



American Petroleum Institute
Northeast Region

June 21, 2021

Alice A. Previte, Esq.
Attention: DEP Docket No. 05-21-03
Office of Legal Affairs
New Jersey Department of Environmental Protection
401 East State Street, 7th Floor
Mail Code 401-04L
PO Box 402
Trenton, NJ 08625-0402

Submitted electronically via email to rulemakingcomments@dep.state.nj.us.

Re: Advanced Clean Trucks Program and Fleet Reporting Requirements, Proposed Amendment: N.J.A.C. 7:27A-3.10 and Proposed New Rules: N.J.A.C. 7:27-31 and 33 -- DEP Docket Number: 05-21-03. Proposal Number: PRN 2021-036.

I. Introduction

The American Fuel & Petrochemical Manufacturers (AFPM)¹ and the American Petroleum Institute (API)² respectfully submit the following comments in response to the New Jersey Department of Environmental Protection's (NJDEP) proposed Advanced Clean Trucks (ACT)

¹ AFPM is a national trade association representing nearly all U.S. refining and petrochemical manufacturing capacity. These companies provide jobs, directly and indirectly, to more than three million Americans, contribute to our economic and national security, and enable the production of thousands of vital products used by families and businesses throughout the U.S. AFPM members manufacture gasoline and diesel fuel and are directly affected by government regulations that distort the free market and impact consumer choices for vehicles and fuel. *See* <https://www.afpm.org/>.

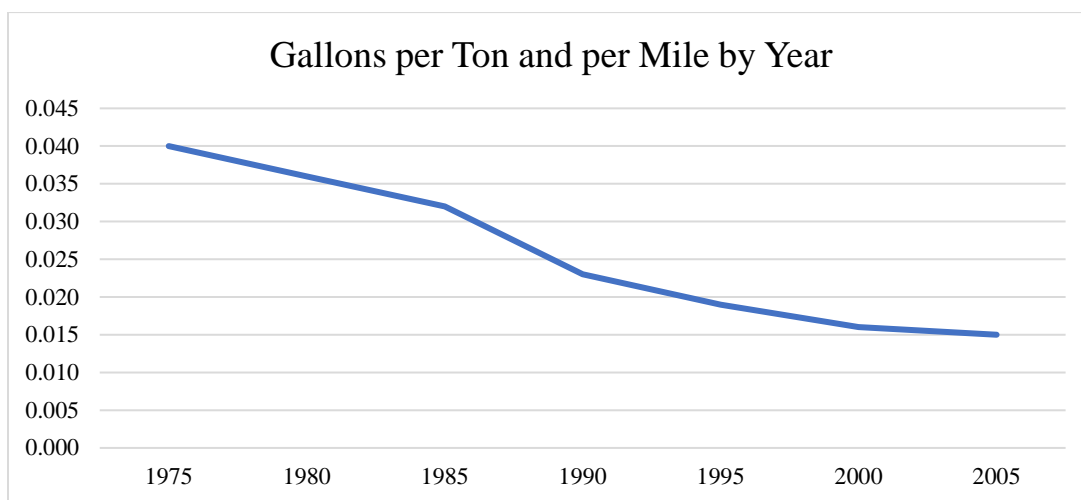
² API represents all segments of America's natural gas and oil industry, which supports more than ten million U.S. jobs and is backed by a growing grassroots movement of millions of Americans. Our 600 members produce, process, and distribute the majority of the nation's energy, and participate in API Energy Excellence, which is accelerating environmental and safety progress by fostering new technologies and transparent reporting. API was formed in 1919 as a standards-setting organization and has developed more than 700 standards to enhance operational and environmental safety, efficiency, and sustainability. *See* <https://www.api.org/>.

Program and Fleet Reporting Requirements. AFPM and API appreciate the opportunity to provide these comments and commend NJDEP for their willingness to solicit and consider input and feedback from a variety of stakeholders.

In the state of New Jersey, the oil and gas industry supports 78,600 workers and contributes \$21.6 billion to the economy of New Jersey.³

Collectively, our members have invested billions of dollars to make fuels cleaner and more efficient. According to the U.S. Environmental Protection Agency (EPA), “new heavy-duty trucks and buses are roughly 99 percent cleaner than 1970 models.”⁴ Moreover, since 1975, fuel economy has nearly doubled while average horsepower has increased by 75 percent.⁵ Since 2004, the fuel economy of new cars, trucks, and SUVs has increased 29 percent, and their related carbon dioxide emissions have dropped 24 percent.⁶

The trucking sector has seen similar efficiency gains. If total fuel consumed, total miles traveled, and total tons shipped are considered holistically, an average payload-specific fuel consumption for the entire medium- and heavy-duty fleet can be calculated for the sector. The chart below shows this metric presented as gallon/ton-mile from 1975 to 2005.⁷ The amount of fuel required to move one ton a of freight over a distance of one mile has been reduced by more than half over this period.



³ IMPLAN 2019 for the State of New Jersey.

⁴ “History of Reducing Air Pollution from Transportation in the United States,” U.S. Environmental Protection Agency, <https://www.epa.gov/transportation-air-pollution-and-climate-change/accomplishments-and-success-air-pollution-transportation>.

⁵ See “The 2020 EPA Automotive Trends Report: Greenhouse Gas Emissions, Fuel Economy, and Technology Since 1975,” U.S. Environmental Protection Agency, January 2021, <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P1010U68.pdf>.

⁶ See U.S. Environmental Protection Agency, The EPA Automotive Trends Reports, <https://www.epa.gov/automotive-trends>.

⁷ See National Research Council 2010. Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles. Washington, DC: The National Academies Press. <https://doi.org/10.17226/12845>.

Further, the refining industry has reduced the maximum sulfur content of highway diesel fuel from 5,000 ppm to 15 ppm.⁸ The refining industry also has reduced the annual average sulfur content of gasoline from 30 parts per million (ppm) to 10 ppm under the fuel property requirements in the EPA Tier 3 rulemaking implemented on January 1, 2017. Reduced sulfur content in diesel and gasoline has lowered fleet emissions in New Jersey and has enabled cleaner engine technologies.⁹ We also note that significant improvement in truck efficiencies from lightweighting to creating aerodynamic solutions for trucks and trailers are made possible by the petrochemicals our members produce.

Against this backdrop of a long history of technological innovation and improved efficiencies, AFPM and API believe state transportation policies should be realistic in nature, recognize the vital role liquid fuels have historically played and will continue to play, and – above all – preserve affordability and consumer choice. Generally speaking, these goals can be best achieved through free markets as opposed to market-distorting mandates, subsidies, or the imposition of unrealistic emissions or sales targets.

Moreover, New Jersey policymakers must recognize that New Jersey is, fundamentally, a unique state distinct from others geographically, economically, and socially. Adopting the ACT Program in New Jersey that was developed by California regulators with California’s own unique attributes in mind is not the wisest approach. For example, New Jersey is approximately 150 miles long by 70 miles wide and can be serviced by companies that may forgo the requirements of the regulation by running their businesses out of Pennsylvania, Delaware, Maryland, or New York. In contrast, California is 560 miles from west to east and 1040 miles from south to north. The states to the east – Arizona and Nevada – are separated by a mountain range and significant distances from California’s population centers. New Jersey’s implementation of ACT will likely result in relocation of trucking businesses to neighboring states that do not have ZEV mandates for medium- and heavy-duty trucks and thus are capable of undercutting trucking companies based in New Jersey. This in turn will result in a loss of jobs and tax revenue in New Jersey that California never considered, and DEP has failed to quantify.

We believe that the best approach to achieving New Jersey’s goal of reducing the environmental impacts of medium- and heavy-duty vehicles is to allow the EPA rules on medium- and heavy-duty vehicle emissions to go into full effect rather than adopting expensive BEV mandates that will dramatically slow fleet turnover and the resulting emissions reductions that are being achieved under the federal standards. Furthermore, until New Jersey analyzes the state specific impacts of fleet turnover from adopting the proposed ACT rule and the ensuing impact on air quality (and take comment on its findings), the state is without the legal authority to finalize the proposed ACT rule.

⁸ See U.S. EPA Diesel Fuel Standards and Rulemakings, <https://www.epa.gov/diesel-fuel-standards/diesel-fuel-standards-and-rulemakings#:~:text=EPA%20began%20regulating%20diesel%20fuel,diesel%20fuel%20to%2015%20ppm.,> accessed June 18, 2021.

⁹ Note: gasoline is included here as some medium-duty trucks use gasoline.

II. Environmental Concerns with the Proposed ACT Rule

Policymakers should compare the environmental, economic, and performance attributes of new diesel engine and natural gas truck technology to alternatives such as battery electric trucks (BET) when developing transportation sector policies. It is critical to employ a holistic approach using life-cycle analysis (LCA) that accounts for the greenhouse gas (GHG) emissions generated over the lifetime of a vehicle, including emissions associated with vehicle production, operation (recharging/refueling), required infrastructure modifications, and end of life disposal options.

Every transportation technology uses energy and impacts the environment in different ways throughout its lifecycle -- during the production, operation, and disposal of the vehicle. A single reliance on vehicle tailpipe emissions measurements results in a distorted and scientifically incomplete evaluation of the environmental performance of different powertrain technologies that should not be used for regulatory decision making.

- **A focus on battery electric medium- and heavy-duty vehicles ignores other technologies that may deliver earlier and more cost-effective solutions.**

NJDEP’s proposed ACT rule states that it “*will require manufacturers of vehicles over 8,500 pounds gross vehicle weight rating (GVWR) to participate in a credit/deficit program intended to increase the percentage of zero-emission vehicles (ZEVs) sold in New Jersey.*” As with California’s ACT rule,¹⁰ the NJDEP proposal also requires “*a one-time reporting in order to obtain information that will inform future decisions concerning further emission reductions from the transportation sector.*”¹¹

The California Air Resources Board (CARB) writes in its Standardized Regulatory Impact Assessment (SRIA) that, “[t]he Proposed ACT Regulation will contribute to achieve the state’s criteria pollutant and GHG reduction goals and cleaner technology targets... The Proposed ACT Regulation is needed to accelerate the transition to zero-emissions in the medium- and heavy-duty vehicle sector.”¹²

We acknowledge that it is appropriate to reduce criteria pollutants in non-attainment areas and continue to increase efficiency in the transportation sector while also recognizing the need to consider the tradeoffs, for example the cost to the consumer, effects on the economy, infrastructure modification, freight hauling capacity, driver shortages, and consumer choice. However, as both the Western States Petroleum Association (WSPA) and the California South Coast Air Quality Management District (SCAQMD)¹³ have noted, the pursuit of these end goals must allow for the multiple technologies and strategies available now or in the process of being

¹⁰ California Air Resources Board, “Final Regulation Order,” <https://ww3.arb.ca.gov/regact/2019/act2019/fro2.pdf>.

¹¹ New Jersey, Advanced Clean Trucks Program and Fleet Reporting Requirements, p. 4.

¹² California Air Resources Board, Advanced Clean Trucks Regulation, Standardized Regulatory Impact Assessment, August 8, 2019, <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>.

¹³ See SCAQMD encompasses Los Angeles County and the City of Los Angeles, Orange County, Riverside County and San Bernardino County, which includes nearly 11,000 square miles and 17 million residents <http://www.aqmd.gov/nav/about>.

implemented that have demonstrated cost-effectiveness and affordability for consumers.^{14,15} Mandating that future medium- and heavy-duty vehicles be equipped with “zero emissions technologies” ignores and could forgo the “near-zero” technology options that are currently commercially available, offer significant environmental benefits, are cost-effective, and are feasible across a broad spectrum of vehicle end-use applications.

According to SCAQMD:

“The current regulatory concepts overlooks [sic] the years of work that CARB, South Coast AQMD, and others have undertaken to develop commercially viable near-zero technologies. These technologies reduce NOx emissions at least 90%, and toxic diesel particulate matter emissions 100% below that associated with current conventional diesel trucks. These are technologies that are commercially available today and are considerably more cost effective and affordable than zero emissions technologies – a crucial consideration when considering how to deploy technology widely.”¹⁶

We urge New Jersey to avoid adopting the California approach of focusing on electrified vehicle-centric mandates at the expense of commercially available low-nitrogen oxides (NOx) technologies that are being deployed to meet near-term air quality goals. In this regard, a recent technical assessment sponsored by WSPA suggests that the expanded penetration of these vehicles, coupled with increased introduction of renewable liquid and gaseous fuels, offers significantly lower carbon intensity pathways that could deliver earlier and more cost-effective air quality and GHG reduction benefits than a ZEV-centric approach that essentially postpones improvements in air quality for decades.¹⁷

- **There are no zero-emissions vehicles, and all technologies have trade-offs.**

There is no such thing as a zero-emissions vehicle. Significant GHGs and criteria pollutants are emitted during the lifecycle of a vehicle propelled by battery power. A lifecycle perspective is required to understand any potential mitigation achieved by BEVs since emissions are not eliminated, but rather shifted upstream in the fuel cycle to a power plant, and typically they start with a deficit in the vehicle production supply chain.^{18,19} Furthermore, studies show that the

¹⁴ See WSPA, “Comments on Advanced Clean Fleets (ACF) Regulation March Workshops,” April 17, 2021, <https://www.arb.ca.gov/lists/com-attach/36-acf-comments-ws-UCdTJIUkAzFVDFMy.pdf>.

¹⁵ See SCAQMD, “Staff Comments on Proposed Advanced Clean Fleets Regulatory Concepts,” April 2, 2021, <https://www.arb.ca.gov/lists/com-attach/25-acf-comments-ws-WilRNAFhU3FWPOFl.pdf>.

¹⁶ *Id.*

¹⁷ See Ramboll US Consulting, Inc., “Multi-Technology Pathways to Achieve California’s Air Quality and Greenhouse Gas Goals: Heavy-Heavy-Duty Truck Case Study,” February 1, 2021, prepared for Western States Petroleum Association and appended to WSPA, “Comments on Advanced Clean Fleets (ACF) Regulation March Workshops,” April 17, 2021, <https://www.arb.ca.gov/lists/com-attach/36-acf-comments-ws-UCdTJIUkAzFVDFMy.pdf>

¹⁸ See “Slow Down: The Case for Technology Neutral Transportation Policy,” ConservAmerica, <https://static1.squarespace.com/static/5d0c9cc5b4fb470001e12e6d/t/5fd1580999fe644e8a504a54/1607555090612/C+A+Tech+Neutral+Paper+-+12.20+%281%29.pdf>. Note: While the ConservAmerica paper addresses the emissions of the automobile fleet, the information on battery manufacturing is applicable, see p. 4.

¹⁹ One fifth to one third of vehicle lifecycle GHG emissions.

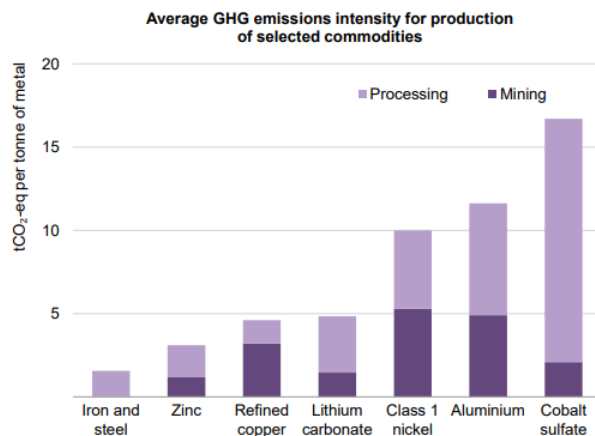
carbon reductions realized over the lifetime of operating an electric vehicle vary depending on the carbon intensity of the electric grid where the vehicle is used.^{20,21,22}

Ultimately, there is no mode of transportation that has “zero emissions” and each technology should be considered on a lifecycle basis to ensure that policy decisions to reduce GHG emissions in the transportation sector are fully informed before they are adopted and implemented.

Before adopting this rule, NJDEP must quantify the holistic, real-world GHG emissions associated with battery powered medium- and heavy-duty trucks within the state. Specifically, NJDEP should consider the environmental implications of battery material sourcing, BEV recharging, and end-of-life battery disposal. Focusing solely on a comparison of tailpipe emissions ignores a real-world consideration that is of central relevance to this rulemaking.

- **Battery Material Sourcing Emissions**

Lithium-ion batteries are made from critical minerals including cobalt, graphite, and lithium. One study suggests that the extraction and processing of critical minerals are responsible for approximately 20 percent of the GHG emissions associated with battery production and largely depends on the fuel sources used (e.g., electricity, heat, and fuel).²³ In addition, the mining of minerals for BEVs typically occur in countries where environmental, health, and safety precautions are significantly less stringent than those in the U.S. Mining and processing of commodities is an energy and environmentally intensive activity and results in emissions that NJDEP cannot ignore, as indicated by the chart from the International Energy Agency below:²⁴



²⁰ See Tamayao M-A M, Michalek J, Hendrickson C and Azevedo I M L 2015, “Regional variability and uncertainty of electric vehicle life cycle CO₂ emissions across the United States,” *Environ. Sci. Technol.* 49 8844–55.

²¹ Macpherson N D, Keoleian G A and Kelly J C 2012, “Fuel economy and greenhouse gas emissions labeling for plug-in hybrid vehicles from a life cycle perspective,” *J. Ind. Ecol.* 16 761–73.

²² Onat N C, Kucukvar M and Tatari O, 2015, “Conventional, hybrid, plug-in hybrid, or electric vehicles? State-based comparative carbon and energy footprint analysis in the United States,” *Appl. Energy* 150 36–49.

²³ H.C. Kim, et al., “Cradle-to-Gate Emissions from a Commercial Electric Vehicle Li-Ion Battery: A Comparative Analysis,” *Environmental Science and Technology*, vol. 50 (2016), pp. 7715-7722.

²⁴ See “The Role of Critical World Energy Outlook Special Report Minerals in Clean Energy Transitions,” International Energy Agency, <https://iea.blob.core.windows.net/assets/278ae0c8-28b8-402b-b9ab-6e45463c273f/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf> (“IEA’s Critical Minerals Report”).

In addition to GHG emissions, such mining activities are also responsible for particulate matter (PM) emissions, nitrogen oxide emissions, and other air pollutant emissions. Because NJDEP has chosen to simply scale the CARB analysis, it appears NJDEP did not include any upstream mining emissions.

- **Disposal**

The concept of recycling batteries and related electrical components in BEVs is in its infancy and pose unique materials handling and safety challenges.²⁵ Large batteries, like those required for medium- and heavy-duty use, *may* be able to be recycled and reused eventually. Presently, however, less than five percent of lithium-ion batteries, the most common batteries used in BEVs, are being recycled “due in part to the complex technology of the batteries and cost of such recycling.”²⁶ Moreover, securing the permits required to build a new hazardous waste recycling facility is a speculative undertaking at best. Until such a pathway is clear, these disposal-related issues are likely to impact the environment and must be quantified. One study suggests that battery packs could contribute 250,000 metric tons of waste to landfills for every 1 million retired BEVs.²⁷ Recycling BEV batteries to recover high-value metals has not been proven at commercial scale.²⁸

The purported environmental benefits and detriments of BEVs should be considered in light of these uncertain environmental challenges before adopting the rule. Examining only the facts that support the proposal is arbitrary and capricious and will distort NJDEP’s and the public’s understanding of this issue.

- **National Security**

Adopting the proposed ACT rule will push BEVs into the market before supply²⁹ and national security issues can be properly addressed. National capacity for extraction and processing of materials for transport show that gasoline and diesel concentration is diffuse (and the U.S. is a leading country). Materials and processing for batteries and electric transport are much more concentrated and dominated by China.

²⁵ See Kelleher Environmental, “Research Study on Reuse and Recycling of Batteries Employed in Electric Vehicles: The Technical, Environmental, Economic, Energy and Cost Implications of Reusing and Recycling EV Batteries”, September 2019 (Kelleher Environmental Study). See <https://www.api.org/oil-and-natural-gas/wells-to-consumer/fuels-and-refining/fuels/vehicle-technology-studies>.

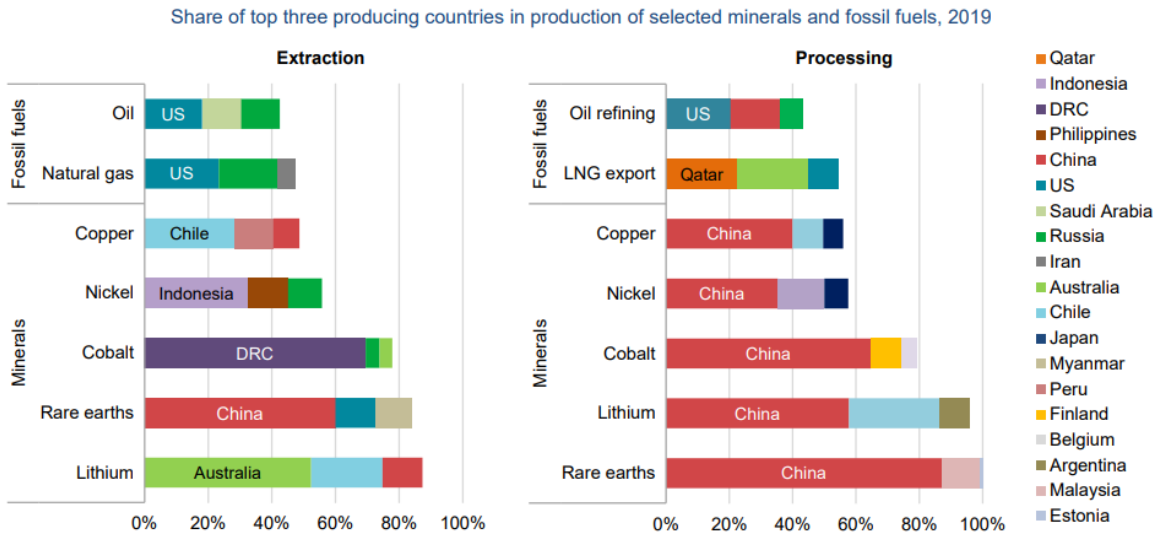
²⁶ Congressional Research Service, “Electric Vehicles: A Primer on Technology and Selected Policy Issues,” February 14, 2020. See <https://blogs.fas.org/sgp/crs/misc/R46231.pdf>.

²⁷ See Gavin Harper, Roberto Sommerville, et al., “Recycling lithium-ion batteries from electric vehicles,” January 21, 2020. See <https://www.nature.com/articles/s41586-019-1682-5>.

²⁸ See Kelleher Environmental Study.

²⁹ See Clean energy demand for critical minerals set to soar as the world pursues net zero goals - News - IEA. (2021). Retrieved 21 June 2021, from <https://www.iea.org/news/clean-energy-demand-for-critical-minerals-set-to-soar-as-the-world-pursues-net-zero-goals>.

Production of many energy transition minerals today is more geographically concentrated than that of oil or natural gas



Notes: LNG = liquefied natural gas; US = United States. The values for copper processing are for refining operations. Sources: IEA (2020a); USGS (2021), World Bureau of Metal Statistics (2020); Adamas Intelligence (2020).

IEA. All rights reserved.

- **New Jersey does not properly consider air quality issues unique to the state and inappropriately scales California’s environmental analysis.**

It is inappropriate to simply extrapolate data from California to support the proposed ACT rule for the following reasons: (1) upwind sources are not accounted for (2) no estimate of leakage as trucking services are provided by out-of-state operators; and (3) no analysis showing whether ACT is necessary for NJ to come into attainment.

Unlike California, New Jersey’s two nonattainment areas are significantly influenced by the air quality and emissions in neighboring states, limiting the ability for New Jersey’s adoption of the proposed ACT rule to have as meaningful of an impact, especially in light of the concerns that SCAQMD and the Ramboll study raise regarding the delay in National Ambient Air Quality Standard (NAAQS) attainment that could result from implementation of the California ACT rules.^{30, 31} As noted earlier, the geographies of California and New Jersey are starkly different. California encompasses 163,695 square miles compared with New Jersey’s 8,700 square miles. The San Joaquin Valley is in the southern part of the state’s vast Central Valley and lies between two mountain ranges. The Coast Ranges to the west are 3,300 feet high and the Sierra Nevada to the east are 11,000 feet high.³² The Los Angeles/South Coast Air Basin is similarly situated

³⁰ See supra n. 17.

³¹ Two areas in the U.S. are in extreme non-attainment with the 8-hour ozone (2015) NAAQS requirements: the Los Angeles/South Coast Air Basin and the San Joaquin Valley. New Jersey has two areas in non-attainment: New York-Northern New Jersey-Long Island, which is in moderate nonattainment, and Philadelphia-Wilmington-Atlantic City, which is in marginal nonattainment for the same standards.

³² San Joaquin Valley | valley, California, United States. (2021). Retrieved 21 June 2021, from <https://www.britannica.com/place/San-Joaquin-Valley>.

between mountain ranges. According to the South Coast Air Quality Management District, “*Air pollution tends to stagnate within these air basins due to natural barriers, such as mountains, unless prevailing winds are strong enough to disperse it into other areas.*”³³ In short, New Jersey does not share these geographic challenges.

Similarly, according to California’s most recent freight plan, most movements by both weight and value begin and end within California. In 2015, the total number of kilotons transported within California were 904,887 and are forecasted to reach 1,200,531 kilotons by 2045.³⁴ New Jersey’s freight plan notes that around 44 percent of tons and 23 percent of value was intrastate shipments.³⁵

Given the geographic realities of New Jersey’s placement along the east coast, the promulgation of this rule could lead to out of state, petroleum powered, commercial trucks supplanting battery powered trucks, especially in the vital urban areas of northern New Jersey and the Philadelphia metro region.

With the implementation of the existing EPA light- and heavy-duty vehicle emissions rules, there is an expectation that the nonattainment areas in New Jersey will soon come into attainment. In fact, it is almost a certainty that the implementation of existing rules will bring New Jersey into attainment with all NAAQS within the timeframes provided under the Clean Air Act. For example, analysis of rules adopted through 2017 (*i.e.*, ignoring any 2020-present rules requiring further reductions) show that NO_x emissions for mobile sources are predicted to be more than 50 percent lower in 2025 compared to 2011, with most reductions occurring in the on-road categories and nonroad diesel.

Similarly, emissions of volatile organic compounds (VOC) from mobile sources are also projected to decline by more than 50 percent between 2011 and 2025, with most reductions occurring in the on-road light-duty gasoline and nonroad recreational equipment categories. And, similarly, mobile source PM_{2.5} emissions are projected to be lower by more than half in 2025 compared to 2011 due primarily to reductions in the nonroad diesel and on-road heavy-duty diesel categories. And, of course, this analysis does not consider that emissions will continue to fall rapidly post-2025 due to vehicle fleet turnover.³⁶

If New Jersey is in attainment, then NJDEP will not have demonstrated that the state needs to adopt California’s ACT rule to comply with NAAQS, a predicate to opt-in to the California standards under Clean Air Act §177.

³³ See South Coast Air Quality Management District, Nap of Jurisdiction, <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-jurisdiction.pdf>.

³⁴ See California Freight Mobility Plan 2020, March 2020, pg.158, <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/cfmp-2020-final/final-cfmp-2020-chapters-1-to-6-remediated-ally.pdf>.

³⁵ See New Jersey Statewide Freight Plan December 2017, pg. 22, <https://www.state.nj.us/transportation/freight/plan/pdf/NewJerseyStatewideFreightPlan.pdf>.

³⁶ Zawacki, M. *et al.* “Mobile source contributions to ambient ozone and particulate matter in 2025.” *Atmospheric Environment*, Volume 188, September 2018, Pages 129-141 <https://www.sciencedirect.com/science/article/pii/S1352231018302966#!>.

- **Making trucks more expensive will slow environmental progress.**

BETs are priced significantly higher than conventionally powered trucks.³⁷ This regulation could make all trucks more costly,³⁸ and therefore the proposed ACT rule would reduce overall new medium- and heavy-duty vehicle sales (assuming constant capital expenditures), thereby slowing fleet turnover.

The state's truck fleet is continuing to evolve and improve. Forty-one percent of New Jersey's fleet of heavy-duty diesel vehicles use the newest generation diesel technology that meets the latest EPA emissions standards for PM and NOx.³⁹ The continued utilization of this technology will result in improved air quality. AFPM and API are concerned that the current strides being made will be adversely impacted by the ACT rules which may result in consumers deferring replacement of older vehicles due to cost. One of the unintended consequences of the ACT rule is that due to costs consumers may effectively forgo the purchase of low emissions diesel trucks and near-zero emissions natural gas trucks that have the ability to reduce emissions considerably.

III. Economic Concerns with the Proposed ACT Rule

We do not believe NJDEP has fully considered the potential negative economic impacts associated with the proposed ACT rule.

- **CARB's economic analysis cannot be scaled by VMT.**

NJDEP indicates that implementation of the rule will, over a period of 15 years (2024-2040), result in a net savings of \$72 million after \$1.6 billion worth of compliance costs. These estimates are incomplete and ignore significant costs and uncertainties associated with ACT.

Given the small alleged net savings relative to costs, NJDEP should have a high confidence in its estimated savings to require imposing such a costly mandate. Yet, numerous assumptions, several of which we have demonstrated in these comments to be unfounded, render the confidence in the projected savings insufficient to justify such enormous costs (which have also been underestimated as explained in these comments). Even small adjustments to assumptions and modeling (such as expected fuel costs)⁴⁰ could cause the program to impose net costs rather than savings due to higher costs or reduced benefits of the mandate.

Additionally, NJDEP's analysis fails to consider a whole host of issues such as annual miles driven, costs associated with battery replacement and disposal at end-of-life, financing, recharging time, and the impact on truck utilization. As a result, NJDEP has underestimated the costs of adopting the ACT Rule. NJDEP also states that, "CARB assumes charging/fueling

³⁷ See Comment of the American Trucking Association, California Proposed Advanced Clean Trucks Rule, <https://www.arb.ca.gov/lists/com-attach/109-act2019-WmhWYAY2AGoKIgZn.pdf>.

³⁸ Manufacturers and dealers are likely to increase the price of conventional gasoline and diesel trucks that consumers want in order to lower the prices of BETs and meet the sales mandate. See 83 Fed. Reg. at 43224.

³⁹ See Diesel Technology Forum, In Your State, <https://www.dieselforum.org/new-jersey>.

⁴⁰ Trucking is a very competitive industry and if potential fuel savings were viable, fleets would likely electrify on their own absent any government directive.

station costs vary between \$5,000 and \$50,000 per unit, depending on vehicle class.” These costs underestimate the infrastructure costs by more than 2.5 times because they do not account for the upgrades necessary to construct the infrastructure required to supply electricity to the charging equipment.⁴¹

The proposed ACT rule fails to quantify the cost of infrastructure upgrades that will be required to implement the mandate. This is another issue of central relevance to the rulemaking that is not presented for public comment. For example, in the light-duty vehicle context, the Colorado Electric Vehicle and Infrastructure Readiness Plan estimated that for every 100 BEVs, there should be 100 residential charging ports, 10 private charging ports, and 20 public charging ports. This would result in 1.3 charging ports for every BEV, which aligns closely with the general industry recommendations of 1.5 charging ports for every BEV on the road.⁴² The full cost of such a network for medium- and heavy-duty vehicles is substantial and NJDEP must provide reasonable estimates of these numbers before simply imposing them on its citizens.

The installation of charging stations will also require significant investment in additional transformers, distribution circuits, conductors, substations, transmission lines, dependable generating capacity, and other necessary grid upgrades. These costs can be staggering. As an example, the city of Sacramento determined that approximately 12,000 transformers needed to be replaced at an average cost of \$7,400 each. The total investment would almost total \$90 million.⁴³

These infrastructure costs will increase ratepayer’s costs if the utilities seek to include these costs in their rate-base. The construction of the necessary infrastructure to charge BEVs presents complex issues that may adversely affect the New Jersey ratepayer and NJDEP has a duty to quantify these “hidden” costs associated with the ACT Rule.

A study on the grid in New England by the Energy Futures Initiative, a nonprofit clean energy think tank founded by former Energy Secretary Ernest Moniz,⁴⁴ estimates that the electricity needed to power the complete electrification of transportation and other sectors will increase by 60 to 90 percent over the next three decades.⁴⁵ This large increase in electricity demand occurs despite significant energy efficiency included in the study’s scenarios. Absent energy efficiency, demand growth would be even higher. The costs associated with this expected demand growth also must be quantified and considered by NJDEP.

⁴¹ See Energy Marketers of America, “Utility Investments and Consumer Costs of Electric Vehicle Charging Infrastructure,” Tbl 7,

https://www.energymarketersofamerica.org/ema_today/attachments/Energy_Marketers_of_America_Study-Utility_Infrastructure_for_EVs.pdf, accessed June 18, 2021.

⁴² See Project FEVER, Colorado Electric Vehicle, and Infrastructure Readiness Plan (2012).

⁴³ See Smart Electric Power Alliance, Utilities and Electric Vehicles: The Case for Managed Charging, 13, available at <http://emotorwerks.com/images/PR/Articles/sepa-managed-charging-ev-report.pdf>.

⁴⁴ See “Net-Zero New England: Ensuring Electric Reliability in a Low-Carbon Future,” November 2020. https://static1.squarespace.com/static/58ec123cb3db2bd94e057628/t/5fb44a7fc7082162b99baf2c/1605651079438/E3+EFI_Report+New+England+Reliability+Under+Deep+Decarbonization_Full+Report_11-17-2020_Release.pdf.

⁴⁵ *Id.*, at page 2.

A new Princeton University study, “Net-Zero America,” anticipates that this shift will require “at least \$2.5 trillion in additional capital investment into energy supply, industry, buildings, and vehicles over the next decade relative to business as usual.”⁴⁶ An aggressive electrification scenario, the study further estimates, will require \$2.6 trillion of energy supply-side capital before 2030, and \$10 trillion by 2050.⁴⁷ Electric customers could ultimately be forced to foot much of this bill through their utility bills.

The current average retail price of residential sector electricity in New Jersey is about 16 cents per kilowatt-hour (kWh). New Jersey’s electric rates already are more than 22 percent above the national average.⁴⁸ If NJDEP moves forward with the proposed ACT rule, these rates could rise even more above the national average. NJDEP must consider these costs before proceeding.

- **The free market is putting BEVs where they make the most sense.**

Amazon has ordered 100,000 electric vans,⁴⁹ UPS has ordered 10,000 electric vans,⁵⁰ and FedEx has announced they will replace their entire parcel delivery and pickup fleet to electric vans by 2040.⁵¹ These companies are making decisions that may reflect their unique transportation needs and the desire to reduce emissions and shape their brand value. Companies should examine their own criteria to determine the drivetrain they believe best suits their needs, including performance, type of cargo or service provided, utilization, routes, durability, resale value, and brand.

When it comes to medium- and heavy-duty vehicles, some entities have learned that BEVs may not be appropriate. The Victor Valley Transit Authority in San Bernardino County, California participated in the Southern California Edison Charge Ready Pilot Program.⁵² Seventeen of their 60 compressed natural gas (CNG) transit buses utilize an engine that yields significant GHG emissions reductions, especially when paired with renewable natural gas. Prior to the addition of seven BEVs, 100 percent of VVTA’s fixed route and commuter buses were powered by CNG. VVTA raised concerns with the BEV bus range, highlighting the differences between the vehicle’s rated range and effective range.⁵³ VVTA noted that the bus rated for 466 kWh and

⁴⁶ E. Larson, C. Greig, J. Jenkins, E. Mayfield, A. Pascale, C. Zhang, J. Drossman, R. Williams, S. Pacala, R. Socolow, EJ Baik, R. Birdsey, R. Duke, R. Jones, B. Haley, E. Leslie, K. Paustian, and A. Swan, Net-Zero America: Potential Pathways, Infrastructure, and Impacts, interim report, Princeton University, Princeton, NJ, December 15, 2020.

⁴⁷ *Ibid.*

⁴⁸ See U.S. EIA, “State Profiles: New Jersey” <https://www.eia.gov/state/?sid=NJ#tabs-5>.

⁴⁹ See “Amazon’s custom electric delivery vehicles are starting to hit the road,” <https://www.aboutamazon.com/news/transportation/amazons-custom-electric-delivery-vehicles-are-starting-to-hit-the-road>.

⁵⁰ See “UPS Vans to Get the Electric Treatment,” <https://www.autoweek.com/news/green-cars/a35875342/arrival-microfactory-to-build-ups-ev-delivery-vans/>.

⁵¹ See “FedEx is going all-electric. It will invest \$2 billion in a zero-emissions delivery fleet and other carbon-cutting measures by 2040, it said,” <https://www.businessinsider.com/fedex-delivery-fleet-all-electric-carbon-neutral-2040-sustainability-2021-3#:~:text=FedEx%20will%20be%20the%20first,operations%20carbon%2Dneutral%20by%20then>.

⁵² See Victor Valley Transit Authority, “On the Path to Zero: from CNG to Zero Emissions.” VVTA is located in the high desert region of San Bernardino County encompassing over 1,000 square miles, with 56 routes ranging from 86 to 527 miles. Slide 2, <https://www.mdaqmd.ca.gov/home/showdocument?id=6973>.

⁵³ *Ibid.*, slide 10.

250 miles actually has an effective range between 127 and 205 miles, assuming a “good driver” and not using heat or air conditioning. A bad driver on a challenging route with terrain changes will experience the lower end of the range.

What affects the range? The bus can only charge to 94 percent and derates when capacity goes below 15 percent. Given the limitations of the technology, VVTA is only able to use the electric buses in 26 percent of the route blocks.

There is ample evidence in the literature that temperature has a significant impact on battery performance and vehicle range. New Jersey should capitalize on this real world experience and properly consider the significant and deleterious impacts that both hot and cold weather have on EV battery performance and associated charging requirements and emissions.⁵⁴ New Jersey must also not ignore the higher battery degradation (and potential earlier replacement) associated with the “fast-charging” that is most frequently utilized to minimize the hours of charging time that would otherwise be required to place a commercial truck in service.⁵⁵

The trucking industry is currently facing a major shortage of drivers.⁵⁶ Companies cannot afford to have idle drivers while vehicles are recharging. Assuming average fuel economy it would take less than 10 minutes to fuel with petroleum-based liquid fuels but a supercharging rate of 350 kW⁵⁷ – which as mentioned, frequent supercharging can degrade the battery – would take over an hour. Similarly, New Jersey has given no consideration to the fact that battery-powered trucks currently are neither economically competitive nor practical for any routes requiring cargoes near the maximum load ratings, nor for mid-range or long-haul routes.

- **Any improvements in emissions reduction would come at a significant cost.**

To compare policies aimed at reducing GHG emissions, analysts often develop a “cost of abatement,” which is a calculation of the cost of the policy divided by the GHG reductions achieved by the policy. It is normally expressed in a dollars per ton figure. NJDEP should develop and present to the public its estimate of the cost per ton of GHG abatement via the proposed ACT rule (on a lifecycle basis), as compared to the same cost of abatement of investing in more fuel-efficient diesel, biodiesel, renewable diesel, propane, and natural gas trucks.

⁵⁴ See American Automobile Association (AAA). ELECTRIC VEHICLE RANGE TESTING. February 2019. Figure 68: Percent change in cost for 1000 miles of combined urban/highway driving relative to 75°F <https://www.aaa.com/AAA/common/AAR/files/AAA-Electric-Vehicle-Range-Testing-Report.pdf>.

⁵⁵ See “Fast-charging damages electric car batteries,” <https://news.ucr.edu/articles/2020/03/11/fast-charging-damages-electric-car-batteries>.

⁵⁶ See, e.g., “Truckers are getting big pay hikes, but there’s still a shortage of drivers,” CNN.com, May 29, 2021, accessed June 12, 2021, <https://www.cnn.com/2021/05/29/economy/truck-driver-shortage-pay-hikes/index.html>.

⁵⁷ See “How Does Electric Vehicle (EV) Public Charging Work?,” <https://www.electrifyamerica.com/how-ev-charging-works/>.

New technology and process improvements now mean that renewable diesel, which is chemically identical to petroleum diesel, can deliver GHG reductions of 50 to 90 percent.⁵⁸ On a lifecycle basis, a new diesel truck running on renewable diesel can reduce GHG emissions more than a battery powered truck.⁵⁹ The biggest GHG emissions reductions of 85 to 90 percent, are achieved when fuel produced 100 percent from wastes and residues is used.⁶⁰ At least one company claims reductions in criteria pollutant emissions using their product:

Scientific studies and field trials have shown that the use of Neste MY Renewable Diesel brings the following benefits compared to fossil diesel:

- up to 33% lower levels of fine particulates
- up to 30% less hydrocarbons (HC)
- up to 24% lower carbon monoxide (CO) emissions
- up to 9% less nitrogen oxides (NO_x)
- reduced levels of polyaromatic hydrocarbons (PAH)⁶¹

Renewable diesel is a vastly more cost-effective solution for reducing traffic-related local emissions and improving local air quality in urban areas.⁶²

Time and again, the free market has demonstrated that competition will result in reducing the cost of technology while meeting policy goals. Policies that allow various technologies⁶³ to compete in the marketplace can and should be developed to achieve the goal of reducing GHG emissions in transportation in the most cost-effective manner possible.

- **Out of state truckers will benefit financially at the expense of New Jersey truckers.**

CARB states in their Standardized Regulatory Impact Assessment (SRIA):

“It is possible that manufacturers may shift sales for California-bound trucks out of state to avoid the requirements of the Proposed ACT Regulation which would consequentially reduce overall emissions reductions... While the proposed ACT regulation cannot ensure that sales will not affect decisions to shift sales out of state, future planned ZEV rules can require companies to incorporate zero emission trucks into their fleets regardless of whether they were purchased in state or not.” (p. 52)

California’s concerns are even more germane in New Jersey, since California is 19 times larger, and New Jersey has close neighbors without mandates. For each vehicle purchased out of state,

⁵⁸ See Neste.com, “Reduced emissions,” <https://www.neste.com/products/all-products/renewable-road-transport/reduced-emissions#fe233267>, accessed June 18, 2021.

⁵⁹ *Ibid.*

⁶⁰ Wastes and residues includes used cooking oil, animal fat from food industry waste, vegetable oil processing waste, and others.

⁶¹ See Neste.com, “Reduced emissions,” <https://www.neste.com/products/all-products/renewable-road-transport/reduced-emissions#fe233267>, accessed June 18, 2021.

⁶² *Ibid.*

⁶³ *E.g.*, battery electric vehicles, hybrids and efficient gasoline and diesel vehicles, natural gas, and hydrogen.

New Jersey truck dealers and state tax revenue generated from the sale of the vehicle are negatively impacted.

- **Adoption of the ACT Rule will likely lead to increased traffic and the need for additional road maintenance while reducing funding.**

New Jersey needs to fully consider whether mandating electric medium- and heavy-duty vehicles would increase traffic congestion. According to a study done by the University of California's Institute of Transportation Studies, long-haul, heavy-duty electric trucks with a range of 300 miles could be over 5,300 pound heavier than their liquid fuel counterparts in 2030.⁶⁴ Short-haul and medium-duty trucks could weigh 1,400 pounds more than traditional trucks.⁶⁵ The study goes on to note that this additional weight could increase costs to repair pavement damage by up to \$21 million annually on California state highways and up to \$33 million on local roads. Additionally, one-time charges to strengthen or replace bridges in the state could be \$12 million, in 2018 dollars. Much of these costs would fall on local governments. NJDEP needs to conduct an analysis to fully understand and appreciate these costs.

This increased weight will leave some jurisdictions to decide whether to increase allowable truck weight limits, but last year the American Society of Civil Engineers gave the U.S. a "C-" grade on its infrastructure report card, with bridges earning a "C" and roads a "D." More than half of the nation's 618,000 bridges are rated fair or poor, with 8 percent deemed structurally deficient.⁶⁶ The report card finds that 7 percent of roads in New Jersey are in poor condition and each motorist pays \$713 per year in costs due to driving on roads in need of repair. The Federal Highway Administration looked at increased weight and axle scenarios in 2016 and found that current models, data limits, and other factors "were so profound that the results could not accurately be extrapolated to confidently predict national impacts."⁶⁷ The Federal Highway Administration concluded that no changes in the relevant Federal truck size and weight laws and regulations should be made until these limitations are overcome. Without increasing weight restrictions, this leaves operators little recourse than to decrease the weight of their loads in each truck, thereby requiring additional trucks to deliver the same amount of freight with a resulting increase in traffic as well as freight transportation costs. Yet, if weight limits are increased, that only portends greater damage to roads and bridges.

Moreover, New Jersey ports are already experiencing higher equipment dwell times, due to several factors, but increasing truck trips would only exacerbate congestion at the ports. The port of New York/New Jersey is experiencing average container dwell times five to seven days compared with three to four days normally, while average chassis dwell times at warehouses are up to 15 days from three to four days earlier this year.⁶⁸ Anecdotally, truckers have waited in line

⁶⁴ See University of California Institute of Transportation Studies, "Effects of Increased Weights of Alternative Fuel Trucks on Pavement and Bridges," Harvey, John, PhD, Saboori, Arash, Miller, Marshall, PhD, et al. <https://escholarship.org/uc/item/4z94w3xr>.

⁶⁵ *Id.* Tbl 2.3.

⁶⁶ See U.S. Highway Administration, InfoBridge Analytics, <https://infobridge.fhwa.dot.gov/BridgeConditionbyState>.

⁶⁷ U.S. Federal Highway Administration, "Report to Congress: Comprehensive Truck Size and Weight Limits Study," April 2016, https://ops.fhwa.dot.gov/freight/sw/map21tswstudy/ctsw/ctswls_rtc_2016.pdf.

⁶⁸ See "Congestion Risks and Delays at North American Ports," W.B. Skinner, <https://www.wbskinner.com/news/congestion-risks-and-delays-at-north-american-ports/>.

for hours at New York and Newark port terminals to turn containers that need to board vessels or be pulled to warehouses.⁶⁹

A 2019 National Academies study found that highway congestion costs the nation as much as \$300 billion annually in wasted time. And New Jersey's own Freight Plan indicates that in 2015, congestion cost New Jersey's trucking industry approximately \$3 billion dollars, making it the fifth most impacted state in the nation. Viewed in terms of cost per mile of the National Highway System, New Jersey ranked second at nearly \$500,000 per mile.⁷⁰ According to the American Transportation Research Institute, New Jersey is home to the worst truck bottleneck in the country at the interchange of Interstate 95 and State Route 4 in Fort Lee.⁷¹ Congestion wastes time and money, and could increase the risk of accidents, at minimum, NJDEP should evaluate the potential impacts from increased medium and heavy-duty truck trips as a result of the proposed ACT rule.

Moreover, liquid transportation fuels are also taxed at both the federal and state level to fund the construction and maintenance of bridges, roads, highways, and other transportation initiatives. The federal tax on diesel fuel is 24.4 cents per gallon,⁷² while New Jersey adds 18 cents per gallon in the form of a state tax. According to the New Jersey Department of Transportation, in 2019, commercial vehicles traveled almost 3.8 billion miles in New Jersey.⁷³ At average fuel economy, the state stands to lose up to \$130 million per year in diesel tax revenues.⁷⁴

The Federal Highway Administration projects single unit commercial vehicle miles traveled to increase by 1.9 percent year over year from 2018 through 2038, and combination truck miles to increase 1.3 percent over the same period.⁷⁵ Given that there is no federal tax on electricity and there are *de minimis* state taxes on electricity, NJDEP's preliminary conclusion that "lost revenue from gasoline and diesel fuel taxes, are not expected to have a major economic impact on the State of New Jersey" is clearly erroneous.⁷⁶ NJDEP fails to explain how the loss of some portion of \$130 million annually combined with mandated introduction of heavier trucks that do not pay for taxes to maintain the state's roads and bridges⁷⁷ would not have a major impact. The failure to include this cost is yet another example of inadequate cost-benefit analysis.

⁶⁹ See "Shipment delays are the new normal as east coast U.S. ports experience increased congestion," Outer Seaway, <https://www.outerseaways.com/post/shipment-delays-are-the-new-normal-as-east-coast-u-s-ports-experience-increased-traffic>.

⁷⁰ See New Jersey Statewide Freight Plan, December 2017, <https://www.state.nj.us/transportation/freight/plan/pdf/NewJerseyStatewideFreightPlan.pdf>.

⁷¹ See American Transportation Research Institute, "Top 100 Truck Bottlenecks – 2021," <https://truckingresearch.org/2021/02/23/2021-top-truck-bottlenecks/>.

⁷² See Congressional Budget Office, "Issues and Options for a Tax on Vehicle Miles Traveled by Commercial Trucks," October 2019, <https://www.cbo.gov/system/files/2019-10/55688-CBO-VMT-Tax.pdf>.

⁷³ See New Jersey Department of Transportation, "Travel Activity by Vehicle Type," https://www.state.nj.us/transportation/refdata/roadway/pdf/hpms2019/TRAV_19.pdf

⁷⁴ See U.S. Department of Energy Alternative Fuels Data Center, "Average Fuel Economy by Major Vehicle Category," <https://afdc.energy.gov/data/10310>.

⁷⁵ See Federal Highway Administration, Office of Highway Policy Information, "FHWA Forecasts of Vehicle Miles Traveled (VMT): Spring 2020," https://www.fhwa.dot.gov/policyinformation/tables/vmt/vmt_forecast_sum.pdf.

⁷⁶ See New Jersey Environmental Protection, Air Quality, Energy, and Sustainability, Division of Air Quality, Advanced Clean Trucks Program and Fleet Reporting Requirements, p. 52.

⁷⁷ New Jersey should equalize treatment of vehicle owners so everyone is paying their fair share for road and bridge maintenance.

IV. Legal Considerations

The proposed ACT rule is unlawful and therefore should not be finalized. Section 209 of the Clean Air Act preempts states from setting their own motor vehicle emissions standards.⁷⁸ However, if California seeks to set its own more stringent standards, EPA may issue a preemption waiver. And, under Section 177 of the CAA, other states may then create emissions standards identical to California's if there is an EPA waiver in effect and such action is necessary for the state to come into compliance with the NAAQS.⁷⁹

As NJDEP acknowledges, no such Clean Air Act waiver is in effect and the EPA must first grant a waiver to California as a precondition to the enforcement of the proposed ACT rule. The plain language of the relevant federal statutes precludes states from *adopting* or enforcing standards, making NJDEP's proposed adoption in conflict with the text of the statute, regardless of its plans to defer enforcement until a waiver is granted.

Additionally, the unique circumstances of EPA's current revocation of California's waiver raise substantial legal and policy concerns that NJDEP's proposal fails to address. Stakeholders deserve clarity as to what model years might be affected in a proposed reinstatement. A final reinstatement of the waiver retroactively to past or current model years under production would raise substantial due process and retroactivity concerns. Were those concerns heeded, a final reinstatement covering only partial model years would invalidate NJDEP's proposal and require it to begin a new rulemaking process to align with the reinstated waiver.

NJDEP cites no authority under New Jersey administrative law for a "contingent" rulemaking that depends on a series of other agencies and actors – and of significant concern, other states – taking steps and for good reason. Such contingent rulemakings violate settled norms of fairness, due process and administrative law because they leave stakeholders guessing as to how a rule might affect the public in its final form. As a policy matter, it would be prudent to await the outcome of the waiver proceedings. New Jersey and its stakeholders are spending significant resources on a rule that may not come to pass or may be finalized in a different form depending upon the federal waiver proceeding.

Further, even if a Clean Air Act waiver was in effect in California, states must adopt regulations that are identical to California's rules in order to avoid Federal preemption.⁸⁰ In its proposal, NJDEP concedes that it is not identical to California. For example, page 21 of the proposal admits that there are "*key differences between the reporting requirements of California's ACT regulation and the Department's proposed rules.*" Further, pages 18-19 highlight the differences in the banking of early adoption credits. Though NJDEP calls its proposal "nearly identical" to California's regulations, that does not meet the statutory requirements to be "identical"; thus, even if a California waiver is reinstated, this rule would not withstand judicial scrutiny.

⁷⁸ 42 U.S.C. § 7543(a).

⁷⁹ 42 U.S.C. § 7543(a).

⁸⁰ 42 U.S.C. § 7507.

V. Conclusion

NJDEP has not accurately accounted for the total economic costs or environmental impacts associated with the adoption of the proposed ACT rule. Requirements to replace affordable, reliable gasoline and diesel vehicles with higher cost alternatives, will be expensive for taxpayers in addition to those who want to buy a gasoline or diesel-powered vehicle.

If NJDEP ultimately chooses to adopt California's ACT rule, the regulations should be drafted in such a manner as to require the state to take affirmative subsequent actions and independently evaluate future California updates to the rule prior to a formal decision on whether to implement them in New Jersey. Without taking this approach, New Jersey is in danger of blindly following a current or future California governor's requirements.

AFPM and API members are applying their abilities to solve the complex challenges of GHG emissions reductions in the transportation sector in a manner that will provide affordable and reliable products that allow New Jerseyans, and all consumers, the ability to choose the transportation mode that meets their needs while meeting the policy objectives of reducing transportation emissions. To that end, AFPM and API welcome discussion on viable solutions to the dual challenge of ensuring reliable and affordable energy supplies to support economic growth and human prosperity, while advancing environmental progress.

For more information or if you have any questions, please contact:

Don Thoren, Vice President, State & Local Outreach, American Fuel & Petrochemical Manufacturers | DThoren@afpm.org | 202.844.5526

Michael Giaimo, Northeast Region Director, State Government Relations, American Petroleum Institute | GiaimoM@api.org | 617.227.4227