Frequently Asked Questions

1. Why is New Jersey adopting ACC II?

The transportation sector, and particularly passenger cars and light-duty trucks, comprise the largest sector of the State's greenhouse gas emissions. The Department determined that adopting ACC II is necessary for the State to reduce the State's greenhouse gas emissions and mitigate the most severe impacts of climate change. Further, the increase in ZEVs combined with the multi-pollutant exhaust emissions standards for ICE vehicles that are included in the ACC II rules are necessary to reduce the criteria pollutants like NO_x and PM. As set forth in New Jersey's 2017 emission inventory, the on-road sources within the transportation sector are responsible for 44 percent of New Jersey's annual Statewide NO_x emissions, which are a precursor to ozone and secondary particulate matter (PM). On-road sources are also responsible for 10 percent of New Jersey's annual Statewide PM2.5 emissions.

2. What is the ZEV requirement in ACC II?

The ZEV requirement of the ACC II rules requires manufacturers to produce and deliver for sale in New Jersey an increasing number of new ZEVs as part of their new passenger car and light-duty truck (collectively also referred to as light-duty vehicles) fleets. The ZEV requirement reaches 100 percent in 2035. At that time, a manufacturer must satisfy 100 percent of production volume of new light-duty vehicles with an equal number of vehicle values. Generally speaking, a single vehicle value is generated by the production and delivery for sale of a single qualifying ZEV or a qualifying plug-in hybrid electric vehicle (PHEV), which is a vehicle that uses both battery-powered electricity and another fuel, such as gasoline or diesel. A manufacturer may produce and sell its own qualifying ZEVs or PHEVs to generate the vehicle values necessary to meet its annual ZEV requirement, purchase or trade surplus vehicle values generated by another manufacturer, or use its own banked surplus values. Because manufacturers can bank surplus vehicle values for a limited number of model years, it is theoretically possible that one or more manufacturers would have enough vehicle values banked to meet an annual production volume in model year 2035 that includes a small portion of strictly ICE vehicles. Because of the program framework, the Department is unable to predict exactly how manufacturers will meet their requirements. By and large, however, the Department expects that the majority of light-duty vehicle manufacturers will not be seeking CARB certification for new ICE vehicles in model year 2035. The ACC II rules do not apply to used vehicles.

3. **Are alternative fuels like hydrogen allowed under ACC II? What about low carbon fuels?**

The annual ZEV requirement of ACC II is technology neutral. The ACC II rules do not specify a particular technology. Rather, the rules prohibit the sale and registration of new model year 2027 or subsequent model year passenger car, light-duty trucks, or medium-duty vehicles that are not certified by the California Air Resources Board (CARB) and require increasing percentages of vehicles sold to be zero emission. The ACC II rules recognize that battery electric vehicles (BEVs), fuel-cell electric vehicles (FCEV), and plug-in hybrid vehicles that meet the minimum technical requirements will qualify as vehicle values. Most FCEVs are powered by hydrogen. FCEVs are like BEVs in that they are both electric vehicles that use an electric motor instead of an internal combustion engine to power the wheels. However, while BEVs run on batteries that are plugged in to recharge, FCEVs produce their electricity onboard. See EPA Green Vehicle Guide Hydrogen in Transportation. The ACC II rules not only recognize that FCEVs are ZEVs, but also a manufacturer that produces FCEVs for sale in California or a Section 177 state can receive extra values based on percentage of sales volume of the manufacturer's FCEV sales in the state where it sells the most FCEVs (known as the "annual proportional FCEV allowance"). Thus, the ACC II rules recognize that there are alternatives to BEV technology. Further, the Department recognizes that there are additional fuels that have low carbon emissions, such as compressed natural gas, ethanol, and biodiesel, but these fuels still produce byproducts when combusted. The emission standards contained within ACC II are multi-pollutant standards and require that ZEVs emit no criteria pollutants from the tailpipe. Nevertheless, there are opportunities for alternative fuel and combustion technologies to improve the emissions performance and efficiency of plug-in hybrid vehicles while generating power using fuel other than electricity.

4. **Is it more efficient to burn fossil fuel directly in a vehicle than running a power plant to charge an electric vehicle?**

The short answer is that fossil fuels are burned more efficiently in a power plant and electric vehicles are far more efficient than ICE vehicles. Keep reading if you want to understand the science and numbers behind this.

New Jersey's electricity is produced from a mixture of energy sources through the PJM regional transmission organization. The bulk of the fossil fuel used for electricity production in the PJM region is natural gas (generation fuel mix at www.pjm.com). According to the U.S. Energy Information Administration (EIA), most natural gas power plants use combined cycle steam turbines for base and intermediate loads, and "Combined-cycle systems have an average operating heat rate of 7,146 Btu/kWh." See https://www.eia.gov/todayinenergy/detail.php?id=52158. Since 1 kWh is equivalent to 3,412 Btu, this translates to an efficiency of 48 percent of the chemical energy in natural gas converted to electricity. The EIA estimates average electricity transmission and distribution losses at 5 percent. See https://www.eia.gov/tools/faqs/faq.php?id=105&t=3. The U.S. Department of Energy and U.S. Environmental Protection Agency website www.fueleconomy.gov has a breakdown of how electricity is used and lost in an average electric vehicle. See https://www.fueleconomy.gov/feg/atv-ev.shtml. From losses due to battery charging,

accessories, drive system, auxiliary electrical, wind resistance, rolling resistance, and braking, plus energy recovered from regenerative braking, overall electric vehicle efficiency is 87 percent to 91 percent from the charging station to the wheels. Thus, overall efficiency from natural gas electricity generation to electric vehicle wheels is (48 percent - 5 percent) x (87 percent to 91 percent) = 37 percent to 39 percent. The website www.fueleconomy.gov also has a breakdown of how energy is used in a gasoline vehicle. See https://www.fueleconomy.gov/feg/atv.shtml. From losses due to engine heat and friction, accessories, drivetrain, parasitic pumps, auxiliary electrical, wind resistance, rolling resistance, and braking, overall gasoline vehicle efficiency is 16 percent to 25 percent. In conclusion, comparing the combustion of fossil fuels to generate electricity and power the wheels of an electric vehicle is 37 percent to 39 percent efficient, while directly combusting gasoline to power the wheels of a gasoline vehicle is only 16 percent to 25 percent efficient.

5. Do power plants making electricity for electric vehicles emit more pollution than gasoline vehicles?

No. The degree to which power plants are cleaner than gasoline vehicles varies across the country. However, New Jersey's electricity comes from relatively clean power generation. A simple way to compare the emissions of New Jersey fossil fuel power plants versus gasoline and diesel vehicles is to look at the Department's 2017 Criteria Pollutant Air Emissions Inventories. See https://dep.nj.gov/airplanning/emissions-inventories/. For the purpose of the State air emissions inventories, power plants are classified as large stationary point sources of emissions. For volatile organic compounds, on-road mobile sources account for 20 percent of emissions, while point sources are eight percent. For oxides of nitrogen, on-road mobile sources account for 44 percent, while point sources are 14 percent. For fine particles, on-road mobile sources account for 10 percent, while point sources are 11 percent. With the exception of fine particles (where the numbers are similar), the overall on-road mobile sources emit a greater percentage of criteria air pollutants than power plants.

6. Is the automotive industry ready to transition to electric vehicles?

By setting an annual ZEV requirement, the Department is providing certainty to vehicle manufacturers, suppliers, utilities, and infrastructure manufacturers to make the long-term investments that will be crucial to large-scale deployment of light-duty ZEVs and consumer choice. Although compliance with the ACC II program will require significant changes to manufacturers' product offerings and scale of production, many automakers had already committed to expanding their offerings of new ZEV makes and models. This shift was further detailed in CARB's Initial Statement of Reasons (ISOR), which noted that "[t]he industry has rapidly responded to evolving market pressures, consumer demands, and regulatory requirements in California, across the United States, and around the globe. Overall, these improvements have reduced costs for batteries, the main driver of BEV and PHEV costs, as well as for non-battery components. This has enabled manufacturers to accelerate plans to bring to market more long-range ZEVs in more market segments and highly capable PHEVs. Today, every manufacturer has a public commitment to significant if not full electrification in the next 20 years. Based on

public announcements, it is expected that nearly 120 ZEV and PHEV models will be available to consumers before the 2026 model year." CARB ISOR, p. 7 (https://ww2.arb.ca.gov/rulemaking/2022/advanced-clean-cars-ii).

7. Are vehicle manufacturers going to produce more models of electric vehicles?

Today, there is a significant variety and diversity of electric vehicle makes and models available in New Jersey. Based upon the mid-2023 Alternative Fuel Vehicle (AFV) report, which includes vehicles registered in New Jersey through June 30, 2023, a total of 72 unique models of 2023 light-duty battery electric, plug-in hybrid, and fuel cell electric vehicles are in use, as compared to the 349 unique models of light-duty ICE vehicles. Since ACC II does not take effect until model year 2027, manufacturers should have sufficient lead time to develop and certify new products within the range CARB predicted by model year 2027 and to continue to expand upon their product offerings as the annual ZEV requirements ramp up through 2035. Manufacturers are expected to produce vehicles that meet consumers' needs. ACC II will help to ensure quality by including minimum requirements related to the range and durability of ZEVs used to meet a manufacturer's annual requirement. Further, as the annual ZEV requirement increases and technology advances, economies of scale and more electric vehicle choices for consumers are likely to result in price parity of EVs with comparable ICE vehicles.

8. What about supply chain issues with vehicle manufacturing?

The Department acknowledges that supply chain issues are a variable today in terms of ZEV production. However, the Department cannot predict if and for how long such issues may persist. ACC II provides flexibilities in the use of banked credits to facilitate compliance should there be supply disruptions. Additionally, the Department notes that the annual ZEV requirements that manufacturers must meet in New Jersey would not begin until model year 2027. In the years leading up to 2027, manufacturers have opportunities to take advantage of the flexibilities, such as the ability to earn early credits, that are built into the rules. The Department may always revisit the rules as necessary.

9. What will happen to gas stations?

Compliance with the rules will require an infrastructure transition as the light-duty fleet moves from refueling at gas stations to recharging their vehicles with electricity primarily at home or work or, less frequently, at public fast charging stations or hydrogen fueling stations.

10. How will I get my electric vehicle serviced or repaired? Do I have to go to a dealer?

Electric vehicles generally require less maintenance than internal combustion engine vehicles because they have fewer internal mechanical components. Many common maintenance items, such as tires, brakes, suspension, windshield wipers, glass and lights are the same on

electric vehicles as on internal combustion engine vehicles and any vehicle service facility can address these items without electric vehicle-specific training or equipment.

Since dealerships that sell electric vehicles are typically required by the auto manufacturers to be equipped to service what they sell, the Department anticipates no shortfall in service facilities for the duration of new vehicle warranties. While dealerships generally need to provide warranty and recall repairs where the manufacturer bears the cost of parts and labor, it is not necessary for dealerships to perform out-of-warranty work. There are several provisions of the ACC II program that address that issue. First is the requirement that California-certified ZEVs must adhere to standard data connector and communications protocols (on-board diagnostics, or OBD). This makes it easier for non-dealers to use standard scan tools and diagnostic equipment on electric vehicles. Second is a requirement that vehicle manufacturers "... make available for purchase... all emission-related motor vehicle information and emission-related engine information, and propulsion-related information, as applicable, that is provided to the motor vehicle manufacturer's or engine manufacturer's franchised dealerships or authorized service networks for the engine or vehicle models they have certified in California." 13 CCR 1969(e)(1), adopted by reference at N.J.A.C. 7:27-29A.7. Pursuant to this requirement, individuals and independent repair shops will have access to the same vehicle information as dealerships. If independent repair shops require special equipment to work on electric vehicles, such as battery tray lifts or forklifts, it is up to the shop as to whether they wish to make such investments. However, there is no obstacle in terms of vehicle data or repair information that would prevent an independent repair shop from servicing an electric vehicle. Additionally, the Department notes that the National Institute for Automotive Service Excellence (ASE) offers several relevant certification paths for automotive technicians working on hybrid and electric vehicles. These include the Light Duty Hybrid/Electric Vehicle Specialist Certification Test (L3), parts of their Automobile & Light Truck Certification Tests (A1 - A9) which cover electronics and electrical systems, and new xEV Safety Certifications for technicians working on high voltage batteries and electrical systems.

11. Will there be electric vehicles available that meet my needs?

Before proposing ACC II, CARB staff evaluated potential ZEV compliance requirements based, in part, on manufacturers' public announcements and investments in ZEV technology. CARB noted that "manufacturers have announced plans to electrify, and many have indicated to CARB in survey responses that even in the near-term there will be significant electrification growth. This indicates manufacturers are not only adding specialty low-volume ZEV models but transitioning high-volume gasoline models into ZEVs. [CARB] staff expects this sort of compliance response as manufacturers seek to meet the early years of the requirement with the easiest segments to electrify, such as small and midsized cars, and small crossover utility vehicles. The proposed trajectory for 2026 through 2030 aligns with what [original equipment manufacturers] have stated in projections of ZEVs and PHEVs. [CARB] staff is proposing a trajectory that moderates in the final years to 2035. This is because staff expect the last 20-percent of the fleet will be more challenging to electrify than the first 80-percent." CARB ISOR, p. 40. The Department recognizes that the available makes and models of ZEVs on the market today will not meet the operational needs of all consumers today. The Department is confident

that the number of makes and models serving a greater diversity of operational needs will increase as the annual ZEV requirement increases.

12. Will electric vehicles have the range I need, and will the batteries be durable?

To the extent that there are concerns about the range of ZEVs, ACC II requires that ZEVs meet certain minimum requirements, including range. Further, it is worth reiterating that each manufacturer may meet 20 percent of its annual ZEV requirement with qualifying PHEVs (which can run on gasoline or diesel). Starting in model year 2026, to qualify as a ZEV, ACC II has a minimum certification range value of greater than or equal to 200 miles, well more than the 29 miles the average driver drives each day (https://www.bts.gov/statistical-products/surveys/national-household-travel-survey-daily-travel-quick-facts).

Additionally, ACC II has minimum durability requirements for ZEVs. For model years 2026 through 2029, a ZEV must maintain 70 percent of its range value for a useful life of 10 years or 150,000 miles, whichever occurs first. For model years 2030 or later, a ZEV must maintain 80 percent of its range value for a useful life of 10 years or 150,000 miles, whichever occurs first. This is a minimum requirement.

For PHEVs, ACC II requires a minimum certified range value of greater than or equal to 70 miles and a minimum all-electric range value greater than or equal to 40 miles using a more aggressive drive cycle. As a PHEV can run on battery or an internal combustion engine, its internal combustion engine must be certified to full useful life for super-ultra-low-emission-vehicle 30 (SULEV30) or lower exhaust emission standards for passenger cars and light-duty trucks.

Manufacturers know that they will need to produce ZEVs with increased range for certain vehicle segments. Since ACC II does not take effect until model year 2027 in New Jersey, manufacturers should have sufficient time to expand upon their product offerings through model year 2035 to ensure that some ZEV models appeal to consumers with long commutes and/or high mileage requirements. However, ACC II recognize that for a portion of consumers, only a PHEV will meet their lifestyle or business needs.

13. Can I drive an electric vehicle in cold weather?

To the extent that there are concerns about the potential for diminished range in different weather or geographic conditions, the Department notes that the overall electric vehicle ownership in Norway is estimated to be 20 percent as of December 2022 (https://europe.autonews.com/automakers/evs-now-make-20-norways-cars) while overall electric vehicle sales hit 65 percent in 2021 and 79 percent in 2022 (https://electrek.co/2023/01/02/norway-hits-record-ev-share-in-2022/). The average mean temperature in Norway is colder than the average mean temperature in New Jersey in every season. According to the Norwegian Automobile Federation, electric vehicles can lose up to 20

percent of their range in sub-freezing weather. See Cold Temperatures Affect an Electric Vehicle's Driving Range - Consumer Reports.

Taking the Norwegian experience into account, to mitigate the effects of extreme temperatures, many electric vehicles are equipped with battery thermal management systems to heat and cool the battery pack to optimize the chemical reaction that allows for faster charging and discharging of the battery. See www.nrel.gov/docs/fy13osti/57747.pdf. Some electric vehicles also come with high efficiency heat pumps to provide cabin heating with less battery drain than resistance heaters. Many electric vehicles come standard with heated steering wheels and seats. While some people may see this as a luxury option, it is more efficient to heat only the seat occupants rather than the entire vehicle cabin. Seat and steering wheel heaters use a fraction of the energy required for resistance cabin heating. Another option on many electric vehicles is preconditioning, which allows the vehicle to cool or warm the batteries and cabin while still plugged in to avoid draining the batteries. See https://www.edmunds.com/electric-car/articles/heaters-in-electric-cars-how-do-they-work.html. This is like "remote start" on gasoline vehicles but is not limited by the Department's engine idling restriction of three minutes because battery electric vehicles have no tailpipe emissions.

14. Are electric vehicles tested to work in extreme weather?

As CARB noted in its Final Statement of Reasons, "[m]anufacturers continue to conduct durability testing of their ZEV models in the same extreme weather environments that they test their conventional vehicle models. Additionally, the SAE J1634 BEV range testing standard has an optional 5-cycle pathway that 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." (FSOR Appendix A, Page A-11). In short, ZEV technology continues to improve because manufacturers know that they will need to build vehicles for consumer segments with varying needs.

15. What happens if I run out of charge on the road? Is there roadside assistance for electric vehicles?

The Department notes that roadside charging programs for electric vehicles continue to be developed and expanded upon. See, for example., Electrifying AAA Member Benefits (December 1, 2022). In addition to AAA service, many motor vehicle manufacturers offer roadside assistance for their electric vehicles. See https://www.recurrentauto.com/research/roadside-assistance-in-an-electric-car.

16. Are electric vehicles safe to drive? Are they subject to the same testing as gasoline vehicles?

Any concerns about electric vehicle safety are addressed by the National Highway Traffic Safety Administration under the U.S. Department of Transportation. All motor vehicles in the U.S. are required to meet the same safety standards. See https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/motor_vehicle_safety_unrelated_uncodified_provisions_may2013.pdf.

17. How do I charge my electric vehicle at home? Do I need to buy or install expensive equipment?

ACC II includes various requirements related to charging that are intended to enhance consumer convenience. For example, all electric vehicles must come equipped with Level 1 and Level 2 compatible charging cords, which will enable charging at home where the Department expects most charging to occur. A Level 1 cord plugs directly into a normal 120 V electrical outlet. Thus, if a single-family house or other residence has a 120 V outlet in a garage or on the house exterior, no electrical upgrade is required, and no charging equipment needs to be purchased. However, a Level 1 charger plugged in overnight would afford only enough charge to offset about 50 miles of driving. For electric vehicle owners with longer commutes, a Level 2 charger may be necessary, which may require the installation of a 240 V outlet of the type commonly used for an electric dryer, range, welder, or recreational vehicle (RV). The cost to install a 240 V outlet is extremely variable based on the length of cable run and difficulty as well as local labor costs. For light-duty, private vehicles, New Jersey offers incentive programs to property owners to install Level 2 chargers. However, as noted, ACC II requires manufacturers to provide a Level 2 charging cord with an electric vehicle, so no additional charging equipment purchase is required. In addition, the charging cord required under ACC II must fully recharge the vehicle using Level 2 in under four hours.

18. Will all electric vehicles be equipped for fast charging?

In addition to the Level 1 and 2 charging cord, ACC II requires that all electric vehicles are equipped with a port for DC Fast Charging (DCFC). This is important as some base models of electric vehicles recently available did not include this as a standard feature. DCFC enables an electric vehicle to be charged to approximately 80 percent within 20 to 30 minutes, and those speeds and capabilities are improving over time. DCFC would be the preferred charging method for motorists travelling longer distances who need to charge quickly.

19. What if I live in an apartment or condo and don't have a driveway or garage where I can charge?

The Department acknowledges the home charging challenges for individuals living in multi-family dwellings. For those living in apartments, townhouses or condominium complexes (multi-unit dwellings), the State has grant programs available to assist building managers to make EVSE available to their residents www.drivegreen.nj.gov. Moreover, recent New Jersey legislation requires electric vehicle charging infrastructure for new multi-family dwellings,

parking lots, and garages. State law requires developers of new multi-unit dwellings with five or more units to have "make-ready" electrical infrastructure at 15 percent of the parking spaces and to install charging stations through phase-in within six years. "Make-ready" is defined as the "pre-wiring of electrical infrastructure at a parking space, or set of parking spaces, to facilitate easy and cost-efficient future installation of Electric Vehicle Supply Equipment or Electric Vehicle Service Equipment, including, but not limited to, Level Two EVSE and direct current fast chargers."; see N.J.S.A. 40:55D-5. Developers must initially install charging stations in one-third of the 15 percent, followed by an additional one-third within three years, and the final one-third within six years.

For those living in highly dense urban environments that may not have access to charging at their multi-family dwelling or within a parking garage or lot, other public charging options offering Level 2 or DCFC may be the best option. The law also includes requirements to increase public charging. Developers of new parking lots and garages must install a minimum number of make-ready parking spaces in proportion to the total number of off-street parking spaces. If there are 50 or fewer off-street parking spaces, the parking lot or garage must include at least one make-ready space. If there are more than 150 off-street parking spaces, at least four percent of the total spaces must be make-ready, of which at least five percent must be accessible for people with disabilities. Pursuant to the same law, the Department of Community Affairs has also promulgated a Statewide municipal electric vehicle model ordinance that ensures consistent permitting practices for electric vehicle charging stations in all municipalities.

20. Where can I charge my EV and how long does it take?

Please see https://dep.nj.gov/drivegreen/charging/.

21. Are there financial incentives for installing EV charging stations?

Please see https://dep.nj.gov/drivegreen/it-pays-to-plug-in/.

22. How will I charge my EV when traveling outside of New Jersey?

While the Department cannot deploy charging stations outside of State boundaries, it is working with several organizations and neighboring states to collaborate on strategic charging locations on interstate corridors. There are also several Federal programs designed to accelerate the installation of chargers nationwide. These programs will serve to increase access to electric vehicle charging for New Jersey motorists travelling out of state. The National Electric Vehicle Infrastructure (NEVI) program administered by the Federal Highway Administration (FHWA) has $5 billion in grants for electric vehicle charging infrastructure along identified alternate fuel corridors, which are national network of national highway system corridors as designated by the FHWA. Additionally, the Charging and Fueling Infrastructure Discretionary Grant Program, also administered by FHWA, has another $2.5 billion in grants for charger installation. This second FHWA program prioritizes charging station installation in rural areas, predominantly

low-income areas, as well as areas with a high ratio of multi-unit dwellings. See https://www.fhwa.dot.gov/environment/nevi/; https://www.fhwa.dot.gov/environment/cfi/. Another Federal program offering assistance to businesses looking to install charging stations is the Alternative Fuel Vehicle Refueling Property Tax Credit administered by the Internal Revenue Service (IRS). This program offers tax credits of up to $100,000 to businesses that install qualifying charging or fueling stations. All of these Federal programs are part of the Inflation Reduction Act and the Infrastructure Investment and Jobs Act.

23. Is New Jersey really investing in EV charging infrastructure?

Since 2019, the Department and the BPU have awarded nearly $240 million in grants for charging stations and electric vehicles, part of which has funded 2,980 charging stations with 5,271 ports at 680 locations. New Jersey electric utilities have committed $215 million for make-ready infrastructure funding for public, multi-unit dwelling and workplace light-duty electric vehicle charging stations and residential chargers. As part of the Federal Infrastructure Investment and Jobs Act, New Jersey will receive millions in infrastructure funding from the Federal government to build-out an electric vehicle fast charger network on major travel corridors. Although the Federal requirements are for fast charging stations every 50 miles, New Jersey is receiving enough funding to provide fast charging stations every 25 miles on designated corridors. For additional details regarding this effort, please refer to New Jersey's NEVI Deployment Plan. As the State and Federal government continue to invest in public charging infrastructure, there will be a greater incentive for private investment in charging infrastructure.

The Department recognizes that electric grid upgrades may be necessary and will continue to work with BPU and other agencies directly responsible for ensuring reliability. The Department anticipates that the regulatory certainty that ACC II provides will make planning for these upgrades more feasible as the agencies work to manage the current load and address any challenges in meeting predicted increases in the load that may result from the increasing number of electric vehicles.

24. What about the environmental impact of installing more charging stations?

To address concerns regarding the environmental impact of charging stations, the Department considered the following scenarios. As the Department anticipates that most charging will take place at home, such charging would be accommodated with a Level 1 or Level 2 charging station. These units may be either wall mounted or in-line on the power cord itself and thus lay on the ground. Level 1 and 2 charging stations of this type are typically around the size of a couple of paperback books, as an example. Home charging stations would have no environmental impact as they are either not permanently mounted, or they are wall mounted on existing facilities. Public Level 2 charging stations are designed to be more robust and weather-resistant and are physically larger. Public Level 2 charging stations are either wall-mounted (for example, in a parking garage), mounted on a small pedestal with a concrete pad, or on a pre-existing parking lot surface. As an example, Level 2 charging stations are about the size of a mailbox on a pedestal. The largest of public charging stations would be DC fast chargers. These

are, for example, about the size of a vending machine and may be mounted on a similarly-sized concrete pad or on a pre-existing parking lot surface. In none of these scenarios does the Department consider the footprint of the charging station to have significant environmental impact, especially considering that public charging stations are typically co-located with existing paved parking surfaces.

25. Will there be enough electricity to charge all the EVs?

The Department recognizes the concerns about the sufficiency of the power supply needed to meet the demand of electric vehicles. The State will need to ensure that distribution lines and electricity supply meet the increased electricity demand, while monitoring potential ratepayer impact for any upgrades or buildout needed. The New Jersey Board of Public Utilities (BPU), in late 2022, released a report on the modernization of New Jersey's electric grid and is advancing regulatory changes and working with stakeholders to further develop regulatory and policy proposals based on the report's recommendations.

The Department expects that the regulatory certainty that ACC II provides will make planning by PJM (the regional transmission organization that coordinates the movement of wholesale electricity in all or parts of 13 states, including New Jersey), the State's electric utilities, and the BPU more feasible. As these entities continue to work to manage the current load and address any challenges in meeting future load requirements, they will have a roadmap in the form of the number of electric vehicles that they can reasonably expect to be added each year based on the annual ZEV requirements.

26. How will I charge my EV during a power blackout?

The Department recognizes that there are concerns about charging vehicles during power outages. However, ICE vehicles need gasoline or diesel fuel to run - fuels which can also be subject to shortages, particularly during bad weather. Since gasoline and diesel fuel are stored in underground storage tanks at service stations, electricity is still required to pump these fuels into a vehicle. ICE vehicle drivers must prepare for inevitabilities, like filling gas tanks prior to a bad storm. Electric vehicle drivers will need to take similar measures, like charging cars before a bad storm or during off-peak hours.

27. Are electric vehicles in New Jersey going to trigger rolling blackouts like in California?

CARB stated that it "expects, supported by the record, that California's electric grid will be capable of meeting additional demand from ACC II" and addressed concerns about grid blackouts. See CARB FSOR Appendix A at 28. An article in National Geographic on the history of blackouts in California noted that such rolling blackouts began in 2000, well before electric vehicles were in common usage. There is no indication that electric vehicle charging has contributed to the power problems California has experienced.

28. Is my data secure in an electric vehicle?

The ACC II program incorporates data standardization requirements for model year 2026 and later ZEVs which require electric vehicles to conform to the same standards for data collection, storage, transmission, and connection as all other light-duty gasoline and diesel vehicles. In other words, data security will be treated the same way in electric vehicles as in other vehicles and will not present any unique data vulnerability just because they have an electric drivetrain. The specific standards are established by the Society of Automotive Engineers (SAE) and are fully referenced at 13 CCR 1962.5. A manufacturer must test their electric vehicles to ensure compliance with the SAE standards. Failure to comply subjects a manufacturer to enforcement action.

29. Will ACC II really reduce pollution and have any impact on climate change?

The ACC II rules are one piece in a larger strategy to mitigate climate change and address air pollution. The State's goal, set forth in the GWRA, is to reduce greenhouse gas emissions to 80 percent less than the 2006 level of Statewide greenhouse gas emissions by 2050 (80x50 goal). Executive Order No. 274 also developed an interim benchmark goal for reducing greenhouse gas emissions to 50 percent below 2006 levels by 2030 (50x30 goal). Given the magnitude of reductions necessary to meet the State's 80x50 or 50x30 goal, there is no single rule or strategy that will achieve all the emission reductions necessary. The State will need to continue to develop, and refine, the mix of policies, rules, and laws that will work to mitigate climate change and reduce criteria pollutants in the State. And though the emission reduction estimates from this rulemaking may seem relatively modest on a global scale, it is important to remember that no single policy, state, or country will solve the issue of climate change or air pollution. Accordingly, New Jersey continues to work collaboratively with California, other states that have adopted California's emission standards pursuant to Section 177 of the CAA (a "Section 177 state"), the Federal government, and the international community to implement policies that will build upon one another – policies that, when taken together, have a global impact. To this end, the Department can and will continue to promulgate rules "preventing, controlling and prohibiting air pollution throughout the State" (N.J.S.A. 26:2C-8 and 8.1) through the adoption of technologically feasible, emission reducing measures.

In order to reduce greenhouse gas emissions, the Department must address the largest source sectors. The Department's Greenhouse Gas Inventory indicates that emissions from transportation represent 39 percent of New Jersey's greenhouse gas emissions. 55 N.J.R. at 1774; https://dep.nj.gov/ghg/nj-ghg-inventory/. This is the largest single sector of greenhouse gas emissions in the State. See https://dep.nj.gov/ghg/nj-ghg-inventory/. Within the transportation sector, the largest source, about 82 percent, is gasoline-fueled light-duty passenger cars and trucks. For these reasons, the Department has determined that the ACC II rules are a necessary piece of a more comprehensive strategy to reduce emissions. The Department and other State agencies, like the BPU, Department of Community Affairs (DCA), and Economic Development Authority (EDA) have, and will continue to take steps to address greenhouse gas emissions from every sector including electric generation. To learn more about the ongoing efforts of the Department, please refer to: https://dep.nj.gov/climatechange/mitigation/.

While the ACC II proposal focused on the in-State emission reductions and health benefits, the study conducted by Sonoma, Inc., demonstrates that those benefits are magnified when one considers the cumulative emission reductions that will be achieved by the implementation of ACC II in all of the other Section 177 states. https://theicct.org/wp-content/uploads/2023/05/ACC-II-project-report-final-042623.pdf. The reductions in greenhouse gas emissions and criteria pollutants, such as NO_x and PM2.5, are quantifiable and significant in New Jersey and as part of a regional approach. Further, criteria pollutants primarily affect the health and environment of New Jersey residents and residents of downwind states. Accordingly, there will be a positive impact on the environment, even beyond addressing climate change.

Unlike criteria pollutants, greenhouse gas emissions have a cumulative global impact. Climate change impacts are significant and far reaching. These impacts include worsening ground-level ozone concentrations, despite the work the State has done to reduce the ozone precursor emissions. While these rules have costs associated with their implementation, the failure to mitigate climate change carries its own price. To help explain the costs of the failure to act, the Department examined the social cost of carbon, a measure of the monetized global damages associated with an incremental increase in carbon emissions in a given year, as part of its Economic Impact analysis. After careful consideration of all of these factors, the Department determined that the ACC II rules will have an overall net positive impact.

30. How can auto manufacturers be allowed to trade credits if they are not in compliance?

They cannot. The ZEV requirement of the ACC II rules requires a manufacturer to satisfy the applicable production volume percentage with an equal number of vehicle values. The rules include various ways for a manufacturer to comply, including trading surplus vehicle values. Manufacturers may trade only excess vehicle values. In other words, if the manufacturer has generated more ZEV values than required by their total production volume, then they may trade only those excess values.

31. Did New Jersey consider the total well-to-wheels emissions of EV and ICE vehicles, including power plants that make electricity?

The Department participated in an environmental analysis conducted by Sonoma Technology, Inc., to compare the benefits in New Jersey if ACC II were adopted compared with business-as-usual. Sonoma's analysis was peer-reviewed, technically sound and used federally-accepted models: the MOtor Vehicle Emissions Simulator model (MOVES) MOVES and Mobile Source Emissions Research | US EPA , the National Renewable Energy Laboratory's (NREL) Greenhouse gases, Regulated Emissions, and Energy use in Technologies Model (GREET) (https://bioenergymodels.nrel.gov/models/29/),
and the CO-Benefits Risk Assessment model (COBRA) What is COBRA? | US EPA. The analysis relied on by the Department calculated well-to-wheel CO_2e emissions, which includes emissions associated with the production of the energy used to propel the vehicle (e.g., petroleum extraction and refining for gas-fueled vehicles and natural gas extraction and combustion in a power plant for a battery electric vehicle charged using electricity) as well as

operational emissions, such as tailpipe emissions and tire and brake wear. Thus, the modeling accounts for emissions resulting from combustion of fuel in ICE vehicles and power plant emissions associated with electricity used to charge EVs. The modeling also accounts for emissions related to petroleum production and refining, and power plant operation. The well-to-wheels analysis excludes emissions associated with the manufacturing of the vehicle itself, as well as end-of-life disposition of the vehicle. More specifically, the study modeled emissions of NO_x, $PM_{2.5}$, volatile organic compounds, sulfur dioxide, ammonia, and carbon dioxide equivalent (CO_2e). The pollutants of greatest concern and impact include NOx and $PM_{2.5}$ and well-to-wheels CO_2e. Based on the analysis, the Department estimated an additional reduction of 20.8 MMT/Y of CO_2e emissions in 2050, compared with the business-as-usual scenario, if the ACC II sales goals are achieved. This emissions estimate included the increase in emissions from power plants that would be needed to produce electricity to recharge EVs, using a mixture of electricity generation that includes fossil fuels and is representative of New Jersey's current and future grid. New Jersey's current grid mix is based on data from U.S. EPA eGRID, and projected grid mix is based on the Global Warming Response Act 80x50 Report and the New Jersey 2019 Energy Master Plan.

The Department acknowledges that emission reductions could be increased if there were more grid-supplied renewable sources. Accordingly, New Jersey has developed several strategic plans to ramp up renewables as part of the generation sector. Please refer to the Global Warming Response Act 80x50 Report and the New Jersey 2019 Energy Master Plan. In accordance with these plans the State has invested and continues to invest significantly in clean electricity generation through support for offshore wind, solar, and nuclear generation.

32. How do manufacturing emissions compare between EVs and ICE vehicles?

While it is true that the Department did not account for vehicle manufacturing emissions from electric vehicles, it also did not include vehicle manufacturing emissions from ICE vehicles. However, the EPA has concluded that while initial manufacturing emissions from electric vehicles are higher than from ICE vehicles, the reduced emissions over the vehicles' lifetimes more than make up for the difference. See https://www.epa.gov/greenvehicles/electric-vehicle-myths at "Myth #2: Electric vehicles are worse for the climate than gasoline cars because of battery manufacturing." Likewise, the International Council on Clean Transportation published a study on this topic and arrived at the same conclusion. See https://theicct.org/sites/default/files/publications/EV-life-cycle-GHG_ICCT-Briefing_09022018_vF.pdf.

Also, note that the cited ICCT report indicates that future factors are likely to further widen the gap in life-cycle emissions in favor of electric vehicles. ICCT mentions improved battery technology, battery reuse and recycling, and increased electric grid decarbonization as examples. Finally, the cited ICCT report recommends against using life-cycle manufacturing emissions, considering it misguided for a number of reasons they detail in the report.

33. Will heavier EVs cause more road damage and tire wear?

The Department has found that the increase in light-duty vehicle weights as a result of electrification does not significantly contribute to road damage.

The relationship between axle weight and road damage was established by a study conducted by the American Association of State Highway Officials (AASHO). Although the AASHO Road Test (https://onlinepubs.trb.org/Onlinepubs/sr/sr61g/61g.pdf) study was conducted from 1956 to 1960, the information gleaned was considered landmark and is still used for road and bridge design. One of the primary outcomes was a mathematical comparison of pavement damage caused by different axle weights. As explained in the AASHO Road Test study, the generalized fourth power law states that the greater the axle load of a vehicle, the stress on the road surface caused by the vehicle increases in proportion to the fourth power of the axle load. The AASHO Road Test study was done using loaded trucks because lighter vehicles resulted in negligible road wear. Road design uses a standard unit called the Equivalent Single Axle Load (ESAL), which represents a single axle 18,000 pound load. According to the National Center for Freight & Infrastructure Research & Education (CFIRE) University Of Wisconsin–Madison in their analysis Understanding Freight Vehicle Pavement Impacts: How do Passenger Vehicles and Trucks Compare?: "The ESALs that a car generates also vary with the overall car weight. Virginia DOT estimates cars generate 0.0002 and 0.0003 ESALs on flexible and rigid pavements respectively. Other estimates put car ESALs at 0.0004 for rigid pavement. Still other research calls the impact of cars on roadways insignificant for design purposes and implicitly questions the validity of any comparisons between the two vehicle types." As highlighted by the very small numbers in the CFIRE analysis, the impact of cars on road wear, compared to trucks, is negligible. The U.S. Government Accountability Office further states that "…a five-axle, tractor-trailer loaded to the 80,000-pound Federal limit, has the same impact on an interstate highway as 9,600 automobiles. In addition, as truck axle weights increase, pavement damage increases at an even faster rate. For example, while a truck axle carrying 18,000 pounds is only 9 times heavier than a 2,000-pound automobile axle, it does 5,000 times more damage." (https://www.gao.gov/products/109954).

34. Did the Department consider the impact of added tire and break wear from heavier electric vehicles?

Particulate emissions related to tire and brake wear were included in the Department's emissions analysis originally published in the ACC II proposal at 55 N.J.R. 1773.

35. Aren't heavier vehicles more dangerous?

Yes, but this phenomenon is not unique to ZEVs. While it is true that electric vehicles currently weigh more on average than their gasoline vehicle counterparts, the Department is not aware of any traffic accident or fatality statistics that specifically examined the impact of electric vehicles on safety. The Insurance Institute for Highway Safety (IIHS), has expressed concern about the growing weight of all vehicles in general (https://www.iihs.org/news/detail/as-heavy-

evs-proliferate-their-weight-may-be-a-drag-on-safety) and recommended both increased safety technologies as well as scaling back on motorists purchasing bigger and heavier vehicles than is necessary for daily driving.

36. EVs are too expensive. I can't afford to buy an EV.

The Department acknowledges concerns about higher upfront costs to purchase or lease a new electric vehicle compared with an ICE vehicle with similar features, functionality, style, etc. Although the typical electric vehicel model currently has an upfront purchase price that is higher than a comparable conventional vehicle model, when considering total cost of ownership (TCO) an owner would see savings on fuel and maintenance, resulting in total net savings over the course of vehicle ownership. The total cost of ownership over a 10-year period for a battery electric vehicle purchased in 2026 is expected to result in a $1,732 cost-savings compared to an internal combustion engine vehicle. The potential cost savings of a battery electric vehicle purchased in 2035 is $6,683 when compared to an internal combustion engine vehicle.

The TCO analysis conducted by CARB and reviewed by the Department accounts for a number of cost factors, including vehicle price, loan fees, sales taxes and registration fees, fuel costs, maintenance costs, a home charger capital investment for some buyers, and insurance costs. CARB assumed maintenance costs of BEVs to be 40 percent lower than maintenance costs of comparable conventional vehicles. Because of warranty and useful life requirements in the rules, CARB did not assume that BEV and PHEV batteries would require replacement at the end of their useful life during the 10-year total-cost-of-ownership analysis period.

Although a ZEV costs more than a comparable conventional vehicle, the gap is closing. "The cost of the average EV in the second quarter of 2023, was about $54,300 while the average cost of all new light-duty vehicles in that time was about $48,500. Year-over-year, EV prices declined more than $10,700 from the second quarter of 2022 while the average cost of all new light-duty vehicles rose over just $2,000." Alliance for Automotive Innovation, Get Connected, Electric Vehicle Quarterly Report (Second Quarter, 2023). However, as CARB cautioned, the current average transaction price is a misleading metric given that it obscures the true variability in prices of ZEV that auto manufacturers offer and can be skewed higher by a small volume of high-priced vehicles.

In response to concerns about faster depreciation of ZEVs, ACC II includes requirements to guarantee access to service information, assure minimum durability, and provide the protection of minimum warranties. ZEV assurance measures are necessary to address varied operating characteristics and consumer needs and priorities for household transportation: durability for vehicle longevity and value retention; warranty for vehicle longevity and peace of mind in avoiding costly unexpected repairs; and data availability for transparency to drivers and prospective used vehicle purchasers, reassurance about vehicle component health, and availability and convenience of service options.

As the ZEV sales mandate increases and technology advances, economies of scale and more vehicle choices for consumers are likely to result in price parity of electric vehicles with

comparable internal combustion engine vehicles. ZEVs will be as affordable as conventional new vehicles and more affordable when considering total cost of ownership.

Also of note is that an average transaction price may not include tax incentives or rebates that do not occur at the point of sale. To assist with the purchase price, the State has various incentives in place. Pursuant to N.J.S.A. 54:32B-8.55, zero-emission vehicles (as defined by the New Jersey statute), are exempt from the vehicle sales tax, which is currently 6.625 percent. The BPU also has a cash on the hood program for electric vehicles, Charge Up New Jersey. In addition to State-sponsored programs, there are also Federal programs to support the purchase of all-electric, plug-in hybrid, and fuel cell electric vehicles. For example, there is a federal tax credit available to individuals who purchase a qualified vehicle and meet the income requirements. See Federal Tax Credits for Plug-in Electric and Fuel Cell Electric Vehicles Purchased in 2023 or After . Similarly, there is a federal tax credit available to a business or tax-exempt organization that buys a qualified commercial clean vehicle. See Commercial Clean Vehicle Credit | Internal Revenue Service . Although the Department cannot predict how long the State and Federal incentives will be available, the Department anticipates that incentives will help the affordability of EVs at least during the early years of the rules, when price parity concerns are greater.

As another mechanism to increase ZEV affordability, the ACC II rules include a provision that allows manufacturers to earn an additional 0.10 vehicle value for a 2026 through 2028 model year ZEV or PHEV delivered for sale with an MSRP less than or equal to $20,725 for passenger cars and less than or equal to $26,670 for light-duty trucks. This flexibility may encourage manufacturers to increase production in the more affordable ZEV market segments in the early years as they work toward parity and economies of scale for all market segments.

As more ZEVs are produced, the variety of ZEVs in all price ranges is also expected to increase. And as more ZEVs are sold, more ZEVs will be available in the used vehicle market, which will also increase access to ZEVs for residents in the State. In addition to being able to access used ZEVs, customers seeking vehicles at lower price points will continue to be able to purchase used conventional vehicles throughout and well beyond the period of the ACC II program.

37. Has New Jersey looked at the cost of building charging stations and how much it costs to charge an EV?

The Department recognizes that an increasing number of electric vehicles will require a corresponding increase in charging ports and stations at residences as well as public charging stations. The Department expects charging at home to be the most common and economical charging method for electric vehicle owners. The State has also addressed and will continue to address charging availability at multi-family dwellings which can be more challenging than single family homes. Legislation requires minimum charging infrastructure in new construction, while grants and education are being used to retrofit existing structures.

As CARB understood the critical importance of charging as part of electric vehicle ownership, CARB included charging as part of the total cost of ownership when it proposed the ACC II regulation. CARB estimated net savings for a battery electric vehicle owner both with and without a home charger. For someone without a home charger, they still experience annual savings within a year, and almost the same net savings over a 10-year total-cost-of-ownership period ($7,659 vs. $8,835 for owner with a home charger), due to the savings from lower fuel costs. Various State and Federal grant programs as well as Federal tax credits exist to help offset charging installation costs.

38. Will demand for EV charging increase the price of electricity?

The Department acknowledges that increased demand for electricity from ZEV adoption may increase the per kilowatt price of electricity. However, there is some evidence that increased adoption can lead to lower electricity costs for all ratepayers (see https://escholarship.org/uc/item/6dz355d9 and https://chargevc.org/wp-content/uploads/2018/03/ChargEVC-New-Jersey-Study.pdf), although it is unclear if this will be the case in New Jersey. The Department cannot predict the impacts that might be felt by ratepayers, as rates are beyond the Department's authority and depend on a number of inter-related factors, including ZEV owner behavior, the current state of capital investments by utilities, the ebbs and flows of the overall global energy market and policy, regulatory, and legislative choices that are about the design of electric rates and allocation of costs for transmission upgrades.

The Department acknowledges the expense of charging infrastructure as well as the significance of plentiful electric vehicle charging options in public spaces like parking garages and workplaces; grant funding is available to assist with the cost. Each electric distribution company (EDC) in the State has an electric vehicle program where ratepayers are funding the make ready portion of public and private electric vehicle chargers but are not funding the charging stations themselves.

39. Will the ACC II program ban sales of new ICE vehicles in 2027?

The concern that this program virtually eliminates new sales of ICE vehicles in 2027 is incorrect. The annual ZEV requirement for model year 2027 is 43 percent and gradually increases to 100 percent for model year 2035. A manufacturer must meet its production volume with an equal number of vehicle values and it is theoretically possible that one or more manufacturers would have enough vehicle values banked to continue producing a small portion of strictly ICE vehicles in model year 2035 and beyond. And as long as those ICE vehicles are CARB certified, N.J.A.C. 7:27-29A.3(a) would not prohibit their registration in New Jersey in 2035 (or any subsequent year that an ICE vehicle is CARB certified). Thus, sales of new ICE vehicles would be allowed after 2027.

40. How will ACC II affect businesses and jobs in New Jersey?

The Department acknowledged the potential negative economic impacts on New Jersey businesses and jobs in the notice of proposal. The ACC II program will advance a paradigm shift for this vehicle sector that will have indirect economic impacts on various areas of the economy, including dealerships, automotive repair, retail gasoline stations, engine component suppliers, ZEV infrastructure businesses, and the green job economy. Although jobs may be lost during this transition, job opportunities will also be created. The New Jersey Green Council on the Green Economy identified areas of green job growth in the State, including the transition to alternative fuel vehicles.

41. Will ACC II cause auto manufacturers to send fewer vehicles to New Jersey?

The Department cannot predict how the adoption of ACC II will impact the marketing strategy or distribution of vehicles by each manufacturer. Rather, the Department expects the rules to drive technology and increase choice for consumers, as manufacturers will produce greater number and variety of compliant vehicles for sale and lease in New Jersey, California, and other states that have adopted or will adopt the ACC II rules. Manufacturers have stated that 'the future is electric' and many have set their own targets for ZEV sales. As such, although dealerships will have to adapt to increasing percentages of ZEVs to be sold or leased, the Department does not expect dealerships to suffer losses from vehicle sales. Consumers looking to purchase a new vehicle will still visit dealerships to find vehicles, including, at least until 2035, new ICE vehicles that have been certified by CARB.

42. Will ACC II drive consumers to purchase vehicles outside of New Jersey?

The annual ZEV requirement for new light-duty vehicles is applicable to manufacturers, not consumers. Nevertheless, as required at N.J.A.C. 7:27-29A.3(a), "no person who is a resident of this State, or who operates an established place of business within this State, shall sell, lease, import, deliver, purchase, acquire, register, receive, or otherwise transfer in this State, or offer for sale, lese, or rental in this State, a new 2027 or subsequent model-year passenger car, light-duty truck, or medium-duty vehicle unless the vehicle has been certified by CARB." Therefore, all new light-duty vehicles registered in New Jersey are required to be CARB-certified regardless of where they are purchased. This is a pre-existing requirement that is not changed by ACC II. All the states bordering New Jersey, including Pennsylvania, New York, Delaware, and Maryland, also currently require CARB-certified vehicles be sold in their states. Of those neighboring states, New York, Delaware, and Maryland have also adopted the ACC II program and will require increasing sales of electric vehicles. Thus, residents will not be able to register in the State a non-compliant vehicle (i.e., a non-CARB-certified new vehicle) purchased out of State, unless one of the exemptions applies.

43. Does ACC II affect used vehicles? Do I have to get rid of my gas car?

Although the ACC II rules will phase out the sale of new ICE vehicles, the rules do not apply to used vehicles or require any vehicle owner or lessee to give up or replace their ICE vehicle with a ZEV. Therefore, the Department expects there will be a continued demand for gas stations and services for conventional vehicles after 2035, when the annual new ZEV sales requirement peaks at 100 percent. As the new vehicle transition occurs, the job sector should also transition, reducing the adverse impacts on individuals and businesses. The Department understands the importance of domestic manufacturing and jobs and will support efforts underway to encourage and increase domestic manufacturing of electric vehicle battery minerals and ZEVs generally.

44. Will businesses that operate vehicle fleets be able to use EVs?

With regard to the impact on businesses that provide delivery of goods and services, the Department is aware that most businesses that operate vehicle fleets prefer to manage their own electric vehicle charging at central locations rather than relying on public fast charging. Fleet operators can more effectively plan usage and timing of charging electric vehicles to best fit their use cases. For example, delivery trucks used throughout the day can be slowly charged overnight. Fleets that offer 24-hour services can rotate vehicles in and out of service while they are being fast charged at a fleet-owned facility. This will be a paradigm shift for industry and the economy. However, commercial vehicle fleet managers are already familiar with careful planning of vehicle operations and can adjust accordingly.

45. Are gas stations going to go out of business?

The transition to ZEVs will occur over the next couple of decades; thus, retail businesses and employees will have time to respond to changes in the labor market. For instance, it is possible that new business models will develop as a result of public charging. Gas stations may choose to install electric vehicle charging stations, and attendants may be employed to assist with charging and/or retail spending may increase as drivers stop to charge their electric vehicles.

46. What happens to state revenue from gas taxes as fewer vehicles use gas? How will the shortfall in the Transportation Trust Fund be made up?

The Department acknowledges that revenues from the Motor Fuels Tax and the PPGR tax may decline as ZEV sales increase. Intervening legislative, regulatory, and policy changes in the next two decades could greatly alter any revenue production, and the Department neither controls nor can predict such changes. Changes to the Transportation Trust Fund are beyond the scope of the Department's authority.

47. What happens if New Jersey motorists keep their ICE vehicles longer than predicted?

With any change in emission standards, there is the potential for some consumers to decide to purchase used, rather than new vehicles, or delay the purchase of new vehicles. However, the Department cannot objectively predict whether or how many people may keep their ICE vehicles longer. The mobile source emissions model used for estimating environmental benefits of the ACC II program (U.S. EPA MOVES) predicts vehicle ownership over time based on historical trends. Should the New Jersey vehicle population become older, if consumers decide to keep ICE vehicles for longer than predicted, there would be some impact on emission reductions. However, there is no practical way to predict and model this behavioral change ahead of an actual documented trend.

However, current Federal emissions standards and the CARB LEV III emission standards (previously adopted by New Jersey) have been harmonized and may continue to be harmonized if that trend continues regarding CARB's LEV IV standards. As such, even if there is a greater proportion of used vehicles in the State or drivers keep their ICE vehicles longer, any decrease in emissions reductions benefit is expected to be slight.

48. Will ACC II impact used vehicle prices?

As CARB has noted, the used vehicle market is not necessarily a localized market that depends on vehicles supplied solely from the State. The used vehicle market is an interstate market, with vehicles sold through various channels, including auctions that are open to parties from any state. This helps to equilibrate used vehicle prices across the country.

49. How will banning ICE vehicles affect the New Jersey petroleum industry?

The Department disagrees that the ACC II rules are a de facto ban on ICE vehicles. The ZEV portion of the ACC II rules require manufacturers to produce and deliver for sale in New Jersey an increasing number of new ZEVs as part of their light-duty vehicle fleets. Manufacturers may partially meet their obligations with PHEVs, which have an internal combustion engine. Moreover, the ACC II rules do not apply to used vehicles. The Department projects that roughly 40 percent of the light-duty vehicles in New Jersey will be electric by 2035. That percentage is not expected to approach 100 percent until 2050 or beyond. The Department cannot predict how the overall markets for oil-based products, which depends on many factors, such as global economic growth, political stability in oil-producing regions, and global exchange rates, will change over the coming decades, and what impact those changes will have on New Jersey's refineries and their employees. It is worth noting that the production of gasoline only makes up a portion of New Jersey's refining capacity. New Jersey's two refineries produce a wide range of refined petroleum products, including motor gasoline, distillate fuel oil, aviation jet fuel, and petrochemical feedstocks. Other products, such as petrochemicals, would not be impacted by this rule change.

50. Why can't New Jersey allow people to make their own decision about when and if to buy an EV?

Transitioning light-duty cars to ZEV technology is critical if New Jersey hopes to reduce greenhouse gas emissions and other air pollutants, which will have public health benefits, protect water and air quality, and safeguard ecosystems in the State.

Some may argue that the market (consumer demand) should dictate when and whether ZEVs become the majority in the light-duty vehicle market, and that currently the majority of consumers are not interested in ZEV technology. However, the EPA, CARB, and the states that have adopted California's motor vehicle standards pursuant to section 177 of the Clean Air Act (known as "Section 177 states") have used emission standards to compel the market to adopt feasible, emission reducing technology measures for decades. Emission standards require manufacturers to produce the vehicles consumers want while using the technology necessary to reduce air pollution, protect public health, and mitigate the harms of climate change.

The minimum technical requirements a ZEV must meet under ACC II, in order to be certified by CARB, are very similar to the multi-pollutant exhaust emission standards that CARB and the EPA have been setting for ICE vehicles for decades. The range value, durability, useful life standards, labeling, warranty and recall requirements, data standardization and charging requirements are all included in the ACC II program to ensure that owners of ZEVs have the same experience and comfort level that the owners of CARB-certified or EPA-certified ICE vehicles have had for decades. Though it is true that consumer demand for ZEV technology is not currently as great as consumer demand for ICE technology, the increasing annual ZEV requirement through model year 2035 is expected to incentivize manufacturers to produce a greater volume of vehicles in more market segments to appeal to a larger number of consumers with varied operational needs and budgets.

The Department recognizes that so long as consumer choice remains limited, vehicle affordability will remain limited. ZEV vehicles are expected to reach price parity with comparable ICE vehicles as the ZEV sales mandate increases due to technology advances and economies of scale. As more models of new ZEVs become available for purchase, and a greater number of new ZEVs are sold, a greater number of more affordable, used ZEVs will be available on the market. And as a result of the minimum technical requirements of ACC II, the used ZEVs coming on the market after model year 2027 will have greater range for a longer period of time and be subject to the new battery warranty provisions within ACC II. A recent study demonstrated that most EVs driven close to 100,000 miles still have at least 90 percent of their original range left. For now, the choice to purchase a new, strictly ICE vehicle remains possible through at least model year 2034. Used ICE vehicles may be purchased indefinitely. And PHEVs (which can be powered by electric or gasoline) will remain a choice under ACC II indefinitely, because manufacturers may use CARB-certified PHEVs to satisfy a portion of their annual ZEV requirement.

51. How much do EV batteries degrade over time?

While the Department recognizes that batteries do degrade over time, recent data show that such degradation is even less than predicted. Recurrent published a study based on real world data collected from approximately 15,000 electric vehicles (https://www.recurrentauto.com/research/how-long-do-ev-batteries-last). The report indicates that only about 1.5 percent of the vehicles in the study needed battery replacements outside of recalls or warranties and many retained 90 percent of their charge at 100,000 miles driven. In comparison, the most expensive major components that may require repair or replacement on ICE vehicles include the engine and transmission, often at over 100,000 miles but sometimes at lower mileages. These ICE vehicle repairs can cost thousands of dollars and are on par with battery replacement costs on electric vehicles.

52. Aren't the minerals for EV batteries mined in other countries in ways that are unsafe, unethical and not environmentally-sound?

While the Department acknowledges that the sourcing of mineral resources required for electric vehicle battery production is an important issue as it relates to ZEV production, supply chain and national security issues must be addressed at a national level. The Federal Inflation Reduction Act (IRA) provides incentives for domestic sourcing of minerals and batteries. The IRA includes the Advanced Manufacturing Production Credit, which is applicable to critical minerals and battery technology, the Clean Vehicle Credit, which aligns the tax credit available to taxpayers who purchase electric vehicles with the sourcing of critical minerals and domestic manufacture of batteries, and an Extension of the Advanced Energy Project Credit, which is applicable to facilities that manufacture electric vehicles and batteries. With the understanding that it takes years to commence a new mining operation, this is a longer-term strategy but one that nevertheless should help alleviate concerns regarding overseas mineral sourcing as demand for ZEVs continues to increase in the future.

In addition, to better address concerns over sourcing of critical minerals and conditions for mine workers, the U.S. Department of State formed the Mineral Securities Partnership (MSP). MSP partners include Australia, Canada, Finland, France, Germany, India, Italy, Japan, Norway, the Republic of Korea, Sweden, the United Kingdom, the United States, and the European Union (represented by the European Commission). The MSP will support projects that:

- Demonstrate responsible stewardship of the natural environment;
- Engage in consultative and participatory processes regarding land access and acquisition;
- Commit to meaningful, ongoing consultation with communities;
- Ensure safe, fair, inclusive, and ethical conditions in the community and the workplace;
- Provide economic benefit for workers, and local communities; and
- Ensure transparent, ethical business operations.

(https://www.state.gov/minerals-security-partnership/#Principles).

Because of the importance of issues related to ZEV batteries, such as mineral resource supply chains, current or future resource pricing, and the sourcing of minerals, the Department

will monitor, participate, and coordinate with all Federal efforts to address potential mineral resource concerns. Material recovered from recycling batteries would enable a significant amount of critical materials to be reintroduced back into the supply chain. This circular economy can provide a large portion of the material needed to produce a new electric vehicle battery, which would increase the domestic sources for such materials, and reduce the demand for raw material mining.

53. How is EV battery reuse and recycling being addressed?

The Department acknowledges that electric vehicle battery disposal, reuse, and recycling are important issues in light of the increased demand in BEVs that will result from ACC II. The ACC II rules include battery labeling requirements which should support proper and efficient disposal and recycling. Thus, the ACC II rules should assist with battery repurposing and eventual recycling back into usable minerals. The Department recognizes that the development of disposal and recycling for electric vehicle batteries is an emerging industry, but by setting an annual ZEV requirement, the Department, California, and the other states that have adopted California's motor vehicle standards are providing the regulatory certainty this industry needs to make the long-term investments that will be crucial to the continued growth and innovation of the disposal and recycling industry. The State of Washington reported in their adoption of the ACC II program that "there are currently 14 recycling plants in the U.S. that are either in planning, pilot, or commercial stages."

In January 2024, New Jersey adopted the Electric and Hybrid Vehicle Battery Management Act (P.L. 2023 c.222). This law requires producers of electric vehicle propulsion batteries to submit end-of-life battery management plans to the state for approval. The law also regulates battery labelling (consistent with the ACC II program), and how used batteries may be safely handled, reused and recycled.

In general, electric vehicle batteries are lasting longer than previously predicted. According to a recent J.D. Power article, electric vehicle batteries are expected to last up to 20 years.

54. How often do EVs catch on fire?

As referenced in CARB's rulemaking documents, AutoinsuranceEZ conducted an analysis, using data collected by the National Transportation Safety Board, the U.S. Department of Transportation Bureau of Transportation Statistics, and recall data from a multi-agency U.S. government website (https://www.recalls.gov/), to calculate the number of vehicle fires by fuel type in 2022 with the following results:

Fuel Type	Fires per 100k vehicles	Total fires
Hybrid	3,475	16,051
Gasoline	1,530	199,533
Electric	25	52

(https://www.autoinsuranceez.com/gas-vs-electric-car-fires/)

By scaling down, to make the numbers more straightforward, the analysis shows that for every 1,000 gasoline vehicles, 15.3 may catch on fire. For every 1,000 electric vehicles, only 0.025 may catch on fire. In summary, the risk of fire in a gasoline vehicle is 60 times greater than the risk of fire in an electric vehicle.

The AutoinsuranceEZ analysis also looked at vehicle recalls for fire risk. For the year 2020, 1,085,800 gasoline vehicles were subject to recall for fire risk from electrical shorts, fuel leaks and ABS (anti-lock braking system) overheating. During the same time, 32,100 hybrids and 152,000 electric vehicles were subject to recall for battery issues. There are frequent recalls for fire risk on gasoline vehicles, including some with warnings to park the vehicle outside and away from buildings and some with warnings to not drive the vehicle. Gasoline vehicles are subject to frequent fire risk recalls but receive relatively little media coverage because it is more the norm than newer technology electric vehicles subject to greater scrutiny.

The Highway Loss Data Institute (https://www.iihs.org/) published a Bulletin (Vol. 38, No. 11: April 2021) comparing the risk of noncrash vehicle fires in electric vehicles with their internal combustion engine vehicle counterparts. To clarify, this study looked only at vehicles for which the manufacturer offered both an electric and non-electric version of essentially the same vehicle. They concluded, "[o]bserved noncrash fire claim frequencies were similar for the electric vehicles (0.19 claims per 1,000 insured vehicle years) and conventional counterparts (0.20 claims)." In contrast, the AutoinsuranceEZ study, above, which used data across all vehicle types, found that gasoline vehicles overall have a higher fire risk than electric vehicles.

The Australian Department of Defense funds a private company, EV FireSafe, to compile statistics on global electric vehicle usage and fire risk. EV FireSafe provides quarterly reports. The latest report is found here: https://www.evfiresafe.com/_files/ugd/8b9ad1_01aa449ee5074086a55cb42aa7603f40.pdf. As of June 30, 2023, they have recorded only 393 verified electric vehicle fires worldwide since 2010. While the total number of electric vehicles on the road worldwide is not precisely known, some sources calculate at least 26 million vehicles based on sales data from recent years. In 2022 alone, electric vehicle sales exceeded 10 million, accounting for 14 percent of all new car sales globally. A total of 393 verified electric vehicle fires out of a population of 26 million electric vehicles is a fire risk of 0.0015 percent, or 4 out of 260,000.

55. If an EV battery ignites, is the fire difficult to put out?

The Department acknowledges that this is an issue that is being examined around the world. Between the development of battery chemistry less likely to undergo, or even immune to, thermal runaway, and the integration of better voltage and temperature monitoring systems by vehicle manufacturers, the Department believes that the source of fires will be reduced over time. Additionally, training and appropriate equipment for fire fighters and first responders can better address the ability to extinguish vehicle battery fires in the interim. Tesla has published extensive training materials for first responders (https://www.tesla.com/firstresponders), including how to

safely handle battery fires. The National Fire Protection Association also has detailed information and first responder training available on their website (https://www.nfpa.org/EV).

56. What about all the air toxics released when an EV battery burns?

As the already noted, the risk of an electric vehicle spontaneously igniting is far less than the risk of a gasoline vehicle fire. Advances in battery technology are continuing to create safer batteries that decrease this risk. If we apply the historical risk of electric vehicle fires to future EVs, even if an unrealistic assumption, the number of electric vehicle fires is still so few as to have an insignificant impact on air toxics in New Jersey on a statewide scale. As with any catastrophic event like a fire where toxic chemicals are involved, there may be an impact in the immediate vicinity. However, the minimal risk of electric vehicle fires, coupled with the inability to predict where and when such fires may occur makes it impossible for the Department to meaningfully assess any impact on air toxics in New Jersey. The same principle applies to any potential localized soil or groundwater contamination. Additionally, adoption of the ACC II program will reduce the emissions of toxic air contaminants that result when fossil fuel is combusted in internal combustion engine vehicles.

57. Do EVs generate dangerous electromagnetic fields (EMF) from the motors and batteries?

The European Commission conducted a study, under a project called EM Safety. Several European nations participated in the study. Detailed results are available here: https://www.sintef.no/projectweb/em-safety/. The overall project conclusion is that EMF exposure to drivers and passengers in an electric vehicle is well below health standards for EMF exposure as established by the International Commission on Non-Ionizing Radiation Protection. The EM Safety project also concludes that exposure to some chemicals in gasoline and combustion engine exhaust poses a greater cancer risk than EMF exposure in either electric or combustion engine vehicles. Consumer Reports also looked at EMF exposure in hybrid vehicles (which use a battery and electric motor for propulsion along with an internal combustion engine) compared to internal combustion engine vehicles (https://www.consumerreports.org/cro/news/2010/08/mythbuster-emf-levels-in-hybrids/index.htm). Consumer Reports concluded, "In this series of tests, we found no evidence that hybrids expose drivers to significantly more EMF than do conventional cars. Consider this myth, busted."

58. What affect will ACC II have on the New Jersey agricultural community?

The Department conducted an agriculture industry impact analysis setting forth the nature and extent of the impact of the proposed rule on the agriculture industry. The Department included a discussion of the impacts of climate change on the industry as part of the agriculture industry impact and the social impact included in the notice of proposal. Further, the issue of economic impact on consumers, as it relates to the adopted rules, was thoroughly addressed in

the economic impact provision of the notice of proposal. ACC II applies only to the purchase of new light duty vehicles and does not require anyone, including farmers, to stop using an existing ICE vehicle or affect any heavy-duty ICE vehicles or other gasoline or diesel fueled farm machinery. Further, the Department expects the used ICE vehicles that the farming community tends to rely on will remain available for years to come. The used vehicle market is an interstate market, which helps to equilibrate used vehicle prices across the country. In short, the Department anticipates that used ICE vehicles will remain available until such time as the economies of scale and technology advance to ensure that the farm community can purchase ZEVs that meet their operational needs in the used and new vehicle market.

59. Can I buy an EV directly from the manufacturer instead of going through a dealer?

In New Jersey, all automotive manufacturers are subject to the Franchise Practices Act (FPA), which requires auto manufacturers to distribute their new motor vehicles through dealerships. See N.J.S.A. 56:10-1 et seq. Although the FPA generally prohibits manufacturers from selling a new motor vehicle directly to a consumer, direct sale by a manufacturer of only zero emission vehicles is permitted if certain conditions and requirements set forth in the statute are met. Any changes to the FPA require legislative action and are outside the scope of the Department's authority.

60. Are government vehicles in New Jersey also subject to the ACC II program?

State and local governments are also consumers of vehicles. As such, government agencies will also continue to transition their fleets to ZEVs.

61. Will the ACC II program cause auto manufacturers to deliver EVs to New Jersey that dealerships can't sell?

The Department recognizes the concern that manufacturers may deliver vehicles that dealerships struggle to sell. However, it is in the manufacturers' best interest to have their vehicles sold and the path to that goal to is produce vehicles that customers want to purchase. Likewise, it is in the dealers' best interest to work collaboratively with manufacturers to get those vehicles that they know will sell best to the customers in their market. If a manufacturer's vehicles are never sold, its bottom line will be negatively impacted despite any gains from receiving ZEV values for deliveries to New Jersey dealerships.

62. Does the ACC II program affect trucks?

The ACC II rules apply to passenger cars, light-duty trucks, and medium-duty vehicles, as these terms are defined at 13 CCR 1900, which have been incorporated by reference at N.J.A.C. 7:27-29A-7. See N.J.A.C. 7:27-29A.1, 29A.2 and 29A.3. Heavy-duty vehicles and other vehicles or equipment are not subject to the ACC II rules, but heavy-duty vehicles may be

subject to the Advanced Clean Trucks rules adopted by the Department on April 21, 2023. See 55 N.J.R. 1005(a) (May 15, 2023).

63. Since New Jersey's ACC II adoption includes California's aftermarket parts requirement, how does this affect aftermarket parts sold and installed in New Jersey?

N.J.A.C. 7:27-29A.2 sets forth the scope and applicability of the Department's rules. The rule states that "The New Jersey Advanced Clean Cars II program shall apply to all model year 2027 or later motor vehicles that are passenger cars, light-duty trucks, and medium-duty vehicles subject to the California Advanced Clean Cars II program and delivered for sale in New Jersey on or after January 1, 2027." As a result, the provisions incorporated by reference at adopted N.J.A.C. 7:29A.7, including 13 CCR 2222, will only apply to model year 2027 or later motor vehicles that are passenger cars, light-duty trucks, and medium-duty vehicles. It would also not require CARB-certified aftermarket parts for Federally certified vehicles legally registered in the State of New Jersey at any time.

The Department is not imposing any new requirements on the aftermarket parts industry. It has been the case for decades that aftermarket emission control devices must perform similarly to the original equipment parts and that aftermarket performance modifications may not make any pollutants emitted from the vehicle worse than the original certified configuration. See U.S. EPA Memorandum 1A, dated June 25, 1974 (https://www.epa.gov/sites/default/files/documents/tamper-memo1a_0.pdf) and its subsequent updates such as November 23, 2020 (https://www.epa.gov/sites/default/files/2020-12/documents/epatamperingpolicy-enforcementpolicyonvehicleandenginetampering.pdf). The Department's incorporation by reference of 13 CCR 2222 at N.J.A.C. 7:27-29A.7 only requires that model year 2027 and newer vehicles subject to the ACC II regulation be repaired with CARB-approved parts to ensure that such vehicles continue to meet their CARB-certified emission levels.