Fueling and Infrastructure Grant Program (CFI). Under the CFI program, awarded funds will be dedicated towards community charging infrastructure such as charging locations on public roads, schools, parks, and in publicly accessible parking facilities, and will prioritize rural areas as well as low-and moderate-income neighborhoods with low ratios of private parking, or high ratios of multiunit dwellings. Maine has requested $5,925,000 in CFI funding for 115 L2 charger locations (or 520 ports) for these priority locations.

No changes were made in response to this comment.

Alternatives to the Regulation

Comment #42: Alternative technology.
Commenters sate that the rule should promote all alternate technologies including EVs, hybrid vehicles, clean ICEVs, hydrogen fuel cell vehicles, and public transportation.

Commenters 11, 12, 21, 35, 37, 69, 72, 74, 81, 87, 103, 130, 131, 142, 160, 165, 167, 183, 200, 216, 218, 227-312, 707-724, 727, 732, 733, 739, 743, 760, 792, 806, 811

Department Response: The ACC II emission standards for new vehicles are fuel-neutral. However, the CARB ACC II regulation is technology forcing in that it requires an increased percentage of sales of ZEVs. The ZEV sales mandate does not require all compliant vehicles to be electric. Hydrogen fuel cell electric vehicles are also a compliance option should an OEM choose to pursue that path.[48].

Even after full implementation of the ACC II regulations, consumers in Maine whose driving needs exceed those of BEVs in their price range could continue to operate their existing conventional vehicles, purchase a new or used conventional vehicle, purchase a new or used plug-in hybrid (which can operate on gasoline), or purchase a new or used fuel cell electric vehicle (which uses hydrogen and has vehicle ranges over 400 miles and refuels as quickly as a gasoline vehicle).[49]

[48] Including plug-in hybrid electric vehicles.
[49] There are no hydrogen refueling facilities in Maine at this date.

No changes were made in response to this comment.

Comment #43: Regional implementation.
Commenters suggest that the proposed rule would be better enacted in a way that required EV usage in the more densely populated parts of the state and not in the more rural and remote parts.

Commenters 30, 50, 83, 184, 219, 728, 729, 759, 788, 803

Department Response: The Department acknowledges this comment, and appreciates the commenter's interest and participation in the rulemaking process. For a discussion regarding the suitability of EVs to a rural market, please see the Department's response to comment #26.

The Department also notes that administering the ACC II program in only a portion of the state would introduce significant administrative difficulties for both the Department and motor vehicle manufacturers would now be required to comply with very different light-duty motor vehicle programs (i.e., ACC II and the federal; standards); ACC II in Southern Maine, and the federal standards in northern areas.

No changes were made in response to this comment.

Comment #44: Federal standards adequate.
Commenters stated that existing federal efficiency standards for new vehicles are adequately addressing any vehicle emission problems, and this regulation will not produce any different results.

Commenters 93, 174, 175, 221, 732

Department response: U.S. Environmental Protection Agency (EPA) is proposing new and stronger standards to further reduce harmful air pollutant emissions from light-duty and medium-duty vehicles (also known as Class 2b and 3 vehicles) starting with model year 2027. The proposed standards would significantly reduce passenger car, light truck, and medium-duty vehicle emissions of greenhouse gases, hydrocarbons, nitrogen oxides (NOx), and particulate matter (PM2.5), which would result in widespread reductions in air pollution. The proposed standards would significantly reduce vehicle emissions and provide important benefits to communities near major roadways, where people of color and people with low income are disproportionately exposed to air pollution from vehicles. The proposed standards would phase in over model years 2027-2032. In this rule medium-duty vehicle includes primarily large pick-ups and vans with a gross vehicle rating of between 8,501 and 14,000 pounds used for work due to their higher towing and hauling capabilities compared to light-duty vehicles.

For light-duty vehicles, EPA is proposing standards that would increase in stringency each year over a six-year period, from MYs 2027-2032. The proposed standards are projected to result in an industry-wide average target for the light-duty fleet of 82 grams/mile (g/mile) of CO2 in MY 2032, representing a 56 percent reduction in projected fleet average greenhouse gas emissions target levels relative to the existing MY 2026 standards. Unlike ACC II, EPA does not have a ZEV sales requirement and OEMs may choose to employ, ZEVS, PHEVS, Hybrid and ICEVs to meet the proposed fleet wide standards.

The proposed standards are performance-based, allowing each automaker to choose what set of emissions control technologies is best suited for their vehicle fleet to meet the standards. EPA projects that one potential pathway for the industry to meet the proposed standards would be through:

- Nearly 70 percent BEV penetration in MY 2032 across the combined light-duty passenger car, crossover/SUV, and pickup truck categories
- About 40 percent BEV penetration by 2032 across the combined medium-duty van and pickup truck categories
- Wide-spread use of gasoline particulate filters to reduce PM emissions

- Improvements in technology to reduce CO2 from conventional gasoline vehicles

However, there are important differences between the CARB and federal light-duty programs. ACC II requires multiple data parameters compared to one in the EPA proposal. ACC II has stronger durability requirements at 2030 of 80% range for 10 years/150kmiles vs EPA's proposed 70% useable battery energy for 8 years/100K miles. ACC II requires other ZEV assurance measures such as battery labeling for recycling, minimum 150 mile range, charging cord required and multiple DCFC capability.

EPA's proposed NMOG+NOx fleet average will reduce from 30mg/mi to 12 mg/mile by 2032. ACC II NMOG+NOx fleet average remains 30mg/mile but no longer includes ZEVs after model year 2029. Therefore, CARB projects that ACC II will result in greater reductions in NMOG +NOx due to the increased ZEV sales requirement.

The EPA proposal reduces the standard for PM to .5 mg/mile vs the ACC II proposal of 1 mg/mile. The proposed EPA reduced standard for PM effectively requires wide-spread use of gasoline particulate filters on all vehicles. ACC II requires lower evaporative emissions than the EPA proposed rule. In 2032, EPA's proposed rule will achieve greater reductions for NMOG+NOx for the medium-duty vehicle sector.

No changes were made in response to this comment.

Comment #45: Federal standards insufficient.
Commenter states the Federal standards are not stringent enough to meet Maine's statutory CO2 reduction goals.

Commenter 1002

Department response: For many years the EPA regulations and the California regulations have been essentially the same. Currently EPA's Light-Duty/Medium-Duty multipollutant proposal is not identical to and does not have the stringency of ACC II in the following areas, and will not achieve the same emission reductions as ACC II in the long term.

- ACC II will achieve greater GHG and NMOG+NOx emission reductions for light-duty vehicles due to the increased ZEV sales requirement
- EPA's proposal for its electric vehicle battery durability and warranty requirements are not as stringent as ACC II.

However, EPA's widespread use of gasoline particulate filters will lead to a greater reduction in PM emissions.

In comparison to the U.S. EPA's 2021 light-duty vehicle greenhouse gas emission standards proposal[1], the ACC II Program would provide 47 percent greater reductions in greenhouse gases. While directionally correct, EPA's proposed greenhouse gas standards fall short of the emission reduction provided by the ACC II Program. See also the Department's response to comment #44.

No changes were made in response to this comment.

Comment #46: Program evaluation.
Commenters state that the program requires the Department to evaluate its effectiveness by 2028 to determine the appropriateness of extending it to 2035.

[1] Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards. 86 FR 74434.

Commenters 1027, 1030-1047, 1053-1059, 1065

Department Response: The Department agrees that the proposed rule provides for program re-evaluation. Section 11 of the proposal states:

> Program Review
> The Department will conduct a review of the program no later than January 1, 2028. Such review shall consider, among other factors, technical feasibility, cost-effectiveness, air pollution reductions, and availability of vehicles for subsequent model-years.

This program would provide for an assessment of both the current program and whether it would be appropriate to amend the program to incorporate the ACC III standards for future years.

No changes were made in response to this comment.

Electric Vehicle Supply Equipment (EVSE)

Comment#47: Infrastructure insufficient.
Commenters expressed concerns that the charging infrastructure in Maine is insufficient to support a large influx of EVs and cannot be upgraded quickly enough to keep up with the rate of increase required by the ACC II program. Commenters pointed out that there are long stretches of roads in Maine that have no power infrastructure at all and would require many miles of new power lines just to be able to start building charging stations. Commenters further stated that providing such infrastructure in areas accessible only by many miles of unpaved roads would be extremely expensive and impractical, as well as environmentally destructive. Commenters also stated that due to the rural nature of the state, many in-state journeys would require EV drivers to add hours of recharging time to a trip that an ICEV can make in a much shorter time. Commenters also stated that EV owners who live in high-rise buildings or who don't have private off-street parking will not be able to charge an EV overnight or at home at all.

Commenters 2, 8, 9, 11-14, 16-18, 21-24, 26-30, 32, 33, 35, 37, 41, 42, 48, 50, 52, 56, 59, 63, 64, 66, 67, 69, 73-76, 78, 81, 83, 84, 86, 88-93, 96, 103, 105, 106, 108-110, 111, 118, 119, 121-123, 127, 129, 130, 136, 137, 142, 144, 147, 149, 152, 155-157, 159-164, 167, 168, 173-175, 179, 180, 184-188, 192, 193, 199, 200, 203, 205, 208-210, 211, 213, 215, 217-219, 221, 224, 227-728, 729, 732, 735, 737, 740, 742, 744, 746, 748, 750-753, 756, 759, 762, 764, 766, 768, 769, 772, 775-777, 779-781, 783, 786-788, 790, 791, 793, 794, 797-799, 802, 803, 805, 806, 809, 811-813, 815, 817, 818, 824-827

Department response*:* Maine is building out a network of electric vehicle charging stations with policies, investments, and regulatory streamlining, to ensure everyone can access reliable, convenient, and affordable charging options when at home, work, and around town, and when traveling longer distances.

The Maine Plan for Electric Vehicle Infrastructure Deployment describes the priorities and strategies for developing a statewide EV charging network called "Recharge Maine" to support the build out of electrical infrastructure and charging stations in multiunit residential properties, workplaces, and tourist destinations. Priority locations for the Recharge Maine include rural areas, locations in or near disadvantaged communities, as defined by the USDOT Electric Vehicle Charging Justice40 Map: https://www.anl.gov/esia/electric-vehicle-charging-equity-considerations, communities with a high concentration of multi-unit dwellings (MUD), and communities with a high percentage of low- and moderate-income households. For those who need to charge outside the home, there are over 1,000 public charging ports across the state, and many more continue to be built across all parts of Maine. Another goal is to enhance Maine communities' capacity to attract commerce and tourism and to serve local EV drivers as EVs become the dominant form of transportation.

To support the buildout of fast charging that meets EV drivers need to re-charge more quickly when traveling longer distances, the State has set a goal to have a direct current fast charger (DCFC) within 50 miles of the next DCFC on the State highway network. This network of public DCFC chargers can provide 30-90 miles of range per 10 minutes of charging. In support of achieving this goal, MaineDOT applied for over $15 million with a $3.7 million match through the Federal Highway Administration's Charging and Fueling Infrastructure (CFI) grant program. The Infrastructure Bill provides $2.5 billion discretionary funding over five years for the CFI program. The State will also receive $19 million over the next 5 years from the Federal Highway Administration for the National Electric Vehicle Infrastructure (NEVI) program. The NEVI program requires 4 DCFC ports at each station and requires at least 95% uptime for the chargers. For more details, please see Maine's Updated NEVI Plan.

In addition to funding already awarded under NEVI and the IRA, Maine has applied for $15 million under the U.S. Department of Transportation's Charging Fueling and Infrastructure Grant Program (CFI). Under the CFI program, awarded funds will be dedicated towards community charging infrastructure such as charging locations on public roads, schools, parks, and in publicly accessible parking facilities, and will prioritize rural areas as well as low-and moderate-income neighborhoods with low ratios of private parking, or high ratios of multiunit dwellings With additional CFI grant funds, Maine plans to build out Maine's nine Alternative Fuel Corridors every fifty miles by 2026.

There are also a number of private sector investments (GM, Tesla, Ford, Electrify America, Shell) are expected to invest heavily in expanding and building the charging network across the state.

In the mid- and long-run, it is true that significant increases in charging infrastructure will be necessary to accommodate increasing numbers of EVs. The National Renewable Energy Lab (NREL) forecast charging infrastructure demand under several scenarios for every state. For an EV population of 160,000 vehicles in 2030, the NREL study forecast a need for 6,000 level 2 and 1,100 level 3 (DC fast chargers) in 2030—a significant expansion of Maine's public charging network.[50] On a national basis, NREL estimates total costs of $31-55 billion to meet 2030 charging demand, but notes that $23.7 billion in charging infrastructure funding has already been announced from sources such as the Bipartisan Infrastructure Law, private firms, state and local governments, and utilities. As noted in the report: "If sustained with long-term market certainty grounded in accelerating consumer demand, these public and private investments will put the United States on a path to meeting the infrastructure needs simulated in this report."

As discussed in other sections, projections indicate that advances in EV battery chemistry and architecture will allow for much quicker charging speeds in the near future and facilitate off-site charging (e.g., at the workplace or while shopping). Current DCFC stations operate at a minimum of 150-kW per port, with some offering 350-kW per port. As EV battery design continues to improve to allow for higher charging rates, charging times will be greatly reduced. For instance, a new battery design developed by EC Power[51] promises a 10-minute charge and will begin mass-production in 2024. Solid state batteries are another development coming in a few years that will drastically reduce charging times.

No changes were made in response to this comment.

Comment #48: Cost to upgrade.
Commenters expressed concerns about the cost to upgrade home electrical systems to support a charging station.

Commenters 22, 62, 78, 766, 769, 788, 791, 797, 804

[50] The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure. 2023. https://www.nrel.gov/docs/fy23osti/85654.pdf

[51] https://www.ecpowergroup.com/

Department Response: The Department acknowledges commenters' concerns about the price of zero-emission vehicles (ZEVs) and charging infrastructure. Most Mainers rely on their own automobile to move around daily between work, home, school, and other places and are used to a gasoline or diesel-powered vehicles. Although outside the scope of this rulemaking, the Department recognizes that incentives can play an important role in transitioning the light-duty motor vehicle fleet towards a much higher percentage of ZEVs.

The Alternative Fuel Vehicle Refueling Property Credit is available for installation of eligible residential and commercial electric vehicle charging stations. For residential use, this tax credit covers 30% (up to $1,000 per unit) of the cost of charging equipment and installation. For commercial properties, this tax credit covers 6% or 30% of the cost (up to $100,000 per unit). This tax credit is available until December 31, 2032. Following is a brief overview of Level 1 and level 2 charging equipment.

Level 1 Charging Stations
Every new EV is sold with a Level 1 charging station. It can be plugged into a standard household 110-volt grounded wall outlet and usually requires no upgrade to the existing utility panel. A Level 1 charging station will deliver about 5 miles of vehicle range per hour of charge.

This option is best for drivers who have a short commute, drive a plug-in hybrid such as the Kia Niro, are offered workplace charging, or who are able to charge the vehicle for 8 or more hours each night.

Level 2 Charging Stations
Level 2 charging stations are four times faster than Level 1 and can provide about 25 miles of range per hour of charge. Level 2 stations require a professionally installed 240-volt outlet on a dedicated circuit. It is recommended that installation be done by a licensed electrician, and a permit may be required.

Level 2 is appropriate for a battery EV such as a Tesla Model 3, as these cars have larger batteries that require longer charging times. Level 2 charging stations can be universal or vehicle-specific. On average, the cost starts at $500.[52] If a home or business already has a 240 V spot in place, the basic installation process costs typically range from $200 - $500. If a system needs to be upgraded from 110V, it will cost about $1000 - $1500 more, with the electrician's work and materials like wiring and plugs included.

No changes were made in response to this comment.

Comment #49: Overnight charging convenience.
Commenters expressed satisfaction with the convenience of charging EVs overnight at home, eliminating the need to seek out a public charging station.

Commenters 982, 1051, 1053, 1056

Department response: According to the Department of Energy, overnight charging of EVs is a convenient way to charge the vehicle. Most drivers' commutes are short enough to allow the owner to charge once a day. Many EV owners utilize a level 1 charging system where they simply plug the vehicle into an outlet with a dedicated circuit and charge overnight, which greatly reduces cost and increases convenience. Others will install a level 2 charging station that will charge the vehicle faster but requires a greater financial investment. These two at home methods work well for many EV owners and provide a convenient way to charge that doesn't require going to a public charging station.

[52] A search on HomeDepot.com showed level 2 chargers beginning at $132.94.

No changes were made in response to this comment.

Electric Grid Impacts

Comment #50: Insufficient grid capacity.
Commenters state that Maine barely has enough electricity to supply current needs, and that this rule will increase demand beyond available supply. Commenters claim that the rapid proliferation of heat pumps is already straining the limits of Maine's supply, and that the rolling blackouts seen in California will soon be commonplace in Maine as well.

Commenters 1, 6, 8, 9, 11, 13, 14, 16, 20, 21, 23, 24, 26, 27, 30, 50, 56, 63, 66, 73, 80. 81. 90-93, 95, 98, 104, 105, 111, 119, 121, 123, 129, 149, 150, 152, 153, 163, 164, 166-168, 170, 172-176, 178, 183, 185, 186, 188-190, 194, 200, 202, 205, 211, 221, 222, 227, 313-724, 727-729, 732, 733, 735, 736, 738, 743, 744, 748, 751, 754, 759, 771, 777, 780, 782, 786-788, 790, 793, 804, 809-812, 824, 825, 827, 828

Department Response: Please see the Department's combined response to comments #50 and #51 below.

Comment #51: Grid capacity is adequate.
Commenters state that the regional grid is already in the process of being upgraded, and the upgrades are being scaled to accommodate the gradual transition to EVs that the proposed rule would require.

Commenters 1002, 1027, 1048

Department response to comments #50 and #51: Significant electric system planning takes place at the regional, state, and utility level, with updated forecasts and analyses completed on a regular basis. These planning efforts use various inputs, including market data, technology adoption curves, and third-party input to understand the future mix of load and generation resources impacting the electric grid. Each plan informs equipment and infrastructure upgrades that are implemented to ensure the grid operates in a reliable and cost-effective manner.

ISO New England, the independent federally regulated regional grid operator, market administrator, and bulk power system planner, prepares an annual ten-year forecast for electricity demand in each state, including demand for EV charging. Updated 10-year projections are published in its annual Capacity, Energy, Loads, and Transmission (CELT) Report, and are used in power system planning and reliability studies.[53] ISO New England's Regional System Plan[54] summarizes system needs for generation resources and transmission facilities. Sufficient resources are expected through 2032 (the time horizon of the plan). The plan accounts for state policy initiatives and regulations and increasing electrification of heating and transportation loads, anticipates new generation and storage resource development (namely on- and off-shore wind, solar, and battery resources) and identifies transmission system investments needed to improve reliability and reduce congestion. In the longer run, it notes: "the power grid of the future looks radically different from the power grid of the past, and immense resource and transmission buildouts, along with flexible loads and modifications to our grid planning processes, are required to meet the changed needs." ISO New England also conducts regular assessments of transmission system needs across the New England bulk power system to ensure reliability and resource adequacy needs are met. ISO New England regularly assesses the preparedness of the power grid to meet customer needs, and in early December, 2023, affirmed their assessment of sufficient resources to meet electricity demand.[55]

[53] Final 2023 Transportation Electrification Forecast, April 28. 2023. https://www.iso-ne.com/static-assets/documents/2023/04/transfx2023_final.pdf
[54] 2023 Regional System Plan © ISO New England Inc. November 1, 2023 (Draft) https://www.iso-ne.com/static-assets/documents/100004/10-2023-draft-rsp23-public-meeting.pdf
[55] https://www.iso-ne.com/static-assets/documents/100006/2023124_pr_winteroutlook_2023.pdf

Maine's transmission and distribution utilities[56] are responsible for providing safe, reliable electric service at just and reasonable rates.[57] The Public Utilities Commission regulates electric utilities to ensure these outcomes, including reviewing the capital investments made by each utility to serve customers as electricity demand increases. Transmission and distribution utilities conduct grid planning to predict how much electric demand there will be, whether their current assets and equipment are sufficient to meet that need, and, if not, what investments will be required. Distribution utilities monitor equipment capabilities as load grows and anticipate which substations and circuits will require upgrades. Infrastructure investments can incur costs, but load growth moderates rate impacts by spreading expenses across additional electricity sales. Stakeholder engagement in the grid planning process provides an opportunity to ensure that the grid will meet Maine's needs in the coming years. EV charging is typically a flexible load that can be scheduled when the grid is less stressed and wholesale electricity costs are below average.

Central Maine Power and Versant Power are required by law[58] to develop 10-year integrated grid plans that address multiple planning scenarios, include forecasts of projected load by end use, as well as anticipated efficiency and distributed energy resource deployment, assess planned and anticipated changes in generation and load, and identify necessary and cost-effective investments. This process is required by law to be responsive to priorities identified by stakeholders, a process led by the Public Utilities Commission.[59]

While EV charging will likely add demand to the electric grid, the impact of such increases can be minimized with demand management programs, efficiency gains, and the development of additional power sources. Electric utilities are making significant investments to bring additional clean electricity sources onto the grid to meet Maine's energy needs over the upcoming decades. Continued grid modernization, including the use of load flexibility strategies will also minimize the impacts of EV charging on the energy grid, while saving individuals and businesses money such as by programming vehicles to charge during low demand periods with cheaper electric rates.

See also the Department's responses to comments #53 and #61.

No changes were made in response to this comment.

Comment #52: Green power impacts.
Commenters state that the proliferation of solar and wind generation projects in Maine is damaging the environment due to the deforestation required to build such projects.

Commenters 20, 21, 35, 42, 80, 101, 149, 152, 167, 174, 175, 178, 211, 804, 813

Department response: The Department acknowledges the commenters' concerns; however, such impacts are addressed by the State's environmental laws and rules regarding commercial developments, and are beyond the scope of this rulemaking.

No changes were made in response to this comment.

Comment #53: Load management.
Commenters state that managed charging can help with load management and grid stability by charging batteries during periods of low demand and potentially by using electricity stored in EV batteries to balance periods of high demand. Commenters also stated that EV batteries can be used as reserve power at a residence

[56] Maine has more than 10 electric utilities, with Central Maine Power, Versant Power, and the Eastern Maine Electric Cooperative serving the majority of the state https://www.maine.gov/mpuc/regulated-utilities/electricity/delivery-rates
[57] 35-A M.R.S. §101.
[58] 35-A M.R.S. §3147
[59] https://mpuc-cms.maine.gov/CQM.Public.WebUI/Common/CaseMaster.aspx?CaseNumber=2022-00322

or business during outages.

Commenters 997, 1021, 1027, 1048, 1077

Department response: According to Energy.gov, managed electric vehicle charging is a method of balancing the vehicle energy needs and energy control objectives on sites. Managed EV charging can ensure vehicles are charged when needed and reduce the burden on the building's infrastructure in addition to supporting a grid that is more reliable and resilient. A managed charging program may involve an agreement between a customer and their electric utility that allows software to determine the appropriate time for vehicle charging based on overall demand to the grid. This can reduce or eliminate the need for the purchase of costly back-up power by the grid manager, and potentially allows the use of vehicle batteries as a reserve resource to maintain grid stability. Real-time rates, dynamic pricing, and direct load control are also possible developments under such a program. https://www.energy.gov/femp/managed-electric-vehicle-charging

The use of an EV battery as a power source is possible; however, not all EV models have the bi-directional batteries needed to allow the battery to power a home. Those EV's that do have bi-directional batteries require a charge station on the vehicle as well as a Home Integration system that converts DC power into AC power, allowing the battery to power the home. https://www.caranddriver.com/features/a39493654/can-your-ev-power-your-house/

No changes were made in response to this comment.

Comment #54: Renewable generation.
Commenter states that requiring EVs to be a greater portion of Maine's overall transportation fleet will help the grid transition to a greater contribution from distributed renewable energy generation.

Commenter 995

Department Response: Although outside the scope of this rulemaking, the Department acknowledges that studies[60] have investigated the role of electric vehicles as distributed energy resources, and concluded that with managed charging, EVs can be integrated into the local electricity distribution network and effectively serve as distributed energy storage resources. See also, the Department's response to comment #53.

No changes were made in response to this comment.

Batteries – Recycling and Environmental Impacts

Comment #55: Battery disposal issues.
Commenters claim that the batteries in EVs cannot be disposed of safely, and that storing them for transport to out of state safe disposal sites requires specialized facilities. Commenters claim that EV batteries will leak and toxins will contaminate surface waters and groundwater. Commenters further state that the prohibitive cost of replacing batteries will result in EVs being junked rather than repaired, creating a secondary waste stream that will further clog Maine's limited landfill space.

Commenters 1, 4, 7, 10, 22, 32. 35. 36, 43, 50, 66, 81, 83, 87, 95, 96, 101, 102, 105, 108, 111, 120, 122, 127, 135, 152, 156, 157, 164, 165, 169, 171, 173-175, 177, 202, 205, 216, 218, 222, 727, 753, 783, 787, 791-793,

[60] Nelder, Chris & Fitzgerald, Garrett. (2016). Electric Vehicles as Distributed Energy Resources. https://rmi.org/wp-content/uploads/2017/04/RMI_Electric_Vehicles_as_DERs_Final_V2.pdf

801, 803, 811

Department response: To ensure that used batteries can be sustainably and properly managed at their end of life and critical battery materials are recovered efficiently, information on the battery system needs to be provided to end users and entities that receive, acquire, or hold batteries. The proposed rules include battery labeling requirements to support battery recycling and reuse, and would require all traction batteries used in BEVs, FCEVs, or PHEVs to be labeled to support secondary use and recycling efforts. A battery information label must also be affixed to the vehicle's hood or door jamb. Required battery label information will include cell cathode chemistry, capacity performance, composition, voltage, and a digital quick response (QR) code. The QR code will be linked to an updatable database containing information relevant to secondary users, vehicle dismantlers, and recyclers.

As electric vehicle batteries are retired once the vehicle is no longer useable, these older batteries can be used several ways based on their physical characteristics, state of health, and performance, or they will be recycled or disposed if no longer useable. Some battery modules removed from vehicles can be refurbished and reused directly as a replacement battery pack for the same model vehicle. Battery recycling is improving and will continue to improve overtime. New industries are developing ways to recover the most valuable materials from batteries with the intention of reuse. They are also looking at a closed-loop battery production process in which batteries are recycled, remanufactured and returned to the same factory.[61]

With respect to non-battery components, EVs and ICEVs have similar construction, utilize similar materials, and have comparable upstream impacts. There is no reason to assume that the vast majority of EV components will not be recycled like their ICEV counterparts.

No changes were made in response to this comment.

Comment #56: Used batteries can be recycled.
Commenter states that when a battery reaches the end of its useful live, it can be recycled to reuse the various minerals contained within to create new batteries.

Commenter 1027

Department Response: The Department agrees that since used EV batteries can still retain 70-80 percent of their storage capacity, they can be recycled/repurposed for a variety of stationary purposes including grid backup. Once these batteries can no longer serve other applications, they can be recycled for their component materials. Although the pace of growth for the recycling industry currently lags behind new material manufacturing, it does represent a proportion of materials used in battery manufacturing, and likely will grow over time.[62]

See also the Department's response to comment #55.

No changes were made in response to this comment.

Environmental Justice

Comment #57: Harm to low-income families.

[61] Efficient recovery of battery materials will also reduce demand on raw battery mineral mining activities and can contribute to the expected decline in costs.
[62] the ACC II program battery labeling requirement will support these recycling efforts.

Commenters stated that this rule will disproportionately harm low-income drivers. Commenters state that low-income families and individuals cannot afford the higher cost of EVs, and will therefore be forced to continue driving inefficient and increasingly worn-out ICEVs.

Commenters 7, 10, 22, 33, 35, 43, 46, 52, 56, 60, 66, 72-74, 87, 103, 105, 106, 119, 121, 125, 137-139, 149, 152, 155, 161, 164, 165, 173-175, 187, 191, 196, 200, 203, 205, 210-213, 223, 224, 228-312, 737, 741, 745, 767, 771, 773, 777, 780, 781, 786, 790, 802, 811, 813

Department Response: The pollution reductions from the proposal will reduce exposure to vehicle pollution in communities throughout Maine, including in low-income and disadvantaged communities that are often disproportionately exposed to vehicular pollution. ZEVs can also be cheaper to own and maintain, reducing transportation costs that comprise a disproportionate share of the spending for lower-income Maine residents. Further, the ZEV assurance measures, such as minimum warranty and durability standards, will ensure these emissions benefits are realized and long-lasting, while supporting more reliable ZEVs in the used vehicle market. Durable and better performing used ZEVs can help increase access to clean vehicle technologies for communities that may not be buying new vehicles, but which do need reliable mobility options. Maine's many incentive programs, while beyond the scope of this proposal, also further enhance ZEV access. As part of this overall portfolio approach to equity measures, the proposed rule also includes regulatory flexibilities that will further enhance ZEV access. Optional Environmental Justice Credits may be awarded under the ZEV regulation to manufacturers who help increase affordable access to ZEVs for disadvantaged communities.

The Environmental Justice Credits (EJ Credits) would be a distinct category under the ZEV regulation where vehicle values earned can be banked, traded, and used in the 2027 through 2031 model years, further speeding affordable ZEV access in these communities during the critical early years of the program. The proposal includes a 5% cap on EJ Credits that could be used in any given year to fulfill a manufacturer's annual ZEV requirement under the regulation. After the 2031 model year these optional EJ Credits would expire. The EJ Credits are aimed at providing manufacturers additional vehicle values for voluntary actions that would help achieve more equitable outcomes and that would increase access and exposure to ZEV technologies for underserved communities.

Under the proposal, EJ Credits can be earned in three ways: 1) Allowance for ZEVs and PHEVs remaining in Maine after leasing term. A 2027 through 2031 model-year ZEV or PHEV could earn an additional 0.25 or 0.20 vehicle value, respectively, after the vehicle is registered for operation on public roads in Maine beyond its first qualifying lease term and placed with a household located in a disadvantaged community.

2) Discounted ZEVs and PHEVs placed in a community-based Clean Mobility Program. 2025 through 2031 model-year ZEVs and 6-passenger (or more) PHEVs that are sold at a minimum discount of 25% off of the manufacturer's suggested retail price to a community-based Clean Mobility Program could earn an additional 0.50 and 0.40 vehicle ZEV credit value, respectively. Eligible Clean Mobility Programs would be determined eligible via a set of criteria developed by the Department in coordination with MaineDOT and other community stakeholders after the rule is adopted. Existing programs may be eligible if they meet the qualifying criteria.

3) OEMs may earn an additional 0.10 ZEV value for making low-cost 2027 through 2028 model year ZEVs and PHEVs available to Low Income and Disadvantaged Communities. Values may be earned for passenger cars with a manufacturer suggested retail price (MSRP) under $20,275 and for light-duty trucks with a MSRP under $26,670.

Maine also offers several incentive programs related to the purchase of electric vehicles and charging equipment through both federal programs and the Efficiency Maine Trust. For example, new battery electric

(BEV) and plug-in hybrid (PHEV) electric vehicles are eligible for federal tax credits of up to $7,500.[63] Some used BEVs and PHEVs are eligible for federal tax credits of up to $4,000. Eligibility requirements and income caps apply.[64]

The following table shows Efficiency Maine Trust rebates for low- and moderate-income households:

Type of Vehicle	Moderate Income Incentive Amount	Low Income Incentive Amount
NEW Battery Electric Vehicle (BEV)	$3,500	$7,500
NEW Plug-in Hybrid Electric Vehicle (PHEV)	$2,000	$3,000
USED BEV or PHEV	N/A	$2,500

Source: Efficiency Maine Trust https://www.efficiencymaine.com/electric-vehicle-incentives-for-low-and-moderate-income-mainers/

No changes were made in response to this comment.

Comment #58: Incentives for higher-income drivers.
Commenters expressed concerns that because EVs are so expensive, only higher-income drivers will purchase them, and these buyers will take advantage of incentives for these purchases, giving them an even greater advantage over lower-income drivers. Commenters suggest that purchase incentives be targeted to lower-income buyers. Commenters also stated that incentives are needed for home infrastructure upgrades as well as EV purchase. Commenters stated that purchase incentives are needed for used EVs.

Commenters 22, 35, 62, 78, 185, 186, 766, 769, 788, 791, 797, 804, 1028

Department Response: There are currently both federal and state incentives available for ZEVs and charging stations. The federal government offers many types of incentives to support ZEV purchases. Specifically, starting in 2023, the federal Inflation Reduction Act (passed in August 2022) offered consumers a tax credit of up to $4,000 towards the purchase of a used ZEV and up to $7,500 towards the cost of a new ZEV, plug-in hybrid vehicle (PHEV), or commercial clean vehicle. The legislation also removes a production cap that had previously phased out high-volume ZEV manufacturers such as Tesla and General Motors, making these vehicles eligible for tax credits again. Starting in 2024, consumers will be able to claim the rebates/tax credits at the point of sale and not have to wait until they file their taxes, receiving savings immediately. This change in the federal tax incentive structure will especially help those who cannot wait for a tax credit, which was not previously received at the same time as the vehicle purchase. There are also tax credits available for home charging stations that cover 30% of the cost of hardware and installation, up to $1,000. Beginning in 2023, this will also apply to bi-directional chargers, allowing an electric vehicle to serve as battery storage for a house to use when there are blackouts.[65]
State EV incentives from Efficiency Maine Trust currently include rebates of up to $8,000 for some fleet vehicles and income-based rebates of up to $7,500 for moderate-and low-income households. A rebate of

[63,42] Eligibility requirements and income caps apply.

[65] Charging stations may also be less of an investment, as this rule requires vehicles to be sold with a Level 1 and Level 2 convenience charging cord to ease home charging requirements. With the cord, all that is required is a 240v outlet.

$2,500 is also offered for a used plug-in electric vehicle for low-income residents. There are currently 35 vehicle models that qualify for a rebate Finally, Efficiency Maine Trust offers a $1000 rebate to EV purchasers of any income level.

Further, the ACC II regulation includes voluntary provisions for original equipment manufacturers (OEMs) to make used ZEVs and PHEVs and low-price ZEVs and PHEVs available in Maine. The early action credits included in the ACC II Program are expected to slightly increase ZEV sales in 2023 and 2024, which will help support a robust used ZEV market on an earlier timeline, offering even more ZEVs at lower prices for consumers. The used ZEV market will expand over time and increase the availability of used ZEVs, which are more accessible to many households that cannot afford new vehicles. The ACC II program creates specific incentives for automakers to sell lower-cost ZEVs as they earn an additional 0.1 credit for each MY2027 – 2028 vehicle that is sold below $20,275 (passenger car) or $26,670 (light-duty truck). Additionally, consumers will have other options to choose from besides a new or used ZEV. This rule would not prohibit the sale of either new or used ICEVs in Maine, new ICEVs will continue to be available for sale throughout the program's period, albeit in decreasing quantities over time. ICEVs will remain on the road and continue to be available in the used vehicle market. Finally, total cost of ownership (TCO) analyses have determined that first-owner savings will range from $3,216 to $9,000 when compared to an ICEV. This is due to lower maintenance, insurance, and fuel costs. How much is saved depends on when the vehicle is purchased. This will help drive long-term affordability for consumers. See also the Department's response to comments #25, and #59.

No changes were made in response to this comment.

Comment #59: Will help address Environmental Justice.
Commenters stated that the proposed rule will help address Environmental Justice (EJ) concerns in traditionally low-income communities located adjacent to major travel corridors and high-congestion roadways by reducing emissions from motor vehicles. Commenters also stated that tax rebates and other subsidies will help economically disadvantaged buyers afford EVs.

Commenters 984, 985, 987, 989, 990, 994, 995, 1002, 1003, 1008, 1009, 1012, 1013, 1015, 1017-1019, 1021, 1026, 1027, 1048, 1060

Department Response: The ACC II Program contains several provisions designed to expand ZEV availability to low income and disadvantaged communities. The ACC II EJ flexibility is voluntary for OEMs and is intended to award extra ZEV values to those OEMs that opt to undertake programs to expand ZEV availability to low income and disadvantaged communities. These optional EJ value programs include discounted price ZEVs/PHEVs placed in community-based clean mobility programs, used ZEVs/PHEVs re-sold following the expiration of their lease term[66], and making new, low-cost ZEVs available. [67] EJ values will be capped at 5% per year of an OEM's ZEV obligation and will sunset following model year 2031. These optional provisions will help increase affordable access to ZEVs, particularly in EJ communities.

No changes were made in response to this comment.

Economic Impacts

Comment #60: Increased cost of electricity.

[66] There is potentially a very large volume of newly off-lease ZEVs, which can provide great value in the used vehicle market especially when directed to lower income consumers. Leased vehicles were a focus of this provision because leasing companies often are a financing arm of the vehicle manufacturer, so manufacturers can control where the formerly leased vehicles end up through their off-lease auctioning process.
[67] Qualifying vehicles will have a MSRP under $20,275 for passenger cars and under $26,670 for light-duty trucks.

Commenters stated that the proliferation of EVs under this rule will strain the grid and drive up electricity rates for everyone. Commenters further stated that having an EV will make already-unaffordable electric bills even higher and less affordable.

Commenters 6, 14, 29-31, 34, 36, 60, 63, 66, 72-74, 76, 91, 92, 98, 110, 114, 117, 125, 144, 149, 167, 174, 175, 178, 192-194, 199, 202, 211, 213, 707-724, 732, 759, 776, 777, 780, 782, 789, 793, 803, 809-811, 813, 827

Department Response: There are more impactful factors on the price of electricity than EV charging. The residential price of electricity depends on a combination of costs related to generating power, ensuring sufficient generation and transmission capacity, maintaining poles, wires, and the crews that service them, and other factors. These electricity price components will move in different directions with additional EV charging and the net effect is unclear. Unrelated factors are most impactful on the price of electricity, such as the price of natural gas used for a portion of New England's power generation and the outcome of capacity auctions used to ensure sufficient generation resources.

Looking solely at its effects, additional EV charging will have upward pressure on generation (because more generation will be required), unknown rate pressure on capacity and transmission costs (because much charging will occur outside peak hours), and unknown rate pressure on distribution system costs (because existing fixed costs and the cost of system upgrades will be balanced by additional electricity sales occurring during off-peak hours).

Again, it should be emphasized that off-peak load growth through EV charging will be a minor factor in the price of electricity compared to external factors such as market power prices influenced by national natural gas prices and the interconnection of additional price-competitive generation resources (namely off-shore wind). In addition, several studies have shown that managed charging (during off-peak hours) could reduce costs for customers of regulated utilities. See also the Department's response to comment #61.

No changes were made in response to this comment.

Comment #61: Decreased cost of electricity.
Commenters stated that operation of the proposed rule will result in a lower cost of electricity, as EVs have been shown to contribute greater revenues to utilities than associated costs, thereby driving down electricity rates for all customers.

Commenters 983, 995, 1000-1002, 1021, 1023, 1048, 1050, 1056, 1061, 1073

Department Response: Recent studies have analyzed the impact of vehicle electrification on electricity costs and concluded that increased utilization of the grid could drive down electricity costs for all consumers. The reason is that although EV owners consume more electricity than typical households, their additional demand is relatively inexpensive for utilities, given the costs of generating, transmitting and distributing energy. Since EVs don't add a lot of additional capacity costs and are primarily charged during off-peak hours, their more efficient use of the electric grid can actually drive down prices for all consumers.[68]

A 2018 study conducted by M.J. Bradley and Associates[69] estimated the benefits that would accrue to all electric utility customers in Arizona due to increased utility revenues from EV charging. The authors concluded that managed off-peak ZEV charging can provide net benefits to all utility customers by shifting

[68] Since utilities are highly regulated and revenue-capped, they need to return excess profits to their customers in the form of lower rates.
[69] https://www.swenergy.org/wp-content/uploads/azevstudy.pdf

demand to hours when the grid is underutilized, and that the additional revenue could be used to support operation and maintenance of the grid, thereby reducing the need for future electricity rate increases.[70]

A more recent study conducted by Synapse Energy Economics, Inc.[71], analyzed the projected price impacts of increased electric vehicle use in three California electric service territories. The authors found that from 2012 to 2021, EV owners netted utilities $1.7 billion in excess profit that could then be returned to ratepayers or utilized for EV charging infrastructure programs.

No changes were made in response to this comment.

Comment #62: Economic harm.
Commenters state that operation of the proposed rule will harm the economy by requiring businesses to spend money to replace their fleet vehicles with EVs, which costs will then be passed on to consumers. Commenters further state that because EVs have limited range, businesses will need more vehicles and more drivers, further driving up costs and potentially causing businesses to relocate to other states that do not have the ACC II rule in force. Commenters further state that the rule will directly harm Maine's tourism and hunting and fishing industries due to the lack of charging infrastructure in remote locations.

Commenters 8, 14, 21, 29, 34,50, 51, 56, 74, 84, 85, 98, 102, 103, 105, 106, 111-113, 119, 122, 137, 146, 149, 154, 155, 160, 164, 168, 172, 174, 175, 196, 205, 206, 208, 212, 214, 219, 221, 227-312, 730, 732, 734, 739, 741, 743, 745, 750, 765, 777, 781, 783, 786, 802, 804, 811, 817

Department response: The Bureau of Labor Statistics notes that increased adoption demand for EVs has grown markedly over the past decade thanks to heightened environmental concerns, greater availability of models, increased cost competitiveness with conventional gas vehicles, and improved vehicle ranges. These factors are expected to continue to drive increased adoption over the 2021-31 decade, with the wide availability of tax incentives and other government programs supporting this trend further. The vehicle electrification trend is expected to generate demand for labor in three main areas: the design and development of electric vehicle models, the production of batteries that power them, and the installation and maintenance of charging infrastructure.

Although sector-specific impacts may vary, increased EV vehicle population along with publicly and privately funded charging systems would be expected to increase tourism versus a business-as-usual approach, since many of the states to our south have already adopted or are in the process of adopting the ACC II program.

A study conducted by Energy Innovation Policy and Technology, LLC used the Energy Policy Simulator to assess the impact of additional state adoption of ACC II accounting for Inflation Reduction Act tax credits, finding adoption by California and 16 other states would accelerate electric vehicle adoption, cut 1.3 gigatons of carbon emissions (equivalent to closing 13 coal plants), create 300,000 new jobs, save households $230 per year, and prevent 5,000 deaths in 2050.

No changes were made in response to this comment.

Comment #63: Economic benefit.
Commenters stated that the rule will benefit Maine's economy by creating new jobs to upgrade and maintain infrastructure and to repair and maintain EVs. Commenters also stated that reduced haze could drive an increase in tourism in Maine.

[70] Projected cost savings were $176 under a "high" ZEV ownership scenario.
[71] https://www.nrdc.org/sites/default/files/media-uploads/evs_are_driving_rates_down_dec_2022_update_0.pdf

Commenters 834-871, 900-981, 983, 990, 991, 993, 994, 996, 997, 1000-1002, 1004, 1012, 1013, 1015, 1017, 1023, 1027, 1029-1048, 1050-1059, 1064, 1065, 1067, 1068, 1072, 1073

Department Response: The Department acknowledges that the accelerated adoption of EVs can have a number of positive macroeconomic impacts. First, the transition to EVs can help protect the U.S. economy from recessions by reducing oil use and making our economy less vulnerable to price shocks. As noted by one economist:

> "By powering our transportation with the diversified energy sources that back the U.S. electricity grid, EVs can break the link between oil prices, geopolitical risk from the Middle East, Russia, and other major oil producers, and the health of the U.S. economy."

The automobile and parts manufacturing industry could also gain significant numbers of new jobs. A study by the Economic Policy Institute forecast that if EVs rise to 50% of domestic auto sales by 2030, 150,000 jobs could be created in the auto manufacturing and parts industry—provided measures were taken to shore up the U.S. market share and domestic content in vehicle production. In the absence of these policy measures, the study found that auto manufacturing and parts industry jobs would significantly decline.

The U.S. Department of Transportation notes that as a young and rapidly growing industry, the manufacturing and supply chains for EVs, their components, and charging equipment present an opportunity to expand investment in the American workforce and local communities. While the motor vehicle sector as a whole shed 9 percent of its jobs in 2020, the electric vehicle sector added 6,000 jobs (8 percent growth). The growth of EV manufacturing also offers the opportunity to increase employment in ways that ensure the economic benefits of EVs are equitably distributed, across both urban and rural populations, as well as among communities of color, Tribal communities, and disadvantaged and underserved communities. Increased adoption of electric vehicles can also have positive economic effects well beyond the automobile manufacturing, parts and repair sectors of the economy. Since Maine is not a petroleum producing state, almost all money spent on ICEV fuel leaves the state's economy. Given that EVs are less expensive to operate, consumers will have the opportunity to spend less of their disposable income on imported energy and more on local goods and services, thereby creating more local jobs. A recent study analyzing the economic and air quality benefits of EV adoption in Nevada estimated that an additional dollar of household spending will create 16 times more jobs than if that dollar were spent on fossil fuels.

No changes were made in response to this comment.

Comment #64: World oil markets.
Commenter states increased adoption of EV's will reduce U.S. dependence on world oil markets.

Commenter 1048

Department response: The growth of the light duty EV market will certainly aid in the reduction of oil used all over the world. China will certainly be a leader in growth, but Europe and the U.S. will also see significant sales growth. While all of this growth will certainly encourage the reduction in oil consumption, it will take many years to fully realize an increase in worldwide EV sales large enough to achieve the needed reductions in petroleum consumption worldwide. A June 2023 article by BloombergNEF states that oil demand worldwide is due to peak this decade, and although we will reach the ceiling it will still take at least another 20+ years just to see the demand for oil decrease by half. According the BloombergNEF article the current worldwide fleet is saving 300,000 barrels a day, which while a start, is not nearly where we need to be.

No changes were made in response to this comment.

Legal and Procedural

Comment #65: Improper process.
Commenters expressed concerns regarding the rulemaking petition process and promulgation of these rules under the Department's routine technical rulemaking authority. Specific concerns included:

- The rulemaking petition process should require more than 150 signatures;
- Given the proposal's scope and potential impacts, it should be legislatively adopted;
- Rulemaking for the ACC II program should be conducted under the major substantive rulemaking provisions of the Maine Administrative Procedures Act;
- The Department should have engaged in a stakeholder process prior to proposing the rules; and
- Given the proposal's scope and potential impacts it should only be adopted after a ballot initiative.

Commenters 2, 30, 38, 62, 67, 74, 105, 111, 112, 149, 152, 154, 156, 174, 175, 186, 188-190, 211, 212, 226-312, 736-738, 740, 741, 745, 748, 749, 757, 769, 788, 793, 817, 819, 821, 826

Department Response: On May 23, 2023, the Department received a citizen petition pursuant to the Maine Administrative Procedures Act to promulgate a new rule establishing motor vehicle emission standards for new passenger cars, and light-duty trucks, and medium-duty vehicles by incorporating the requirements of the California Advanced Clean Cars II regulations, beginning with the 2027 model year and continuing through the 2032 model year. The Maine Administrative Procedures Act 5 M.R.S. § 8055. The Maine Administrative Procedures Act, 5 M.R.S. Chapter 375, Subchapter 2 establishes the procedures for state agency rulemaking. While most rulemaking activities are either agency-initiated or the result of legislative directives, statute at 5 M.R.S. §8055 establishes a process where any person (or persons) may petition an agency for the adoption or modification of rules. 5 M.R.S. §8055 (in relevant part) states:

§8055. Petition for adoption or modification of rules
1. Petition. Any person may petition an agency for the adoption or modification of any rule.
[PL 1977, c. 551, §3 (NEW).]
2. Form designated. Each agency shall designate the form for such petitions and the procedure for their submission, consideration and disposition.
[PL 1977, c. 551, §3 (NEW).]
3. Receipt of petition. Within 60 days after receipt of a petition, the agency shall either notify the petitioner in writing of its denial, stating the reasons therefor, or initiate appropriate rule-making proceedings. *Whenever a petition to adopt or modify a rule is submitted by 150 or more registered voters of the State, the agency shall initiate appropriate rulemaking proceedings within 60 days after receipt of the petition (emphasis added).* The petition must be verified and certified in the same manner provided in Title 21-A, section 354, subsection 7, prior to its presentation to the agency.
[PL 1985, c. 506, Pt. A, §4 (AMD).]
Whenever an agency receives a petition submitted with the signatures of 150 or more registered voters, it is statutorily obligated to initiate rulemaking. Although the term "initiate rulemaking" is not defined in statute, it is inferred that an agency must provide the public an opportunity to comment on the proposal through either a 30-day written public comment period or comment period with public hearing (5 M.R.S. §§ 8052, 8053). The petitioned rulemaking process does not obligate an agency to adopt the proposal.[72]

[72] Before choosing to adopt a rule, and agency is required to consider all relevant information available to it, including but not limited to economic, environmental, fiscal, and social impacts analyses, statements and arguments filed during the public comment period. (5 M.R. S. §8052(4)).

While the Department recognizes commenters concerns regarding legislative adoption of the ACC II and stakeholder engagement, as previously noted, the Maine Administrative Procedures Act establishes statutory requirements for the swift initiation of rulemaking whenever a petition is received with the signatures of 150 or more registered voters.[73]

Many commenters claimed that the significant policy implications of the proposal necessitated a major substantive rulemaking pursuant to 5. M.R.S. § 8071, however the Department has existing routine technical rulemaking authority under 38 M.R.S. §§ 576-A, 585, 585-A and 585-D:

1) 38 M.R.S. §576-A, Greenhouse Gas Emission Reductions. This section of statute provides general authority for the promulgation of rules addressing greenhouse gas emissions.

38 M.R.S. §576-A(4) explicitly states: "*Rules adopted pursuant to this subsection are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A."*

2) 38 M.R.S. §585, Establishment of emission standards. This section provides (in part) that "The board may establish and may amend standards, herein called "emission standards", limiting and regulating in a just and equitable manner the amount and type of air contaminants which may be emitted to the ambient air within a region. Such emission standards shall be designed to prevent air pollution and to achieve and maintain the ambient air quality standards within the region in which applicable.

Section 585 was last amended by PL 1989, c.890, §§A40, B158, rules promulgated under this authority are therefore routine technical rules pursuant to 5 M.R.S §8071(1).

3) §585-A, Establishment of standards. This section provides (in part) that "The board may establish and amend regulations to implement ambient air quality standards and emission standards. These regulations shall be designed to achieve and maintain ambient air quality standards and emission standards within any region and prevent air pollution."

The authority in Section 585-A was last amended by PL 1989, c.890. Pt. B, §159, rules promulgated under this authority are therefore routine technical rules pursuant to 5 M.R.S §8071(1).[74]

4) 38 M.R.S. 585-D, New Motor Vehicle Standards. This section provides (in part) that "The board may adopt and enforce standards that meet the requirements of the federal Clean Air Act, Section 177, 42 United States Code, Section 7507 relating to control of emissions from new motor vehicles or new motor vehicle engines. These standards, known as a "low-emission vehicle program," must be designed to prevent air pollution and achieve and maintain ambient air quality standards within the State."

[73] The Department received this petition on May 23, 2023, and at its July 20, 2023, meeting, the Maine Board of Environmental Protection initiated rulemaking by posting the proposal to a public comment period and scheduling a public hearing.

[74] In 1999, Section 585-A ¶4 was amended to state: "Notwithstanding any other parts of this section, rules adopted pursuant to this section relating to motor vehicle fuel standards are major substantive rules as defined in Title 5, chapter 375, subchapter II-A." These requirements do not apply because the proposed rules do not establish or amend motor vehicle fuel standards.

In 1997 (PL 1997 c.364 §38) this section was amended to provide that any rules establishing a zero-emission vehicle program are major substantive pursuant to Title 5, chapter 375, subchapter II-A. In 2005, the Legislature amended this section to eliminate the major substantive rulemaking requirement (PL 2005, c. 245).

Finally, the Department notes that adoption of this program though a ballot initiative is outside the scope of this petitioned rulemaking.

No changes were made in response to this comment.

Comment #66: Illegal/unconstitutional.
Commenters stated that the Department does not have authority to adopt this rule because the rule would directly violate various legal provisions including:

- Art. I § 10 of the United States Constitution ("U.S. Const.");
- U.S. Const. Art. III, § 2;
- U.S. Const. Art. I, § 8, cl. 3 (the Commerce Clause);
- U.S. Const. Art. VI, cl. 2 (the Supremacy Clause);
- U.S. Const. amend. V (the Takings Clause);
- the equal sovereignty doctrine of the USC;
- U.S. Const. amend. X;
- the equal sovereignty doctrine;
- a SCOTUS ruling that government cannot force citizens to buy anything;
- the federal CAA;
- Sec 177 of the CAA;
- the Energy Independence and Security Act (EISA) including the Renewable Fuel Standard (RFS);
- the Energy Policy and Conservation Act (EPCA);
- Art. IV, pt. 1, § 1 of the Maine Constitution; and
- Maine statute at 5 M.R.S. § 8056(1)(B)(1).

Commenters further state that none of the statutes cited in the rule's statutory authority specifically directs the DEP to adopt any California rules; that the proposed rule is generally unconstitutional; that it generally violates the State Constitution; and that it is socialistic, dictatorial, and tyrannical governmental overreach.

Commenters 9, 14, 34, 35, 42, 46, 53, 55, 56, 58, 60, 69, 72, 74, 88, 94, 99, 107, 111, 114, 116, 120, 124, 131, 136, 148-150, 154, 158, 176, 177, 179, 182, 186, 187, 198, 200, 211, 212, 220, 222, 225, 726, 731, 736, 738, 739, 745, 748, 749, 754, 755, 773, 777, 782, 784, 791, 795, 800, 811, 821, 827

Department Response: The Department acknowledges the Commenters' concerns but notes that it has specific authority for the adoption of this program under Section 177 of the Federal Clean Air Act. Section 177 states (in relevant part):

> "Notwithstanding section 7543(a) of this title, any State which has plan provisions approved under this part may adopt and enforce for any model year standards relating to control of emissions from new motor vehicles or new motor vehicle engines and take such other actions as are referred to in section 7543(a) of this title respecting such vehicles if:
>
> (1) such standards are identical to the California standards for which a waiver has been granted for such model year, and

(2) California and such State adopt such standards at least two years before commencement of such model year (as determined by regulations of the Administrator)."

No changes were made in response to this comment.

Comment #67: Preemption.
Commenters stated that adoption of the ACC II program in Maine is preempted by federal law, including the Clean Air Act (42 U.S. Code Chapter 85), the Energy Policy Conservation Act (42 U.S. Code Chapter 77), and the federal Renewable Fuel Standards Program (40 C.F.R. Part 80).

Commenters 6, 811

Department Response: Section 177 of the Federal Clean Air Act expressly provides Maine the authority to adopt the ACC II program. Section 177 states (in relevant part):
"Notwithstanding section 7543(a) of this title, any State which has plan provisions approved under this part may adopt and enforce for any model year standards relating to control of emissions from new motor vehicles or new motor vehicle engines and take such other actions as are referred to in section 7543(a) of this title respecting such vehicles if:

(3) such standards are identical to the California standards for which a waiver has been granted for such model year, and

(4) California and such State adopt such standards at least two years before commencement of such model year (as determined by regulations of the Administrator)."

The proposed rule directly cites and/or incorporates by reference applicable standards within sections of Titles 13 and 17 of the California Code of Regulations (CCR), ensuring that the adopted standards are identical to California's standards. As noted, Section 177 also requires that states adopting the California motor vehicle emission standards provide vehicle manufacturers with a lead time of at least two model years before the standards may be enforced. If the proposal is adopted with an effective date no later than December 31, 2023, Maine would begin enforcing these requirements beginning with the 2027 model year.[75]

No changes were made in response to this comment.

Comment #68: Maine should develop its own program.
Commenters state that the ACC II Program and its rules are not appropriate for Maine. Commenters suggest that Maine should develop and adopt its own emission limits.

Commenters 11, 14, 18, 19, 21, 36, 37, 39, 44, 45, 47-49, 51, 57, 59, 60, 67, 72, 88-90, 93, 95, 106, 108, 114, 119-121, 127, 128, 133-135, 138, 139, 146, 147, 149, 152, 158, 163, 164, 166, 171, 172, 174, 175, 180, 186, 188, 191, 193, 194, 202-204, 208, 210, 211, 223, 225-227, 707-724, 727-729, 732, 734, 736-738, 743, 745-747, 749, 753, 758, 760, 764, 768, 775, 777, 779, 781, 782, 786, 788, 791, 793, 797, 803, 808, 811, 814, 819, 821, 825, 827

Department Response: Maine cannot adopt its own emission standards. Section 177 of the Clean Air Act allows other states to adopt California's motor vehicle emission standards provided these standards are identical (for a given model year) to the California standards. The Clean Air Act prohibits states from

[75] The Department could not enforce the proposed rule until California receives a waiver of preemption from EPA to implement the ACC II standards.

adopting motor vehicle standards that are not identical to those in California.

No changes were made in response to this comment.

Comment #69: Should be consumer-based.
Commenters state that the rule should be based on sales of EVs to consumers rather than sales from manufacturers to dealers.

Commenters 16, 23, 24, 26, 27, 121, 185, 186, 313-706, 809, 824

Department Response: Section 177 of the Clean Air Act requires that states must adopt standards identical to California's for a given weight class. Maine is preempted from making certain modifications to California's rule, including the definition of sale.

No changes were made in response to this comment.

Comment #70: Not enough time to comment.
Commenter stated that there was not adequate time between the public notice and the close of the comment period to properly prepare comments.

Commenter 152

Department Response: The Department provided the public with an opportunity to comment during the public comment period and during the public hearing conducted on the proposed regulation in accordance with the requirements of Maine's Administrative Procedures Act. Notice of the proposed rulemaking was provided on July 26, 2023; a public hearing was conducted on August 17, 2023; and the comment period closed on August 28, 2023.

No changes were made in response to this comment.

Comment #71: Will help meet GHG goals.
Commenters stated that the rule will help Maine meet statutory and policy goals regarding GHG emissions reduction.

Commenters 872-899, 905-984, 987, 989, 991, 993, 994, 997-1002, 1004, 1011, 1012, 1015, 1017, 1021, 1023, 1025, 1027, 1029-1048, 1051-1059, 1061, 1064, 1065, 1067-1073, 1075, 1077, 1078

Department response: The Department agrees that the proposed regulation will reduce overall GHG emissions in Maine and that it would be an important part of the state's efforts to reduce anthropogenic contributions to global warming. Transportation is the single largest source of GHGs in Maine (and in most states) and accounts for 49% of GHG emissions in the state. The Governor's Climate Council identified the need for emission reductions from this sector in its report "Maine Won't Wait".

No changes were made in response to this comment.

Comment #72: Must adopt by 12/31.
Commenters state that Maine must adopt ACC II by the end of 2023 in order to avoid missing a full model year.

Commenters 983, 1002, 1027, 1048, 1051, 1056, 1069-1071, 1079

Department response: The Department agrees that in order for the ACC II emission standards to become effective beginning with the 2027 model year, the proposed rule would need to be adopted before the end of 2023.[76] While Section 177 of the CAA permits most other states to adopt and enforce California's standards for which a waiver has been granted, California and other states' regulations must provide automakers with at least two years of lead time prior to the commencement of the applicable "model year" as defined by EPA regulations.[77] *See* 40 C.F.R. pt. 85, subpt. X. Given that a model year starts as early as January 2 of the preceding calendar year, in order for the proposed rules to become effective with the 2027 model year, the proposed rule would need to be adopted prior to January 2, 2024, which is two years prior to the January 2, 2026, start date for the 2027 model year vehicles targeted under this proposal.

Other Comments on the Proposal

Comment #73 (24): Charging cord.
Commenter states the Department should remove the Level 2 cord requirement from 1962.3 (B) and (C).

Commenter 997

Department response: Under Section 177 of the Clean Air Act, states are authorized to adopt the California standards in lieu of federal standards. When a state adopts the CA standards, they must be identical to California's, which includes the charging infrastructure. Therefore, the Department is unable to remove the language from the rule.

No changes were made in response to this comment.

Comment #74: Military tactical vehicles.
Commenter requests language to be added to the rule specifically citing and incorporating by reference CCR Title 13, Section 1905 (Exclusion and Exemption of Military Tactical Vehicles and Equipment) within the table in Appendix A of the proposal. **(DF)**

Commenter 1083

Department response: The Department appreciates the commenter's interest in the rulemaking process and shares their concerns regarding military readiness.

The Department has added the definition of military tactical vehicle or equipment as defined by specifically citing and incorporating by reference CCR Title 13, Section 1905 in Appendix A.

Comment #75: Private ambulances.
Commenter stated that the rule should exempt privately owned ambulances and emergency vehicles.

Commenter 1081

Department response: The MHD ZEV market is still maturing and some specialized vehicles, such as

[76] The deadline is actually January 1 for a given model year.
[77] 40 C.F.R. Part 85, Subpart X. Determination of Model Year for Motor Vehicles and Engines Used in Motor Vehicles Under Section 177 and Part A of Title II of the Clean Air Act.

those used for emergency response, may need further technological development before being readily available on the commercial market. Although the proposed rule establishes both zero-emission and exhaust emission standards for light duty vehicles, medium duty vehicles (or those over 6500 pounds GVWR) are subject only to exhaust emission standards and test procedures.

No changes were made in response to this comment.

Comment #76: Retiring old ICEVs.
Commenter suggested that Maine should implement a "cash for clunkers" program to remove older, more-polluting ICEVs from the fleet.

Commenter 732

Department Response: While the implementation of a "cash for clunkers" type program is beyond the scope of this rulemaking, such a program directed at the replacement of older ICEVs with EVs could further advance the market penetration of EVs, address equity, and help address systemically disinvested communities and persons. The Department is aware of at least two states with this type of a program, both of which have adopted the ACC II Program. California pays up to $9500 to EV buyers scrapping an older ICEV, and Vermont offers $5000 for each scrapped vehicle, that can then be used to buy a new EV, including e-bikes and motorcycles.

No changes were made in response to this comment.

Comment #77: Full adoption.
Commenters suggest that Maine should fully adopt the ACC II rule to bring the ZEV sales percentage requirement to 100% by 2035, rather than the 80% that is in the proposed rule.

Commenters 834-899, 922-981, 983, 984, 987, 990, 996, 997, 1000-1004, 1006, 1007, 1009, 1012, 1014, 1015, 1017-1019, 1023-1026, 1029, 1051-1054, 1056, 1060-1062, 1066, 1067, 1069-1072, 1075-1077

Department Response: The proposed regulation implements the Advanced Clean Cars II program from model year 2027 through model year 2032 and increases the zero- emission vehicle sales requirement from 34 to 82 percent during this period. These requirements are consistent with ACC II program adoptions in Colorado and New Mexico and will provide additional flexibility for specialized needs during the later model years. It is also important to note that Section 11 of the proposal requires the Department to conduct a review of the program no later than January 1, 2028, with this review considering, among other factors, technical feasibility, cost-effectiveness, air pollution reductions, and availability of vehicles for subsequent model-years.

No changes were made in response to this comment.

Comment #78: Full adoption required.
Commenter stated that Maine statute (38 MRS §576-A) requires the adoption of the 100% requirement in order to meet the goals therein.

Commenter 1002

Department Response: The Department disagrees with the commenter. Although there are statutory

requirements for greenhouse gas emission reductions (Se 38 M.R.S. § 576-A) there are no laws requiring the adoption of this specific program, either as proposed by the petitioners or through model-year 2035.

No changes were made in response to this comment.

Comment #79: EPA consultation.
Commenter requests that Maine DEP consult with EPA Region 1 staff prior to any potential future submittal of this regulation as part of Maine's State Implementation Plan (SIP). Commenter further stated that the Incorporation by Reference table on pages 7-8 contains inconsistent punctuation endings in the title in the Article and Chapter columns.

Commenter 1082

Department response: If the proposed Chapter 127-A rule is adopted by the Board of Environmental Protection, and if at some subsequent time the Department wishes to include the rule in the SIP, it will consult with EPA Region 1 prior to any SIP submittal.

All punctuation in Appendix A, the incorporation by reference table, has been made consistent.

Comment #80: State and Local Fleet Increase.
Commenter states that State and local governments can lead by example by prioritizing adopting EVs (e.g., PHEVs, BEVs, and/or FCEVs) when making fleet purchases. Commenter recommends that there should be both public and private fleet purchase requirements that match regulatory requirements. Commenter states that this would serve to bolster consumer interest in EV purchases.

Commenter 1084

Department response: The first "Lead By Example" report https://www.maine.gov/future/climate/lead-by-example for Maine's state government outlines strategies to curb state agencies' greenhouse gas emissions, transition state electricity use to 100 percent clean power by 2024, and purchase 100 percent electric vehicles for the state fleet by 2030. The governor directed state agencies to "lead by example" in pursuing energy efficiency, environmental and sustainability practices to reduce operating costs, support state workers, and fight climate change.

The objectives of the "Lead By Example" report align with the state's four-year climate action plan, Maine Won't Wait, and leverage the state's purchasing power to deliver taxpayer savings, create new markets for Maine-based products, increase the state's resilience to climate change, and make progress toward achieving Maine's nation-leading emissions reduction and renewable energy targets.

No changes were made in response to this comment.

Comment #81: Building code.
Commenter states that Maine will need to add to its building code to address EV requirements in new construction.

Commenter 1084

Department response: The Department appreciates the commenter's interest and participation in the rulemaking process, however establishing building codes is outside the scope of this rulemaking. The Department notes that there was legislation introduced in the 131st Maine Legislature First Special Session that attempted to address this issue, but *LD 524, An Act Requiring the Installation of Electric Vehicle*

Charging Stations in New Commercial and Multifamily Parking Lot Construction did not pass into law.