BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
PROPOSED CLEAN CAR AND TRUCK STANDARDS	)	R 24 -
	)	(Rulemaking – Air)

NOTICE OF FILING

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Please take notice that I have today filed with the Illinois Pollution Control Board the following documents on behalf of Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, Respiratory Health Association, Chicago Environmental Justice Network, and Center for Neighborhood Technology: Notice of Filing; Appearances and related documents; Statement of Reasons, along with related exhibits; Proposed amendments adding a new code section, 35 Ill. Admin. Code 242; Description of published studies and reports used; Synopsis of testimony; Petition and signatures in support of proposed rules; Language of proposed amendments; Material to be incorporated by reference; Certificate of origination; and Certificate of service. A copy of each document is served upon you.

Date: June 27, 2024

Respectfully submitted,

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RULE PROPONENTS' PROPOSED

CLEAN CAR

AND TRUCK STANDARDS:

35 Ill. Admin Code Part 242

Dated: June 27, 2024.

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

GLOSSARY OF ACRONYMS

ACC I	Advanced Clean Cars I rule
ACC II	Advanced Clean Cars II rule
ACT	Advanced Clean Trucks rule
CAA	Clean Air Act
CARB	California Air Resources Board
CEJA	Climate and Equitable Jobs Act
CO_2	Carbon dioxide
ERM	Environmental Resources Management, Inc.
EPA	Environmental Protection Agency
EV	Electric vehicle
GDP	Gross domestic product
GHG	Greenhouse gas
ICCT	International Council on Clean Transportation
IRA	Inflation Reduction Act
LEV	Low emission vehicle
Low NOx	Heavy-Duty Low NOx Omnibus rule
M/HD	Medium- and heavy-duty
MT	Metric tons
MY	Model year
NMOG	Non-methane organic gas
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrogen oxides
NREL	National Renewable Energy Lab
PHEV	Plug-in hybrid electric vehicle
$PM_{2.5}$	Fine particulate matter
ppb	Parts per billion
SIP	State implementation plan
SwRI	Southwest Research Institute
TCO	Total cost of ownership
ZEV	Zero emission vehicle

STATEMENT OF REASONS
(35 Ill. Admin. Code § 102.202(b))

Pursuant to 415 ILCS 5/27 and 5/28, and 35 Ill. Admin Code §§ 102.200, 102.202, the Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, Respiratory Health Association, Chicago Environmental Justice Network, and Center for Neighborhood Technology (collectively, "Rule Proponents") respectfully submit this Statement of Reasons in support of the attached regulatory proposal. We urge the Illinois Pollution Control Board ("Board") to adopt three motor vehicle emissions regulations to reduce damaging air pollution from light-, medium- and heavy-duty vehicles in Illinois: the Advanced Clean Cars II (ACC II) regulation, the Advanced Clean Trucks (ACT) regulation, and the Heavy-Duty Low NOx Omnibus (Low NOx) regulation.

As explained below, each of these rules is necessary to reduce air pollution in line with state goals and federal air quality standards, sets readily achievable standards. The proposed rules would provide public health and economic benefits, totaling billions of dollars across all three rules, which far outweigh any associated costs. Implementing these rules will also help address dire public health inequities by reducing local air pollution from medium- and heavy-duty vehicles at transportation hubs and along freight arteries that are concentrated in low-income communities and communities of color.

These rules do significantly more to protect public health and advance Illinois' clean vehicle market than federal vehicle emission standards, including the most recent federal standards enacted in the spring of 2024. Moreover, the new federal standards have been challenged in federal court and may be repealed by a future presidential administration. Adopting the proposed rules would protect Illinois from dangerous backsliding if the federal standards are not fully implemented. For all the reasons stated below, the Board should exercise its authority under state law and the federal Clean Air Act to adopt the ACC II, ACT, and Low NOx Rules as a new code section, 35 Ill. Admin. Code § 242.

I. INTRODUCTION AND SUMMARY OF REGULATORY PROPOSAL

a. Summary of Regulatory Proposal

Air pollution from motor vehicles has substantially damaged public health, poses a dire threat of increased damage to Illinois, and disproportionately impacts Illinois residents residing in environmental justice ("EJ") communities.[1] Motor vehicle emissions are a major cause of smog, which plagues the air that *most* Illinois residents breathe. On-road vehicles are also the state's leading source of climate-altering greenhouse gasses. This pollution is known to harm our health, damage our climate, and hurt our communities.

The impacts of vehicle pollution, particularly from toxic diesel exhaust from trucks and buses, are borne disproportionately by low-income communities and communities of color, as reflected in increased health impacts and safety concerns as children and community members commute on and near roads saturated with diesel trucks and buses. As the largest intermodal shipping center in the United States, Chicago is home to an extremely high density of industrial truck traffic—some highways carry over 30,000 trucks each day.[2] The diesel exhaust from trucks is a dangerous source of pollution and is "up to 100 times more toxic than gasoline exhaust."[3] Illinois has the fifth highest death toll per capita from diesel engine $PM_{2.5}$ emissions in the United States,[4] and every year in Illinois, diesel exhaust is responsible for an estimated 416 premature deaths, 24,601 lost work days, and annual exposure costs of $4.6 billion.[5] Diesel exhaust impacts have an unjust and outsized impact on low-income neighborhoods and communities of color because industrial facilities, rail yards, and highways are concentrated nearby, due to historically racist practices that systematically funneled industrial expansion into low-income communities and communities of color.[6] Illinois can stand up for environmental justice by incentivizing the transition to electric light-, medium-, and heavy-duty vehicles.

To safeguard public health, pursue environmental equity, and seize the opportunity for economic and climate leadership presented by the transition to zero-emitting vehicles, the time to act is

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[1] The term environmental justice community encompasses low-income communities and communities of color that "bear disproportionately high or adverse effects of environmental pollution," and experience the greatest combined environmental, health, and social stressors. 415 ILCS 155/5; *see also* Chicago Dept. of Public Health, "Chicago's Cumulative Impact Assessment," (Dec. 22, 2023), https://www.chicago.gov/city/en/depts/cdph/supp_info/Environment/cumulative-impact-assessment.html; *Chicago Cumulative Impact Assessment: 2023 Summary Report*, https://www.chicago.gov/content/dam/city/depts/cdph/environment/CumulativeImpact/CIA_ExecutiveSummary_9.17.23_v3.pdf, at 3, 15. The concept and use of the phrase "environmental justice communities" is rooted in decades of community advocacy that identified both discriminatory racial motives in the implementation of environmental laws and racially disparate impacts of environmental law and policy decisions, which produce and perpetuate the disproportionate distribution of environmental harms and benefits and which can constitute violations of federal civil rights laws.

[2] Carolina Macias, et al., Chicago Truck Data Portal, (2023), https://apps.cnt.org/truck-count-tracker/ ("Chicago Truck Data Portal").

[3] State of Oregon Dept. of Environmental Quality, *The Concerns about Diesel Engine Exhaust,* (Feb. 2015), https://www.oregon.gov/deq/FilterDocs/DieselEffectsReport.pdf, at 1.

[4] Exhibit 7: Respiratory Health Association, *The Dirty Dozen: The Impacts of Diesel Engine Pollution in Illinois*, (May 2022), https://resphealth.org/wp-content/uploads/2022/05/Dirty-Dozen-Impact-of-Diesel-Engine-Pollution-in-Illinois.pdf, at 2 ("RHA Dirty Dozen").

[5] Clean Air Task Force, *Deaths by Dirty Diesel*, (last visited May 29, 2024), https://www.catf.us/deathsbydiesel/.

[6] Chicago Truck Data Portal, *supra* note 2.

now. For decades, the state has failed to attain federal ozone standards, resulting in dangerously unhealthy air across the state.

Illinois' climate commitments also demand immediate action. In the landmark Climate and Equitable Jobs Act (CEJA), the legislature found that "widespread adoption of electric vehicles" is necessary "to drive the decarbonization of Illinois' transportation sector."[7] And in 2019, Governor Pritzker pledged to uphold the Paris climate agreement by achieving net-zero statewide greenhouse gas (GHG) emissions no later than 2050. To make good on that pledge, the state's on-road vehicles must be nearly emission-free by 2050—a goal that requires the state to act now by promulgating the rules herein. These rules will, among other things, ensure zero-emission vehicles (ZEVs) comprise nearly 100% of new passenger vehicle *sales* by 2035 and set both new vehicle fleet standards and other incentives to increase dramatically the proportion of electric medium- and heavy-duty vehicles on Illinois roads. Without these regulatory guarantees, the state would jeopardize its ability to meet air quality and climate targets that are necessary to protect the health and welfare of Illinois residents.

The most effective policy step that Illinois can take to curb vehicle pollution and accelerate ZEV adoption in line with its air quality and climate targets is to adopt California's Advanced Clean Cars II (ACC II), Advanced Clean Trucks (ACT), and Low-Nitrogen Oxides Omnibus (Low NOx) rules. Together, these regulations strengthen pollution standards for combustion-engine vehicles and require manufacturers to deliver increasing numbers of cleaner and zero-emission vehicles for sale in Illinois—improving the stock and variety of vehicles that are in high demand by consumers and fleet operators. If adopted in 2024 as proposed here, these rules could be enforced beginning in 2027, which is vehicle model year (MY) 2028.

The ACC II rule applies to the sale of *new* light-duty vehicles and imposes obligations on vehicle manufacturers—not consumers. It sets pollution standards for conventional vehicles and establishes manufacturer sales requirements for ZEVs, which include plug-in hybrids and battery electric vehicles. The ACC II rule's ZEV sales requirements increase each year and culminate in a 100% new ZEV sales requirement beginning in MY 2035 and for all subsequent model years—the timeline needed to meet Governor Pritzker's 2050 net-zero commitment.

The ACT and Low NOx rules work in tandem to reduce pollution from medium- and heavy-duty (M/HD) vehicles. Like ACC II, these rules establish obligations on vehicle manufacturers rather than on Illinois consumers. The Low NOx rule tightens standards for smog-forming pollutants emitted by new M/HD combustion engines. The ACT rule further reduces harmful pollutants—particularly greenhouse gases—by setting annual sales requirements for zero-emission and near zero-emission M/HD vehicles. These sales requirements vary by vehicle class and increase gradually over time, sending a clear market signal around which the state, industry, and stakeholders can develop policy and mobilize investments. The ACT and Low NOx rules are particularly crucial for EJ communities and have had support from community-based organizations like the Little Village Environmental Justice Organization (LVEJO[8]), and the Chicago Environmental Justice Network (CEJN[9]). Through centering lived experiences, both LVEJO and CEJN have successfully dedicated years to advocating and curating air monitoring

[7] Climate and Equitable Jobs Act, 2021 Ill. Legis. Serv. P.A. 102-662 (West).
[8] The Little Village Environmental Justice Network, http://www.lvejo.org/our-mission/mission-vision-statement/.
[9] Chicago Environmental Justice Network, https://www.chicagoejn.org/.

programs[10] and a M/HD truck counting data portal[11] to further capture the impacts of diesel pollution caused by M/HD vehicles in our communities. It is through community outreach and engagement that led to these groups supporting the ACT and Low NOx rules.

Together, the rules will produce up to $86.4 billion in net economic benefits for Illinois according to outside analysis performed by the global consulting firm Environmental Resources Management (ERM).[12] These benefits include air quality, public health, and climate benefits, as well as significant fuel and maintenance cost savings for Illinois drivers and fleets. Importantly, each of the rules is independently net-beneficial. And these net benefits do not even capture the direct and indirect economic benefits to Illinois by creating a more favorable market for Illinois businesses that are already leading the transition to EVs. For example, as of October 2023, Rivian had produced over 10,000 delivery vans for Amazon in its Normal, IL factory.[13] Also in 2023, Lion opened its factory in Joliet, IL, the largest all-electric, commercial medium- and heavy-duty vehicle factory in America,[14] and Stellantis announced a plan to invest $4.7 billion into reopening its Belvidere, IL factory with a focus on EV production.[15]

Because the rules are complementary and share common regulatory aims, they should be considered and adopted in a single rulemaking as proposed here. But each rule is a distinct regulation that can be adopted on an individual basis.

The proposed rules are stronger than the otherwise-applicable federal vehicle emission standards, and they will achieve substantially more emission reductions and net economic benefits than any set of federal standards. Specifically, ERM found that compared to the federal standards finalized in April 2024,[16] the proposed ACC II and ACT rules will collectively avoid up to 200

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[10] N4EJ, Air Monitors, https://n4ej.org/air-monitors/; Juanpablo Ramirez-Franco, "Little Village residents install air sensors to monitor neighborhood pollution," (Dec. 15, 2023), https://www.wbez.org/stories/little-village-air-pollution/60a62ab3-a3e3-4455-8a07-41bf72dc44de.

[11] Counting Trucks for Environmental Justice, https://chicagotruckcounts.cnt.org/#about.

[12] In 2022, ERM published a report analyzing the effects of Illinois adopting the ACT and Low NOx rules. Exhibit 1: ERM, *Illinois Clean Trucks Program*, (2022), https://www.erm.com/contentassets/f3d6061dd8a04147a3f38b7db256ae44/il-clean-trucks-report.pdf. In 2023, ERM published a similar report analyzing the effects of Illinois adopting ACC II. Exhibit 2: ERM, *Illinois Advanced Clean Cars II Program*, (Sept. 2023), https://www.erm.com/globalassets/documents/reports/illinois_acc_ii_report_2023.pdf. In June 2024, ERM updated the analysis underlying these reports to account for the MY 2028 effective date proposed in this Petition, as well as developments including the most recent federal light- and heavy-duty emission standards. This updated analysis is presented in spreadsheet form and attached to this Statement of Reasons. *See* Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* (June 2024); Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* (June 2024). Except where otherwise noted, the ERM findings reported in this Statement of Reasons are from the updated analyses. All dollar values reported from ERM's updated analysis are in 2024 dollars.

[13] Arriana McLymore, "Amazon says it has 10,000 Rivian electric vans in its delivery fleet," (Oct. 18, 2023), https://www reuters.com/business/autos-transportation/amazon-says-it-has-10000-rivian-electric-vans-its-delivery-fleet-2023-10-18/#:~:text=Amazon's%20latest%20update%20comes%20after,million%20deliveries%20with%20Rivian%20vans.

[14] Lion Electric, "Lion Electric Celebrates Official Opening of Largest All-Electric U.S. Manufacturing Facility Dedicated to Medium and Heavy-Duty Commercial Vehicle Production," (July 21, 2023), https://thelionelectric.com/documents/en/PressRelease_JolietGrandOpening_July212023.pdf.

[15] Gina Ramirez, "The Belvidere Plant's Transition to an EV Plant Has a Bright Future," (Nov. 13, 2023), https://www nrdc.org/bio/gina-ramirez/belvidere-plants-transition-ev-plant-has-bright-future ("Belvidere Plant").

[16] These federal standards include EPA's light-duty multi-pollutant standards and Phase 3 heavy-duty GHG standards, both finalized in April 2024. *See* 89 Fed. Reg. 27842 (Apr. 18, 2024), https://www.govinfo.gov/content/pkg/FR-2024-04-18/pdf/2024-06214.pdf; 89 Fed. Reg. 29440 (Apr. 22, 2024),

million metric tons of additional GHG emissions, prevent 228 additional premature deaths, and produce up to $86 billion in additional net economic benefits through 2050, with additional benefits expected from the Low NOx rule.[17] Because the new federal standards were finalized just two months ago, analysis of their interactions with the proposed rules is ongoing and may be supplemented as the Board considers this Petition. The proposed rules have even greater benefits compared to the less ambitious federal emission standards that were in place before 2024. Previous analysis by ERM showed that compared to the lower bar set by these standards, all three proposed rules would collectively avoid up to 461 million metric tons of GHG emissions, prevent 1,215 premature deaths, and produce up to $204 billion in net benefits through 2050.[18] And there is as very real risk that federal standards will revert to pre-2024 levels as the result of a legal challenge, Congressional action, or a change of administration. The new federal standards have been challenged in court, opponents of the standards in Congress have stated their intention to pursue a legislative repeal via the Congressional Review Act, and if there is a new Presidential administration, the rules would very likely be repealed in early 2025. Adopting state standards helps mitigate the risk of all three categories of opposition to the new federal rules.

Moreover, ERM conservatively estimated the proposed rules' benefits compared to *any* federal baseline, for at least three reasons. First, there is no guarantee that Illinois will receive a proportional share of the clean vehicles deployed to meet the federal standards, as the ERM modeling assumes. Manufacturers have an incentive to direct their clean vehicles to states that have adopted clean vehicle standards, where those vehicles advance compliance with both state and federal standards. This means that adopting the proposed rules is the best way to ensure that Illinois receives the ZEVs needed to achieve the greatest net benefits and meet consumer demand. Second, manufacturers may take advantage of federal compliance flexibilities that are not incorporated into ERM's modeling, which could result in fewer clean vehicles deployed under the federal standards and greater additional benefits from state standards. Third, ERM's analysis of the health benefits from reduced air pollution only accounts for reduced exposure to $PM_{2.5}$, and does not include the benefits of reduced exposure to ozone, NOx, hazardous air pollutants like benzene, and other health-harming pollution.[19]

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https://www.govinfo.gov/content/pkg/FR-2024-04-22/pdf/2024-06809.pdf. The new federal standards are a significant improvement from the prior standards. ERM projects that the new federal light-duty standards will increase the share of new light-duty ZEV sales in Illinois to 66% by 2032, and maintain that sales percentage through 2050. Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at Vehicles page. The new federal heavy-duty standards are projected to increase the share of new heavy-duty ZEV sales in Illinois to 12-27% by 2030 (depending on the vehicle type), and reach 33-47% heavy-duty ZEV sales by 2050. Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Vehicles page. This is a major increase compared to the previous baseline, in which heavy-duty ZEV sales were not projected to exceed 1% in any year through 2050. The state's adoption of the three proposed rules would further accelerate the shift to zero emitting technologies across all vehicle classes, going beyond the improved federal standards and leading to the environmental and public health benefits addressed in this report and the updated ERM data. For example, ERM projects that adopting the ACC II rule will allow light-duty ZEV sales to reach up to 68% by 2030 and 100% from 2035 through 2050. And adopting the ACT rule will allow heavy-duty ZEV sales to reach 24-34% by 2030 (again, depending on the vehicle type) and 40-66% from 2036 through 2050.

[17] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Emissions, AnnNetBenefits, and Health pages (June 2024); Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at Emissions, CumulNetBenefits, and Health pages (June 2024).

[18] Exhibit 1: ERM, *Illinois Clean Trucks Program*, at 14, 16; Exhibit 2: ERM, *Illinois Advanced Clean Cars II Program* at 1, 11.

[19] *See* Exhibit 2: ERM, *Illinois Advanced Clean Cars II Program* at 9.

ERM's updated analysis generally projects smaller benefits and impacts of adopting the ACT, Low-NOx, and ACC II rules than the earlier analysis, due mostly to the smaller difference in clean vehicle adoption between the strengthened federal standards and the proposed state standards. The benefits of adopting the proposed rules may in fact be significantly greater than estimated here for at least three reasons. First, there is no guarantee that Illinois will receive a proportional share of the clean vehicles deployed to meet the federal standards, as the ERM modeling assumes. Manufacturers have an incentive to direct their clean vehicles to states that have adopted clean vehicle standards, where those vehicles advance compliance with both state and federal standards. Second, manufacturers may take advantage of federal compliance flexibilities that are not incorporated into ERM's modeling, which could result in fewer clean vehicles deployed under the federal standards and greater additional benefits from state standards. Third, as discussed above, it is possible that the federal standards could be rolled back through a legal challenge, Congressional action, or change of administration. Adopting state standards helps mitigate the risk of all three categories of opposition to the new federal rules. If the recent federal standards are undone, Illinois' decision to adopt the Rules through this process would produce even greater benefits when compared to a baseline of EV adoption expected under the prior federal standards.

The standards set by each rule are plainly achievable. The rules' requirements phase-in gradually and contain numerous compliance flexibilities that were developed with the input of industry. There are demonstrated and commercially available ZEV technologies that can meet the needs of Illinois' drivers and fleets for every class of vehicle covered by the rules. ZEVs purchased today already provide substantial cost savings over the life of a vehicle, and the upfront cost considerations grow more favorable every day with increasing economies of scale. With the rules' gradual phase-in, the wide and growing range of ZEV technologies, and a favorable policy environment, including substantial incentives for vehicles and infrastructure, the rules are feasible. Indeed, fourteen states have already adopted the ACC II rule after recognizing its benefits and feasibility, eleven states have similarly adopted ACT, and ten states have adopted the Low NOx rule.[20]

Finally, the Board has clear authority to adopt the proposed rules. This proposal is duly submitted under Illinois law, and this Board is authorized to adopt the types of standards established by the three rules. The authority to adopt the rules under federal law is equally clear; the Clean Air Act permits states with air quality issues, like Illinois, to adopt motor vehicle emissions standards so long as those standards are identical to those adopted by California for the covered model years and manufacturers are afforded two-years' lead time before enforcement. The rule text submitted here proposes identical standards, in part through incorporation by reference, beginning with MY 2028.

For all these reasons, which are set forth in more detail below, we urge the Board to accept this regulatory proposal and to adopt the proposed ACC II, ACT, and Low NOx rules in calendar year 2024.

[20] Sierra Club, Clean Vehicle Programs: State Tracker, https://www.sierraclub.org/transportation/clean-vehicle-programs-state-tracker, ("Clean Vehicle State Tracker").

b. Organizational Interests of Rule Proponents

Sierra Club is the nation's oldest and largest grassroots environmental organization, with more than 600,000 members nationwide and more than 24,000 in Illinois. Sierra Club's mission is to explore, enjoy, and protect the wild places of the Earth; to practice and promote the responsible use of the Earth's resources and ecosystems; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives. For decades, Sierra Club has used the traditional tools of advocacy—organizing, lobbying, litigation, and public outreach—to fight for clean transportation policies that improve air quality and reduce dependence on fossil fuels in Illinois and across the country.

Natural Resources Defense Council (NRDC) is a national nonprofit organization of scientists, lawyers, and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, Natural Resources Defense Council has over three million members and online activists. Over 36,000 of these members live and work in Illinois. Its members from across the state are impacted daily by Illinois' air quality and climate threats, including the pollution from light-, medium-, and heavy-duty vehicles these rules seek to address.

Environmental Defense Fund (EDF) is a 501(c)(3) membership organization incorporated under the laws of the State of New York. Environmental Defense Fund brings together scientists, economists, engineers, business school graduates, and lawyers to help solve challenging environmental problems in a scientifically sound and cost-effective way—and strives to protect and restore the quality of our air, water, and other natural resources. Environmental Defense Fund advocates for a transition to zero-emission vehicles that is cost-effective and equitable, and maximizes environmental and grid benefits.

Center for Neighborhood Technology uses a data-informed approach to problems in its work with cities, businesses, and community organizations in order to create neighborhoods that are equitable, sustainable, and resilient. Originally founded in Chicago in 1978, CNT focuses on addressing environmental concerns in communities as a way to improve the lives and economic prospects of city residents. Its work on climate, urban flooding, and transportation incorporates sustainability policy, urban planning, spatial analysis and mapping, and community outreach.

The **Chicago Environmental Justice Network (CEJN)** is a coalition bringing together neighborhood-based, grassroots, frontline environmental justice organizations working in frontline communities throughout the Chicago metropolitan area. Through centering lived experiences, CEJN and its member organizations have dedicated years to advocating on issues related to transportation pollution and curating air monitoring programs including a medium- and heavy-duty truck counting data portal to further capture the impacts of diesel pollution caused by medium- and heavy-duty vehicles in its communities.

Respiratory Health Association (RHA) is a public-health focused charitable organization and community leader originally founded in Chicago in 1906 to combat tuberculosis. RHA's mission is to address respiratory health issues like asthma, COPD, and lung cancer, and promote clean air through education, research, and policy change. RHA has worked for decades to combat air

pollution from the transportation sector and was a leading advocate for passage of the Clean Energy Jobs Act, which supports transportation electrification to reduce air pollution across Illinois.

II. STATUTORY AND REGULATORY BACKGROUND

a. The Board has clear legal authority to adopt the proposed rules.

The Board has clear authority under state and federal law to adopt the proposed rules. Specifically, the Board is authorized to adopt the ACC II, ACT, and Low NOx rules under the Illinois Environmental Protection Act's provisions for enacting air quality regulations, and under the federal Clean Air Act's provisions for states to adopt and enforce motor vehicle emissions standards identical to those adopted by California.

The Illinois Environmental Protection Act ("the Act") empowers the Board to adopt regulations to "restore, maintain, and enhance" state air quality "to protect health, welfare, property, and the quality of life and to assure that no air contaminants are discharged into the atmosphere without being given the degree of treatment or control necessary to prevent pollution."[21] Among other things, the Board may "prescribe[]…[e]mission standards specifying the maximum amounts or concentrations of various contaminants that may be discharged into the atmosphere" and establish "[s]tandards and conditions regarding the sale, offer, or use of any…vehicle."[22] The proposed rules would establish standards for vehicle emissions and conditions regarding the sale of new vehicles in the state.[23] Thus, under the Board's organic act, it may adopt the proposed rules.

The Board may adopt the proposed rules in response to this regulatory proposal because it is properly submitted under the Act. The Act permits "[a]ny person [to] present written proposals for the adoption … of … regulations."[24] If the proposal meets minimal filing requirements, "the Board shall schedule a public hearing for consideration of the proposal."[25] The Act requires a citizen proposal to be "supported by an adequate statement of reasons," "accompanied by a petition signed by at least 200 persons," "not plainly devoid of merit," and to "not deal with a subject on which a hearing has been held within the preceding six months."[26] This proposal

[21] 415 ILCS §§ 5/8, 5/10. *See also* 415 ILCS § 5/27.
[22] 415 ILCS § 5/10. Separate from the regulatory authority granted by the Illinois Environmental Protection Act, the Illinois Vehicle Code allows the Board to establish an inspection and maintenance program for in-use vehicles that are at least two years old and registered in areas designated to be in nonattainment under the federal Clean Air Act. *See* 625 ILCS § 5/13C *et seq.* Under the Vehicle Code, the Board may only set standards that are "identical in substance … to the emission standards promulgated by the [U.S. EPA]." 625 ILCS § 5/13C-20. For several reasons, this limitation is irrelevant to the proposed rules and has no bearing on the Board's authority to adopt them. As an initial matter, the federal inspection and maintenance sections to which the Vehicle Code refers are established by the U.S. EPA pursuant to a different section of the federal Clean Air Act than EPA's standards for new vehicles and differ in substance. The Vehicle Code's irrelevance is also clear from the design of the inspection and maintenance program, which is expressly limited to in-use vehicles of a certain age and applies only in nonattainment areas. By contrast, the proposed rules set standards only for *new* vehicles and would apply statewide to all vehicles delivered for sale in Illinois.
[23] *See infra*, §§ IV.a.i, IV.b.i, and IV.c.i (summarizing the ACC II, ACT, and Low NOx rules, respectively).
[24] 415 ILCS § 5/28(a).
[25] *Id.*
[26] 35 Ill. Admin. Code § 102.410 (emphasis omitted).

meets those requirements. The proposal includes a petition signed by more than 200 people and does not concern a subject on which a recent hearing has been held. And, as demonstrated in this comprehensive Statement of Reasons and the outside economic analysis that it presents, the justification for adopting each of the rules is extremely strong. The Board therefore must accept this proposal and should quickly act to set a hearing schedule.

Illinois is also authorized to adopt the proposed rules under the federal Clean Air Act (CAA). The CAA requires all new vehicles sold in the U.S. to be certified to the emissions standards set by the U.S. Environmental Protection Agency (EPA) or by California.[27] Section 209 of the CAA permits California to seek waivers of federal preemption and, if approved, to enforce its own emission standards.[28] When the CAA's mobile source provisions were added in 1970, Congress included Section 209 to allow California to continue its pioneering work in the field of emissions controls and its efforts to address chronic air quality problems.[29] In 1977, Congress amended the CAA to add Section 177, which allows states with provisions in a state implementation plan (SIP) under the CAA to adopt California's standards in place of the federal standards. Section 177 permits qualifying states, like Illinois, to adopt and enforce "standards relating to [the] control of emissions" if "such standards are identical to the California standards for which a waiver has been granted for such model year" and are adopted two years before the "commencement of such model year."[30]

The three rules proposed here satisfy Section 177's requirements. First, Illinois has adopted provisions in the state's SIP under Title I, Part D of the CAA due to nonattainment of the 8-Hour Ozone standard in the Chicago and St. Louis metro areas.[31] Second, the proposed rules would first take effect for MY 2028 vehicles. That model year will not commence until, at the earliest, January 2, 2027, which is more than two years in the future.[32] Third, each rule presented in this regulatory proposal would directly adopt the same standards that have been enacted in California for each covered model year, thus ensuring that Illinois' standards are identical.

Though the U.S. EPA has not yet issued waivers for the ACC II and Low NOx rules,[33] settled precedent holds that a waiver is a precondition to enforcement of standards, not adoption.[34] In

[27] 42 U.S.C. §§ 7521, 7543.
[28] 42 U.S.C. § 7543(b).
[29] *See, e.g., Motor & Equip. Mfrs. Ass'n, v. E.P.A.*, 627 F.2d 1095, 1109-10 (D.C. Cir. 1979) (explaining that, in allowing California to regulate vehicle emissions, Congress recognized "the benefits for the Nation to be derived from permitting California to continue its experiments in the field of emissions control.").
[30] 42 U.S.C. § 7507.
[31] *See, e.g.,* Approval and Promulgation of Illinois Implementation Plan with New Source Review Amendments, 68 Fed. Reg. 25504 (May 13, 2003).
[32] 40 C.F.R. §§ 85.2302, 85.2303.
[33] U.S. EPA granted California a waiver for ACT on April 6, 2023. *See* Waiver of Preemption for Advanced Clean Trucks Regulation, 88 Fed. Reg. 20688, 20725 (Apr. 6, 2023). An initial notice of a proposed waiver for ACC II was issued by U.S. EPA on December 16, 2023 and an initial notice of a proposed waiver for the Low-NOx rule was issued on June 13, 2022. *See* Request for Waiver of Preemption for Advanced Clean Cars II Regulation, 88 Fed. Reg. 88908, 88908-09 (proposed Dec. 26, 2023) and Request for Waiver of Preemption for "Omnibus" Low NOx Regulation, 87 Fed. Reg. 35765, 35766 (proposed June 13, 2022).
[34] *Motor Vehicle Mfrs. Ass'n of the United States v. New York State Dep't of Env't Conservation*, 17 F.3d 521, 534 (1994) (holding "the waiver is a precondition to enforcement of the standard that has been adopted"); *see also Am. Auto. Mfrs. Ass'n v. Greenbaum*, No. CIV. A. 93-10799-MA, 1993 WL 443946, at *8 (D. Mass. Oct. 27, 1993), *aff'd*

other words, states may adopt California's standards before a waiver has been granted so long as they do not enforce the standards until after a waiver has been issued. States routinely rely on this settled legal principle. Indeed, outside of California, thirteen states have adopted the ACC II rule, ten have adopted the ACT rule, and nine have adopted the Low NOx rule.[35]

b. The proposed rules are aligned with Illinois' near-term vehicle electrification targets, long-term decarbonization goals, and environmental justice priorities.

The proposed regulations, if adopted in 2024, would place Illinois on a clear path toward meeting the state's near-term electric vehicle adoption targets set out in the Climate and Equitable Jobs Act (CEJA) and the long-term climate goals established by Governor Pritzker's Executive Order 2019-06. CEJA, passed by the Illinois legislature in 2021, codifies the state's goal of putting one million electric vehicles on the roads of Illinois by 2030.[36] Governor Pritzker's Executive Order sets a long-term decarbonization target, recognizing that "the State of Illinois . . . must take action immediately in order to prevent further impacts of climate change" and "commit[ting] to the principles of the Paris Climate Agreement."[37] Those principles encompass both temperature thresholds and the GHG emission reductions necessary to stay within those thresholds. As the United Nations explains, "[t]o keep global warming to no more than 1.5°C – as called for in the Paris Agreement – emissions need to . . . reach net zero by 2050."[38] Additionally, Illinois has joined the U.S. Climate Alliance,[39] a coalition of 24 states dedicated to achieving the emissions reductions goals set out in the 2015 Paris Agreement. All coalition members, including Illinois, have committed to a goal of "collectively achieving overall net-zero GHG emissions as soon as practicable, and no later than 2050."[40]

As described in more detail in section II.C. below, the proposed rules will help achieve both near- and long-term statewide targets. By requiring manufacturers to increase light-duty ZEV sales in Illinois year-over-year, the ACC II rule would result in up to 1.4 million ZEVs on Illinois roads by 2030,[41] drastically ramping up light-duty vehicle adoption and effectively exceeding CEJA's light-duty ZEV adoption target with a single policy lever.

Further, adopting the ACC II and ACT rules together provide the state with the most viable path toward achieving net-zero climate emissions in the transportation sector by mid-century, in line with the U.S. Climate Alliance and Governor Pritzker's commitment to abide by the Paris Agreement principles. Vehicles often remain on the road for fifteen years or more, and thus policies aimed at reaching net-zero transportation sector emissions by 2050 must lead to the end

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sub nom. Am. Auto. Mfrs. Ass'n v. Comm'r, Massachusetts Dep't of Env't Prot., 31 F.3d 18 (1st Cir. 1994) (finding that requiring a state to wait until after a waiver issues to adopt standards "seem[s] likely to lead to utter chaos").

[35] Clean Vehicle State Tracker, *supra* note 20.

[36] 20 ILCS § 627/45. Climate and Equitable Jobs Act, 2021 Ill. Legis. Serv. P.A. 102-662 (West). CEJA also aims to decarbonize the state's energy sector by 2045. 20 ILCS § 3855/1–5.

[37] Exec. Dept. of State of Ill., No. 2019-06, Executive Order Joining the US Climate Alliance and Committing to the Principles of the Paris Climate Agreement (2019) ("Exec. Order 2019-06").

[38] United Nations, "For a livable climate: Net-zero commitments must be backed by credible action," (2023), https://www.un.org/en/climatechange/net-zero-coalition.

[39] Exec. Order 2019-06, *supra* note 37.

[40] United States Climate Alliance, "Our Coalition," (2023), https://usclimatealliance.org/about/.

[41] Exhibit 4, ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at Vehicles page.

of new sales of internal combustion engine vehicles—across light-, medium- and heavy-duty vehicle classes—by approximately 2035.[42] There have been significant investments in recent years in light- medium- and heavy-duty charging infrastructure by the federal government, state of Illinois,[43] and regulated utilities.[44] There has also been significant independent investment by the private sector; for example, Amazon has spent between $50-90 million on charging hardware for its Rivian fleet.[45] State agencies[46], school districts, and transit agencies[47] have been, for years, investing in electric fleets and infrastructure. Further, the state of Illinois has adopted various legislative policies geared towards requiring public entities to use EVs and facilitating

[42] This is the target set for passenger vehicles by the ACC II rule. The ACT rule will not require 100% zero emission medium- and heavy-duty vehicle sales by 2035 but will significantly accelerate progress toward that benchmark as compared with likely market trends in the absence of the proposed rule.

[43] Through various programs, the state has committed hundreds of millions of dollars toward electric vehicles infrastructure. *See* Federal Highway Administration, 5-year National Electric Vehicle Infrastructure Funding by State, U.S. Dept. of Transportation, Federal Highway Administration, (Sept. 13, 2022), https://www fhwa.dot.gov/bipartisan-infrastructure-law/evs_5year_nevi_funding_by_state.cfm (Illinois receives $148.6 million in federal National Electric Vehicle Infrastructure (NEVI) funding); Illinois Dept. of Transportation, Notice of Funding Opportunity, Illinois Department of Transportation, (Mar. 2024), https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/planning/drive-electric/IDOT_NEVI_NOFO_FINAL.pdf (Illinois began rolling out first $50 million of NEVI funding in March 2024); State of Illinois, "Gov. Pritzker Announces $14.9M in Federal Funding for Illinois' Community Charging Program," (Jan. 11, 2024), https://www.illinois.gov/news/press-release.29498.html (The Illinois Finance Authority was awarded $14.9 million in competitive federal Charging and Fueling Infrastructure (CFI) funds in January 2024); Public Act 101-0029, 101st Gen. Assemb., (Ill. 2019) (Illinois has dedicated $70 million in state capital funds to EV charging grants); State of Illinois," Illinois EPA Announces $25.1 Million in Grant Awards for Public Electric Vehicle Charging Infrastructure," (Apr. 10, 2024), https://www.illinois.gov/news/press-release.29878.html ($25.1 million of the state capital funds were awarded for public EV charging infrastructure projects in April 2024); State of Illinois, "Illinois EPA Announces $44 Million Notice of Funding Opportunity for Public Electric Vehicle Charging Infrastructure," (Mar. 22, 2024), https://www.illinois.gov/news/press-release.29789 html (additional $44 million in funding for public EV charging infrastructure was made available in March 2024); John Pletz, "Illinois EPA awards $12.6M to build initial wave of EV chargers," (June 5, 2023), https://www.chicagobusiness.com/technology/illinois-epa-awards-126m-build-ev-chargers (Illinois allotting $12.6 million from settlement of multi-state Volkswagen Clean Air Act settlement to EV charging infrastructure).

[44] Through the CEJA Beneficial Electrification Plan process, ComEd made $5 million available in February 2024 for consumer rebates for homeowners installing EV chargers at residences. An additional approved $5 million is approved for spending in 2025. And while not able to cover the costs of the EV charging units themselves, ComEd's ICC-approved plan also allowed the utility to move forward in offering $30 million in 2024 'make-ready' rebates to businesses and governments installing EV charging units that aim to cover the preparatory and ancillary work needed to electrically connect and power EV charging equipment that is installed. The Utility has made that rebate funding available to its customers and has approval to offer another $30 million for this purpose in 2025. Final Order, *Commonwealth Edison Company Petition for Approval of Beneficial Electrification Plan*, Ill. Commerce Commission 22-0432 & 22-0442 (cons.) (Mar. 23, 2023), at 68–69. *See also* ComEd, BE Plan, (compliance filing May 2023), https://icc.illinois.gov/downloads/public/edocket/589765.PDF.

[45] Matt Day, "How Amazon Became the Largest Private EV Charging Operator in the US," (Apr. 15, 2024), https://www.bloomberg.com/news/articles/2024-04-15/amazon-electric-vans-powered-by-17-000-ev-chargers.

[46] Illinois Department of Transportation purchased 50 battery-electric paratransit vans for agencies around the state this year. Illinois Dept. of Transportation, "Illinois transit providers getting $57.1 million in new vehicles through IDOT's Consolidated Vehicle Procurement Program," (Feb. 15, 2024), https://idot.illinois.gov/news/press-release.29640.html.

[47] CTA and Pace have invested in electric transit buses and equipment. *See* Chicago Transit Authority, "Electric buses," (2024), https://www.transitchicago.com/electricbus/; Pace, "Pace's Inaugural Electric Bus Enters Service," (Jan. 19, 2024), https://www.pacebus.com/news/paces-inaugural-electric-bus-enters-service.

EV usage among private citizens.[48] Even recognizing these investments, a business as usual approach without implementation of the proposed rules will continue to see ZEV adoption and transportation sector GHG emission reductions lag far behind statewide goals.

CEJA is also a landmark statute for its commitment to principles of equity and environmental justice, and adopting the ACC II, ACT, and Low NOx rules furthers these objectives. The General Assembly justified its decision to invest in the clean energy sector because of its potential to be "a vehicle for expanding equitable access to public health, safety, a cleaner environment, quality jobs, and economic opportunity."[49] The General Assembly found specifically that expanding EV adoption required increasing vehicle charging infrastructure throughout the state, "especially in low-income and EJ communities, where levels of air pollution burden tend to be higher."[50] Thus, the General Assembly earmarked significant investments in charging infrastructure in disadvantaged and minority communities and created a statewide EV purchase rebate.[51]

The proposed ACC II, ACT, and Low NOx rules in particular will help the state meet these policy goals and advance the state's commitment to environmental justice by decreasing mobile source air pollution in disadvantaged communities, who currently endure some of the worst air quality within the state.[52] In particular, the proposed rules will significantly reduce emissions of the ozone-precursor nitrogen oxides, including NO_2, an ozone pre-cursor that recent studies identify as having serious health impacts at levels lower than current regulatory thresholds.[53] The Board can improve air quality in these areas and further the General Assembly's commitments to environmental justice by quickly promulgating the rules proposed herein.

c. The Board should promptly proceed with this rulemaking to maximize the benefits of the proposed rules.

The next few years are a critical time for ensuring that CEJA's electric vehicle goal is fulfilled. Since the law's passage, the share of electric vehicles being purchased in Illinois has increased, but as of May 15th, 2024, there were only 103,181 electric vehicles registered in Illinois.[54] That is only one-tenth of the way towards the 2030 target of one million EVs enshrined in the law.

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[48] *See* Public Act 103-0581, 103rd Gen. Assemb., (Ill. 2024) (state agencies, with some exceptions, must begin buying only zero-emission passenger vehicles by 2030); Public Act 103-0281, 103rd Gen. Assemb., (Ill. 2024) (prohibits, with some exceptions, northeastern Illinois transit agencies from buying non-zero emission buses after July 1, 2026); Public Act 103-0053, 103rd Gen. Assemb., (Ill. 2024) (requiring all new homes in Illinois to be EV charging capable and giving tenants' rights to install and use EV charging equipment).
[49] 20 ILCS § 730/5–10.
[50] 20 ILCS § 627/45(a)(7).
[51] State of Illinois, "Illinois Drives Electric: CEJA and Climate Action," (2024), https://ev.illinois.gov/illinois-commitment/ceja-and-climate-action.html ("Equity is a driving factor throughout CEJA's programs and is a top priority of Governor Pritzker's"); 20 ILCS § 605/605–1075 (creating an "Energy Transition Assistance Fund"); 415 ILCS 120/1 *et seq*. (creating an electric vehicle rebate).
[52] U.S. EPA, *Illinois Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants*, (May 31, 2024), https://www3.epa.gov/airquality/greenbook/anayo_il.html.
[53] Sara F. Camilleri, et al., "Air quality, health and equity implications of electrifying heavy-duty vehicles," *Nat. Sustain.*, 6, 1643-1653, (Sept. 5, 2023), https://doi.org/10.1038/s41893-023-01219-0, ("Camilleri HDV Report").
[54] Illinois Secretary of State, *Electric Vehicles in Illinois*, (May 15, 2024), https://www.ilsos.gov/departments/vehicles/statistics/electric/2024/electric051524.pdf.

Currently, electric vehicles are estimated to make up less than 1% of all vehicles registered in Illinois.[55] The proposed rules are projected to align Illinois' pace of electric vehicle adoption with the CEJA target by requiring that manufacturers as a group sell a steadily increasing percentage of new electric vehicles. The ACC II rule is projected to result in up to 1.4 million zero-emitting light-duty vehicles on Illinois roads by 2030,[56] and the ACT rule is projected to result in over 30,800 medium- and heavy-duty zero-emitting vehicles by then.[57] Adopting the proposed rules will ensure Illinois meets CEJA's 2030 one million electric vehicle target on the way to achieving the state's long-term decarbonization goals, including its U.S. Climate Alliance commitment to reach net-zero emissions economy-wide no later than 2050.

Meeting that long-term goal requires a nearly 100% zero-emitting vehicle fleet by 2050, which in turn requires that nearly 100% of new vehicle sales are zero-emitting by 2035 due to vehicles' roughly fifteen-year average lifetimes. Adopting the proposed rules will give Illinois a realistic chance of meeting this timeline, as demonstrated by ERM's analysis: ERM projects that adopting the proposed rules will result in a 92% zero-emitting LDV fleet and a 56% zero-emitting M/HDV fleet by 2050.[58]

The proposed rules will also play a critical role in ensuring that Illinois expeditiously reaches attainment of the federal Clean Air Act's National Ambient Air Quality Standards (NAAQS). As discussed below, the Chicago and St. Louis metro areas are in nonattainment of federal ground-level ozone standards. Together, the proposed rules will reduce Illinois' annual emissions of nitrogen oxide pollution (NOx)—one of the main precursors to ozone formation—by up to 510 metric tons by 2030, and up to 5,350 metric tons by 2050.[59] The rules will also significantly reduce other health-harming pollution, such as fine particulate matter ($PM_{2.5}$), resulting in hundreds of avoided deaths from exposure to air pollution and billions of dollars of monetized health benefits, as described below. The negative health impacts of $PM_{2.5}$ are felt most in underserved low-income communities and communities of color, so the rules' $PM_{2\,5}$ reductions will be delivered in the places where they will make the biggest impacts in real health outcomes for real people.

The limits imposed by the federal Clean Air Act provide an impetus for the Board's prompt action. Section 177 of the CAA imposes a two-year lead time requirement such that states adopting the California regulations must adopt California's emissions standards "at least two years before commencement of such model year."[60] In regulations clarifying that language, U.S. EPA has stated that a model year can commence as early as January 2nd of the preceding year.[61] Practically, this means that the proposed regulations, which begin with MY 2028, must be

[55] Illinois Secretary of State, *2023 Registration Counts by County*, (Jan. 1, 2024), https://www.ilsos.gov/departments/vehicles/statistics/lpcountycounts/2023countycounts.pdf.
[56] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at Vehicles page.
[57] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at Vehicles page; Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Vehicles page.
[58] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at Vehicles page; Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Vehicles page.
[59] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at Emissions page; Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Emissions page.
[60] 42 U.S.C. § 7507.
[61] 40 C.F.R. § 85.2302; § 85.2303.

adopted by the end of 2024 in order for them to take effect by January 2, 2027.[62] Under the proposal submitted by the Rule Proponents, the Board would adopt final regulations by the end of 2024. This would allow for implementation to begin two years later, at the beginning of 2027. Because vehicle manufacturer model years are defined by statute to begin in the preceding calendar year, implementation would begin in calendar year 2027 for MY 2028 vehicles. If the Board delays the adoption of the rules past the end of 2024, it risks shifting the regulations' effective date back to MY 2029. Such a delay would risk missing the critical time window during which the regulations will advance CEJA's EV adoption goals and have the support of CEJA's other investments.

III. STATEMENT OF FACTS: THE SERIOUS AIR QUALITY AND CLIMATE IMPACTS TO BE ADDRESSED BY THE PROPOSED RULES

a. Climate change is already impacting Illinois, and those impacts threaten to increase.

We are in the midst of a climate crisis, and vehicle emissions are a leading contributor. In Illinois and nationwide, transportation is the highest-emitting economic sector.[63] In Illinois, the transportation sector emits more than 60 million metric tons of CO_2 per year, or more than 32% of the state's annual total; nationally, transportation accounts for 37% of U.S. CO_2 emissions.[64]

In the 2015 Paris Agreement, 196 world leaders agreed to reduce greenhouse gas emissions in order to keep global temperatures to within 2.0°C of pre-industrial levels, and ideally within 1.5°C.[65] Nationally, President Biden has established a national goal to reduce greenhouse gas emissions by 50% below 2005 levels by 2030 and to net-zero economy-wide by 2050.[66] The State of Illinois, through Governor Pritzker's Executive Order 2019-06,[67] and the Metropolitan Mayors Caucus,[68] have committed to keep state and Chicago-area emissions consistent with the Paris Agreement targets.

But we are not on pace to achieve those goals. According to the National Oceanic and Atmospheric Administration (NOAA), 2023 was the hottest year in recorded human history.[69] In

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[62] *Id*.
[63] U.S. Energy Information Administration, *Energy-Related CO_2 Emissions Data Tables, Table 3: State energy-related carbon dioxide emissions by sector*, (July 12, 2023), https://www.eia.gov/environment/emissions/state/.
[64] *Id.*
[65] United Nations Framework Convention on Climate Change (UNFCCC), "The Paris Agreement," https://unfccc.int/process-and-meetings/the-paris-agreement.
[66] White House, "FACT SHEET: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies," (Apr. 22, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/.
[67] Exec. Order 2019-06, *supra* note 37.
[68] Metropolitan Mayors Caucus, *Climate Action Plan for the Chicago Region*, (2021), https://mayorscaucus.org/wp-content/uploads/2021/06/RegionalCAP_primary_and_appendices_062321-02.pdf, ("Climate Action Plan").
[69] NOAA, "Climate Change: Global Temperature," (Jan. 18, 2024), https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature#:~:text=2023%20was%20the%20warmest%20year,F%20(13.9%C2%B0C).

fact, the ten hottest years ever measured all occurred in the last decade (2014-2023),[70] and this May was the hottest May on record, marking the 12th consecutive month in which monthly data showed the most recent month to be the hottest month on record.[71] In a stark reminder that the Paris Agreement's commitments are not being met, scientists have stated that it is "becoming inevitable" that global temperatures will exceed 1.5°C increase at least temporarily.[72]

Missing climate goals, both in terms of commitments to reduce greenhouse gas emissions and to maintain global temperature thresholds, has real world consequences. NOAA has confirmed that in 2023 there were 28 confirmed weather/climate disaster events with losses exceeding $1 billion each in the U.S.[73] Those disasters are becoming increasingly frequent and costly. The 1980-2023 average was 8.5 billion-dollar weather-climate events per year; but the average for the most recent five years (2019-2023) is 20.4 billion-dollar disasters.[74]

Nor will these harms be borne evenly. In January 2021, White House National Climate Advisor Gina McCarthy acknowledged that, "[c]limate change is a racial justice issue because it exacerbates the challenges in the communities that have been left behind. It goes after the very same communities that pollution has held back and racism has held back. And it's our opportunity to serve those communities—to elevate them."[75] A 2021 U.S. EPA report, *Climate Change and Social Vulnerability in the United States*, concluded that climate change in the U.S. disproportionately affects people of color and low-income communities.[76] The report examined how climate change impacts socially vulnerable groups based on income, education, race, and age, and how these trends will continue as climate change worsens.[77] EPA found that racial minorities are most likely to live in areas that are at the highest risk for climate related impacts such as increased mortality from extreme temperatures, childhood asthma, labor hour losses, and land loss due to higher sea levels.[78] EPA also concluded that racial minorities are projected to be impacted significantly more than non-minorities by the extreme weather, air pollution, and sea level rise that would be caused by 2°C global warming. Notably, Black people are 40% more likely to live in areas with the highest projected increase in mortality due to extreme temperatures.[79]

These national findings are reflected in the real word impacts already felt in Illinois. Heat is the leading cause of weather-related death in the United States. Regionally, from 1985-2016, the average temperature in the states that border the Great Lakes rose by 1.4°F.[80] Extreme heat poses

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[70] *Id.*
[71] Andrew Freeman, "Global heat record broken for 12th straight month in May," (June 5, 2024), https://www.axios.com/2024/06/05/may-record-global-heat-12th-straight-month.
[72] *Id.*
[73] NOAA, "Billion-Dollar Weather and Climate Disasters," (2024), https://www ncei.noaa.gov/access/billions/.
[74] *Id.*
[75] U.S. White House, "Gina McCarthy Talks About the Intersectionality of Climate Change," (Jan. 30, 2021), https://www.youtube.com/watch?v=z9RfN375QDI.
[76] U.S. EPA, *Climate Change and Social Vulnerability in the United States*, (Sept. 2021), https://www.epa.gov/system/files/documents/2021-09/climate-vulnerability_september-2021_508.pdf.
[77] *Id.* at 6.
[78] *Id.*
[79] *Id.*
[80] Climate Action Plan, *supra* note 68, at 4.

particular health threats to vulnerable populations, including people with heart or respiratory conditions or those who do not have access to air conditioning. For example, the 2023 Summer Indoor Air Temperature Monitoring study found that all ten monitored homes without air conditioning were over 80°F during the extreme heat day of August 24, 2023, reaching the extreme caution or danger threshold for heat, as it strains the body as it tries to cool itself.[81] That same day, seven monitored homes exceeded 103°F for two to twenty-three hours.[82] In Illinois, Chicago is an example of the "heat island" phenomenon, where dense urban development with comparatively little tree cover or green space absorbs and holds heat, amplifying impacts to residents.[83] Urban heat island effects combined with heat waves disproportionately affect people of color and vulnerable populations. The 1995 heat wave was the deadliest weather event in Chicago history, lasting several days and resulting in 739 deaths. It has been widely reported that most victims were poor and elderly.[84]

[81] Liuan Huska, "Heat Study: Chicago Temperatures Vary as Much as 22 Degrees Between Neighborhoods," (Jan. 29, 2024), https://borderlessmag.org/2024/01/29/chicago-heat-map-campaign-heat-vulnerability-index-disaster-disrupters-northwestern-university/; *see also* City of Chicago, "Cool Chi: 2023 End of Year Recap," (Dec. 13, 2023), https://www.chicago.gov/content/dam/city/depts/cdph/environment/heat_watch/FINAL_%20Dec-13_Heat-Watch-and-Defusing-Disasters-Event.pdf.

[82] Chicago Dept. of Public Health, "Cool Chi," (2023), https://www.chicago.gov/city/en/depts/cdph/provdrs/environmental_health/supp_info/heat-watch-2023 html. *See also* Elevate, "How Can We Protect Chicago Homes Against Heat Waves?," (July 5, 2022), https://www.elevatenp.org/climate/how-can-we-protect-chicago-homes-against-heat-waves/.

[83] Climate Action Plan, *supra* note 68, at 6.

[84] *Id.* at 7; *see also* Elora Apantaku and Charmaine Runes, "City of Extremes: How the 1995 heat wave and COVID-19 reveal what's changed (and what hasn't) in Chicago's health equity landscape," (July 22, 2020), https://southsideweekly.com/city-extremes-1995-heat-wave-covid-19-reveal-whats-changed-hasnt-chicagos-health-equity-landscape/.

Figure 1. Heat Island Effect in Chicago Area[85]

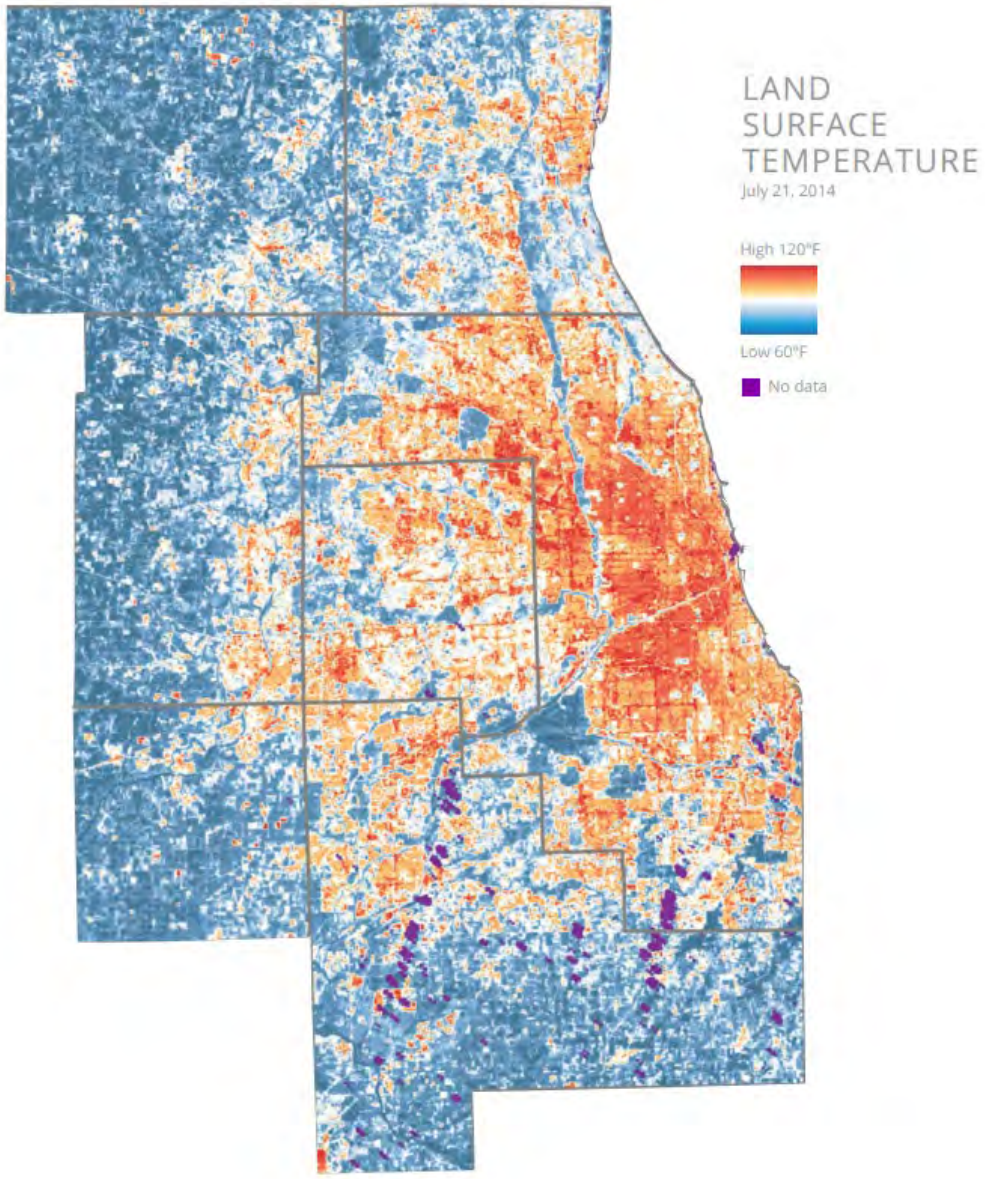

Figure 5. This map of land surface temperature, derived from satellite data acquired July 21, 2014, shows temperature to be greater where paved surfaces dominate the landscape. Source: CMAP

Without rapid reductions in greenhouse gas emissions, these impacts are expected to get worse over the next three decades. By mid-century, scientists expect heat waves as intense as the one in

[85] Climate Action Plan, *supra* note 68, at 6.

1995 to occur two to five times per decade.[86] According to the Chicago Metropolitan Mayors Caucus's 2021 Climate Action Plan, extreme temperatures on the hottest days of the year are projected to increase substantially in Cook County—by as much as an average of 7°F by 2050. The frequency of dangerously hot days will also increase. While temperatures exceeded 100°F on a handful of days each year in northern Illinois throughout the 20th century, models now suggest the area could see 100-plus degree temperatures 30 times per year by mid-Century.[87] Historically the heat index, which is a measure of how hot it feels outside to the human body when factoring in humidity, reached 105°F only once per year in Chicago; but by 2050, experts predict it will reach 105°F nine to fourteen times per year.[88]

In addition to extreme heat, Illinois has seen an increase in rainfall and flooding that is greater than the national average. From 1901 to 2015, annual precipitation across the country increased 4%, but in the Great Lakes region, precipitation increased nearly 10% over that timeframe.[89] According to NOAA's State Climate Summary, as climate impacts become more acute, Illinois will experience more rain and less snowfall during the winter months, and see more large storm events, increasing the frequency of both droughts and floods.[90] This is particularly problematic for Chicago, which is built on historically swampy, low-lying areas, making it particularly susceptible to flooding. Of the 1,198 census tracts within Chicago, there are 352 where more than half the buildings are at significant risk of flooding.[91]

As with impacts from extreme heat, flood impacts have not been and will not be borne evenly in Illinois. From 2007 to 2014, insurance companies paid $1.8 billion in flood-related claims in the Chicago metropolitan area.[92] The majority of those claims were tied to just five storms, and 90% occurred *outside* the 100-year floodplain. Not surprisingly, the people most harmed by the flooding were in economically disadvantaged communities. The Metropolitan Mayors Caucus found that areas with lower incomes and a higher proportion of minority residents typically had a greater exposure to flooding and a lower capacity to prepare for and recover from significant storm events.[93] A 2019 report from the Center for Neighborhood Technology examined the disproportionate impact of floods on communities of color in Chicago. Based on data from more than 225,000 flood claims from 2007-2016, the study found an overwhelming majority (87%) were in disadvantaged communities.[94] Lack of adequate neighborhood infrastructure, such as

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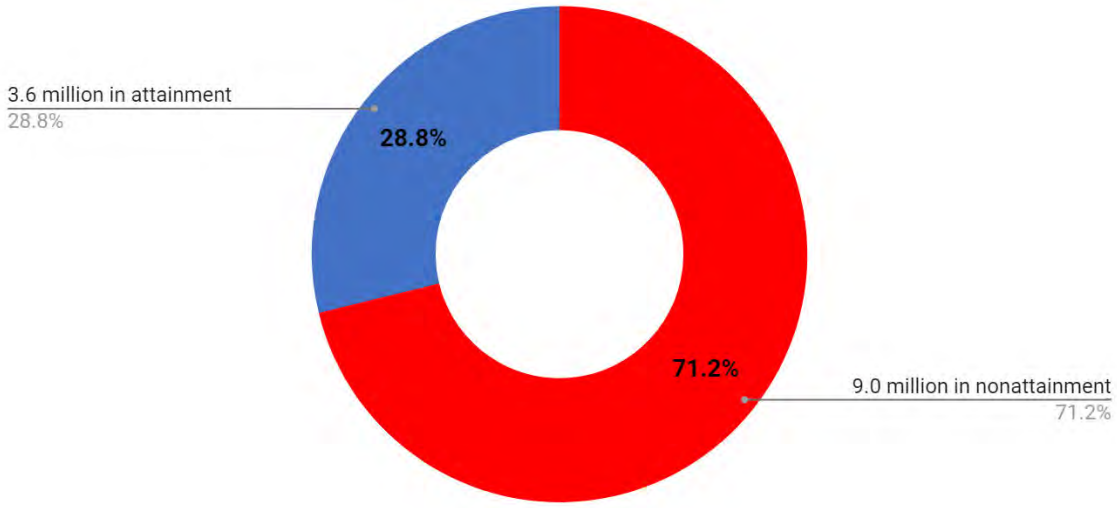
[86] Chicago Metropolitan Agency for Planning, Appendix A: Primary Impacts of Climate Change in the Chicago Region, at 12 (2013). https://www.cmap.illinois.gov/documents/10180/14193/Appendix%2BA%2B-%2BPrimary%2BImpacts%2Bof%2BClimate%2BChange%2Bin%2Bthe%2BChicago%2BRegion.pdf.
[87] Climate Action Plan, *supra* note 68, at 7.
[88] Union of Concerned Scientists, *Killer Heat in the United States*, (July 2019), https://www.ucsusa.org/sites/default/files/2020-12/UCS_extreme_heat_report_190712b_low-res_corrected12-20.pdf.
[89] Climate Action Plan, *supra* note 68, at 7.
[90] *Id.* at 7 (*citing* NOAA, Illinois State Climate Summary).
[91] Climate Check, "Chicago, IL: Top Climate Risks: Heat, Precipitation, Drought," https://climatecheck.com/illinois/chicago#:~:text=Precipitation%20risk%20in%20Chicago%2C%20IL&text=A%20downpour%20for%20Chicago%2C%20IL,35.8%22%20to%20about%2038.3%22.
[92] Climate Action Plan, *supra* note 68, at 8.
[93] *Id.*
[94] Center for Neighborhood Technology (CNT), *Disparities of Urban Flood Risk For Households of Color in Chicago*, at 1 (2019), https://cnt.org/sites/default/files/publications/IMPJ-Assessing-Disparities-of-Urban-Flood-Risk-for-Households-of-Color-in-Chicago.pdf.

poor stormwater infrastructure, inadequate housing stock, lack of green space and increased heat islands, and exposure to air pollution are chronic stressors that can magnify climate impacts and adverse health outcomes from flooding, extreme heat, and poor air quality. Illinois must take these historically disproportionate impacts into consideration when planning for and mitigating future climate harms.

b. Most Illinois residents live in areas plagued by unhealthy air.

Roughly nine million Illinois residents, comprising 71% of the state's population, live in areas that are designated as failing to meet EPA's health-based standards for ozone pollution.[95]

Figure 2. Proportion of Illinois Residents Living in Ozone Nonattainment Areas



As a way to protect air quality and public health, the U.S. EPA establishes air pollution concentration levels for six criteria pollutants that are commonly found and harmful to public health. Known as National Ambient Air Quality Standards, (often referred to as "NAAQS"), these health-based standards provide a measure of local air quality based on the frequency and intensity of pollution concentration levels exceeding these health-based standards.

In Illinois, the Chicago area is currently designated as Moderate Nonattainment under EPA's 2015 health-based 8-hour ozone NAAQS, as is the Illinois portion of the St. Louis area.[96] The American Lung Association named Chicago "one of the most polluted cities" and in its 2023 "State of the Air" report gave Cook, DuPage, Kane, Lake, Madison, and McHenry counties the

[95] U.S. EPA, *8-Hour Ozone (2015) Designated Area/State Information*, (May 31, 2024), https://www3.epa.gov/airquality/greenbook/jbtc html.
[96] *Id.*

grade of F based on the number of high ozone days they experienced.[97] The health harms from ozone, the main component of smog, are well-established.[98]

Nitrogen Dioxide (NO_2) is a regulated pollutant and component of ozone that primarily forms from vehicle emissions.[99] NO_2 is associated with many negative health impacts, is particularly dangerous to the young, elderly or asthmatic, and "exposures over short periods can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections."[100] Within the scientific community there is high confidence linking NO_2 exposure to higher death rates.[101] These NO_2-attributable high death rates have been known to persist even when concentrations of the pollutant are below regulated thresholds.[102] NO_2 is extremely harmful to health, and reducing vehicle emissions will help reduce its presence in the air.

Even where ozone levels are recorded below EPA's NAAQS threshold, harmful effects can still occur, particularly young children, the elderly, and those with existing respiratory conditions. At its March 2023 meeting, EPA's Clean Air Scientific Advisory Committee—composed of preeminent national experts on ozone air pollution—recommended tightening the primary health-based ozone standard from its current 70 part per billion (ppb) level to a range of 55-60 ppb.[103] The health effects of ozone exposure are cumulative, increasing with higher ozone concentrations and increased exposure time.[104] Ozone concentrations as low as 60 ppb—well below the 70 ppb NAAQS—can cause inflammation and decreased lung function in healthy, exercising adults after 6.6 hours of exposure.[105] Furthermore, studies have observed an association between short-term ozone exposure and hospital admission or emergency department visits at concentrations as low as 31 ppb.[106]

The Chicago nonattainment area has continued to log high 8-hour daily ozone values, reaching as high as 104 ppb in 2020—which is 48% higher than the NAAQS of 70 ppb—as well as 96

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[97] American Lung Association, *2023 State of the Air Report Card: Illinois*, https://www.lung.org/research/sota/city-rankings/msas/chicago-naperville-il-in-wi#ozone.
[98] *See* U.S. EPA, *Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards*, (EPA-HQ-OAR-2008-0699-0404), (Aug. 2014), https://www3.epa.gov/ttn/naaqs/standards/ozone/data/20140829pa.pdf; *see also* Exhibit 7: RHA Dirty Dozen, *supra* note 4; Clean Air Task Force, *Deaths by Dirty Diesel: Mapping the health impacts of diesel nationwide*, https://www.catf.us/deathsbydiesel/.
[99] U.S. EPA, *Nitrogen Dioxide (NO_2) Pollution*, (last visited May 30, 2024), https://www.epa.gov/no2-pollution/basic-information-about-no2.
[100] *Id.*
[101] Sara F. Camilleri, et al., "All-Cause NO_2-Attributable Mortality Burden and Associated Racial and Ethnic Disparities in the United States," *Environmental Science & Technology Letters*, 10, 1159-1164, (2023), https://pubs.acs.org/doi/10.1021/acs.estlett.3c00500, ("Camilleri NO_2 Report").
[102] *Id.*
[103] Darya Minovi, "In a Blow to Public Health, EPA Delays Strengthening Ozone Standards," (Oct. 12, 2023), *https://blog.ucsusa.org/dminovi/in-a-blow-to-public-health-epa-delays-strengthening-ozone-standards/*.
[104] *See id.*
[105] U.S. EPA, *Integrated Science Assessment for Ozone and Related Photochemical Oxidants*, (Apr. 2020), https://www.epa.gov/isa/integrated-science-assessment-isa-ozone-and-related-photochemical-oxidants/, at IS-1.
[106] *Id.* at IS-27.

ppb in both 2017 and 2018 and 95 ppb in 2019.[107] The number of ozone exceedance days, or days in which the monitored value exceeds 70 ppb, similarly shows chronic air quality violations that are not improving. Chicago residents experienced nearly an entire month of unhealthy ozone pollution in 2016, and 20 days of exceedances in both 2020 and 2021. In 2022, the Chicago region exceeded the 70 ppb ozone limit on 12 days, reaching as high as 91 ppb—21 ppb in excess of the 70 ppb standard. In 2023, the Chicago area exceeded the 8-hour ozone NAAQS on 38 days.[108] As the numbers above demonstrate, the Chicago nonattainment area is failing to make meaningful and lasting progress toward meeting the ozone NAAQS, and communities in and surrounding urban areas are routinely exposed to extremely high ozone concentrations.

In addition to ozone, fine particulate matter ($PM_{2.5}$)—air particles less than 2.5 millionths of a meter in size—can cause significant health effects. Medium- and heavy-duty diesel trucks emit significant amounts of $PM_{2.5}$, individual particles of which typically are too small to be seen by the human eye. These emissions can become concentrated enough to be seen as smoke or soot and can exacerbate health conditions like asthma and contribute to premature deaths, particularly among those with lung and heart disease. Data from the U.S. EPA indicate that nationally, heavy-duty diesel vehicles account for 25% of fine particulate matter emissions from all vehicles, despite making up only 4% of the vehicles on the road.[109]

In a May 2022 study exploring the negative health effects of diesel engine emissions in Illinois, Respiratory Health Association examined county-level diesel emissions and using Clean Air Task Force data on public health effects and economic risks associated with diesel engine pollution nationwide. Respiratory Health Association found that:

> [p]eople who live, work, or go to school closer to highways, warehouses, intermodal rail, and truck freight facilities, loading docks, fleet garages, etc. (as well as those who work at these facilities) are more likely to be affected by diesel engine $PM_{2.5}$ and other forms of air pollution from diesel engines.[110]

Respiratory Health Association projected there would be 416 deaths in Illinois in 2023 as a result of diesel engine $PM_{2.5}$ pollution, in addition to 199 non-fatal heart attacks and 5,000 asthma attacks.[111] Using national mapping data provided by Clean Air Task Force, Respiratory Health Association found that twelve of Illinois' 102 counties, representing more than 64% of the state's population,[112] ranked in the top 9% of all U.S. counties at risk of the health, societal, and economic impacts caused by diesel fine particle air pollution.[113]

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[107] U.S. EPA, *Outdoor Air Quality Data: Monitor Values Report*, (Jan. 29, 2024), https://www.epa.gov/outdoor-air-quality-data/monitor-values-report. This data excludes exceptional events.
[108] U.S. EPA, *Outdoor Air Quality Data: Air Data - Ozone Exceedances*, (July 5, 2023), https://www.epa.gov/outdoor-air-quality-data/air-data-ozone-exceedances.
[109] Exhibit 7: RHA Dirty Dozen, *supra* note 4.
[110] *Id.* at 2.
[111] *Id.* at 3.
[112] *Id.*
[113] *Id.* at 2.

c. Vehicle emissions contribute significantly to health-harming pollution and climate-altering greenhouse gases.

Vehicles are one of the main contributors to both health-harming pollution and GHG emissions in Illinois. Chicago is the nation's largest freight hub, where shipments via rail move onto medium- and heavy-duty trucks at some of the nation's largest intermodal freight yards.[114] Transportation is the state's largest source of climate pollution, representing over 26% of statewide emissions, or roughly 60 million metric tons of annual climate pollution.[115] Transportation is also a major contributor to harmful air pollution in Illinois, including nitrogen oxides (NOx), ground-level ozone, and fine particulate matter ($PM_{2.5}$). On-road vehicles emit over 71,000 tons of NOx per year (over 46,000 from heavy-duty vehicles and nearly 25,000 tons from light-duty), representing 25% of total statewide emissions, and over 2,500 tons of $PM_{2.5}$ per year (over 1,400 from heavy-duty vehicles and over 1,000 from light-duty).[116]

These emissions are major contributors to some of the worst air quality issues across Illinois. According to analysis by Sonoma Technology, emissions from Illinois vehicles contributed significantly to ozone concentrations in the Chicago nonattainment area on *every* day that the area exceeded the 70 ppb 8-hour National Ambient Air Quality Standard (NAAQS) in 2016, with similar modeled results for days exceeding the standard in 2023.[117] On July 27, 2016, Illinois vehicles were responsible for a staggering 11.26 ppb of ozone concentrations in the Chicago area—meaning that vehicles alone produced over 16% of EPA's health-based ozone pollution limit. The analysis also found that Illinois vehicles also contributed to unhealthy ozone concentrations in the Illinois portion of the St. Louis nonattainment area.[118]

Exposure to fossil fuel exhaust, which includes particle pollution, ozone-forming NOx, cancer-causing benzene,[119] and other pollutants, can lead to premature death and other devastating health problems, including asthma and respiratory distress,[120] pregnancy complications and

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[114] Camilleri HDV Report, *supra* note 53.
[115] U.S. EPA, *Greenhouse Gas Inventory Data Explorer*, (Aug. 18, 2023), https://cfpub.epa.gov/ghgdata/inventoryexplorer/#allsectors/allsectors/allgas/econsect/current; *see also* U.S. Energy Information Administration, Environment: Table 3: Sate Energy-Related Carbon Dioxide Emissions by Sector, (July 12, 2023), https://www.eia.gov/environment/emissions/state/, (reporting that the transportation sector accounted for 32.6% of Illinois' energy-related CO_2 emissions in 2021).
[116] U.S. EPA, *2020 National Emissions Inventory Supporting Data and Summaries*, (Mar. 30, 2023), https://www.epa.gov/air-emissions-inventories/2020-nei-supporting-data-and-summaries; *see also* Exhibit 8: Sierra Club, et al., Letter to Gov. JB Pritzker Re: Vehicles' Contribution to Illinois Ozone Pollution: Implications for Public Health and Environmental Justice in Illinois, (Nov. 1, 2023), https://www.sierraclub.org/sites/default/files/2023-11/IL%20Sonoma%20Report_Letter.pdf, at 3, 11.
[117] *Id.* at 13-17. Illinois vehicles contributed at least 1% of the maximum permissible ozone concentration on every day the Chicago area exceeded the standard in 2016, and on all but one of those days in 2023 (April 16, when vehicles contributed 0.8%).
[118] *Id.* For the Illinois portion of the St. Louis nonattainment area, Illinois vehicles contributed at least 0.66% of the maximum permissible concentration on every day that exceeded the standard in 2016, with a maximum contribution of 3.43 ppb, or 4.9% of the standard. These vehicles were responsible for even more ozone pollution in EJ zip codes on the days evaluated, with contributions ranging from 0.54 to 3.67 ppb.
[119] U.S. EPA, *Benzene*, (Jan. 2012), https://www.epa.gov/sites/default/files/2016-09/documents/benzene.pdf.
[120] Stephanie Lovinsky-Desir, et al., "Air pollution, urgent asthma medical visits and the modifying effect of neighborhood asthma prevalence," *Pediatric Research*, 85, 36, (Oct. 2018), https://doi.org/10.1038/s41390-018-0189-3; Gayan Bowatte et al., "Traffic related air pollution and development and persistence of asthma and low lung

adverse reproductive outcomes,[121] cardiac and vascular impairments,[122] and heightened cancer risk.[123] In 2022 the Health Effects Institute completed the largest ever review of existing research on long-term exposure to traffic-related air pollution and health outcomes and:

> found a high or moderate-to-high level of confidence in an association between long-term exposure to [traffic-related air pollution] and the adverse health outcomes all-cause, circulatory, ischemic heart disease (IHD), and lung cancer mortality; asthma onset in both children and adults; and acute lower respiratory infections (ALRI) in children.[124]

d. Vehicle emissions disproportionately impact lower-income communities and communities of color.

The Sonoma Technology analysis discussed above shows that vehicle pollution falls disproportionately on EJ communities. Illinois vehicles were responsible for at least 1.29 ppb of ozone pollution in environmental justice zip codes in the Chicago nonattainment area on every day that exceeded the standard in 2016, with a maximum contribution of 8.11 ppb.[125] A study using traffic camera footage and released in early 2024 documented that, in Chicago, truck traffic reaching levels of over 400 trucks per hour at intersections in some EJ communities, like McKinley Park and Archer Heights.[126] This study was inspired by students at a high school in South Lawndale, who documented that, just outside of their school, a truck passed once every minute.[127]

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function," *Env't Int'l*, 113, 170, (Apr. 2018), https://www.sciencedirect.com/science/article/pii/S0160412017319037.

[121] Jun Wu, et al., "Association Between Local Traffic-Generated Air Pollution and Preeclampsia and Preterm Delivery in the South Coast Air Basin," *Envtl. Health Persp.*, 117, 1773, (Nov. 2009), https://www ncbi nlm nih.gov/pmc/articles/PMC2801174/; Qi Yan, et al., "Maternal serum metabolome and traffic-related air pollution exposure in pregnancy," *Env't Int'l*, 130, 104872, (June 2019), https://doi.org/10.1016/j.envint.2019.05.066; Li Fu, et al., "The associations of air pollution exposure during pregnancy with fetal growth and anthropometric measurements at birth: a systematic review and meta-analysis,"*Envtl. Sci. and Pollution Res.*, 26, 20137, (2019), https://doi.org/10.1007/s11356-019-05338-0.

[122] Kimberly Berger, et al., "Associations of Source-apportioned Fine Particles with Cause-specific Mortality in California," *Epidemiology*, 29, 639, (Sept. 2018), https://pubmed ncbi nlm.nih.gov/29889687/; Stacey Alexeef, et al., "High-resolution mapping of traffic related air pollution with Google street view cars and incidence of cardiovascular events within neighborhoods in Oakland, CA," *Envtl. Health*, 17, 38, (May 2018), https://doi.org/10.1186/s12940-018-0382-1; J.E. Hart, et al., "Ischaemic Heart Disease Mortality and Years of Work in Trucking Industry Workers," *Occupational and Envtl. Med.*, 70, 523, (Aug. 2013), https://pubmed ncbi nlm nih.gov/22992341/.

[123] California EPA, Air Resources Board, *Supplement to the June 2010 Staff Report on Proposed Actions to Further Reduce Diesel Particulate Matter at High-Priority California Railyards*, (July 5, 2011), http://www.arb.ca.gov/railyard/commitments/suppcomceqa070511.pdf; World Health Organization, "Int'l Agency for Res. on Cancer: Diesel Engine Exhaust Carcinogenic," (June 12, 2012), https://www.iarc.who.int/wp-content/uploads/2018/07/pr213_E.pdf; L. Benbrahim-Tallaa, et al, "Carcinogenicity of Diesel-Engine and Gasoline-Engine Exhausts and Some Nitroarenes," *The Lancet Oncology*, 13, 663, (June 2012), http://doi.org/10.1016/S1470-2045(12)70280-2.

[124] Health Effects Institute, *Systematic Review and Meta-analysis of Selected Health Effects of Long-Term Exposure to Traffic-Related Air Pollution*, (updated Apr. 5, 2023), https://www.healtheffects.org/publication/systematic-review-and-meta-analysis-selected-health-effects-long-term-exposure-traffic/, at xii.

[125] Sierra Club 2023 Letter to the Governor, *supra* note 116.

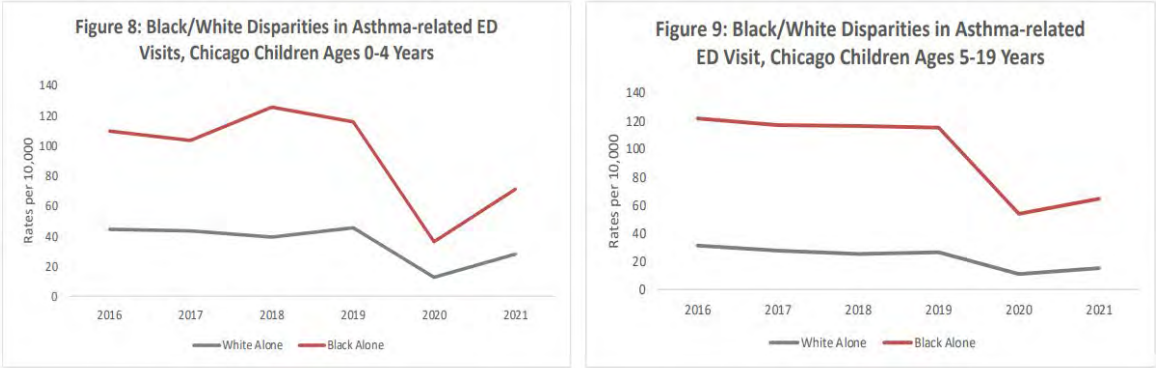
[126] Chicago Truck Data Portal, *supra* note 2.

[127] *Id.*

The concentration of vehicle emissions in EJ communities is particularly pernicious because of the ways in which the health harms of vehicle emissions interact with other structural inequities concentrated in these same communities. For example, people in EJ communities suffer higher rates of pre-existing health conditions that can be aggravated by air pollution.[128] These same communities often lack sufficient financial resources or access to healthcare, meaning it is more difficult for people there to address these health problems.[129]

Asthma—one of the primary public health impacts of ozone exposure—affects Black communities, especially Black children, at disproportionate rates in Illinois, as shown by emergency department visits, hospitalizations, and death rates. As shown in the figures below, a May 2022 study conducted by Respiratory Health Association illustrates that emergency department visits for asthma are much more frequent: nearly four times higher among Black children aged 5-19 years than white children, and nearly three times higher for Black children aged 0-4 years.[130]

Figure 3. Racial Disparities in Asthma-Related Emergency Department Visits by Chicago Children

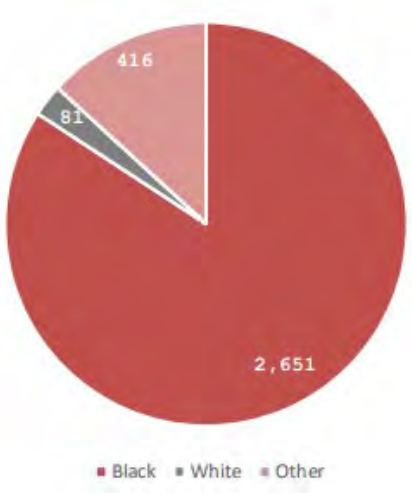


And asthma is just one of many health conditions negatively impacted by vehicle air emissions. Research confirms that the mortality effects of increased vehicle emissions span other conditions like heart disease and respiratory diseases beyond asthma.[131, 132] Apart from the obvious health impacts of these disparities, asthma and asthma-related conditions also disrupt students' education. The same study found that between 2016 and 2021, there were 3,603 ambulance visits

[128] Camilleri NO_2 Report, *supra* note 101.
[129] Rockville (MD): Agency for Healthcare Research and Quality (US), *2021 National Healthcare Quality and Disparities Report: Access to Healthcare and Disparities in Access*, (Dec. 2021), https://www ncbi nlm nih.gov/books/NBK578537/.
[130] Exhibit 6: Respiratory Health Association, *Racial Disparities in Childhood Asthma: Chicago, 2016-2021*, (May 2022), https://resphealth.org/wp-content/uploads/2022/05/Updated-Asthma-Disparities-Report.pdf. The report notes that 2020 was an anomalous year in the data due to the COVID-19 pandemic.
[131] Robert D. Brook, et al., "Particulate matter air pollution and cardiovascular disease: an update to the scientific statement from the American Heart Association," *Circulation*, 121.21, 2331-2378, (2010), https://doi.org/10.1161/CIR.0b013e3181dbece1.
[132] U.S. EPA, *Health Effects of Ozone in the General Population,* (May 16, 2024), https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-general-population.

to Chicago schools for asthma emergencies. Of the 3,148 visits in which the student's race was recorded, 84% were black; only 3% were white.[133]

Figure 4. EMS Visits for Asthma to Chicago Schools, by Race, 2016-2021



These trends remain consistent among adults. According to the Illinois Department of Public Health, asthma ER visits among Black Illinois residents generally, which includes adults, are six times higher than the white rate.[134] Meanwhile, the Black asthma mortality rate in Illinois is four times higher than the white rate.[135] In 2018, for example, the Non-Hispanic African American asthma mortality rate per million was 35; the Non-Hispanic White rate was just 6.5.[136]

IV. STATEMENT OF PURPOSE AND EFFECT

Pursuant to 35 Ill. Adm. Code 102.202(b), the following sections address "the purpose and effect of the proposal, including environmental, technical, and economic justification" for each of the three proposed rules. As described below, the justification for each of the rules is extremely strong. Each rule is technologically feasible and will support significant health, climate and economic benefits for Illinois residents.

[133] *Id.* at 5.
[134] Illinois Dept. of Public Health, *Asthma Trends: Hospital Discharge Data, 2016-2019*, (Sept. 2, 2020), https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/asthma-trends-hospital-discharge-data-2016-2019.pdf.
[135] Illinois Dept. of Public Health, A*sthma Trends: Mortality, 2000-2016*, (Sept. 2, 2020), https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/asthma-trends-hospital-discharge-data-2016-2019.pdf.
[136] Illinois Dept. of Public Health, *Asthma Trends: Mortality Tables 2000-2018*, (Sept. 2020), https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/asthma-mortality-tablessept20docx-10062020.pdf.

a. The Advanced Clean Cars II (ACC II) Rule

i. Summary of the ACC II rule.

The ACC II rule applies to vehicle manufacturers and sets requirements for *new* light-duty and Class 2b-3 medium-duty vehicles delivered for sale in Illinois beginning in MY 2028.[137] The Rule has a low-emission vehicle (LEV) component and a ZEV component. The LEV standards set criteria pollutant emission limits for internal combustion engine vehicles and the ZEV standards establish annual ZEV sales requirements. Both components of the ACC II rule build on the Advanced Clean Cars I (ACC I) program, which was first enacted by the California Air Resources Board in 2012.

ACC II ZEV Standards

The ZEV standards are designed to reduce emissions by requiring that 100% of new vehicles delivered for sale in Illinois meet zero-emission standards in MY 2035 and in all subsequent model years. Beginning with MY 2028, the ZEV standards require manufacturers to produce and deliver for sale an increasing number of ZEVs as a percent of total sales in Illinois, rising from 51% in MY 2028 to 100% in MY 2035.[138] The table below identifies the percent ZEV sales requirements for each covered vehicle model year.

Table 1. ACC II ZEV Sales Requirement by Year

Model Year	2028	2029	2030	2031	2032	2033	2034	2035 and subsequent
ZEV sales requirement	51%	59%	68%	76%	82%	88%	94%	100%

These percentages apply to each manufacturers' total new vehicle sales. Assessing compliance is straightforward: the sale of a new ZEV that meets the rule's technical requirements and ZEV assurance measures earns one ZEV vehicle value (or credit) toward fulfilling the annual ZEV sales requirement. The ZEV assurance measures set requirements for durability, warranty, battery labeling, and serviceability to help ensure consumers choose and retain ZEVs.

The ACC II rule includes numerous compliance flexibilities. Plug-in hybrid electric vehicles (PHEVs) that meet specified requirements can be used to meet up to 20% of a manufacturer's annual ZEV requirements. Manufacturers can buy, sell, trade, and bank ZEV credits. In the event of a credit shortfall, manufacturers may carry a deficit forward for three years. The ACC II rule also includes voluntary opportunities for manufacturers to earn credits by increasing the sale of

[137] Because the ACT rule also covers class 2b and 3 vehicles, manufacturers of these vehicles can choose whether to comply with the ACT or ACC II standards. ERM's analysis assumes that manufacturers will certify class 2b and 3 vehicles under ACT, rather than ACC II. ERM IL ACC II Program, *supra* note 56, at 3, n.5.

[138] The regulation measures compliance in terms of "vehicle values," which are obtained by manufacturing ZEVs (one ZEV = one vehicle value), or through other provisions under which manufacturers can earn vehicle values, which then can be used to offset specified portions of the regulatory requirement for MYs 2028 through 2031.

ZEVs before the rule goes into effect and by increasing access to ZEVs in communities that have faced disproportionate levels of air pollution. In addition, the rule includes provisions that allow manufacturers to "pool" their credits from ZEV sales across the states that have adopted the ZEV regulations under Section 177 of the Clean Air Act.[139]

ACC II LEV Standards

For light-duty vehicles, the ACC II rule generally extends ACC I's standards for carbon monoxide, formaldehyde, particulate matter, and non-methane organic gas (NMOG) and oxides of nitrogen (NOx, together NMOG+NOx), but makes several changes to increase stringency. For example, the ACC II rule maintains a NMOG+NOx standard of 0.030 g/mile but excludes ZEVs from the determination of manufacturers' vehicle fleet-averages, phases-out provisions that allowed PHEVs to generate NMOG+NOx emission credits for operating during all-electric modes, and eliminates certain less stringent compliance categories (or "bins") and establishes more stringent ones. For both NMOG+NOx and carbon monoxide, the ACC II rule's LEV regulations modify test procedures to ensure reduced emissions during a broader range of in-use driving conditions. The ACC II rule also sets a PM standard for aggressive driving conditions that is more stringent than the federal standard.[140]

For medium-duty vehicles, the regulations lower the fleet average standard for NMOG+NOx,[141] lower the maximum emission rate and, as with the light-duty LEV standards, exclude ZEVs from the determination of manufacturers' vehicle fleet-averages and eliminate certain emission certification bins associated with less stringent standards while establishing new bins. For both light- and medium-duty vehicles, the regulations establish a running loss evaporative emissions standard of 0.01 g/mile of hydrocarbons, a level more stringent than the federal standard of 0.05 grams per mile.

ii. The ACC II rule will reduce harmful air pollution from light-duty vehicles.

Adopting the ACC II rule will significantly reduce climate-damaging and health-harming pollution, playing a critical role in achieving Illinois' decarbonization goals, attaining federal air quality standards, and improving public health. Outside analysis performed by ERM shows that adopting ACC II will reduce annual GHG emissions from Illinois' light-duty vehicle fleet 88% by 2050 compared to a business-as-usual baseline scenario, even after accounting for upstream emissions from electricity generation to power EVs.[142] This would avoid up to 180 million metric tons of cumulative GHG emissions by 2050.[143] The monetized value of the avoided

[139] To ensure that emissions are reduced as intended, these provisions are limited to no more than 15% of a manufacturer's obligation in MY 2028 and phase out completely after MY 2030.
[140] The regulations set a particulate matter (PM) standard of 3 mg/mi under the US06 test cycle; the federal PM standard for the US06 test cycle is 6 mg/mi.
[141] The regulations establish an exhaust emissions fleet average standard, which phases in between the 2026 and the 2030 model years, for NMOG + NOx as measured over the FTP test cycle of 0.150 g/mile for class 2b. This is more stringent than the corresponding federal Tier 3 fleet average standards which are 0.178 g/mile and 0.247 g/mile for class 2b vehicles and class 3 vehicles respectively.
[142] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at Emissions page.
[143] *Id.* ERM analyzed three scenarios reflecting different assumptions about Illinois' future grid mix and the extent to which vehicle manufacturers take advantage of ACC II's compliance flexibility mechanisms. Results for all three

climate harms from these emissions is up to $16.6 billion compared to the 2024 federal standards (and $32.7 billion compared to the previous federal standards, which could become the alternative to the proposed state rules if the new federal standards are repealed, as discussed above).[144] These estimates use the federal interagency working group estimate of the social cost of carbon, which were last updated in 2016. EPA has since released updated, significantly higher estimates of the social cost of carbon. Using these values, the monetized benefit of ACC II's emission reductions is $60 billion compared to the 2024 federal standards (and $119 billion compared to the previous federal standards).[145]

ERM projects the ACC II rule will also reduce Illinois' 2050 light-duty vehicle NOx emissions by up to 82% relative to the new federal standards, with a reduction in $PM_{2.5}$ of up to 80%.[146] The cumulative reduction in key health-harming pollution from the ACC II rule—up to 50,700 metric tons for NOx and up to 4,800 metric tons for $PM_{2.5}$ by 2050—will significantly improve Illinois' air quality and public health.[147] ACC II is expected to produce up to 193 avoided premature deaths, 194 avoided hospital visits, and over 113,600 avoided respiratory illnesses, restricted activity days, and lost workdays.[148] The monetized value of these improved health outcomes totals $2.7 billion through 2050.[149]

iii. The ACC II rule will yield enormous societal benefits for Illinois residents.

Not only is adopting ACC II necessary to meet the state's climate, air quality, and public health goals, but it will produce massive net economic benefits. ERM's analysis finds that the ACC II rule would achieve up to $82.6 billion in net societal benefits cumulatively by 2050, compared to the 2024 federal standards (and up to $178 billion in net benefits compared to the previous federal standards).[150]

The benefits considered in ERM's analysis include the monetized GHG reductions and health benefits associated with reduced pollution described above (up to $16.6 billion and $2.7 billion in benefits, respectively),[151] as well as massive consumer savings from reduced fuel, maintenance, and vehicle purchase costs ($58.7 billion in benefits, or up to $21,000 in lifetime savings per vehicle),[152] and savings to all utility customers (whether they are ZEV owners or not)

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scenarios are generally similar (ranging from 144 to 180 million metric tons of cumulative GHG reductions). Unless otherwise noted, this Statement of Reasons reports results for the ACC II Full + Clean Grid scenario.

[144] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at CumulNetBenefits page.

[145] U.S. EPA, *Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances*, (Nov. 2023), https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf, ("EPA GHG Social Costs Report"). Estimate is based on EPA's social cost of CO_2 using a 2% discount rate, which is approximately 3.7 times the value of the Interagency Working Group estimate used by ERM for most years. Monetized climate benefits using the EPA social cost of CO_2 are estimated by multiplying ERM's annual estimated benefits by the ratio of the EPA to Interagency Working group social cost of CO_2 estimates for that year.

[146] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at Emissions page.

[147] *Id.*

[148] *Id.* at Health page.

[149] *Id.*

[150] *Id.* at CumulNetBenefits page.

[151] *Id.*

[152] *Id.*; Exhibit 2: ERM, *Illinois Advanced Clean Cars II Program* at 13.

resulting from more efficient use of the electric grid with EV charging ($4.6 billion in cumulative savings by 2050).[153]

ERM's analysis also addresses the economic benefits of creating high-paying jobs and increasing GDP, but these are not incorporated into its net benefit calculations. Specifically, ERM's 2023 analysis projected that adopting the ACC II rule would create up to 24,000 net additional jobs in 2030, with that figure tapering down to about an equal number of jobs as the baseline scenario by 2050.[154] These added jobs are expected to pay 50% more on average than the jobs they replace.[155] ERM's 2023 analysis also projected that adopting the rule will increase GDP by up to $4 billion in 2030, with that figure tapering down to $1.2 billion above the baseline scenario GDP in 2050.[156] There are additional significant benefits that ERM's analysis does not account for, including the use of federal incentives such as the Inflation Reduction Act (IRA) tax credits for ZEVs.[157] Even without accounting for these additional benefits, ERM's analysis clearly demonstrates that adopting the ACC II rule will produce massive economic benefits for Illinois that vastly outweigh the rule's costs.

iv. The ACC II rule is feasible and will lead to equitable outcomes.

1. ZEV sales, adoption trends, and model availability support the feasibility of the ZEV sales requirements.

The ACC II rule will accelerate an already-strong ZEV market. The strength of the ZEV market is evident from the rapid growth of ZEV models and sales, as well as aggressive forecasts for future ZEV market share. The ACC II rule's ZEV requirements are achievable in this robust market, and will ensure Illinois consumers fully benefit from the ZEV transition and that ZEV adoption keeps pace with state targets.

There is a large and growing number of ZEV models. In 2023, there were more than 110 EV models available for sale including cars, utility vehicles, pickup trucks, and vans.[158] More models are forthcoming, including additional truck and SUV models along with a wider range of sedans.[159] Research by EDF and ERM projects that there will be 197 ZEV models available by

[153] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at CumulNetBenefits page. ERM's 2023 analysis found that the average residential utility customer would save $42 per year in 2050 as a result of adopting ACC II in Illinois. Exhibit 2: ERM, *Illinois Advanced Clean Cars II Program* at 18.
[154] Exhibit 2: ERM, *Illinois Advanced Clean Cars II Program* at 21. ERM did not update its job growth or GDP estimates for its updated 2024 analysis because these are not incorporated into the analysis of overall net benefits. While the magnitude may be different, the direction and general trajectory of job and GDP impacts from ACC II adoption are expected to be similar using a baseline that incorporates the new federal standards.
[155] *Id.*
[156] *Id.*
[157] *Id.* at 13-14.
[158] Alliance for Automotive Innovation, *Get Connected: EV Quarterly Report Q3*, (2023), https://www.autosinnovate.org/posts/papers-reports/Get%20Connected%20EV%20Quarterly%20Report%202023%20Q3.pdf.
[159] Consumer Reports, "Hot, New Electric Cars That Are Coming Soon," (May 31, 2024), https://www.consumerreports.org/cars/hybrids-evs/hot-new-electric-cars-are-coming-soon-a1000197429/.

the end of 2025.[160]

Growing model availability is supported by manufacturers' ZEV commitments. Many of the world's largest automakers have committed to significantly expanding ZEV production in the next few years, leading to greater availability and expanded choices.[161] The market signal provided by ACC II helps automakers make and strengthen these decarbonization commitments, mobilize the resources needed to make good on them, and deliver ZEVs to the states that have adopted ZEV standards. Indeed, fully 63% of the ZEVs in operation nationwide are in states that have adopted California's ZEV programs in ACC I and II.[162]

Rapid growth of EV sales also reflects strong consumer demand for clean vehicles, including in Illinois. In 2023, more than 1.4 million EVs were sold in the U.S., representing 9.1% of all new light-duty vehicle sales.[163] This sales level outpaced even recent projections, exceeding 85% of the forecasts published from 2019-2022.[164] Actual ZEV sales have grown year-over-year, for every month of year, from 2021 to 2022 and again from 2022 to 2023.[165] Last year, the year-

[160] EDF, *Electric Vehicle Market Update: Manufacturer & Commercial Fleet Electrification Commitments Supporting Electric Mobility in the United States*, (Apr. 2023), https://www.edf.org/sites/default/files/2023-05/Electric%20Vehicle%20Market%20Update%20April%202023.pdf, at 7.

[161] *See, e.g.*, Stellantis, "Stellantis and California Partner to Drive Carbon Emissions Reduction Efforts," (Mar. 19, 2024), https://www.stellantis.com/en/news/press-releases/2024/march/stellantis-and-california-partner-to-drive-carbon-emissions-reduction-efforts (announcing eight new electric vehicles coming this year, additional focus on education about the benefits of electric vehicles, and an agreement with CARB "demonstrating the Company's resolve to achieve its industry-leading ambition to be carbon net zero by 2038"); HT Auto, "Tata's Jaguar Land Rover records 22% surge in sales, eyes electrified future," (Apr. 9, 2022), https://auto.hindustantimes.com/auto/news/jaguar-land-rover-records-22-surge-in-sales-eyes-electrified-future-41712595077814 html, (noting that Jaguar Land Rover "will introduce a new lineup consisting exclusively of Battery Electric Vehicles," with the first model to be available in 2025); General Motors, "General Motors, the Largest U.S. Automaker, Plans to be Carbon Neutral by 2040," (Jan. 28, 2021), https://news.gm.com/newsroom.detail html/Pages/news/us/en/2021/jan/0128-carbon html, (announcing plans to reach 100% electric vehicle sales in the U.S. by 2035); Volvo Car Group, "Volvo Cars to be fully electric by 2030," (Mar. 2, 2021), https://www.media.volvocars.com/us/en-us/media/pressreleases/277409/volvo-cars-to-be-fully-electric-by-2030 (noting that Volvo's "decision … builds on the expectation that legislation as well as a rapid expansion of accessible high quality charging infrastructure will accelerate consumer acceptance of fully electric cars"); Volkswagen Newsroom, "Strategy update at Volkswagen: The transformation to electromobility was only the beginning," (Mar. 5, 2021), https://www.volkswagen-newsroom.com/en/stories/strategy-update-at-volkswagen-the-transformation-to-electromobility-was-only-the-beginning-6875, (describing Volkswagen's plan to make half of its U.S. vehicle sales electric by 2030, and to "significantly exceed the [ZEV sales requirements of the] planned EU regulation"); Honda News Room, "Summary of Honda Global CEO Inaugural Press Conference," (Apr. 23, 2021), https://global honda/newsroom/news/2021/c210423eng.html, (describing Honda's plans to reach a fully electric vehicle lineup by 2040 and estimates that 40% of North American sales will be electric by 2030); Toyota Motor Corporation, "Video: Media Briefing on Battery EV Strategies," (Dec. 14, 2021), https://global.toyota/en/newsroom/corporate/36428993 html, (announcing plans to introduce 30 new all-electric vehicles by 2030).

[162] Alliance for Automotive Innovation, "The Future Is Electric: Let's Drive Together," (Mar. 2023), https://www.autosinnovate.org/resources/downloads-for-press/Handout_2021_State%20ZEV%20Conditions%20Leave-Behind.pdf, at 10.

[163] EDF, "Electric vehicle sales are going further, faster than experts predicted," (Mar. 2024), https://www.edf.org/sites/default/files/2024-03/Actual%202023%20EV%20sales%20compared%20to%20forecasts.pdf, ("EDF EV Sales Report").

[164] *Id.*

[165] Zachary Shahan, "US EV Sales—Strong Increases Year Over Year Every Month of the Year," (Feb. 13, 2024), https://cleantechnica.com/2024/02/13/us-ev-sales-strong-increases-year-over-year-every-month-of-the-year/.

over-year growth was over 50%.[166] ZEV sales growth is evident even in just the past two quarters. In the fourth quarter of 2023, seventeen states surpassed 10% EV market share, compared to just thirteen states in the previous quarter.[167] Demand for EVs in Illinois has skyrocketed in recent years, with an elevenfold increase in total registrations and a sevenfold increase in market share from 2016 to 2022.[168] Illinois had the ninth highest number of EV registrations nationwide at the end of 2022,[169] with registrations outpacing the national average and increasing by 60% from 2022 to a total of 94,000 in 2023.[170] Illinois' overall 2023 EV market share was 7.8%, eighteenth highest in the country, highlighting the opportunity for Illinois to accelerate ZEV sales through ACC II to keep pace with its sister states and with Illinois' own adoption targets.[171]

Rapid ZEV sales growth is expected to continue. Numerous analytic models anticipate at least 50% baseline ZEV penetration by 2030 nationwide, even absent new regulation.[172] Though these models vary in their assumptions (including consideration of incentives), they are directionally consistent in finding that ZEV market share will continue strong growth in the U.S. and worldwide. These high projected baseline ZEV sales—which real-world sales have consistently outperformed—show the ZEV sales requirements to be eminently achievable.

ACC II's feasibility is further supported by rapid ZEV adoption in response to similar regulations in other jurisdictions. For example, in 2016, the number of EV models and sales were low in the European Union. The onset of new regulations led to dramatically increased sales by

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[166] EDF EV Sales Report, *supra* note 163.
[167] Atlas, *Q4 2023: Market Overview*, (Mar. 2024), https://atlaspp.sharepoint.com/:p:/r/sites/evhub/_layouts/15/doc2.aspx?sourcedoc=%7B6561BBBD-A3A8-44DE-96EF-EBD6DD48DE84%7D&file=2023_EV_Hub_Q4_Review.pptx&action=edit&mobileredirect=true.
[168] U.S. Dept. of Energy, *Alternative Fuels Data Center: TransAtlas*, https://afdc.energy.gov/transatlas#/?state=IL&view=vehicle_count&fuel=ELEC.
[169] Recurrent, *Illinois Electric Vehicle Trends*, (July 16, 2023) (citing U.S. Dept. of Energy and Illinois Dept. of State data), https://www.recurrentauto.com/research/illinois-electric-vehicle-trends.
[170] Nara Schoenberg, "Illinois plans to add more than 1,000 new public EV chargers," (Feb. 9, 2024), https://www.chicagotribune.com/2024/02/09/illinois-ev-chargers/; *see also* Mark Richardson, "Expert: Illinois Electric Vehicle Sales Accelerating, Not Slowing Down, Public News Service," (Aug. 31, 2023), https://www.publicnewsservice.org/2023-08-31/urban-planning-and-transportation/expert-illinois-electric-vehicle-sales-accelerating-not-slowing-down/a86107-1, (reporting that Illinois was among the top 10 states for EV registrations from January to August 2023, with EV sales up almost 50% year-over-year).
[171] Alliance for Automotive Innovation, *Get Connected: EV Quarterly Report Q4*, (2023), https://www.autosinnovate.org/posts/papers-reports/Get%20Connected%20EV%20Quarterly%20Report%202023%20Q4.pdf, at 6, 19 (noting also that Cook County, IL was among the top 15 U.S. counties with the most public charging ports installed, and among the 32 U.S. counties where one third of all new charging ports were installed).
[172] *See, e.g.*, Colin A. McKerracher, et al., *Electric Vehicle Outlook 2022*, BNEF (subscription required) (finding the U.S. on pace to reach 40-50% ZEVs by 2030, increasing to 52% when adjusted for IRA. Executive summary available without subscription at https://about.bnef.com/electric-vehicle-outlook/#download; International Council on Clean Transportation (ICCT), *Analyzing the Impact of the Inflation Reduction Act on Electric Vehicle Uptake in the U.S.*, (Jan. 2023), https://theicct.org/wp-content/uploads/2023/01/ira-impact-evs-us-jan23.pdf, at ii (finding ZEV share to be as much as 61% of sales in 2030 and as much as 67% of sales in 2032 (including IRA)) ("ICCT IRA and EVs Report"); BCG, "Electric Cars Are Finding Their Next Gear," (June 9, 2022), https://www.bcg.com/publications/2022/electric-cars-finding-next-gear, at 4, Exhibit 1. BCG's projections for 2030 include 47% market share for BEVs and 6% market share for PHEVs.

2021.[173] In Germany, ZEV sales went from 3.01% in 2019 to 26% in 2021, an increase of more than 20% in two years.[174] Similarly, in California, ZEV sales doubled from 12.4% in 2021 to 25% in 2023,[175] achieving a market share that tripled the effective MY 2025 ZEV sales requirement of 7-8% in ACC I,[176] exceeded baseline ZEV sales predictions of 20% by 2026 three years early, and put the state on track to achieve the 35% MY 2026 ZEV sales requirement under ACC II. These examples illustrate how the pace of the ZEV transition can be accelerated with strong policies like the ACC II rule.

2. ZEVs will save money for Illinois drivers.

ZEVs have a lower total cost of ownership (TCO) than gasoline or diesel vehicles due to their significant fuel and maintenance savings. Electricity is less expensive (and less price volatile) than gasoline; and, because ZEVs have few moving parts, they are significantly less expensive to maintain than gas-powered vehicles.[177] EVs are already cheaper on a total TCO basis than combustion engine vehicles, and this advantage will only grow as the upfront price of EVs continues to fall. With federal incentives, new EVs are expected to be cheaper than gas-powered vehicles by MY 2027, a year before ACC II would take effect in Illinois.[178]

EVs purchased today will already save money for Illinois drivers over the life of the vehicle. ERM's analysis finds that a ZEV purchased in MY 2028 will save about $20,000 in lifetime vehicle costs compared to a combustion engine vehicle.[179] This includes over $700 in savings on the upfront vehicle cost, meaning that ZEVs will be cheaper than gas-powered vehicles when the rule takes effect.[180] While the $1,800 cost of a home charger slightly outweighs the upfront savings for ZEV purchasers,[181] with federal tax credits the combined price of a ZEV and charger will be lower than the price of a combustion vehicle. By MY 2030, a ZEV is expected to cost $3,000 less than a gas-powered vehicle, yielding upfront savings even with charger costs added and without purchase incentives. A ZEV purchased in that year will support over $21,000 in lifetime savings, with greater savings for rural drivers and others that travel longer distances.[182]

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[173] The "Euro 6" CO_2 emission performance standards required 95% of MY 2020 vehicles and 100% of MY 2021 vehicles must meet a fleet average of 95 g/km of CO_2 emissions. European Commission, "CO_2 emission performance standards for cars and vans," (last visited Sept. 6, 2023), https://climate.ec.europa.eu/eu-action/transport/road-transport-reducing-co2-emissions-vehicles/co2-emission-performance-standards-cars-and-vans_en.

[174] International Energy Agency, *Global EV Outlook 2022*, https://iea.blob.core.windows.net/assets/ad8fb04c-4f75-42fc-973a-6e54c8a4449a/GlobalElectricVehicleOutlook2022.pdf.

[175] California Energy Commission, *New ZEV Sales in California*, (2024), https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics/new-zev-sales.

[176] Though the stated ZEV sales percentage requirement for MY 2025 in ACCI is XYZ, the credit structure, which allows a single ZEV to earn multiple credits, lowers the actual number of ZEVs needed to satisfy the requirement.

[177] Consumer Reports, "Pay Less for Vehicle Maintenance with an EV," (Sept. 26, 2020), https://www.consumerreports.org/car-repair-maintenance/pay-less-for-vehicle-maintenance-with-an-ev/.

[178] Peter Slowik, et al., *Assessment of Light-duty Electric Vehicle Costs and Consumer Benefits in the United States in the 2022-2035 Timeframe*, (Oct. 2022), https://theicct.org/wp-content/uploads/2022/10/ev-cost-benefits-2035-oct22.pdf.

[179] Exhibit 2: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at ZEVowner page.

[180] *Id.*

[181] *Id.*

[182] *Id.*

ERM's findings are corroborated by other studies. A March 2024 study performed by Atlas Public Policy finds that, when comparing EVs to the five most popular gas-powered models, an equivalent EV purchased today will save owners money—in most cases thousands of dollars—over a seven-year span, the average amount of time a driver keeps a new vehicle.[183] A July 2023 study by EDF and WSP Global likewise found that certain EV models purchased today can result in lifetime savings of up to $18,440 over a ten-year period.[184] A May 2023 Roush Industries study finds that, by 2025, EV savings can total up to $19,000 for compact cars, midsize cars, small SUVs, and midsize SUVs, across both base and premium segments.[185] In the 2030 timeframe, the savings range from $14,000 to $27,000 across all vehicle classes, including large SUVs and pickups.[186]

Purchase incentives also significantly advance the date by which upfront vehicle price parity is achieved. The Roush study finds that by MY 2025, it will be cheaper to purchase an electric car or small or medium electric SUV than a comparable gasoline vehicle. By MY 2030, BEVs will be affordable across all classes of light-duty vehicles—including large SUVs and pickup trucks.[187] For leased vehicles, ZEVs are already the most cost-effective option. In an August 2023 study, Energy Innovation found that "falling EV lease prices, new federal tax incentives for leased EVs, and rising interest rates, coupled with the lower operating and maintenance costs of EVs, make leasing a new EV the most affordable way to get into a new car."[188]

Taken together, the findings of the ERM report and the numerous corroborating studies conclusively illustrate that ZEVs will save Illinois' drivers money, particularly during the timeframe when the ACC II rule would be in effect.

3. Increasing economies of scale will further drive down ZEV costs.

Another significant reason for the increasingly favorable ZEV costs is declining battery prices. Battery costs have fallen precipitously, from over $1,000/kilowatt-hour (kWh) in 2010 to below $100/kWh in 2023,[189] earlier than analysts had predicted. This steep decline is likely to continue.

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[183] Atlas Public Policy, "Comparing the Cost of Owning the Most Popular Vehicles in the United States," (Mar. 2024), https://atlaspolicy.com/wp-content/uploads/2024/03/Comparing-the-Cost-of-Owning-the-Most-Popular-Vehicles-in-the-United-States.pdf.

[184] EDF, *Electric Vehicle Total Cost of Ownership Analysis: Summary Report*, (July 2023), https://www.edf.org/sites/default/files/2023-07/WSP%20Total%20Cost%20of%20Ownership%20Analysis%20July%202023.pdf.

[185] Himanshu Saxen, et al., *Electrification Cost Evaluation of Light-Duty Vehicles for MY 2030*, (2023), https://www.edf.org/sites/default/files/2023-05/Electrification_Cost_Evaluation_of_LDVs_for_MY2030_Roush.pdf.

[186] *Id.*

[187] Himanshu Saxena and Sajit Pillai, *Impact of the Inflation Reduction Act of 2022 on Light-Duty Vehicle Electrification Costs for MYs 2025 and 2030*, (2023), https://www.edf.org/sites/default/files/2023-05/Impact_IRA_LDV_Electrification_Costs_for_MYs_2025_and_2030_Roush.pdf.

[188] Rachel Goldstein, et al., *Electric Vehicle Leasing: The Cheapest Option for New Car Buyers*, (Aug. 2023), https://energyinnovation.org/wp-content/uploads/2023/08/Electric-Vehicle-Leasing-The-Cheapest-Option-for-New-Car-Buyers_8.25.23.pdf, at 1.

[189] BloombergNEF, "Battery Pack Prices Fall to an Average of $132/kWh, But Rising Commodity Prices Start to Bite," (Nov. 30, 2021), https://about.bnef.com/blog/battery-pack-prices-fall-to-an-average-of-132-kwh-but-rising-

The Inflation Reduction Act, which provides a battery cell credit of up to $45/kWh and significant incentives for EV manufacturing, will contribute to declining costs. Auto manufacturers are also committing to ambitious targets for battery prices: in 2021, Renault and Ford publicly announced targets for battery packs of $80/kWh by 2030,[190] while General Motors now intends to reduce battery cell costs down to approximately $87/kWh by 2025, a significant reduction from its original projection of $100/kWh.[191] According to BloombergNEF's battery price survey, in 2023, the average battery cell price was already as low as $89/kWh.[192]

Continued advancements in battery technology, as well as near-term investments and manufacturer commitment, will also result in price reductions that will increase market growth and build economies of scale. New technologies such as solid-state batteries and sodium-ion batteries are emerging as opportunities to both reduce battery costs and increase performance. In addition, there is promising research into different lithium-ion battery chemistries that can reduce reliance on critical minerals with constrained supply, such as cobalt.[193] Further, improvements in battery manufacturing, including the advent of the dry battery electrode process, can eliminate the need for wet slurry coating, drying, and solvent recapture steps that are part of conventional battery manufacturing.[194] The elimination of these steps can reduce energy consumption by 50% and cost by 23% with respect to cell manufacturing.[195] These changes, along with potential forthcoming battery pack construction improvements mean that future battery costs are likely to be below current projections of $68/kWh in 2027.[196]

Economies of scale, bolstered by significant increases in model availability, are also expected to occur. As noted above, a recent report by ERM finds that the number of EV models is expected to dramatically increase in the coming years: by 2025, there will be a projected 197 models, with over 58 of these models launching between MY 2022 and 2025.[197] And as a result of incentives in the Inflation Reduction Act, there are now three light-duty EV models available with an MSRP of under $30,000 and twelve models available for less than $40,000.[198] The impact on the market is already being seen: more than 800,000 light-duty EVs were purchased in 2022 nationwide, an increase of 65% compared to 2021. And the first quarter of 2023 saw EV sales reach 258,000 units, almost a 45% increase compared to the previous year. Further, automakers

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commodity-prices-start-to-bite/, ("BloombergNEF re: Battery Pack Prices"); Benchmark Source, "Global Cell Prices Fall Below $100/kWh for First Time in Two Years," (Sept. 6, 2023), https://source.benchmarkminerals.com/article/global-cell-prices-fall-below-100-kwh-for-first-time-in-two-years.

[190] BloombergNEF re: Battery Pack Prices, *supra* note 189.

[191] Trey Hawkins, "GM Expects Battery Cells To Cost $87 Per kWh By 2025," (May 5, 2023), https://gmauthority.com/blog/2023/05/gm-expects-battery-cells-to-cost-87-per-kwh-by-2025/.

[192] BloombergNEF, "Lithium-Ion Battery Pack Prices Hit Record Low of $139/kWh," (Nov. 26, 2023), https://about.bnef.com/blog/lithium-ion-battery-pack-prices-hit-record-low-of-139-kwh/.

[193] Vishnu Nair, et al., *Medium and Heavy-Duty Electrification Costs for MY 2027-2030*, (Feb. 2022), https://blogs.edf.org/climate411/wp-content/blogs.dir/7/files/2022/02/EDF-MDHD-Electrification-v1.6_20220209.pdf, at 18.

[194] *Id.*

[195] *Id.*

[196] *Id.*

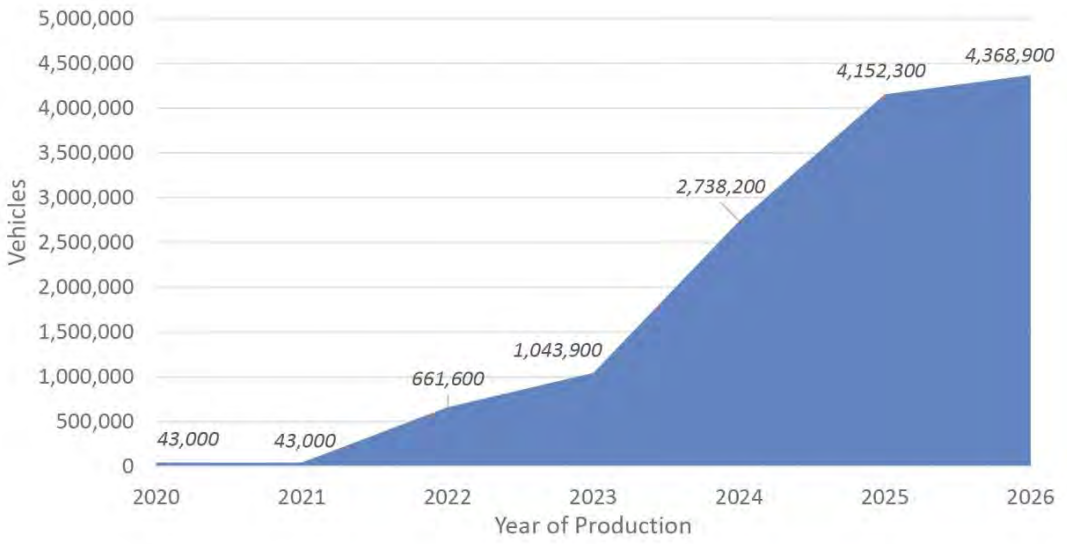
[197] EDF and ERM, *Electric Vehicle Market Update: Manufacturer and Commercial Fleet Electrification Commitments Supporting Electric Mobility in the United States*, (Apr. 2023), https://www.edf.org/sites/default/files/2023-05/Electric%20Vehicle%20Market%20Update%20April%202023.pdf.

[198] Mark Kane, "U.S. Electric Car Prices 2024: Cheapest To Most Expensive,"(Feb. 6, 2024), https://insideevs.com/news/565883/electric-car-prices-us/.

are announcing a rapidly growing number of electric models that are available now and expected to become available in the coming years.[199]

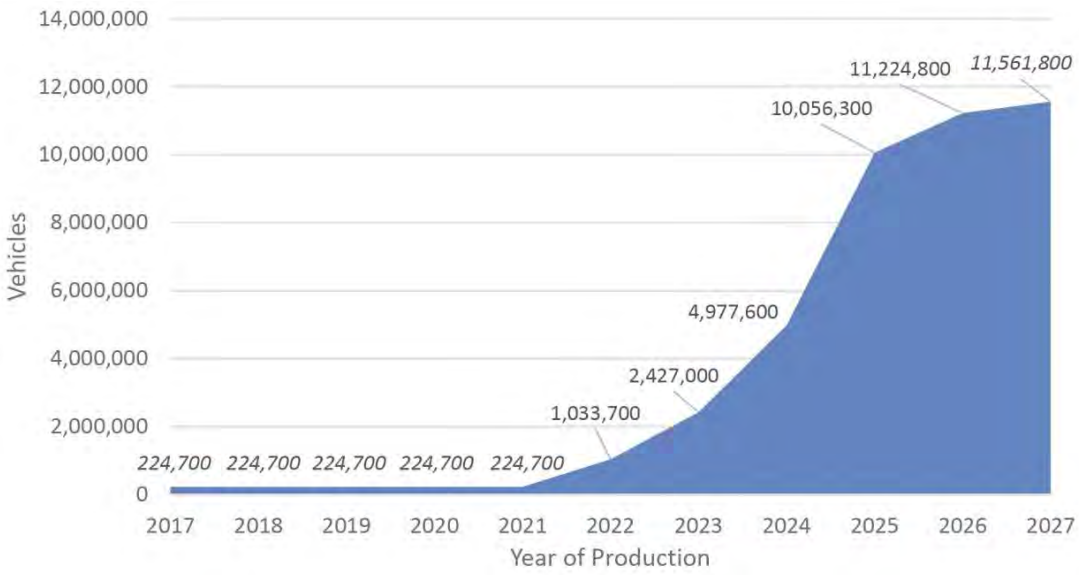
The anticipated increase in model availability will be bolstered by a significant increase in EV manufacturing in the U.S. By 2026, U.S. manufacturing facilities will be able to produce an estimated 4.3 million new electric passenger vehicles each year (about 33% of all new vehicles sold in 2022); given commitments from manufacturers to transition to EVs, this increase in manufacturing is likely to continue.[200] By 2026, battery manufacturing facilities will be able to produce more than 1,000 gigawatt hours in battery capacity, capable of supplying up to 11.2 million new passenger EVs each year (approximately 84% of all new vehicles sold in 2022).[201]

Figure 5. Total Announced EV Manufacturing Capacity (2020-2026)[202]



[199] *Id.*
[200] *Id.*
[201] *Id.*
[202] WSP, *U.S. Electric Vehicle Manufacturing Investments and Jobs*, at 5 (Mar. 2023), https://www.bing.com/ck/a?!&&p=e07444788b9c1302JmltdHM9MTcxODQ5NjAwMCZpZ3VpZD0xZTExM2Y0MC0xZjk0LTYyZjMtMjIwOS0yY2M1MWUwZDYzY2UmaW5zaWQ9NTE4OA&ptn=3&ver=2&hsh=3&fclid=1e113f40-1f94-62f3-2209-2cc51e0d63ce&psq=site%3awsp.com+WSP+and+U.S.+Electric+Vehicle+Manufacturing+Investments+and+Jobs.%22+and+march+and+2023+&u=a1aHR0cHM6Ly93d3cud3NwLmNvbS9lbi11cy9zZXJ2aWNlcy9wb2xpY3ktYW5kLXJlc2VhcmNoLy0vbWVkaWEvc2VydmljZS91cy9kb2N1bWVudC91cy1lbGVjdHJpYy12ZWhpY2xlLW1hbnVmYWN0dXJpbmctaW52ZXN0bWVudHMtYW5kLWpvYnMtcmVwb3J0LnBkZg&ntb=1.

Figure 6. Total Announced Battery Manufacturing Capacity (2017-2027)[203]



In total, automakers have announced over $210 billion of investments to support the transition towards ZEVs in the United States.[204] The ACC II rule will help to accelerate the transition towards ZEVs, while increasing customer choice of clean vehicles in Illinois.

4. The ACC II rule will make affordable ZEVs more widely available and spur adoption in disproportionately impacted communities.

The ACC II rule permits manufacturers to earn additional vehicle values from ZEV sales through environmental justice vehicle credits. These provisions will help ensure that all Illinois residents share equitably in the rule's benefits while providing additional compliance flexibility. Under these provisions, automakers may earn more than one credit per ZEV sale (*i.e.*, a higher "vehicle value") where the vehicle sale is deemed to promote equity objectives as defined by the rule.

The ACC II rule includes three options for automakers to earn higher vehicle credit values: (1) providing new EVs at a minimum 25% discount for exclusive service in community-based clean mobility programs; (2) placing end-of-lease ZEVs originally sold in Illinois into participating financial assistance programs; and (3) selling affordable vehicles with a manufacturer's suggested retail price of less than $20,000 for sedans and less than $27,000 for SUVs and trucks.[205] These credits will help to increase access to ZEVs in communities historically disadvantaged by transportation pollution.

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[203] *Id.*

[204] Noah Gabriel, "$210 Billion of Announced Investments in Electric Vehicle Manufacturing Headed for the U.S.," (Jan.12, 2023), https://www.atlasevhub.com/data_story/210-billion-of-announced-investments-in-electric-vehicle-manufacturing-headed-for-the-u-s/.

[205] International Council on Clean Transportation (ICCT), *Advanced Clean Cars II: The next phase of California's Zero-Emission Vehicle and Low-Emission Vehicle regulations*, at 6 (Nov. 2022), https://theicct.org/wp-content/uploads/2022/11/accii-zev-lez-reg-update-nov22.pdf.

Additionally, it is important to remember that only *new* vehicle sales are regulated under the ACC II program, while the majority of drivers—especially lower- and middle-income drivers—purchase used vehicles.[206] The sooner the new vehicle market transitions to ZEVs, the sooner these vehicles will become available in the used vehicle market, ensuring that used vehicle purchasers can enjoy the substantial lifetime cost savings associated with EVs. Used vehicle purchasers will be able to take advantage of a used EV tax credit included in the Inflation Reduction Act, which is set at 30% of the vehicle price, up to $4,000.[207]

5. Substantial incentives exist to support the EV transition.

Illinois residents interested in purchasing EVs can already access a number of significant financial incentives from both the public and private sectors. These incentives—a combination of tax credits, rebates, and investments—have lowered the costs of buying EVs[208] and of constructing the necessary charging infrastructure. In other words, Illinois is ready for the sort of structured, rapid transition to EVs that the ACC II rule will implement.

At the federal level, the Inflation Reduction Act includes a number of measures to support ZEV purchases. Consumers purchasing EVs are eligible for a tax credit of up to $7,500 when buying or leasing new vehicles and $4,000 when purchasing used ones.[209] In addition to the vehicle-purchase tax credits, the Inflation Reduction Act also creates a tax incentive for homeowners or businesses to install vehicle charging infrastructure for EVs.[210] Homeowners can receive up to $1,000 for their purchase and installation of an EV charger.

At the state level, CEJA provides an additional incentive for many consumers purchasing EVs. That law creates an EV rebate program wherein Illinois consumers can get a rebate of up to $4,000 after purchasing an EV.[211] The size of the potential rebate decreases over time to $2,000 after 2026 and $1,500 after 2028, supporting EV sales during the lead up to rule implementation when manufacturers may earn early compliance credits and after it takes effect. Demand for the rebate program has been high and the full allocation of funds for the program during the past fiscal year were disbursed to purchasers.[212] CEJA's rebate program has driven the greater adoption of EVs in Illinois beyond what the federal incentives alone might achieve, supporting a robust used ZEV market and a smooth transition with the ACC II rule.

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[206] Statista, "U.S. New and Used Car Sales 2010-2022," (Aug. 29, 2023), https://www.statista.com/statistics/183713/value-of-us-passenger-cas-sales-and-leases-since-1990/.
[207] IRS, *Used Clean Vehicle Credit*, (May 10, 2024), https://www.irs.gov/credits-deductions/used-clean-vehicle-credit ("IRS Used Clean Vehicle Credit").
[208] Consumer Reports, "Electric Cars Are Becoming Less Expensive," (Jan. 13, 2023), https://www.consumerreports.org/cars/hybrids-evs/electric-cars-are-becoming-less-expensive-a6548270716/.
[209] IRS, *Credits for new clean vehicles purchased in 2023 or after*, (May 14, 2024), https://www.irs.gov/credits-deductions/credits-for-new-clean-vehicles-purchased-in-2023-or-after; IRS Used Clean Vehicle Credit, *supra* note 207.
[210] IRS, *Alternative Fuel Vehicle Refueling Property Credit*, (May 9, 2024), https://www.irs.gov/credits-deductions/alternative-fuel-vehicle-refueling-property-credit.
[211] Illinois EPA, *Climate and Equitable Jobs Act*, (2024), https://epa.illinois.gov/topics/ceja html.
[212] Peter Curi, "Illinois electric vehicle rebate program out of funds," (Nov. 16, 2023), https://wgntv.com/news/illinois/illinois-electric-vehicle-rebate-program-out-of-funds/.

In addition to the EV rebate program, CEJA requires Illinois' electric utilities, specifically ComEd and Ameren, to develop and implement "Beneficial Electrification Plans" for EV charging infrastructure investments.[213] In March 2023, the Commission approved the initial plans from both utilities.[214] Both utilities' plans include programs that will support deployment of public and private charging stations. For example, ComEd's plan includes a home charging program with rebates up to $3,750 for installation of qualifying stations.[215] ComEd and Ameren's plans include investments in public charging along transportation corridors that will support distance travel and in urban areas that will provide critical access to charging for those without dedicated charging at home.[216]

Direct investment in EV charging infrastructure from the federal and the state government will also support the EV transition. Illinois will receive more than $148 million in federal funding by 2027 to help build a network of public charging stations under the National Electric Vehicle Infrastructure program, part of the Bipartisan Infrastructure Law.[217] The Illinois EPA made $27 million available for fast charging light-duty EV infrastructure across the state as part of the agency's mandate under CEJA in 2023 and announced $25.1 million in awards in 2024. It has made an additional $44 million available in 2024 for fast charging and level 2 charging, but as of yet has not granted awards from this second funding offering.[218] Further, the Illinois Finance Authority obtained an additional $14.9 million for charging station infrastructure through competitive federal funding under the Charging and Fuel Infrastructure program.[219] These tax credits, rebates, and investments will support successful implementation of the ACC II rule.

6. The ACC II rule will spur opportunities for Illinois workers and businesses.

By increasing ZEV adoption, the ACC II rule will support Illinois' growing clean transportation and clean energy economy. Illinois' workers and businesses are already benefiting from the state's efforts to decarbonize industry and boost the clean economy. Research conducted in 2022

[213] 20 ILCS § 627/45.
[214] Final Order, *Commonwealth Edison Company Petition for Approval of Beneficial Electrification Plan*, Ill. Commerce Commission, Docket Nos. 22-0432 and 22-0442 (cons.) (Mar. 23, 2023) ("ComEd BE Plan"). Final Order, *Ameren Illinois Company Petition for Approval of Beneficial Electrification Plan*, Ill. Commerce Commission, Docket Nos. 22-0431 and 22-0443 (cons.) (Mar. 23, 2023) ("Ameren BE Plan"). The Illinois Attorney General is currently appealing the ICC's approval of both utilities' Beneficial Electrification Plans.
[215] Business Wire, "ComEd Encourages Residential Customers to Apply for New EV Charger and Installation Rebate," (Jan. 1, 2024), https://www.businesswire.com/news/home/20240201470793/en/ComEd-Encourages-Residential-Customers-to-Apply-for-New-EV-Charger-and-Installation-Rebate.
[216] ComEd BE Plan, *supra* note 214, at 68-69. Ameren BE Plan, *supra* note 214, at 84-89.
[217] U.S. Dept. of Transportation Federal Highway Administration, "5-year National Electric Vehicle Infrastructure Funding by State," (Sept. 13, 2022), https://www.fhwa.dot.gov/bipartisan-infrastructure-law/evs_5year_nevi_funding_by_state.cfm.
[218] State of Illinois, "Illinois EPA Announces $27 Million Notice of Funding Opportunity for Public Light-Duty Electric Vehicle Fast Charging Infrastructure," (Nov. 3, 2023), https://www.illinois.gov/news/press-release.27239.html; State of Illinois, "Illinois EPA Announces $25.1 Million in Grant Awards for Public Electric Vehicle Charging Infrastructure," (Apr. 10, 2024), https://www.illinois.gov/news/press-release.29878.html#:~:text=In%202023%2C%20Illinois%20EPA%20awarded,%2C%22%20said%20Governor%20JB%20Pritzker.
[219] State of Illinois, "Gov. Pritzker Announces $14.9M in Federal Funding for Illinois' Community Charging Program," (Jan. 11, 2024), https://www.illinois.gov/news/press-release.29498.html.

suggests that Illinois hosts a projected 123,799 clean energy jobs. [220] In that same year, the number of jobs in the clean vehicle sector grew by 6.9%, making it Illinois' fastest growing sector.[221] The adoption of ACC II will create more well-paying jobs in those key sectors of the state's economy.

Illinois is already home to a significant number of jobs in the clean transportation industry. Rivian, a leading electric truck startup, has located its main production plant for its EVs in Normal, Illinois. The plant currently employs 7,500 people and the company has announced plans to hire for 1,700 more jobs.[222] Though the company has recently gone through some growing pains, Rivian has recommitted to Illinois, shifting even more of its production to the Normal plant.[223] Stellantis, the parent company of Chrysler, also recently announced that it was reopening its Belvidere, Illinois manufacturing plant, specifically to produce EVs. The company also plans to open a new EV battery plant in the same town, which is projected to create an additional 1,300 jobs.[224] Finally, a major EV battery manufacturer, Gotion, has announced plans to establish a $2 billion production facility in Manteno, Illinois that is projected to employ 2,600 people once it is operational.[225] Each of these Illinois employers will benefit from the increased demand for EVs that the adoption of the ACC II rule will produce.

In addition to the vehicle manufacturing jobs mentioned above, the adoption of ACC II will also lead to more jobs constructing and maintaining charging infrastructure throughout the state. More EVs in Illinois will increase the need for charging infrastructure and other clean transportation services in Illinois. For example, staff at Illinois EPA recently projected that the state will need 30,000 more charging ports for EVs by 2030 to meet the state's goal to put one million EVs on the Illinois roads.[226] Both the state government and private businesses are investing in the state to meet that target, and job opportunities in the clean transportation sector have been growing.

Because of measures included in CEJA related to workforce training and development, Illinois workers and businesses are well-positioned to take advantage of these new opportunities. CEJA creates thirteen "Clean Jobs Workforce Hubs," distributed throughout the state, which will offer training and education needed for entry-level clean energy jobs.[227] In order to establish the Workforce Hubs, the state is currently in the process of issuing grants to community-based

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[220] Clean Jobs Midwest, "Illinois Clean Energy & Transportation Jobs are Growing," (2023), https://www.cleanjobsmidwest.com/state/illinois.
[221] *Id.*
[222] Claire Bushey and Peter Campbell, "Welcome to Normal: the town that holds the keys to Rivian's future," (May 8, 2023), https://www.ft.com/content/ff4002a9-57a3-448c-af49-f665f38340ae.
[223] James Leggate, "Rivian Pauses $5B Electric Vehicle Plant in Georgia," (Mar. 11, 2024), https://www.enr.com/articles/58290-rivian-pauses-5b-electric-vehicle-plant-in-georgia.
[224] Belvidere Plant, *supra* note 15.
[225] State of Illinois, "Gov. Pritzker and Gotion Announce New $2 Billion Electric Vehicle Battery Gigafactory in Kankakee County," (Sep. 8, 2023), https://www.illinois.gov/news/press-release.26993.html.
[226] Cole Longcor, "With influx of state and federal funding, Illinois looks to add enough chargers to support 1 million EVs," (Feb. 16, 2024), https://capitolnewsillinois.com/NEWS/with-influx-of-state-and-federal-funding-illinois-looks-to-add-enough-chargers-to-support-1-million-evs.
[227] Illinois Dept. of Commerce, *Climate and Equitable Jobs Act: CEJA Workforce Training Programs*, (2024), https://dceo.illinois.gov/ceja/workforce-training-programs html ("CEJA Workforce Training Programs").

organizations who will administer workforce training programs.[228] CEJA establishes other training programs as well, which are even more explicitly aimed at ensuring that new clean energy opportunities are equitably distributed. For example, the Returning Resident Clean Jobs Training Program "provide[s] training within Illinois Department of Corrections (DOC) correctional facilities to prepare people for entry-level clean energy jobs."[229]

Illinois leaders have recognized that the growth of the state's clean energy sector presents significant opportunities for Illinois workers and businesses. In a press release before the passage of CEJA, Governor J.B. Pritzker's office stated that "[s]etting an ambitious goal for the growth of electric vehicles will help . . . creat[e] thousands of good, living wage jobs in communities across the state."[230] Many labor leaders supported the statute for those very same reasons.[231] The adoption of the ACC II rule is the next logical step to accelerate demand for EVs and to create even more clean energy jobs in Illinois.

7. The widespread adoption of EVs will put downward pressure on electricity rates for all Illinois utility customers.

The ACC II rule will aid in advancing and accelerating widespread transportation electrification, which can result in deep benefits for all utility customers, whether or not they own an EV. When charging occurs during hours of the day when there is low demand on the electric grid, it improves system efficiency and can place downward pressure on electricity rates, helping to reduce electricity costs for all utility customers. The reason "EVs hold significant potential to reduce electric rates for all customers [is] because they can bring in more revenue than associated costs, largely due to the fact EVs can be charged during hours of the day when the electric grid is underutilized."[232]

Downward pressure on electricity rates has been demonstrated in a series of studies performed by Synapse Energy Economics that rely on real-world data. In its latest review of nationwide numbers, Synapse observed that, over a ten-year period from 2011-2021, "EV drivers across the United States have contributed approximately $1.7 billion more than associated costs, driving rates down for all customers."[233] In addition to maximizing economic benefit for utility ratepayers, effective grid integration of EV charging load can also help ensure that EVs facilitate the integration of renewable energy.

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[228] Illinois Dept. of Commerce, *Illinois Clean Jobs Workforce Network Program (CEJA) Notice of Funding Opportunity 3197-2586)*, (2024), https://dceo.illinois.gov/aboutdceo/grantopportunities/3197-2586.html.
[229] CEJA Workforce Training Programs, *supra* note 227.
[230] State of Illinois, "Gov. Pritzker Announces Eight Principles for a Clean and Renewable Illinois Economy," (Aug. 21, 2020), https://gov.illinois.gov/newsroom/press-release.21974.html.
[231] Climate Jobs Illinois, "Climate Jobs Illinois: Union Labor Ready to Get to Work Building Illinois' Clean Energy Future, Fight Climate Change," (Jan. 10, 2024), https://climatejobsillinois.org/climate-jobs-illinois-union-labor-ready-to-get-to-work-building-illinois-clean-energy-future-fight-climate-change/.
[232] Synapse Energy Economics, *Electric Vehicles Are Driving Electric Rates Down*, (Dec. 2022), https://www.synapse-energy.com/sites/default/files/EV%20Impacts%20December%202022.pdf, at 1.
[233] Synapse Energy Economics, *Electric Vehicles Are Driving Rates Down: National Update*, (June 2023), https://www.synapse-energy.com/sites/default/files/Electric%20Vehicles%20Are%20Driving%20Rates%20Down%20Factsheet.pdf, at 1.

ERM's analysis of ACC II benefits for Illinois is consistent with Synapse's findings. ERM estimates that revenue from additional EV charging under the ACC II rule would result in net revenue that significantly exceeds the cost of serving that load. The utility net revenue is expected to total $323 million in 2050.[234] Because fixed annual distribution system costs will be spread over a larger energy sales base, the utility net revenue will reduce the average residential and commercial electricity rates in Illinois.[235] Such a decrease could save the average household in the state approximately $24 a year and could save the average commercial customer $202 per year.[236] This ERM analysis demonstrates how EVs help promote equitable outcomes, by helping to reduce the monthly electric bills of households and small businesses in Illinois, regardless of whether or not they own an EV.

b. The Advanced Clean Trucks (ACT) Rule

i. Summary of the ACT rule.

Beginning with MY 2028, the ACT rule requires vehicle manufacturers to produce and deliver for sale in Illinois specified quantities of ZEVs and near-zero emission vehicles in Classes 2b-8 based on increasingly higher percentages of their annual sales of on-road M/HD vehicles.

The ZEV sales percentage requirement is implemented through a credit and deficit mechanism. In each model year, manufacturers must comply by retiring sufficient credits to offset their deficits. Manufacturers generate "ZEV credits" by producing and selling ZEVs and near-zero emission vehicles to ultimate purchasers in Illinois. Deficits are calculated as the product of a manufacturer's annual sales volume in Illinois, the ZEV sales percentage requirements in Table 2, and the weight class modifiers in Table 3.

Both credits and deficits are adjusted by specified modifiers that are based on a vehicle's weight class to account for the higher emissions associated with heavier vehicles. This approach also provides flexibility for manufacturers. However, to ensure ZEV tractors will be available to reduce emissions at ports and other areas with high tractor concentrations, only Class 7 and 8 tractor credits may be used to satisfy Class 7 and 8 tractor deficits.

[234] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at UtilityImpacts page.
[235] Exhibit 2: ERM, *Illinois Advanced Clean Cars II Program* at 17.
[236] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at UtilityImpacts page.

Table 2. ACT Manufacturer ZEV Sales Requirements

Model Year (MY)	Class 2b-3 Group	Class 4-8 Group	Class 7-8 Tractor Group
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	50%	30%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035 and beyond	55%	75%	40%

Table *3.* ACT Rule Weight Class Modifiers

	Vehicles in the Class 2b-3 Group	Class 4-5 Vehicles in the Class 4-8 Group	Class 6-7 Vehicles in the Class 4- 8 Group	Class 8 Vehicles in the Class 4-8 Group	Vehicles in the Class 7 and 8 Tractor Group
Weight Class Modifier	0.8	1	1.5	2	2.5

The ACT regulation also allows manufacturers to "bank" and trade credits. For example, if Manufacturer A's deficits exceed its credits in a given model year, Manufacturer A could comply with the ACT Regulation by using banked credits or by buying credits from Manufacturer B. Deficits may be carried forward for one model year, but failure to satisfy those deficits by the end of the following model year subjects manufacturers to civil penalties for non-compliance.

ii. <u>The ACT rule will reduce harmful emissions from medium- and heavy-vehicles.</u>

The ACT rule is critical to meeting Illinois' GHG emission reduction goals, and its benefits grow as the number of zero-emitting vehicles increases over time. While other complementary policies must also play a role in accelerating deployment of zero-emission M/HD vehicles, the ACT rule is a bedrock policy in this effort, which will ensure a reliable supply of vehicles and send a market signal to key stakeholders that the state is committed to its goals to significantly reduce transportation emissions.

ERM projects that adopting the rule will reduce annual GHG emissions by 236,600 metric tons in 2030 and 1.6 million metric tons of CO_2e by 2050, compared to the 2024 federal standards.[237] In total, the rule is expected to reduce GHG emissions from Illinois' medium- and heavy-duty vehicles by 14% in 2050 (compared to 2021 emission levels), and lead to a cumulative reduction of 20 million metric tons of CO_2e by 2050 (compared to the baseline scenario's 2050 emissions).[238] The monetized value of the avoided climate harms from these emissions is up to $1.9 billion.[239] Using EPA's latest estimates of the social cost of carbon, the monetized benefit of the ACT rule's emission reductions is $6.5 billion.[240] The ACT rule's benefits are even greater compared to the previous standards, and include 81 million metric tons of cumulative avoided climate pollution with $6.8 billion in monetized benefits ($24.7 billion using EPA's latest social cost of carbon).[241] The International Council on Clean Transportation (ICCT) conducted a separate analysis that found adopting the ACT rule would produce a similar level of emission reductions, totaling 51.1 million metric tons of reductions of CO_2e by 2050 compared to a baseline scenario that did not include the federal Phase 3 standards.[242]

ERM also projects that ACT will produce significant air quality and health benefits. By 2050, the rule is projected to reduce medium- and heavy-duty vehicles' NOx emissions by 13%, and their PM emissions by 15%.[243] This results in cumulative reductions of up to 18,000 metric tons for NOx and 327 metric tons for $PM_{2.5}$ by 2050.[244] These air quality improvements are expected to produce up to 35 avoided premature deaths, 38 avoided hospital visits, and nearly 21,700 avoided respiratory illnesses, restricted activity days, and lost workdays.[245] The monetized value of these improved health outcomes totals $497 million through 2050.[246]

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[237] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Emissions page.
[238] *Id.* Note that ERM's heavy-duty vehicle analysis does not incorporate the assumption of a 100% clean electric grid by 2040, as some of ERM's ACC II scenarios do. Incorporating this assumption would make many of the projected ACT and Low NOx rule benefits even greater.
[239] *Id.*, AnnNetBenefits page.
[240] EPA GHG Social Costs Report, *supra* note 145. Estimate is based on EPA's social cost of CO_2 using a 2% discount rate, which is approximately 3.7 times the value of the Interagency Working Group estimate used by ERM for most years. Monetized climate benefits using the EPA social cost of CO_2 are estimated by multiplying ERM's annual estimated benefits by the ratio of the EPA to Interagency Working group social cost of CO_2 estimates for that year.
[241] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Emissions and AnnNetBenefits pages; EPA GHG Social Costs Report, *supra* note 145.
[242] Exhibit 5: International Council on Clean Transportation (ICCT), *Fact Sheet: Benefits of adopting California's Advanced Clean Truck Program, Heavy Duty Vehicle Omnibus Standards and a 100% sales requirement in Illinois*, (Sept. 2022), https://theicct.org/wp-content/uploads/2022/09/HDV-fact-sheet-IL-092122.pdf ("ICCT ACT Fact Sheet"), spreadsheet analysis available at https://theicct.org/benefits-ca-multi-state-reg-data/. The ICCT found combined GHG reductions of 140 million metric tons CO_2e from 2028-2050, whether those reductions are driven by Illinois adopting the ACT program or compliance with other requirements like the federal GHG Phase 2 standards. The ICCT found GHG reductions of 51.11 million metric tons from 2028-2050 from the ACT program individually (compared to a baseline scenario that did not include the federal Phase 3 standards, which were enacted after the ICCT analysis). *See* ICCT spreadsheet analysis at Tables - ACT EVs.
[243] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Emissions page.
[244] *Id.* The ICCT projected that ACT will produce a cumulative 40,397 metric ton NOx reduction and a 453 metric ton $PM_{2.5}$ reduction from 2028 to 2050, again compared to a baseline that does not include the federal Phase 3 standards. Exhibit 5: ICCT ACT Fact Sheet, *supra* note 242, at spreadsheet analysis.
[245] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Health page.
[246] *Id.* at AnnNetBenefits page.

As described above, in Illinois, the negative health impacts of current medium- and heavy-duty vehicles emissions fall disproportionately on low income communities and communities of color, compounding intersectional health inequities.[247] These modeled public health benefits do not account specifically for the distributional dimensions of public health improvements that would result from implementation of ACT in Illinois. Because these public health improvements will be concentrated in the places that medium- and heavy-duty vehicles travel, the benefits will be even more impactful than the models indicate by improving respiratory health in the very places where improvements are most direly needed.

The emissions benefits of transitioning to ZEVs also will be increased by deep emission cuts happening in Illinois' electricity sector. As every unit of electricity becomes cleaner on the way to meeting CEJA's statutory target of a decarbonized energy sector by 2045, so too does the fuel that is powering these vehicles, lowering their lifecycle emissions. These deep cuts will greatly improve the lifecycle emissions profile of Illinois' increasingly all-electric M/HD fleets.

iii. The ACT rule is highly cost-effective.

The ACT rule will produce substantial net economic benefits for Illinois. All told, ERM's analysis indicates that the ACT rule will result in more than $3.8 billion in cumulative net savings through 2050, with annual net societal benefits reaching $466 million in 2050.[248] Those benefits include monetized GHG reductions and health benefits ($1.9 billion and $497 million, respectively), savings to all utility customers ($581 million in cumulative statewide electric bill savings by 2050), and net fleet savings (which account for upfront costs, charging infrastructure costs, fuel costs, and maintenance, and which reach $209 million in annual savings by 2050).[249] Again, the ACT rule's net benefits are significantly greater compared to the previous federal standards, totaling $22.7 billion by 2050.[250]

As with ACC II, ERM's estimate of ACT's net societal benefits is likely conservative because it does not account for any government incentives,[251] does not account for some of the latest estimates of when M/HD ZEVs will reach cost parity such as the Roush study, and uses 2016 social cost of carbon figures rather than EPA's latest estimates. Even without accounting for these additional benefits, ERM's analysis clearly demonstrates that adopting the ACT rule will produce massive economic benefits for Illinois that vastly outweigh the rule's costs.

The ACT rule is also projected to create high-paying jobs and increase GDP, but these benefits are not reflected in the net societal benefit figures above. ERM's 2021 analysis projected that the ACT rule will create about 1,090 net additional jobs in 2035, although the net impact on jobs becomes negative after 2040 and reaches about 330 net job reductions by 2045.[252] However,

[247] *See supra* Part III.d.
[248] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at AnnNetBenefits page.
[249] *Id.*
[250] Exhibit 1: ERM, *Illinois Clean Trucks Program* at 5, 24 (values expressed in 2020$).
[251] *Id.* at 18.
[252] *Id.* at 20. ERM did not update its job growth or GDP estimates for its updated 2024 analysis because these are not incorporated into the analysis of overall net benefits. While the magnitude may be different, the direction and general trajectory of job and GDP impacts from ACT adoption are expected to be similar using a baseline that incorporates the new federal standards.

across all years, the jobs added by the ACT rule are expected to pay more than twice as much on average than the jobs they replace.[253] ERM's 2021 analysis also projected that adopting the rule will increase GDP by up to $175 million in 2035, with that figure tapering down to $51 million above the baseline scenario GDP in 2045.[254]

These projected economic benefits of the ACT rule do not account for the fact that Illinois is the home to leading EV manufacturers. As described above, the Lion facility in Joliet, Illinois is already producing medium- and heavy-duty EVs, including electric school buses, and has recently announced an expansion into box trucks and semis. As the ACT rule is implemented around the country, many of the medium- and heavy-duty EVs needed to comply ACT will be built in Illinois; adopting the ACT rule in Illinois will expand that market significantly, directly benefiting these modern Illinois manufacturers.

iv. The ACT rule is feasible.

1. The ACT rule's standards are achievable and consistent with market trends.

The design of the ACT rule and the state of the M/HD ZEV market strongly support the feasibility of its standards. The rule's ZEV sales requirements start low and gradually increase, allowing technology to continue to improve, supporting infrastructure to mature, and vehicle prices to decline. The ramp-up in ZEV sales requirements is modest; in MY 2028, the first compliance year, only 20-30% of new sales would need to be ZEVs, depending on vehicle class. Forecasted nationwide ZEV sales levels for vehicle classes covered by the rule are already on par with or close to the rule's sales requirements.[255] The rule also supports multiple technologies. Battery electric, hydrogen fuel cell, and plug-in hybrid vehicles can be used to comply with the ACT sales requirement.[256]

Zero-emission technologies are market-ready now in all vehicle classes—from shuttle buses and cargo vans to school buses and tractor trailers. As of January 2024, there are more than 160 models available from more than 40 manufacturers, including all legacy manufacturers.[257] The vehicle types with the most models available correspond directly with the vehicle segments that make up the largest share of M/HD vehicles on the road: MD trucks (with 73 ZEV models available); HD trucks (32 ZEV models); and cargo vans (23 ZEV models).[258] After rapid proliferation of models in the last few years, many manufacturers are focused on increasing sales of existing models and refining those models for second- or third-generation versions.[259]

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[253] *Id.*
[254] *Id.*
[255] ICCT IRA and EVs Report, supra note 172, at 29.
[256] Exhibit 1, ERM, *Illinois Clean Trucks Program* at 6.
[257] CALSTART, *Zeroing In On Zero-Emission Trucks: The State of the U.S. Market*, (Jan. 2024), https://calstart.org/wp-content/uploads/2024/01/ZIO-ZET-2024_010924_Final.pdf, at 6 ("CALSTART 2024 Market Update").
[258] *Id.*
[259] *Id.*

Manufacturer announcements and sales trends also support the feasibility of the ACT Rule. Daimler Trucks, the market leader in the U.S. for Class 7 and 8 truck sales, has a goal of selling only CO_2-neutral vehicles in North America by 2039.[260] Navistar and Volvo trucks have set similar goals, with Navistar committing to 50% global electric truck sales by 2030, and Volvo setting a target of 70% electric truck sales in North America by 2030.[261] Both companies are market leaders in sales of Class 7 and 8 trucks, school buses, transit buses, and coach buses in the United States. Many manufacturers have made similar commitments.[262]

Manufacturer commitments have accelerated model availability and translated into growing sales. According to a May 2023 market update from CALSTART, since January 2017, annual zero-emission truck[263] deployments increased year-over-year by 104% in 2018, 23% in 2019, 60% in 2020, 397% in 2021, and 163% in 2022.[264] At the time of that report, 11,646 zero-emission trucks had been deployed in the U.S. In January 2024, CALSTART updated its figures to more than 17,500.[265] States that have passed ACT account for 38% of all zero emission truck deployments despite making up just 25% of truck registrations.[266]

In addition, the ACT rule contains significant flexibilities. Each ZEV sale generates a credit which can be stored for future use for up to five years, traded, or sold. Manufacturers may also shift credits between vehicle classes, enabling manufacturers to produce more or less ZEVs in a given group. These credit banking and trading provisions enable multiple compliance pathways that make implementation easier, cheaper, and more efficient.

The ACT rule is also designed to accommodate year-to-year fluctuations in vehicle sales. In response to truck manufacturers' input, the rule accounts for unforeseen macroeconomic events by predicating ZEV sales requirements on manufacturers' annual sales volumes. If an economic contraction occurs, the ZEV sales requirements will fall to reflect production challenges. With these flexibilities, manufacturers are well positioned to comply with the ACT rule in Illinois—just as they are already preparing to comply in California, Colorado, New Mexico, New York, New Jersey, Washington, Oregon, Massachusetts, and Vermont.

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[260] David Cullen, "Daimler to Offer Carbon Neutral Trucks by 2039," (Oct. 25, 2019), https://www.truckinginfo.com/343243/daimler-aims-to-offer-only-co2-neutral-trucks-by-2039-in-key-markets.
[261] Geert De Lombaerde, "Traton boosting its trucking electrification investments," (Mar. 16, 2022), https://www fleetowner.com/emissions-efficiency/article/21236316/traton-adding-to-electrification-investments. Volvo, "Record order from Maersk for Volvo electric trucks," (Mar. 29, 2022), https://www.volvogroup.com/en/news-and-media/news/2022/mar/news-4223075 html.
[262] Geert De Lombaerde, "Traton boosting its trucking electrification investments," (Mar. 16, 2022), https://www fleetowner.com/emissions-efficiency/article/21236316/traton-adding-to-electrification-investments.
[263] Zero-emission trucks are defined as trucks "that do not emit exhaust gas or other pollutants from their onboard power source," which "includes battery-electric and hydrogen fuel-cell vehicles and excludes low-emission technologies like natural gas (compressed, liquid, or renewable), hybrid-electric, and biodiesel vehicles." CALSTART, *Zeroing In On Zero-Emission Trucks: May 2023 Market Update*, (May 2023), https://calstart.org/wp-content/uploads/2023/05/Zeroing-in-on-ZETs-May-2023-Market-Update.pdf, at 1 ("CALSTART 2023 Market Update"). "Deployed" vehicles refers to those that have been delivered to the customer and registered with the Dept. of Motor Vehicles. *Id.* at 1-2. Deployed truck counts do not include undelivered sales or fleet commitments for purchases.
[264] CALSTART 2023 Market Update, at 1.
[265] CALSTART 2024 Market Update, *supra* note 257, at 6.
[266] *Id.*

Finally, the ACT rule was developed and found to be feasible by CARB before the landmark Inflation Reduction Act (IRA) was signed into law. With the support of IRA incentives, ZEV adoption is forecasted to be close to the ZEV requirements in the ACT rule. A recent ICCT report found that IRA incentives will result in a rapid transition to ZEVs across all M/HD classes, reaching 47 to 56% of all new M/HD sales by 2035.[267] In certain classes (like refuse trucks and Class 4-7 rigid trucks), ZEVs are anticipated to constitute as high as 75% of new M/HD sales by 2035.[268]

Figure 7. M/HD Vehicle Sales Shares by Vehicle Type[269]

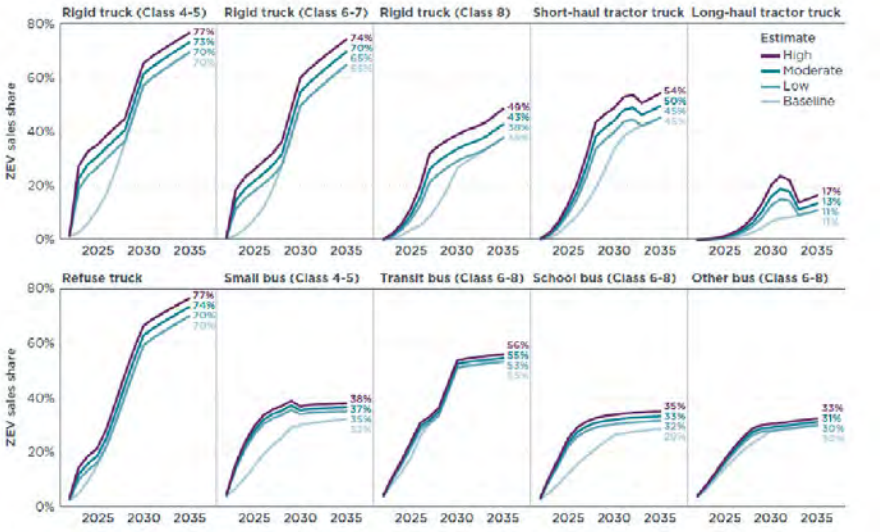

Figure 7. Baseline, IRA Low, IRA Moderate, and IRA High scenarios for U.S. heavy-duty ZEV (BEV + FCEV) sales shares by category, 2022–2035

As these graphs illustrate, market forces—influenced by regulatory policy and supercharged by federal incentives—will drive significant ZEV sales during the period of ACT rule implementation and render its sales requirements eminently achievable. At the same time, the ACT rule sends a strong market signal that will ensure ZEVs are available in Illinois and will be adopted at levels consistent with state decarbonization and air quality targets.

2. Zero-emitting M/HD vehicles offer operational cost savings compared to diesel counterparts for fleet owners and businesses.

Like light-duty ZEVs, M/HD ZEVs have lower fueling and maintenance costs than combustion engine vehicles and provide significant economic benefits for their operators. The ERM analysis estimates that savings for fleet operators to be total $209 million annually by 2050.

[267] ICCT IRA and EVs Report, *supra* note 172, at 29.
[268] *Id.*
[269] *Id.* at 14.

ERM's findings are corroborated by numerous other studies. A February 2022 analysis performed for EDF by Roush Industries, a firm working primarily in the automotive industry, rigorously assessed the costs[270] of electrifying a range of M/HD vehicles that are commonly used in urban areas, including Class 8 transit buses, Class 7 school buses, Class 3-7 shuttles and delivery vehicles, and Class 8 refuse haulers. Roush's technical analysis found that, by 2027—the calendar year the ACT rule would take effect in Illinois if adopted this year—battery electric technologies have a lower total cost of ownership (TCO) across the board compared to their diesel counterparts.[271]

The Roush study's TCO findings have been confirmed by other contemporaneous reports. In a March 2022 report, the National Renewable Energy Lab (NREL) concluded that ZEVs can reach TCO parity with diesel vehicles as early as 2026 and no later than 2035 across all M/HD vehicle classes and segments, including long-haul trucks.[272] A March 2021 study by Argonne National Laboratory similarly predicted that electric Class 4 delivery trucks will reach TCO parity with diesel trucks in 2024, day-cab tractors will achieve cost parity in 2026, and sleeper-cab tractors will reach cost parity in 2031.[273]

Notably, none of these studies considered the effect of the IRA, which includes substantial incentives and accelerates TCO parity. An updated Roush study, published in May 2023, found that as a result of grants and incentives in the IRA, the electric freight trucks and buses assessed in the earlier report will be as or less expensive than their combustion engine counterparts on a TCO basis in most categories by 2025.[274] IRA incentives similarly apply to TCO for long-haul trucks. An April 2023 study by ICCT finds that, with the benefit of IRA incentives, the TCO of battery electric long-haul trucks will likely be lower than that of their diesel counterparts by the end of the decade in all states considered in the analysis, which includes Illinois.[275] RMI similarly forecasts that long-haul trucks will reach TCO parity by 2028.[276]

Purchase price parity between ZEVs and diesel analogues is also imminent. The February 2022 Roush Study found that, "when considering upfront purchase price alone, by 2027 electric freight trucks and buses will be less expensive than their combustion engine counterparts in all

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[270] The study considered all of the costs of vehicle ownership, including purchase price, maintenance, energy/fuel, and infrastructure costs.

[271] ZEVs outperformed diesel vehicles by a significant margin across all vehicle types: at the lower end, the total cost of ownership of an electric Class 7 delivery truck is 12.7% lower compared to its diesel equivalent, while the total cost of owning an electric Class 5 delivery truck or a Class 8 delivery truck is about 30% lower than the diesel alternative.

[272] Catherine Ledna, et al., *Decarbonizing Medium- and Heavy-Duty On-Road Vehicles: Zero-Emission Vehicles Cost Analysis*, (Mar. 2022), https://www.nrel.gov/docs/fy22osti/82081.pdf.

[273] Andrew Burnham, et al., *Comprehensive Total Cost of Ownership Quantification for Vehicles with Different Size Classes and Powertrains*, (Apr. 2021), https://publications.anl.gov/anlpubs/2021/05/167399.pdf.

[274] EDF, *Impact of the Inflation Reduction Act of 2022 on Medium- and Heavy-Duty Electrification Costs for MYs 2024 and 2027*, (2023), https://www.edf.org/sites/default/files/2023-05/Impact_of_IRA_MHD_Electrification_Costs_MYs_2024_and_2027_Roush.pdf, ("EDF IRA M/HD Report").

[275] ICCT, *Total Cost of Ownership of Alternative Powertrain Technologies for Class 8 Long-Haul Trucks in the United States*, (Apr. 2023), https://theicct.org/wp-content/uploads/2023/04/tco-alt-powertrain-long-haul-trucks-us-apr23.pdf, at 3-4.

[276] RMI, "The Inflation Reduction Act Will Help Electrify Heavy-Duty Trucking," (Aug. 25, 2022), https://rmi.org/inflation-reduction-act-will-help-electrify-heavy-duty-trucking/.

categories except shuttle buses (which are close to price parity)."[277] When IRA incentives are considered, which can absorb the near-term higher upfront cost of ZEVs, all segments analyzed will now meet purchase price parity with their diesel counterparts if purchased as early as MY 2024.[278]

Not only are a wide variety of market-ready ZEV technologies available for M/HD vehicles, but those technologies are highly competitive with their diesel analogues on both a TCO and upfront purchase price basis. Market conditions and cost considerations will only improve before implementation of the ACT rule in MY 2028.[279]

3. Implementation will be supported by substantial federal, state and utility incentives.

There are significant public and private measures in place to ensure that businesses can comply with the ACT rule. These incentives lower the costs associated with purchasing clean vehicles and chargers, ensuring that businesses can fully reap the benefits of the transition to ZEVs.

Fleet owners and businesses purchasing medium- and heavy-duty ZEVs will benefit from significant federal incentives under the Inflation Reduction Act and the Bipartisan Infrastructure Law. These programs will decrease any potential costs of compliance with the ACT rule and ensure that businesses are able to profit from reduced maintenance and fuel costs over time. Because of the federal support, any disruption in the transition to ZEVs will be reduced.

The Inflation Reduction Act created significant federal tax credits for businesses purchasing new heavy-duty ZEVs or investing in charging infrastructure. With the Commercial Clean Vehicle Tax Credit, businesses can claim up to $40,000 in tax relief when purchasing qualified clean heavy-duty vehicles.[280] Businesses can also take advantage of the Alternative Fuel Infrastructure Tax Credit which provides up to $100,000 towards the costs of constructing new charging or refueling infrastructure.[281]

The federal government, led by U.S. EPA, is also making direct investments in reducing emissions from heavy-duty vehicles. As part of its Clean Heavy-Duty Vehicle Program, U.S. EPA is investing $1 billion to help replace existing heavy-duty vehicles with new low- or zero-emissions vehicles.[282] The program will consist of grants and rebates for clean vehicle purchases

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[277] Environmental Defense Fund, *New Study Finds Rapidly Declining Costs for Zero-Emitting Freight Trucks and Buses*, (Feb. 10, 2022), https://www.edf.org/media/new-study-finds-rapidly-declining-costs-zero-emitting-freight-trucks-and-buses#:~:text=The%20study%20finds%20that%2C%20when,are%20close%20to%20price%20parity.
[278] EDF, IRA M/HD Report, *supra* note 274.
[279] *See, e.g.*, Energy Innovation, *Fast-Falling Battery Prices Boost Heavy-Duty Vehicle Electrification*, (Feb. 2024), https://energyinnovation.org/wp-content/uploads/2024/02/Fast-Falling-Battery-Prices-Boost-Economic-Benefits-Expected-from-Heavy-Duty-Vehicle-Electrification.pdf.
[280] IRS, *Commercial Clean Vehicle Credit*, (June 6, 2024), https://www.irs.gov/credits-deductions/commercial-clean-vehicle-credit.
[281] IRS, *Alternative Fuel Vehicle Refueling Property Credit*, (May 9, 2024), https://www.irs.gov/credits-deductions/alternative-fuel-vehicle-refueling-property-credit.
[282] U.S. EPA, "Biden-Harris Administration Announces Nearly $1 Billion in Grants to Invest in America's Clean Heavy-Duty Vehicle Transition," (Apr. 24, 2024), https://www.epa.gov/newsreleases/biden-harris-administration-announces-nearly-1-billion-grants-invest-americas-clean.

by eligible recipients as well as investments in infrastructure, workforce development, and training to assist with the transition to clean vehicles. $400 million of the total $1 billion allocated towards the program is earmarked for investments in nonattainment areas under the Clean Air Act which includes two major population centers in Illinois: the Chicago and East St. Louis metro areas.

U.S. EPA is also administering the Clean School Bus Program which will invest $5 billion towards replacing existing school buses with lower emissions vehicles.[283] A number of Illinois school districts have benefitted from funding through the program's grants and rebates and over 450 school buses in the state are set to be replaced. So far, organizations and school districts in Illinois have received over $169 million in funds from the program and more funding is set to be disbursed this year.[284]

The State of Illinois has also allocated funds from the Volkswagen Environmental Mitigation Trust towards replacing dirty heavy-duty vehicles in Illinois.[285] The Volkswagen Trust is a fund that was established as part of a comprehensive settlement for Volkswagen's violations of the Clean Air Act.[286] Illinois initially received approximately $108 million from the trust and revised its spending plan for its allocation in 2022. The revised plan aims to spend over 80% of the remaining funds in the trust on replacing heavy-duty vehicles—a combination of public transit buses, school buses, and local freight trucks.[287]

Finally, some businesses and fleet owners in Illinois will be able to access incentives from their electric utility. ComEd, as part of its Beneficial Electrification Plan process under CEJA, has set aside $174 million in 2024 and 2025 towards customer rebates for the purchase of new EVs and charging infrastructure.[288] $57 million of those funds, each year, is specifically allocated towards rebates for new vehicles and rebates can range from $5,000 to 180,000 each.

The incentives described above will provide businesses and fleet owners with substantial support to comply with the measures in the ACT rule. Businesses will be able to benefit from the cost-savings associated with transitioning to ZEVs while using the incentives to reduce the up-front expenses of purchasing vehicles and chargers.

4. The ACT rule will increase M/HD ZEV availability, creating economies of scale that will further reduce costs.

The ACT rule will increase ZEV model availability, increasing economies of scale and driving down costs. Zero-emission models have already rapidly proliferated during the development of

[283] U.S. EPA, *Clean School Bus Program*, (May 29, 2024), https://www.epa.gov/cleanschoolbus.
[284] U.S. EPA, *Clean School Bus Program Awards*, (May 30, 2024), https://www.epa.gov/cleanschoolbus/clean-school-bus-program-awards.
[285] Illinois EPA, *VW Settlement*, (2024), https://epa.illinois.gov/topics/air-quality/driving-a-cleaner-illinois/vw-settlement html.
[286] *Id.*
[287] *Id.*
[288] Business Wire, "ComEd Announces New EV Rebates for Business and Public Sector Customers; Applications to Open February 15," (Feb. 8, 2024), https://www.businesswire.com/news/home/20240208573429/en/ComEd-Announces-New-EV-Rebates-for-Business-and-Public-Sector-Customers-Applications-to-Open-February-15.

the ACT rule and its adoption in other states. In 2019, there were only 20 models of Class 2b-8 zero-emission trucks.[289] Today, there are more than 160 models available, and more than 40 OEMs have at least one zero-emission offering.[290] Greater adoption of the ACT rule will only accelerate these market shifts. As Ceres has observed, a regulation that sets sales targets, like the ACT rule, will "lead to lower production costs by increasing sales and production volumes, which would further justify increased investment in infrastructure and incentivize the production of battery electric trucks in other classes."[291]

Regulations like the ACT and Low NOx Rules will also drive major technology advancements that could further reduce already-favorable ZEV technology costs. For example, according to ERM, "[a]dvancements in solid-state batteries could be revolutionary, and have significant potential to drive additional battery pack cost reductions in the future."[292] At scale, solid-state cells "could be manufactured at 40 percent of the cost of current lithium-ion batteries."[293] Research at top universities in the United States could revolutionize battery chemistries in a way that could significantly reduce the upfront cost of EVs, but the extent of that impact will be determined by the promulgation of policies like the ACT rule that send strong market signals and support mobilization of long-term investments.

c. The Heavy-Duty Low NOx Omnibus (Low NOx) Rule

i. Summary of the Low NOx rule.

The Low NOx rule primarily establishes NOx and PM exhaust emission standards for M/HD diesel-cycle and Otto-cycle engines. In Illinois, these new emission standards would take effect beginning with MY 2028. The NOx standards set by the regulation are more protective than the new federal standards set to take effect in MY 2027,[294] and the rule's PM standards are aligned with the new federal standards enacted in 2023.[295] The Low NOx rule is designed to complement the ACT rule by significantly reducing health-harming pollution from combustion vehicles as the ACT rule grows the ZEVs share of new vehicle sales.

The Low NOx rule's emission standards are based on three pre-existing certification cycles,[296] as well as on a new low load cycle that reflects engine operations under low load and low speed

[289] CALSTART,*Zeroing In On Zero-Emission Trucks*, at 8 (Jan. 2022), https://calstart.org/wp-content/uploads/2022/02/ZIO-ZETs-Report_Updated-Final-II.pdf.
[290] CALSTART, *Zeroing In)n Zero-Emission Trucks*, at 6 (Jan. 2024), https://calstart.org/wp-content/uploads/2024/01/ZIO-ZET-2024_010924_Final.pdf.
[291] Ceres, *Electrifying Trucking: The Case for Ambitious Federal Emission Standards and Policies*, (May 2022), at 2.
[292] EDF and ERM, *Electric Vehicle Market Update: Manufacturer Commitments and Public Policy Initiatives Supporting Electric Mobility in the U.S. and Worldwide*, (Sept. 2022), https://blogs.edf.org/climate411/wp-content/blogs.dir/7/files/2022/09/ERM-EDF-Electric-Vehicle-Market-Report_September2022.pdf, at 33.
[293] *Id.*
[294] In 2023, EPA adopted new NOx emission limits for HD vehicles beginning in MY 2027. *See* 88 Fed. Reg. 4296, 4305 Table I-1 (Jan. 24, 2023). The Low-NOx rule requires MY 2027 MHD vehicles to achieve an emission rate of 0.02 g/bhp-hr, compared to 0.035 g/bhp-hr under the EPA standard.
[295] The Low-NOx rule establishes a PM exhaust emission standard of 0.005 g/bhp-hr for 2024 and subsequent MY engines.
[296] These test procedures include the heavy-duty transient Federal Test Procedure (FTP), the ramped modal cycle (RMC), and the idling test procedure.

urban driving operations. The rule proposed here has two phases (MY 2028 and MY 2031+) and sets different NOx emission limits under the four cycles. In addition, the Low NOx rule extends useful life and warranty provisions for covered vehicles.

The Low NOx rule's emission standards and associated test procedures apply to new heavy-duty diesel-cycle and Otto-cycle engines used in heavy-duty vehicles with a gross vehicle weight rating (GVWR) of greater than 14,000 lbs., and with new medium-duty diesel-cycle and Otto-cycle engines used in medium-duty vehicles with GVWR between 10,001 and 14,000 lbs. that optionally certify to the rule's requirements.

On July 6, 2023, CARB announced a Clean Truck Partnership with ten major U.S. truck manufacturers and the Truck and Engine Manufacturers Association.[297] As one of the terms of the partnership, CARB agreed, with certain reservations, "to harmonize" the Low NOx rule's standards with EPA's Clean Truck Program-NOx regulation that was finalized in January 2023 and is set to take effect in MY 2027.[298] As of the filing of this regulatory proposal, CARB has yet to take any action to align the Low NOx rule with EPA's Clean Truck Program.[299] If CARB does take action, Rule Proponents intend to update this proposal. If CARB does act to harmonize its standards with EPA's, adoption of the Low NOx rule would guard against federal backsliding and ensure Illinois can achieve necessary NOx emissions reductions.

ii. The Low NOx rule will significantly reduce NOx emissions, and ground-level ozone concentrations, in Illinois.

The Low NOx rule will reduce emissions from new M/HD vehicles by 90% starting in MY 2028 relative to the standards that are in effect today, and by 43% relative to the new federal standards adopted in 2023.[300] This will dramatically reduce harmful NOx emissions in Illinois starting shortly after the rule takes effect, and growing over the lifetime of affected vehicles. ERM's 2021 analysis shows that the Low NOx rule could account for roughly 15,400 metric tons of annual NOx reductions by 2050 compared to the standards that are currently in effect, with similarly large annual reductions throughout the 2040-2050 time period and significant reductions in earlier years.[301] The rule will also achieve significant NOx reductions compared to

[297] California Air Resources Board (CARB), *Clean Truck Partnership Agreement*, (July 6, 2023), https://ww2.arb.ca.gov/sites/default/files/2023-07/Final%20Agreement%20between%20CARB%20and%20EMA%202023_06_27.pdf.
[298] *Id.* at 3.
[299] CARB, "Clean Truck Partnership Commitments – Status and Outcome," (Mar. 28, 2024), https://ww2.arb.ca.gov/clean-truck-partnership.
[300] The currently effective federal NOx standards are 0.2 g/bhp-hr, and the newly-enacted federal standards are 0.035 g/bhp-hr. 88 Fed. Reg. 4296, 4305 Table I-1 (Jan. 24, 2023). The Low-NOx rule requires MY 2027 MHD vehicles to achieve an emission rate of 0.02 g/bhp-hr. 13 C.C.R. § 1956.8(a)(2)(D).
[301] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Emissions page. ERM's 2021 analysis included a scenario adopting the ACT rule and a scenario adopting both the ACT and Low NOx rules. The NOx reductions reported in this Statement of Reasons represent the difference in emissions between those two scenarios in ERM's 2021 analysis. Due to time and resource limitations and the potential for developments related to harmonization between the CARB and EPA standards, ERM's updated 2024 analysis focused on the ACT rule, and did not include a scenario comparing the Low NOx rule to the new EPA NOx standards. If new information and analysis becomes available as the Board is considering this Petition, Rule Proponents will provide that information and supplement the Petition materials as appropriate.

the new federal standards enacted in 2023.[302] Based on ERM's 2021 analysis, Rule Proponents estimate that the Low NOx rule will reduce annual NOx reductions by 1,285 metric tons in 2050 and cumulatively avoid 27,133 metric tons of NOx emissions by 2050.[303]

The emission reductions from the Low NOx rule will produce an estimated $876.5 million in cumulative public health benefits by 2050 compared to the new federal standards.[304] Because M/HD vehicles are the largest source of NOx pollution in the state, and because ozone is a product of the reaction of NOx with volatile organic compounds, reducing NOx emissions will lower ozone concentrations.[305] The largest share of these NOx reductions will occur in Illinois' ozone nonattainment areas, as this is where M/HD vehicle usage in the state is concentrated.[306] Importantly, the monetized health benefits above account only for reduced exposure to $PM_{2.5}$, and do not include the benefits of reduced exposure to ozone, NOx, and other health-harming pollution.[307] The actual health benefits of adopting the Low NOx rule are therefore likely to be greater than these estimates suggest.

iii. The Low NOx rule's public health and economic benefits significantly outweigh its costs.

ERM's 2021 analysis showed that the health benefits of the Low NOx rule significantly outweighed its compliance costs, yielding $3.7 billion in net benefits by 2050 relative to a scenario that included the ACT rule and the previously-adopted federal NOx standards.[308] The Low NOx rule's conservatively-estimated $876.5 million in health benefits relative to the new federal standards can likewise be expected to outweigh any incremental costs to comply with the rule, above the compliance costs that manufacturers will already incur to meet the new federal standards. And when the Low NOx rule is combined with the complementary ACT and ACC II

[302] These reductions can be estimated as approximately 8.3% of the reductions estimated based on ERM's 2021 analysis (as described in footnote 301), based on the relative difference in stringency between the Low NOx rule and the two different federal standards. The Low NOx rule's 0.02 g/bhp-hr standard is 0.18 g/bhp-hr lower than the previous federal standards and 0.015 g/bhp-hr lower than the new federal standards. The difference between the Low NOx rule and the new federal standards is 8.3% as great as the difference between the Low NOx rule and the previous federal standards (0.015 / 0.18 = 8.3%). Because this Petition proposes to adopt the rules starting in MY 2028 instead of MY 2025, as assumed in ERM's 2021 analysis, Rule Proponents have only included values from 2028 to 2050 in estimating the Low NOx rule's cumulative benefits.

[303] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Emissions page. Calculated as described in footnote 302 above. The ICCT estimates a reduction of 94,674 metric tons of total NOx reductions from the Low NOx rule from 2028-2050. Exhibit 5: ICCT ACT Fact Sheet, *supra* note 242, at spreadsheet analysis.

[304] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at Emissions page. Calculated as described in footnote 302 above. Values converted from 2020$ to 2024$ using U.S. Bureau of Economic Analysis GDP Price Deflator, https://apps.bea.gov/iTable/?reqid=19&step=3&isuri=1&1921=survey&1903=11&_gl=1*shxc00*_ga*MTc4NjE1MTM0NC4xNzE4NzA2NjAw*_ga_J4698JNNFT*MTcxODcwNjYwMC4xLjEuMTcxODcwNjc5Ni4xLjAuMA..#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbIk5JUEFfVGFibGVfTGlzdCIsIjEzIl0sWyJDYXRlZ29yaWVzIiwiU3VydmV5Il0sWyJGaXJzdF9ZZWFyIiwiMjAyMCJdLFsiTGFzdF9ZZWFyIiwiMjAyNCJdLFsiU2NhbGUiLCIwIl0sWyJTZXJpZXMiLCJRIl1dfQ==.

[305] U.S. EPA, *2020 National Emissions Inventory Supporting Data and Summaries*, (May 21, 2024), https://www.epa.gov/air-emissions-inventories/2020-nei-supporting-data-and-summaries.

[306] *Id.* (showing 49.3% of NOx emissions from on-road heavy-duty diesel vehicles occurring in nonattainment area counties).

[307] *See* Exhibit 3: ERM, *Illinois Clean Trucks Program* at 14.

[308] *See id.* at 23-24.

rules, it is clear that the combined rule package will produce many billions of dollars in net benefits.

iv. The Low NOx rule's emission standards are achievable.

The Low NOx rule sets the NOx emission limit for new combustion-engine M/HD vehicles to 0.020 gram per brake horsepower-hour (g/bhp-hr) for MY 2027 and subsequent years. Nearly a decade of research, testing, and demonstrations show that this standard is readily achievable.

When developing the Low NOx rule, the California Air Resources Board (CARB) thoroughly evaluated the technical feasibility of the Rule's more stringent emission standards in partnership with EPA, the Southwest Research Institute (SwRI), Manufacturers of Emission Controls Association, South Coast Air Quality Management District, and engine manufacturers. The testing demonstrated and modeled cost-effective solutions to meet the MY 2027 standard. The results from this multimillion-dollar demonstration project are conclusive: the standard can be met with plenty of margin across a variety of real-world truck routes.[309] The following table compares the Low NOx rule's emission standard and vehicle warranty requirements (expressed in miles) with emissions testing results from three key emissions tests performed in the SwRI demonstration project—the Federal Test Procedure (FTP), Low Load Cycle (LLC), Ramped Modal Cycle Version of the Supplemental Emission Test (SET).[310] The results show that vehicles can attain the Low NOx rule's standard across all tests.

Table 4. Low NOx Standards Compared to Southwest Research Institute's Emissions Testing

	Low NOx Rule Requirement	**SwRI Results**	**Low NOx Rule Requirement**	**SwRI Results**
Test Cycle	NOx g/bhp-hr at 435k miles		NOx g/bhp-hr at 600k miles	
FTP	0.020	0.020	0.035	0.029
LLC	0.050	0.029	0.090	0.027
SET	0.020	0.017	0.035	0.033

While the SwRI demonstration project proves what is possible, the companies building emission control systems are delivering solutions. The Manufacturers of Emission Controls Association states that its members are developing numerous engines and aftertreatment technologies "to simultaneously meet future NOx and GHG emission standards," including "electrification,

[309] CARB, *Appendix I: Current and Advanced Emission Control Strategies and Key Findings of CARB/SwRI Demonstration Work*, (June 23, 2020), https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2020/hdomnibuslownox/appi.pdf.
[310] CARB, *Low NOx Research Update*, https://www.4cleanair.org/wp-content/uploads/NACAA-MS-Committee-Bill-Robertson-2-22-2022.pdf, (Feb. 22, 2022), at slide 9.

advanced turbochargers, EGR systems, cylinder deactivation, advanced catalysts and substrates, novel aftertreatment architectures, and dual urea dosing with optional heating."[311]

Truck manufacturers are also developing compliant engine technologies that may also cut costs for fleets and manufacturers. One demonstration project deployed a Class 8 Peterbilt tractor in Walmart's fleet capable of meeting the MY 2027 NOx emission limit.[312] It did so while improving fuel economy by 10% and using opposed piston engines, a technology that is expected to cost *less* than current engines. The Low NOx rule is designed to drive precisely this type of innovation, and the rule affords ample lead time for manufacturers to develop and commercialize compliant technologies. This is particularly true for Illinois given that the rule's NOx standard would begin in MY 2028, a year after going into effect in ten other states.

d. Affected Sources and Facilities

The proposed motor vehicle emissions standards will apply statewide to *new* on-road vehicles delivered for sale in Illinois by manufacturers beginning with vehicle MY 2028. The standards have no effect on existing motor vehicles. Because the rules will apply to only vehicles produced and sold in the future, no currently existing sources of air pollution will be directly affected.

Because of the impossibility of listing affected sources that do not currently exist, a list of specific sources is not included. Precedent from prior Board rulemakings concerning motor vehicle inspection rules suggests that no such list is necessary even for rules affecting existing motor vehicles because of the "burden of compiling such a substantial list of sources."[313]

The regulatory compliance requirements of the three rules fall on vehicle manufacturers that sell light-, medium- and heavy-duty vehicles into Illinois. These requirements are already in place in California and ten other states, so the manufacturers are already aware of these requirements.[314]

As explained throughout this Statement of Reasons, the rules will achieve emissions reductions beyond those required by the otherwise-applicable federal standards. There are no federal analogs for the ZEV sales requirements contained in the ACC II and ACT rules, and the Low NOx rule sets a more stringent NOx emission limit than federal standards.

e. Economic Impact of the Proposed Rules

As explained in sections IV.a.iii, IV.b.iii, and IV.c.iii above, each of the proposed rules are independently cost-effective, and the combined package of proposed rules is likewise cost-effective. The ACC II rule is projected to achieve up to $82.6 billion in cumulative net societal

[311] Mfrs. of Emission Controls Ass'n, *Statement on the U.S. EPA's Notice of Proposed Rulemaking*, Docket No. EPA-HQ-OAR-2019-0055, (May 16, 2022), at 1, https://www regulations.gov/comment/EPA-HQ-OAR-2019-0055-1320.
[312] Achates Power, "In-Use Emissions Report for Heavy-Duty Diesel Engine," (Apr. 2022), https://achatespower.com/wp-content/uploads/2022/04/Achates-Power-In-Use-Emissions-Measurements.pdf.
[313] Illinois Pollution Control Board (IPCB), *Revision of Enhanced Vehicle Emission Inspection and Maintenance (I/M) Regulations,* Ill. Pollution Control Bd. Regulatory Proposal 2012-012, (Oct. 3, 2011).
[314] In addition, at least one of the rules has been adopted in three other states and the District of Columbia. *See* Clean Vehicle State Tracker, *supra* note 20.

benefits through 2050.[315] The ACT rule is projected to achieve more than $3.8 billion in cumulative net societal benefits through 2050.[316] Collectively, the proposed rules may achieve over $86 billion in net societal benefits through 2050 compared to the latest federal standards. Compared to the previous federal standards that could become the baseline if the new federal standards are repealed, the proposed rules will produce over $204 billion in net benefits through 2050.[317] These net benefits may be even greater if investments in grid and charging infrastructure to implement ACC II reduce the need for overlapping investments to implement ACT and vice versa. The estimated benefits are conservative in several ways, and do not account for the equity benefits of delivering health benefits in communities that currently and historically suffer the worst effects of local air pollution. Nor do they include additional benefits like net job creation and GDP growth resulting from the proposed rules that will be enjoyed specifically by Illinois EV manufacturers and their Illinois hometowns.

V. CONCLUSION

For the reasons set out above, the Rule Proponents urge the Board to set a rulemaking schedule to adopt the ACC II, ACT, and Low NOx rules without delay in 2024. Promulgating and implementing this set of clean vehicles rules is a critical step in fulfilling Illinois' commitment to protecting environmental justice communities and addressing the existential threat of climate change. Together these rules will deliver enormous public health benefits and secure lasting reductions in greenhouse gas emissions.

Our organizations look forward to working with the Board, the Illinois Environmental Protection Agency, the Illinois Attorney General's Office, and other stakeholders to move Illinois toward a clean and equitable transportation future.

For the reasons stated above, the Rule Proponents ask the Board to accept this Statement of Reasons and proceed to hearings on the above-captioned rulemaking proposal.

Respectfully submitted this 27th day of June, 2024,

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[315] Exhibit 4: ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* at CumulNetBenefits page.
[316] Exhibit 3: ERM, *Analysis Update: Illinois Clean Trucks Program* at AnnNetBenefits page.
[317] Exhibit 2: ERM, *Illinois Advanced Clean Cars II Program* at 1; Exhibit 1: ERM, *Illinois Clean Trucks Program* at 24.

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WITNESSES AND SYNOPOSIS OF TESTIMONY
(35 Ill. Admin. Code § 102.202(c)

Pursuant to 35 Ill. Adm. Code 102.202(c), the Rule Proponents provide the following synopses of testimony from seven witnesses that will testify in support of the proposed rules during the Board's public hearings. Statements of Qualifications for witnesses Kathy Harris, Tom Cackette, and Muhammed Patel are included as exhibits. The testimony summaries below identify how particular witnesses will testify in support of various facts and analyses in the foregoing proposal; the Rule Proponents reserve the right to present testimony of additional witnesses, to substitute individual witnesses identified below, or to present testimony on additional subject matters at the hearing to the extent such additional subject matter becomes relevant in this proceeding. Pre-filed testimony for other witnesses will be filed in a time and manner to be determined by a hearing officer.

a. Tom Cackette

Tom Cackette is an expert in federal and state policies related to zero-emission vehicles, including zero-emission trucks and buses. Mr. Cackette will discuss address model availability, total cost of ownership and upfront cost parity, including the positive influence of Inflation Reduction Act credits, technology feasibility, and rule flexibility as discussed in sections IV.a., IV.b., and IV.c. of the Statement of Reasons. He previously served as the Deputy Executive Officer at the California Air Resources Board, where he directed development and implementation of emission control regulations for nearly every mobile source of emissions. A CV for Mr. Cackette is included as Rule Proponents' Exhibit 10.

b. Kathy Harris

Kathleen Harris is the Director of Clean Vehicles at the Natural Resources Defense Council (NRDC). She leads NRDC's clean vehicles work at the state and federal level. In 2023, she testified before the Senate Environment and Public Works Subcommittee on the benefits of ZEVs in the United States. Ms. Harris is an expert on state and federal vehicle emission regulations and policies related to electric vehicles. Her testimony will address these issues and the benefits of Illinois adopting the proposed Advanced Clean Car rule as discussed in section IV.a. of the Statement of Reasons. She holds a Bachelor's of Science in Environmental Science with a concentration in marine science and a minor in Political Science and a Master's of Marine Policy, both from the University of Delaware. Prior to joining NRDC, Ms. Harris worked for the State of Delaware as a Clean Transportation Planner and the Delaware Clean Cities Coordinator. Her resume is Rule Proponents' Exhibit 11 and the witnesses' joint testimony is Exhibit 9.

c. Muhammed Patel

Muhammed Patel is the Midwest Transportation Advocate at the Natural Resources Defense Council (NRDC). He leads NRDC's transportation advocacy in Illinois and other Midwest states, and testified earlier this year in the Illinois House Public Utilities Committee. Mr. Patel is an expert on state and federal vehicle emission regulations and policies related to medium- and heavy-duty electric vehicles. His testimony will address these issues and the benefits of Illinois

adopting the proposed Advanced Clean Trucks and Low NOx rules as discussed in sections IV.b. and IV.c. of the Statement of Reasons. Mr. Patel holds a Bachelor of Science in Environmental Engineering from Northwestern University. Prior to NRDC, he worked as a consultant for state and local governments on transportation policy, including workforce development, program/project funding, and strategies for building equitable transportation infrastructure. His resume is Rule Proponents' Exhibit 12 and the witnesses' joint testimony is Exhibit 9.

d. Dr. Peter Orris

Dr. Peter Orris is the former Chief of Occupational and Environmental Medicine for the University of Illinois Health System. Dr. Orris is also a fellow the American College of Physicians, the American College of Occupational and Environmental Medicine, and the Institute of Medicine of Chicago. He holds professorships at University of Illinois—Chicago's School of Public Health, Northwestern University's Feinberg School of Medicine, and Rush University's Medical College. Previously, Dr. Orris has served as the Midwest Regional Medical Officer for the National Institute for Occupational Safety and Health (NIOSH) and the Centers for Disease Control (CDC); the Medical Director of the Mount Sinai Hospital; and later the Northwest Community Hospital Occupational Medicine Programs. He also served as a teaching attending physician for both in and outpatients in the Department of Medicine at Cook County Hospital for over 35 years.

Dr. Orris holds a Bachelor's of Arts in Biology from Harvard University and a Master's of Public Health from Yale University. He received his M.D. from Rosalind Franklin University of Medicine and Science. Dr. Orris will testify to the public health impacts of air pollution associated with vehicle emissions. Specifically, he will explain how exposure to air pollutants from vehicle emissions can cause or exacerbate respiratory diseases, cardiovascular diseases, and cancer, often causing premature death. Dr. Orris will also testify to the adverse effects of extreme heat on public health as described in section III.a of the Statement of Reasons.

Finally, Dr. Orris, drawing on his experience as a clinician, will speak to the increased impacts of air pollution on communities of color in Chicago as described in section III.d of the Statement of Reasons.

e. Dr. Daniel E. Horton

Daniel E. Horton is an assistant professor at Northwestern University's Weinberg College of Arts and Sciences in the Department of Earth and Planetary Sciences. He also holds a courtesy appointment in the McCormick School of Engineering's Department of Civil and Environmental Engineering. At Northwestern, Professor Horton leads the Climate Change Research Group which is a group of professors and students focused on using numerical models, environmental observations, statistical analyses, and machine learning techniques to ask and answer pertinent questions to understanding Earth's climate. Much of Professor Horton's recent research has focused on modeling the potential public health and air quality benefits associated with the mass adoption of electric vehicles. Professor Horton holds a Bachelor's of Science in Physics from Tulane University and a Bachelor's of Science in Atmospheric Sciences from Texas A&M University. Professor Horton received his PhD in Geological Sciences from the University of

Michigan. Professor Horton's testimony will focus on the current state of air quality in Illinois, with a particular focus on the role that vehicle emissions play in creating unhealthy air quality in many high-density areas of the state as described in sections III.b and III.c.. He will also testify to the disproportionate impact of those vehicle emissions on public health and air quality in communities of color as described in Part III.d. In addition to his testimony on the current state of air quality in Illinois, Professor Horton will also speak to the potential benefits of vehicle electrification based on his past research and modeling. He will testify to the ways in which the adoption of the proposed regulations should be expected to improve air quality and reduce adverse health outcomes associated with air pollution.

Professor Horton has authored a number of studies relevant to the issues described in the Statement of Reasons and will be available to answer questions on the following:

- Camilleri NO_2 Report, *supra* note 101.
- Camilleri HDV Report, *supra* note 53.
- Maxime A. Visa, et al., "Neighborhood-scale air quality, public health, and equity implications of multi-modal vehicle electrification," *Env. Res.: Infrastruct. Sustain.*, 3, 035007, (Sep. 13, 2023), https://iopscience.iop.org/article/10.1088/2634-4505/acf60d.
- D.R. Peters, et al., "Public health and climate benefits and tradeoffs of U.S. vehicle electrification," *GeoHealth*, 4, (Oct. 2020), https://pubmed.ncbi.nlm.nih.gov/33094205/.
-Jordan L. Schnell, et al., "Air quality impacts from the electrification of light-duty passenger vehicles in the United States," *Atmospheric Environment*, 208, 95-102, (July 1, 2019), https://www.sciencedirect.com/science/article/abs/pii/S1352231019302183.

f. José Acosta

José Acosta-Córdova is a Senior Transportation Policy Analyst at the Little Village Environmental Justice Organization (LVEJO). LVEJO is a Chicago-based public interest group whose mission is to advance environmental justice in the Little Village neighborhood of Chicago by organizing and advancing the interests of immigrant, low-income, and working-class families. José leads LVEJO's local and state transportation policy work focused on freight and warehousing issues in EJ communities. José holds a Bachelor's of Arts in Urban and Public Affairs a Master's in Urban Planning and Policy from the University of Illinois—Chicago. He is currently pursuing a PhD in Geography and GIS from the University of Illinois.

José will testify to the disparate impacts of air pollution on EJ communities throughout the state as described in section III of the Statement of Reasons. In particular, José will speak to the disproportionate share of vehicle emissions concentrated in EJ communities in Chicago and how those vehicle emissions affect the health and quality of life of residents of those communities. José will also testify to the need for the Board to promptly consider and adopt the regulations proposed in the Statement of Reasons.

g. Brian Urbaszewski

Brian Urbaszewski is the Director of Environmental Health Programs at Respiratory Health Association. Respiratory Health Association is an Illinois-based, public health advocacy group whose mission is to prevent lung disease, promote clean air, and help people live better through education, research, and policy change. He holds a Bachelor's degree in Geographic Studies from the University of Chicago and a Masters of Urban Planning and Policy from the University of Illinois – Chicago. He has also done post graduate work at the University of California – Los Angeles. Brian manages the organization's advocacy and programs related to clean air issues including climate change, clean energy, and electric vehicles.

Brian has served as Director of Environmental Health Programs at RHA for over 25 years, where he has worked with community and environmental justice groups throughout Illinois in efforts to address local environmental health threats from coal-fired power plants, to refineries and industrial facilities, as well as mobile source emissions from cars, buses, trucks and locomotives. He has also worked to educate the press and policy makers on clean air issues of concern as well as solutions. He has also been the main contact for RHA in legal actions against large polluters as well as RHA's representative in legislative and administrative hearings dealing with air pollution policy. Previously, he worked for the Illinois Environmental Protection Agency and within the office of Illinois Governor Jim Edgar.

Brian will testify to the public health benefits of reducing air pollution from the transportation sector, to the various state, federal and utility policies and resources that promote and support vehicle electrification, and to the research and publications cited throughout the Statement of Reasons that Respiratory Health Association authored or participated in. In particular, Brian will testify in support of material described in Sections II.b., III.b.-d., IV.a.iv., and IV.b.iv.

SUPPORTING DOCUMENTS
(35 Ill. Admin. Code § 102.202(e))

Pursuant to 35 Ill. Adm. Code 102.202(e) and 5 ILCS 100/5-40(b)(3.5), the Rule Proponents hereby provide a "descriptive title or other description of any published study or research report used in developing the rule, the identity of the person who performed such study, and a description of where the public may obtain a copy of any such study or research report."

The following list details the key studies and reports that the Rule Proponents used in developing this regulatory proposal. These studies have been included as exhibits to this Statement of Reasons. Additional documents and reports are cited in footnotes throughout this statement of reasons, along with identifying information such as author, title, date of publication, and, where available, links to the document.

Exhibit No.	**Document**
1.	ERM, *Illinois Clean Trucks Program: An Analysis of the Impacts of Zero-Emission Medium- and Heavy-Duty Trucks on the Environment, Public Health, Industry, and the Economy*, (2022), https://www.erm.com/contentassets/f3d6061dd8a04147a3f38b7db256ae44/il-clean-trucks-report.pdf.
2.	ERM, *Illinois Advanced Clean Cars II Program*, (Sept. 2023), https://www.erm.com/globalassets/documents/reports/illinois_acc_ii_report_2023.pdf.
3.	ERM, *Analysis Update: Illinois Clean Trucks Program* (June 2024).*
4.	ERM, *Analysis Update: Illinois Advanced Clean Cars II Program* (June 2024).*
5.	International Council on Clean Transportation (ICCT), *Fact Sheet: Benefits of adopting California's Advanced Clean Truck Program, Heavy Duty Vehicle Omnibus Standards and a 100% sales requirement in Illinois*, (Sept. 2022), https://theicct.org/wp-content/uploads/2022/09/HDV-fact-sheet-IL-092122.pdf.
6.	Respiratory Health Association, *Racial Disparities in Childhood Asthma: Chicago, 2016-2021*, (May 2022), https://resphealth.org/wp-content/uploads/2022/05/Updated-Asthma-Disparities-Report.pdf.
7.	Respiratory Health Association, *The Dirty Dozen: The Impacts of Diesel Engine Pollution in Illinois*, (May 2022), https://resphealth.org/wp-content/uploads/2022/05/Dirty-Dozen-Impact-of-Diesel-Engine-Pollution-in-

	Illinois.pdf.
8.	Sierra Club, et al., "Letter to Governor Pritzker: Re: Vehicles' Contribution to Illinois Ozone Pollution: Implications for Public Health and Environmental Justice in Illinois," (Nov. 1, 2023), https://www.sierraclub.org/sites/default/files/2023-11/IL%20Sonoma%20Report_Letter.pdf.
9.	Summary of Joint Testimony of Kathy Harris and Muhammed Patel
10.	CV of Tom Cackette
11.	CV of Kathy Harris
12.	CV of Muhammed Patel
13.	Materials to be incorporated by reference++

* These exhibits are spreadsheets from ERM. Although hard copies will be provided, the files will be most useful when viewed electronically in Microsoft Excel. They will be provided to the Board in that format, along with the electronic version of the proposed rules, to: don.brown@illinois.gov.

++ Due to file size, this material is included as a separate PDF. *See* 35 Ill. Admin. Code § 102.202(d).

EXHIBIT 1

Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

Illinois Clean Trucks Program

An Analysis of the Impacts of Zero-Emission Medium- and Heavy-Duty Trucks on the Environment, Public Health, Industry, and the Economy

ERM

Acknowledgments

Lead Authors: Ellen Robo, David Seamonds, Miranda Freeman, Amlan Saha, and Doug MacNair.

This report was developed by ERM for the Natural Resources Defense Council and the Union of Concerned Scientists.

About ERM, formerly M.J. Bradley & Associates

ERM partners with the world's leading organizations, creating innovative solutions to sustainability challenges, and unlocking commercial opportunities that meet the needs of today while preserving opportunity for future generations. Our diverse team of world-class experts supports clients across the breadth of their organizations to operationalize sustainability, underpinned by our deep technical expertise in addressing their environmental, health, safety, risk, and social issues. M.J. Bradley & Associates (MJB&A) was acquired by ERM Group company in 2022. For more information we encourage you to visit our website, www.erm.com or www.sustainability.com.

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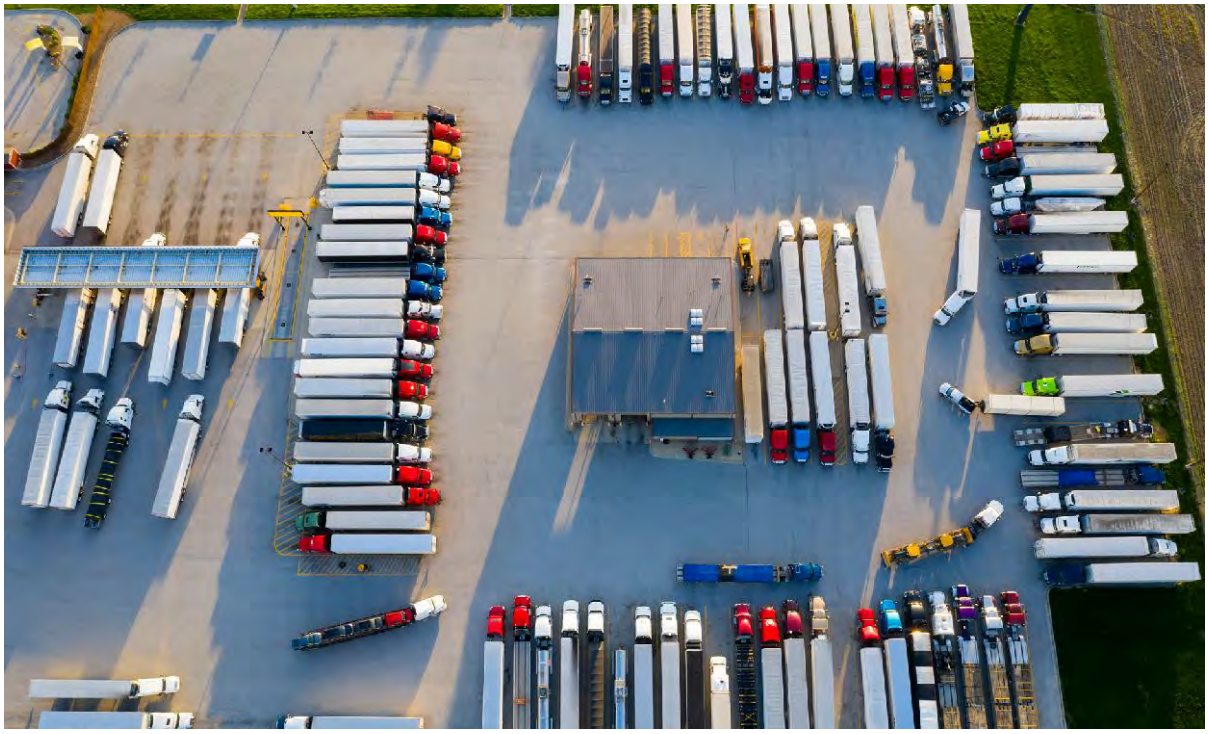
This report is available at www.sustainability.com.

Cover image: "Kenworth/Toyota Fuel Cell Electric Truck (FCET)1" by TruckPR is licensed under CC BY-NC-SA 2.0

Contents



Introduction

ERM was commissioned by the Natural Resources Defense Council and the Union of Concerned Scientists to evaluate the costs and benefits of state-level requirements for manufacturers that Illinois could adopt to increase sales of no- and low-emission medium- and heavy-duty (M/HD) trucks and buses. The analysis examines all on-road vehicles registered in Illinois with greater than 8,501 pounds gross vehicle weight, encompassing vehicle weight classes from Class 2b though Class 8. This is a diverse set of mostly commercial vehicles that includes heavy-duty pickups; school and shuttle buses; sanitation, construction, and other types of work trucks; and freight trucks ranging from local delivery vans to tractor-trailers that weigh up to 80,000 pounds when loaded.

Collectively the Illinois M/HD fleet includes 615,603 vehicles that annually travel more than 14.4 billion miles and consume almost 1.9 billion gallons of petroleum-based fuels.

In Illinois, M/HD vehicles are currently responsible for a disproportionate amount of pollution from on-road vehicles. Despite making up only 7 percent of the on-road fleet, M/HD vehicles emit estimated 22.0 million metric tons (MMT) of greenhouse gas (GHG) emissions annually—approximately 36 percent of all GHGs from the on-road vehicle fleet.[1] In Illinois M/HD vehicles are also responsible for 67 percent of the nitrogen oxide (NOx) and 59 percent of the particulate matter (PM^2) emitted by on-road vehicles, both of which contribute to poor air quality and resulting negative health impacts in many urban areas, including low-income and communities of color that are often disproportionately affected by emissions from freight movement due to their proximity to transportation infrastructure.

1 The remainder of emissions are from passenger cars and light trucks This includes tailpipe emissions and “upstream” emissions from fuel production and transport

2 In this report all references to PM are particulate matter with mean aerodynamic diameter less than 2 5 microns (PM2 5)

Prior work by ERM (2020) conducted in consultation with the New Jersey Environmental Justice Alliance and members of the Coalition for Healthy Ports NY NJ demonstrated that emissions from diesel trucks and buses produce higher levels of air pollution, which can lead to greater health concerns in populations exposed to diesel emissions.[3] Communities located adjacent to goods-movement infrastructure (e.g., warehouses, intermodal terminals, logistics centers, rail yards, etc.) experience higher levels of truck traffic, both from surrounding thruways and on local streets, which exacerbates health concerns. Since these emissions are local in their effects, policies to reduce transportation emissions from medium- and heavy-duty vehicles can improve the health and well-being of communities in urban areas or around transportation corridors, which are often home to people of color or low income or those who are otherwise vulnerable or disadvantaged. But to ensure reductions in those communities, program requirements on truck manufacturers, such as the Advanced Clean Truck and Heavy-Duty Omnibus Rules discussed below, would need to be accompanied by additional policies designed specifically with these communities in mind.

For the study of Illinois, ERM modeled three Clean Truck policy scenarios with increasing levels of ambition. Under the least aggressive scenario—adoption of California's Advanced Clean Truck (ACT) rule (allowable under the Clean Air Act)—estimated cumulative net societal benefits total almost $22.7 billion (in constant 2020$) through 2050, compared with the baseline scenario.[4] These net societal benefits include the monetized value of climate and public health benefits resulting from reduced GHG, NOx, and PM emissions in the state, including up to 310 fewer premature deaths and 347 fewer hospital visits from breathing polluted air. Net societal benefits also include net cost savings to fleets from operating zero-emission trucks, and savings to all residential and commercial electricity customers due to lower electric rates made possible by the additional electricity sales for electric vehicle charging. Under the ACT scenario, by 2050 annual cost savings for Illinois fleets are estimated to be $1.2 billion, and annual bill savings for electric utility customers in the state could reach an estimated $62 million.[5]

The most aggressive policy scenario (100 x 40 ZEV + Clean Grid, discussed below) results in turnover of virtually the entire Illinois M/HD fleet to zero-emission vehicles (ZEVs) by 2050, together with a shift to cleaner electricity generation sources. Cumulative net societal benefits through 2050 increase to more than $44.6 billion under this scenario, and there will be an estimated 878 fewer premature deaths and 995 fewer hospital visits. In 2050 estimated annual fleet cost savings also increase, to $2.4 billion, and electric customer annual bill savings increase to an estimated $103 million.

Implementation of the modeled scenarios will require significant changes to the national economy, as manufacturing of internal combustion engine vehicles is replaced by manufacturing of electric and fuel cell vehicles, and production and sale of petroleum fuels is replaced by increased production and sale of electricity and hydrogen. This analysis indicates that this transition will have positive macroeconomic effects, including increased net jobs and gross domestic product (GDP), as well as increased wages for the new jobs that will be added, relative to the jobs that will be replaced.

Compared with the baseline scenario, net national job gains under the most aggressive policy scenario total 1,386 in 2035. This will be accompanied by a $239 million increase in 2035 GDP. Average wages for the new jobs created under the ZEV transition are expected to be, on average, more than twice as high as average wages for the jobs that will be replaced.

3 ERM, *Newark Community Impacts of Mobile Source Emissions: A Community-Based Participatory Research Analysis*, November 2020, http://www njeja org/wp-content/uploads/2021/04/NewarkCommunityImpacts_MJBA pdf

4 All values cited in this report are in constant 2020$, unless otherwise stated

5 The modeling tools used for this analysis could not apportion these estimated benefits to individual communities within Illinois

Policy Scenarios

This report summarizes the projected environmental and economic effects of Illinois adopting policies requiring manufacturers to sell a greater number of M/HDV low- and no-emission vehicles over the next 30 years. Three specific Clean Truck policy scenarios, representing increasing levels of ambition, were evaluated.

- **ACT Rule:** Illinois adopts requirements analogous to those adopted by California under the Advanced Clean Trucks Rule, which requires an increasing percentage of new trucks purchased in the state to be ZEVs beginning in the 2025 model year.[6] The percentage of new vehicles that must be ZEV varies by vehicle type, but for all vehicle types the required ZEV percentage increases each model year between 2025 and 2035 (see Figure 1).
- **ACT Rule plus NOx Omnibus Rule:** In addition to adopting the ACT Rule, Illinois adopts requirements analogous to those adopted by California under the Heavy-Duty Omnibus Rule (referred to herein as the NOx Omnibus Rule). This rule requires an additional 75 percent reduction in nitrogen oxide (NOx) emissions from the engines in new gasoline and diesel trucks sold between model year 2025 and 2026, and a 90 percent reduction for trucks sold beginning in the 2027 model year.[7]
- **100 x 40 ZEV + Clean Grid:** In addition to adopting the ACT and NOx Omnibus Rules, Illinois takes further actions to ensure more rapid and continued increases in new ZEV sales, such that virtually all new trucks are ZEV by 2040 (see Figure 1), with Class 2b–3 achieving 100 percent ZEV sales in 2038 and Class 4–8 (non-tractors) achieving 100 percent ZEV sales in 2035. In addition, an aggressive federal Clean Energy Standard is assumed to ensure that electricity generation in the state is carbon free and over 90% renewable by 2050. State-specific, renewable portfolio standards that could increase the renewable electricity levels even more were not analyzed as part of this study.

All three of these Illinois policy scenarios are compared with a baseline "business as usual" scenario in which all new trucks sold in the state continue to meet existing EPA NOx emission standards and ZEV sales increase only marginally, never reaching more than 1 percent of new vehicle sales each year.[8]

The analysis assumes that M/HD annual vehicle miles traveled (VMT) in Illinois will continue to grow by approximately 0.3 percent annually through 2050, as projected by the Energy Information Administration (EIA), as the economy and population continue to grow. The modeled policy scenarios do not include freight system enhancements or mode shifting to slow the growth of, or reduce, M/HD truck miles; this would be expected to provide additional emission reductions.

The analysis was conducted using ERM's STate Emission Pathways (STEP) Tool. The climate and air quality impacts of each policy scenario were estimated on the basis of changes in M/HD fleet fuel use and include both tailpipe emissions and "upstream" emissions from production of the transportation fuels used in each scenario. These include petroleum fuels used by conventional internal combustion engine vehicles (gasoline, diesel, natural gas) and electricity and hydrogen used by ZEVs, which are assumed to include both battery electric (EV) and hydrogen fuel cell electric (FCV) vehicles.

6 If the ACT is adopted in Illinois in 2022, the first year of compliance will be model year 2026 The modeling assumes the first compliance year is 2025

7 Reductions are relative to current federal EPA new engine emission standards This rule does not require additional PM reductions but includes anti-backsliding provisions to ensure that PM emissions do not increase compared with engines designed to meet current federal standards

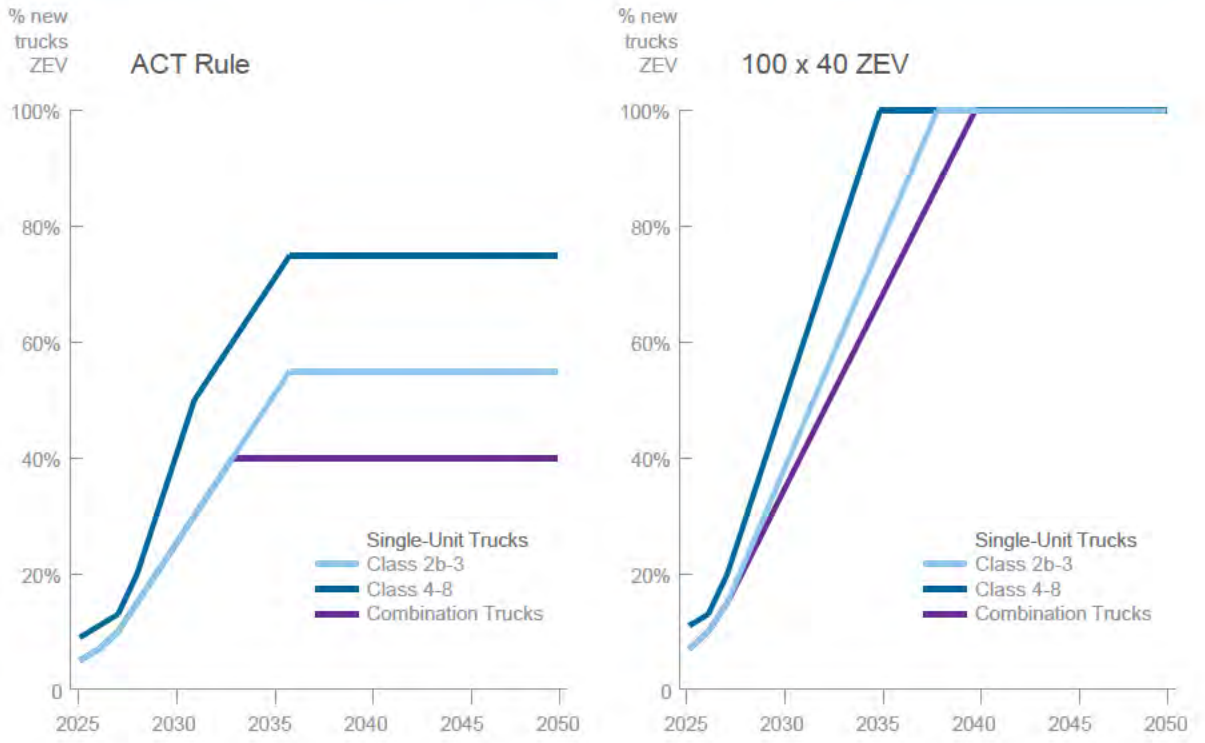
8 The baseline ZEV sales assumptions are consistent with projections in the Energy Information Administration's Annual Energy Outlook 2021

To evaluate climate impacts, the analysis estimated changes in all combustion related GHGs, including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). To evaluate air quality impacts, the analysis estimated changes in total nitrogen oxide (NOx) and particulate matter (PM) emissions and resulting changes in ambient air quality and health metrics such as premature deaths, hospital visits, and lost workdays.

The economic analysis estimated the change in annual M/HD fleet-wide spending on vehicle purchase, charging/fueling infrastructure to support ZEVs, vehicle fuel, and vehicle and infrastructure maintenance under each scenario. Currently ZEVs are more expensive to purchase than equivalent gasoline and diesel vehicles, but they have lower fuel and maintenance costs. Over time the incremental purchase cost of ZEVs is also projected to fall. Technologies required to meet the more stringent NOx standards of the NOx Omnibus Rule are also projected to increase purchase costs for compliant vehicles.

On the basis of estimated changes in fleet spending, the analysis estimated the macroeconomic effects of each scenario on national jobs, wages, and gross domestic product (GDP).

Figure 1 Annual Zero-Emission Vehicle Sales in Clean Truck Policy Scenarios



The analysis also estimated the impact of each scenario on Illinois's electric utilities, including the total state change in power demand (kW) and energy consumption (kWh) for M/HD EV charging, as well as the additional revenue and net revenue that would be received by the state's electric utilities for providing this power. On the basis of projected utility net revenue, the analysis estimates the potential effect on state electricity rates for residential and commercial customers.

In addition, the analysis estimated the total number of vehicle chargers that will be required to support the increase in M/HD EVs under each scenario—both depot-based chargers and shared public chargers—compared with the existing charging network in the state.

For a full description of the modeling approach and sources of assumptions used for this analysis, see the report: *Clean Trucks Analysis: Costs & Benefits of State-Level Policies to Require No- and Low-Emission Trucks, Technical Report—Methodologies and Assumptions*, May 2021 (https://www.erm.com/globalassets/documents/mjba-archive/reports/2021/clean-trucks-technical-report-final-09jun21.pdf).

The Illinois electric grid mix and energy cost assumptions used can also be found in the Appendix to this report.

Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

Illinois Results

The sections below detail the results of the Illinois Clean Trucks analysis, beginning with a description of the current Illinois M/HDV fleet and the projected fleet under each modeled policy scenario. This is followed by a summary of the environmental and public health benefits of each scenario and the economic impacts of the modeled fleet transitions.

Illinois M/HD Vehicle Fleet

Table 1 summarizes the current M/HD fleet in Illinois, broken down by the four major vehicle types used to frame the Clean Trucks analysis.

Table 1 Current Illinois M/HD Fleet

Vehicle Type	No. of Vehicles	Annual VMT (billion miles)	Annual Fuel (million gallons)
Heavy-Duty Pickup and Van **Class 2b** 	147,289	1.66	88.6
Bus **Class 3–8** 	44,182	0.80	100.3
Single-Unit Work and Freight Truck **Class 3–8** 	282,420	3.47	425.4
Combination Truck **Class 7–8** 	141,712	8.49	1,240.5
TOTAL	**615,603**	**14.417**	**1,854.8**

Approximately 24 percent of the in-use M/HD fleet are Class 2b vehicles (8,500–10,000 in gross vehicle weight rating, GVWR), which are mostly heavy-duty pickup trucks and vans.[9] These vehicles account for 12 percent of annual M/HD miles and 5 percent of annual fuel use. Approximately 7 percent of the fleet are buses, which account for 6 percent of annual VMT and 5 percent of annual fuel use. This includes relatively small shuttle buses (class 3–5) as well as school buses, transit buses, and intercity/charter coach buses.[10] Forty-six percent of the fleet are single-unit freight and work trucks, which account for 24 percent of annual VMT and 23 percent of annual fuel use. These vehicles come in a wide variety of sizes (Class 3–8) and have a wide variety of uses, from vans and box trucks used to deliver freight, to sanitation and construction trucks, to boom-equipped utility trucks. Only 23 percent of the fleet are combination truck-tractors, but these vehicles account for 59 percent of annual VMT and 67 percent of annual fuel use, since approximately two-thirds of these vehicles are used primarily for long-distance freight hauling and typically log many more daily and annual miles than other M/HD vehicles.

Today less than 1 percent of the national M/HD fleet is powered by electricity or alternative fuels (natural gas and propane). Approximately 64 percent of the fleet have diesel engines and 36 percent use gasoline.[11] The largest Class 7 and 8 vehicles are almost all diesel, while almost 50 percent of the smaller Class 2b–5 trucks have gasoline engines, with most of the remainder diesel.

Figure 2 summarizes the modeled turnover of the Illinois in-use fleet to zero-emission and low-NOx trucks under the three Clean Truck policy scenarios. Fleet turnover to new trucks is based on historical average turnover rates and projected fleet growth rates, along with the new vehicle ZEV purchase percentages shown in Figure 1. Approximately 6.1 percent of existing Class 2b trucks and 4.7 percent of Class 3–8 trucks and buses are retired each year and replaced with new vehicles.[12] The ACT + NOx Omnibus scenario and the 100 x 40 ZEV + Clean Grid scenario further assume that all new vehicles purchased in 2024 and later years that are not ZEV will have low-NOx engines compliant with the NOx Omnibus standards.

As shown, under the ACT Rule policy scenario, 31 percent of the in-use M/HD fleet will turn over to ZEV by 2040, and 54 percent are ZEV by 2050; all of these ZEVs are assumed to be electric vehicles. Under the ACT + NOx Omnibus policy scenario, the same percentage of the fleet turns over to ZEV, but the remaining internal combustion engine vehicles in the fleet turn over to low-NOx engines by 2044. Under the 100 x 40 ZEV + Clean Grid policy scenario, 49 percent of the in-use fleet turns over to ZEV by 2040 and 91 percent do so by 2050. This scenario assumes that new ZEVs will include both EV and fuel cell vehicles powered by hydrogen. In 2050, 6.9 percent of in-use ZEVs are assumed to be FCV and 82 percent are EV.

9 A very small percentage of these vehicles are large SUVs

10 Note that the ACT Rule does not include ZEV requirements for transit buses, as these vehicles are covered by a separate Innovative Clean Transit regulation in California

11 These figures are based on state registration data collected by IHS Markit

12 This is a long-term average Actual annual turnover is highly correlated to economic conditions and can vary widely from year to year

Figure 2 Fleet Turnover to Low-NOx and Zero-Emission Vehicles in Clean Truck Policy Scenarios

EV (battery electric vehicle); FC (fuel cell vehicle); LNOx ICE (low-NOx internal combustion engine vehicle); ICE (conventional internal combustion engine vehicle)

Changes in Fleet Fuel Use

Under all modeled Clean Truck policy scenarios, a significant portion of the Illinois M/HD fleet is assumed to turn over to EV and FCV trucks and buses. This will result in replacement of petroleum fuels—primarily gasoline and diesel fuel—with electricity and hydrogen.[13]

Under the baseline scenario, total petroleum fuel use by the Illinois M/HD fleet in 2050 is projected to be 1.48 billion gallons. Under the ACT Rule policy scenario, petroleum fuel use in 2050 falls to an estimated 810 million gallons (–45 percent), and cumulative reductions in diesel and gasoline use by the M/HD fleet total 8.4 billion gallons between 2020 and 2050. This petroleum fuel is replaced by 150.8 million megawatt-hours (MWh) of electricity between 2020 and 2050. Electricity use for M/HD EV charging in 2050 is estimated to be 12.7 million MWh, an 11 percent increase to estimated baseline electricity use by Illinois residential and commercial customers that year (111.0 million MWh).

Adding the NOx Omnibus Rule to the ACT Rule does not result in additional reductions in petroleum fuel use.

Under the 100 x 40 ZEV + Clean Grid scenario, estimated petroleum fuel use by the M/HD fleet in 2050 falls to 173 million gallons (–88 percent), and cumulative reductions in diesel and gasoline use by the M/HD fleet total 14.9 billion gallons between 2020 and 2050. This petroleum fuel is replaced by 226 million MWh of electricity and 2.6 billion kilograms of hydrogen between 2020 and 2050. Electricity use for M/HD EV charging in 2050 is estimated to be 19.7 million MWh, an 18 percent increase to estimated baseline electricity use by Illinois residential and commercial customers that year.

Public Health and the Environment

The modeled Clean Trucks policy scenarios produce significant reductions in NOx, PM, and GHG emissions from the M/HD fleet, even after accounting for the emissions from producing the electricity and hydrogen needed to power ZEVs. NOx and PM reductions will improve air quality resulting in public health benefits from reduced mortality and hospital visits.

Air Quality Impacts

Figures 3 and 4 show estimated annual M/HD fleet NOx and PM emissions, respectively, under the baseline scenario and the modeled Clean Truck policy scenarios. Under the baseline scenario, annual M/HD fleet NOx emissions are projected to fall by 46 percent and annual fleet PM emissions are projected to fall 73 percent through 2045, as the current fleet turns over to new gasoline and diesel trucks with cleaner engines that meet more stringent EPA new engine emissions standards. After 2045 baseline annual NOx and PM emissions are then projected to start rising again as annual fleet VMT continues to grow.

13 A small number of M/HD trucks and buses in Illinois currently use natural gas

Figure 3 Projected M/HD Fleet NOx Emissions

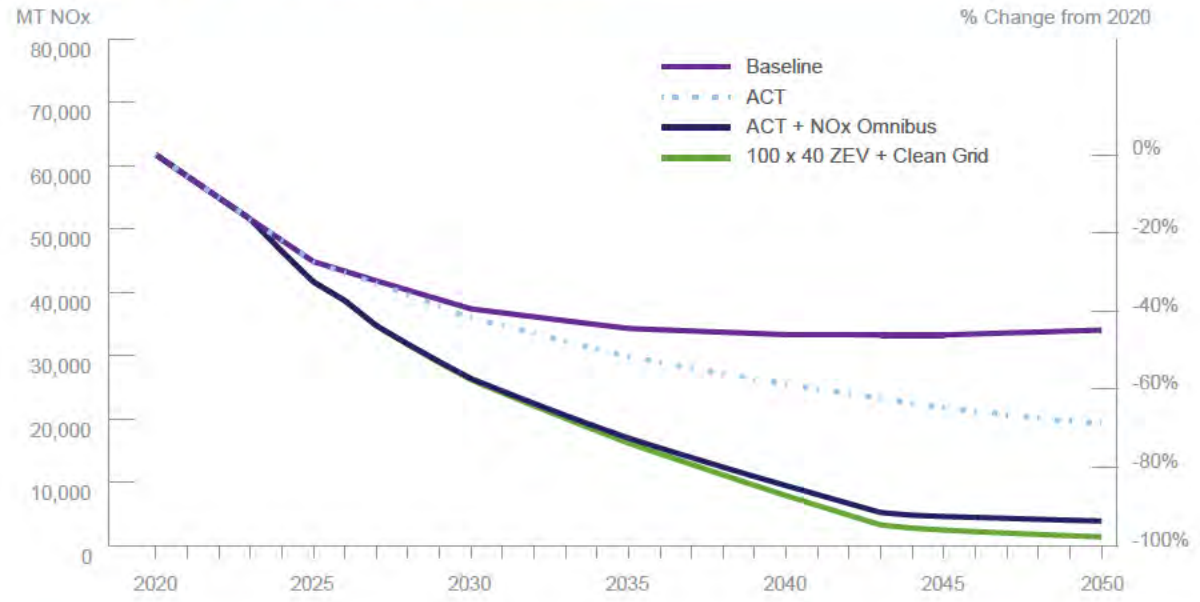
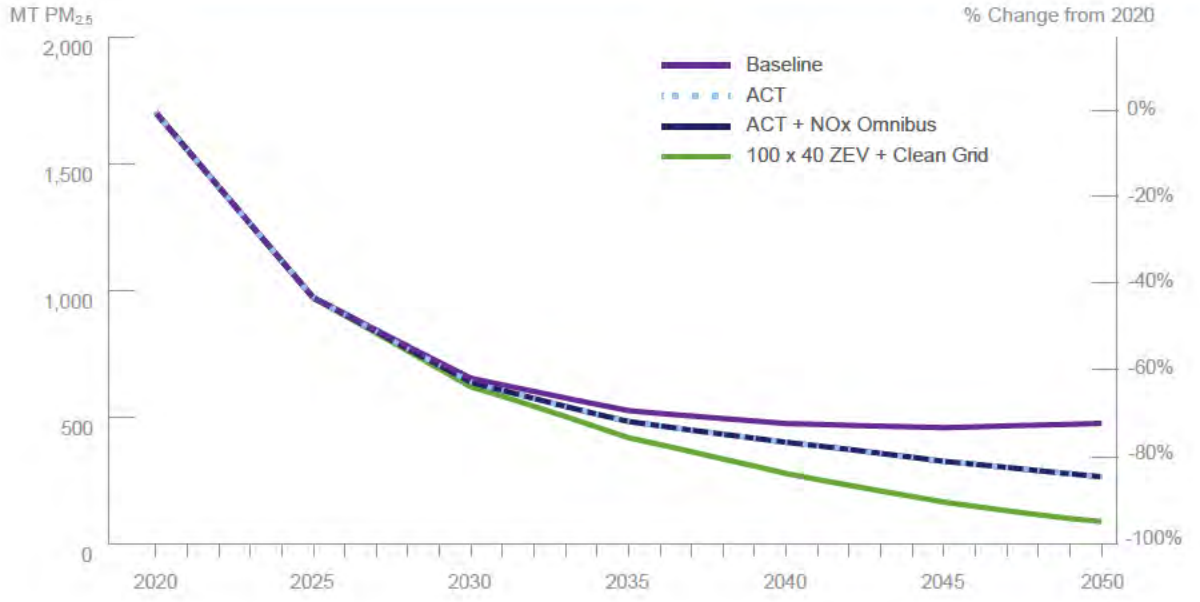


Figure 4 Projected M/HD Fleet PM Emissions



Compared with the baseline, by 2050 the ACT rule is estimated to reduce annual fleet NOx and PM emissions by 43 percent and 44 percent, respectively, as diesel and gasoline trucks are replaced with electric vehicles. Adding the NOx Omnibus Rule will further reduce annual fleet NOx emissions due to turnover of the diesel and gasoline portion of the fleet to new vehicles with low-NOx engines; by 2050 annual NOx emissions are projected to be 89 percent lower than under the baseline if both the ACT and NOx Omnibus Rules are implemented.

As shown in Figures 3 and 4, the 2050 emission levels are dramatically lower for all scenarios compared to today's (2021) levels. The ACT + NOx Omnibus scenario, for example, contributes to reductions that are 94 percent lower in nitrogen oxide (NOx) and 84 percent lower in PM in 2050 compared to today's levels. The 100 x 40 ZEV + Clean Grid scenario has the lowest fleet emissions due to replacement of virtually all gasoline and diesel trucks and buses with EVs and FCVs by 2050, when annual NOx and PM emissions are estimated to be 96 percent and 82 percent lower, respectively, than baseline emissions.

Over the next 30 years, cumulative NOx and PM emission reductions from the ACT Rule (compared with the baseline scenario) total 170,600 metric tons (MT) and 1,970 MT, respectively. Additional cumulative NOx reductions from the NOx Omnibus Rule are estimated at 341,500 MT over the same time. Cumulative NOx and PM emission reductions from the 100 x 40 ZEV + Clean Grid scenario (compared with the baseline) are projected to total 543,200 MT and 4,340 MT, respectively.

Public Health Benefits

The reduced annual NOx and PM emissions under the Clean Truck policy scenarios will reduce ambient particulate levels in the air, which will reduce the negative health effects on Illinois residents breathing in these airborne particles.[14] Estimated public health impacts include reductions in premature mortality and fewer hospital admissions and emergency room visits for asthma. There will also be reduced cases of acute bronchitis, exacerbated asthma, and other respiratory symptoms, and fewer restricted activity days and lost workdays. Cumulative estimated reductions in these health outcomes in Illinois under the modeled Clean Truck policy scenarios are shown in Table 2; these benefits were estimated using the U.S. Environmental Protection Agency's CO-Benefits Risk Assessment (COBRA) Health Impacts Screening and Mapping Tool.

Table 2 Cumulative Public Health Benefits of Clean Truck Policy Scenarios, 2020–2050

Health Metric	ACT Rule	ACT + NOx Omnibus	100 x 40 ZEV + Clean Grid
Avoided Premature Deaths	310	765	878
Avoided Hospital Visits[a]	347	874	995
Avoided Minor Cases[b]	193,287	481,090	549,534
Monetized Value, 2020$ (millions)	$3,627	$8,951	$10,276

a Includes hospital admissions and emergency room visits

b Includes reduced cases of acute bronchitis, exacerbated asthma, and other respiratory symptoms, and reduced restricted activity days and lost workdays

14 PM is directly emitted to the atmosphere from combustion sources as solid particles NOx is emitted from combustion sources as a gas but contributes to the formation of secondary particles via chemical reactions in the atmosphere Both direct and secondary particles have negative health effects when taken into the lungs

The monetized value of cumulative public health benefits from the ACT Rule over the next 30 years totals more than $3.6 billion. Adding the NOx Omnibus Rule would increase the monetized value of cumulative net public health benefits to $9.0 billion. The monetized value of cumulative public health benefits under the 100 x 40 ZEV + Clean Grid policy scenario totals $10.3 billion through 2050.

Climate Benefits

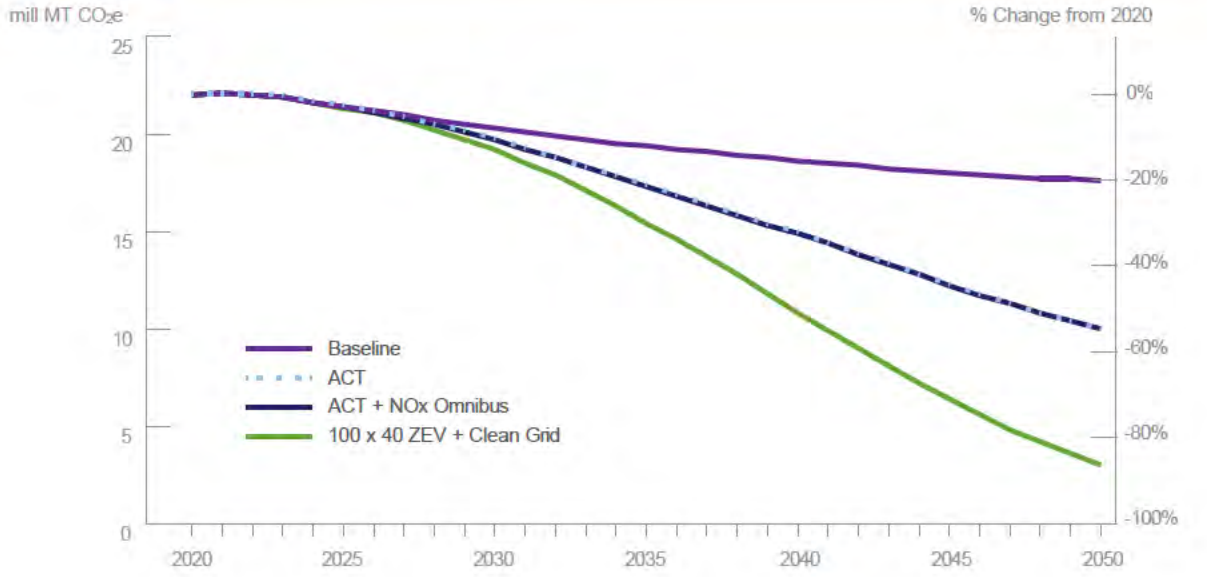
Figure 5 illustrates estimated annual M/HD fleet GHG emissions under the baseline scenario and the modeled Clean Truck policy scenarios. As shown, under the baseline scenario annual M/HD fleet GHG emissions are projected to fall by 20 percent through 2050 as the current fleet turns over to new, more efficient gasoline and diesel trucks that meet more stringent EPA new engine and vehicle emission standards.

Compared with the baseline, by 2050 the ACT rule is estimated to further reduce annual fleet GHG emissions by 43 percent, as diesel and gasoline trucks are replaced with electric vehicles; adding the NOx Omnibus Rule does not produce additional fleet GHG emissions beyond those achieved by the ACT Rule.

As shown in Figure 5, the 2050 GHG emission level for the ACT + NOx scenario is significantly lower compared to today's (2021) levels by 55 percent.

The 100 x 40 ZEV + Clean Grid scenario has the lowest fleet emissions due to replacement of virtually all gasoline and diesel trucks and buses with EV and FCV by 2050, when annual fleet GHG emissions are estimated to be 83 percent lower than baseline emissions.

Figure 5 Projected M/HD Fleet GHG Emissions



Over the next 30 years, cumulative GHG emission reductions from the ACT Rule (compared with the baseline scenario) total 81.4 million MT. Cumulative GHG emission reductions from the 100 x 40 ZEV + Clean Grid scenario (compared with the baseline) are projected to total 165.3 million MT. These estimates of GHG reductions from each policy scenario account for reductions in petroleum fuel use (gasoline, diesel fuel) by the M/HD fleet, the decreased upstream emissions from gasoline and diesel production, as well as increased emissions from electricity and hydrogen production to fuel the EVs and FCVs that will replace gasoline and diesel trucks and buses.

Using the social cost of greenhouse gases as estimated by the federal government's Interagency Working Group, these estimated cumulative GHG reductions have a monetized value of $6.8 billion for the ACT Rule policy scenario and $13.9 billion for the 100 x 40 ZEV + Clean Grid policy scenario.[15] The social value of GHG reductions represents potential societal cost savings from avoiding the negative effects of climate change, if GHG emissions are reduced enough to keep long-term warming below 2 degrees Celsius from preindustrial levels.[16]

The assumed grid mix for electricity production each year is shown in the Appendix for Illinois. For the baseline, ACT Rule, and ACT+ NOx Omnibus scenarios, this analysis uses a business-as-usual (BAU) grid mix consistent with the Illinois Clean and Equitable Jobs Act (CEJA) signed into law in 2021[17] while the 100 x 40 ZEV + Clean Grid scenario assumes a "decarbonized" grid mix. The decarbonized grid combines the requirements from CEJA with the 2035 Report's 90% Clean Scenario grid mix for Illinois.[18] In 2020 Illinois's grid mix is 17.3 percent coal-fired generation, 13.9 percent natural gas–fired generation, and 68.8 percent "zero-emitting" generation sources.[19] By 2050 the zero-emitting portion of the BAU grid mix increases to 100 percent.

Under the 100 x 40 ZEV + Clean Grid scenario, zero-emitting generation for the state increases to 90 percent in 2030 and 100 percent in 2040. Considering just renewable resources, the percentages are 48 percent in 2030, 69 percent in 2040, and 97 percent in 2050. It is noted that additional state electric sector policies could potentially increase the renewable percentages even faster, but these were not considered in this analysis.

Economic Impacts

This section summarizes projected economic impacts of the modeled Clean Truck policy scenarios, including changes in annual operating costs for Illinois fleets; impacts to Illinois electric utilities and their customers; net societal benefits; and macroeconomic effects on jobs, wages, and gross domestic product from the transition to low-NOx and zero-emission trucks and buses. This section also estimates the required public and private investment in electric vehicle charging infrastructure to support the electric M/HD fleet under each scenario.

Costs and Benefits to Fleets

For all the modeled Clean Truck policy scenarios, this analysis estimated annual incremental costs associated with purchase and use of M/HD ZEVs compared with baseline conventional vehicles with combustion engines that operate on petroleum fuels (gasoline, diesel). These costs include the incremental purchase cost of the new ZEVs added each year (instead of new combustion vehicles), the cost of installing the charging

15 For the social cost values used, see ERM, *Clean Trucks Analysis: Costs & Benefits of State-Level Policies to Require No- and Low-Emission Trucks, Technical Report—Methodologies & Assumptions*, May 2021, https://www erm com/globalassets/documents/mjba-archive/reports/2021/clean-trucks-technical-report-final-09jun21 pdf

16 The Interagency Working Group developed GHG social cost estimates using a range of discount rates These values are based on the average 3 percent discount rate, which is in the middle of the range of estimated values The monetized value of cumulative GHG reductions under each policy scenario would be 72 percent lower if using the lowest published social cost values, and three times greater if using the highest published values

17 Gov Pritzker signs transformative legislation establishing Illinois as a national leader on climate action https://www illinois gov/news/press-release 23893 html

18 *2035 The Report* (Goldman School of Public Policy, University of California Berkley, June 2020) https://www 2035report com/electricity/data-explorer/

19 For this analysis, coal-fired generation includes oil and biomass. Zero-emitting sources include nuclear and renewable sources such as wind, solar, and hydropower.

and hydrogen fueling infrastructure required by these new ZEVs, and net fuel and maintenance costs for all ZEVs in the fleet, both those newly purchased each year and those purchased in prior years and still in use.

Net fuel costs include reductions in purchases of diesel fuel and gasoline (due to fewer combustion vehicles), offset by the increased purchase of electricity and hydrogen to power ZEVs. Net maintenance costs include net savings in annual vehicle maintenance for the ZEVs in the fleet compared with combustion vehicles, offset by annual costs to maintain the charging and hydrogen fueling infrastructure needed to support in-use ZEVs.

Figure 6 Projected Lifetime Incremental Costs for Illinois ZEVs Compared with Combustion Vehicles

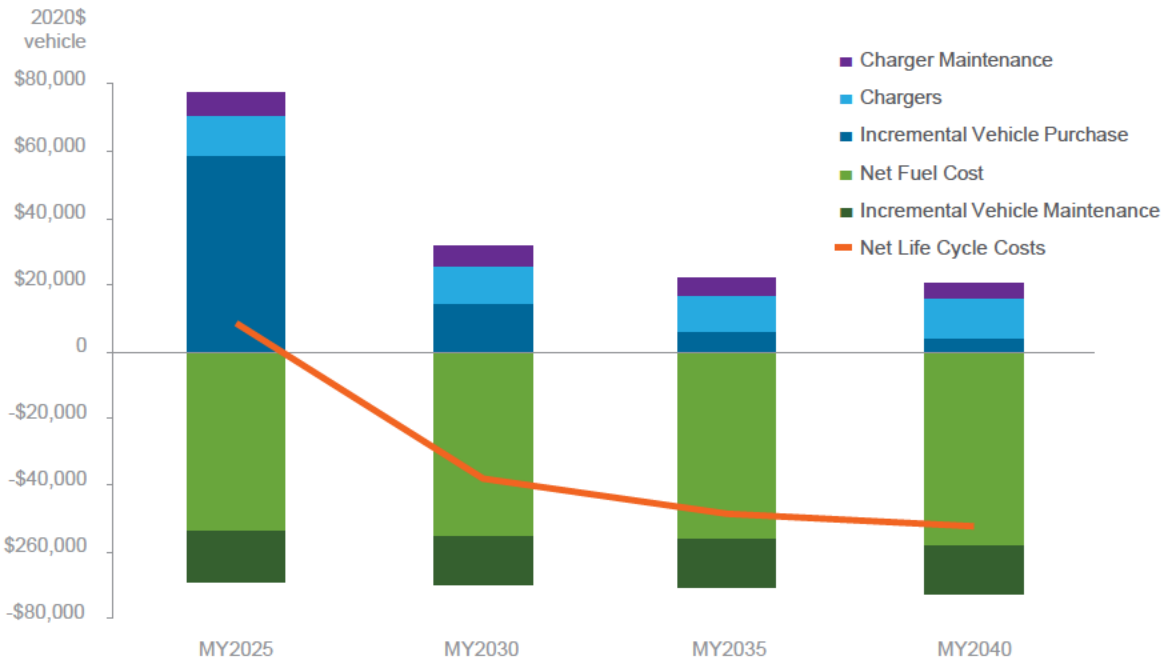


Figure 6 shows projected average lifetime incremental costs for new ZEVs purchased in Illinois compared with lifetime costs for combustion vehicles purchased in the same model year; the bars show fleet average values for all Class 2b–8 ZEVs purchased each year under the 100 x 40 ZEV scenario. Incremental fuel and maintenance costs are discounted lifetime costs, assuming 21-year vehicle life, and 6 percent annual discount rate. Vehicle financing, which is often used by fleets when purchasing vehicles, was not considered in this analysis.

As shown, the average M/HD ZEV in Illinois is projected to produce over $68,000 in discounted fuel and maintenance cost savings over its lifetime. For ZEVs purchased in the very near term, this savings may not be enough to offset the projected incremental cost of vehicle purchase and fueling infrastructure for some ZEVs, resulting in net increased lifetime costs compared with those of combustion vehicles. However, by 2030 incremental ZEV purchase costs are projected to fall significantly, such that the average ZEV will reach lifetime cost parity with combustion vehicles, when discounted lifetime fuel and maintenance savings are considered. By 2040, the average ZEV purchased that year is projected to produce over $50,000 in discounted lifetime net savings (2020$) compared with the costs of an equivalent combustion vehicle.

It is important to reiterate that the values in Figure 6 are fleet average values, which mask a significant amount of variability across vehicle types and among different fleets of the same vehicle type. Also note that the utility impact analysis (in the next section) indicates that the cost of providing power to charge M/HD EVs is lower than expected utility revenue under current rate structures. This suggests that Illinois could consider changes to rates that would not only be fairer for fleets, but also lower electricity costs for M/HD EV charging, thus reducing net fleet operating costs further than estimated here. However, this would reduce the potential benefits that would accrue to other ratepayers from M/HD vehicle charging (see discussion below).

M/HD ZEVs in some fleets will likely achieve lifetime cost parity with combustion vehicles much earlier than 2030, while others may lag. In addition, this analysis, and the values shown in Figure 6, assume no government incentives for vehicle purchase or development of fueling infrastructure. If existing and potential incentives are considered, or policies such as improved electricity rates for fleets, then actual net costs to fleets will be lower, resulting in cost parity sooner.

Electric Utility Impacts

Current annual electricity sales to residential and commercial customers in Illinois total 74.2 million MWh and are projected to grow to 83.8 million MWh in 2050.[20]

Under the ACT Rule policy scenario, additional annual electricity sales for M/HD EV charging are estimated to total 1.3 million MWh in 2030, rising to 12.7 million MWh in 2050. This incremental load represents 1.3 percent and 12.9 percent of the total electricity demand in 2030 and 2050, respectively. Incremental monthly peak charging demand under this scenario is estimated at 308 MW in 2030, rising to 3,590 MW in 2050.

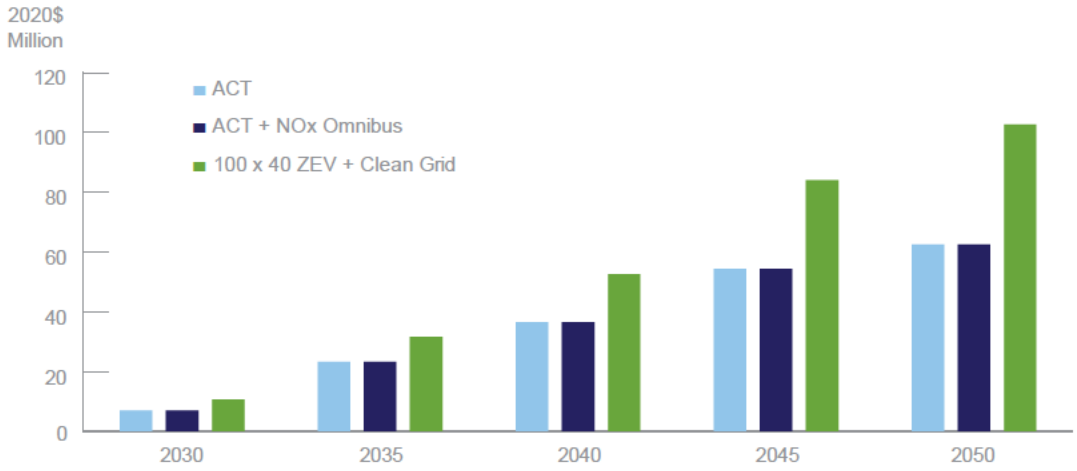
Under the 100 x 40 ZEV policy scenario, incremental peak charging demand is estimated at 461 MW in 2030, rising to 5,530 MW in 2050, and annual incremental electricity sales are estimated to be 1.9 million MWh in 2030, rising to 19.7 million MWh in 2050 (1.7 percent and 17.8 percent of the total electricity demand, respectively).

This analysis estimated the revenue that Illinois electric utilities would receive from these incremental electricity sales, the marginal generation and transmission costs of providing this power, and the net revenue that utilities would earn (net revenue = revenue – marginal cost). The estimated marginal cost includes costs associated with procuring the necessary additional peak generation and transmission capacity to serve the load ($/MW) as well as marginal generation and transmission energy costs ($/MWh).

Figure 7 summarizes estimated annual utility net revenue from M/HD EV charging under the modeled Clean Truck policy scenarios. Under the ACT Rule scenario, annual utility net revenue is projected to be $6.9 million in 2030, rising to $36.5 million in 2040 and $62.5 million in 2050. Under the 100 x 40 ZEV scenario, utility net revenue is projected to be $10.6 million in 2030, rising to $52.5 million in 2040 and $102.6 million in 2050.

20 This growth assumption is from the EIA 2021 Annual Energy Outlook It does not include sales to large industrial customers

Figure 7 Projected Annual Utility Net Revenue From M/HD EV Charging



In general, a utility's costs to maintain its distribution infrastructure increase each year with inflation, and these costs are passed on to utility customers in accordance with rules established Illinois Commerce Commission via periodic increases in residential and commercial electric rates. However, projected utility net revenue from increased electricity sales for M/HD EV charging would lower distribution rates ($/kWh), since fixed annual distribution system costs would be spread over a larger base of energy sales.

This analysis indicates that under the 100 x 40 ZEV scenario, by 2050 incremental utility net revenue from M/HD EV charging could potentially reduce average residential and commercial electricity rates in Illinois by as much as 1.1 percent ($0.0018/kWh in 2020$). This could save the average Illinois household $13 per year and the average commercial customer $55 per year on their electricity bills (2020$).[21]

Jobs, Wages, and GDP

The transition from gasoline and diesel M/HD vehicles to ZEVs will have significant impacts on the U.S. economy, with substantial job gains in many industries (e.g., battery and electric component manufacturing, charging infrastructure construction, electricity generation), accompanied by fewer jobs in other industries (e.g., engine manufacturing, oil exploration and refining, gas stations, auto repair shops).[22]

This analysis used the IMPLAN model to estimate these macroeconomic effects of the modeled Illinois Clean Truck policy scenarios based on estimated changes in spending in various industries (relative to the baseline scenario). These estimates of spending changes by industry were developed from the fleet cost analysis. For example, under the modeled Clean Truck policy scenarios, more money will be spent to manufacture batteries and electric drive components for ZEVs, but less will be spent to manufacture gasoline and diesel engines, and transmissions. Similarly, less money will be spent by fleets to purchase petroleum fuels, but more will be spent to purchase electricity and hydrogen.

21 Figures are based on average annual electricity use of 7,011 kWh per housing unit and 30,642 kWh per commercial customer in Illinois

22 For example, in-state charging infrastructure is estimated to increase by 1,137 jobs in 2045 under the most aggressive scenario

The IMPLAN analysis also includes the effects of induced economic activity due to consumers having more money to spend, thanks to return of utility net revenue in the form of lower electric rates, and net fleet cost savings returned as lower shipping costs for goods, resulting in lower consumer prices for those goods.

The IMPLAN analysis was run at the national level, but assuming only the industry spending changes (from application of the policy scenarios) occurring due to M/HD vehicle purchase and use in Illinois. Estimated national effects would be significantly greater if the modeled policy scenarios were applied to the entire U.S. M/HD fleet.

Table 3 offers a summary of estimated macroeconomic effects of the modeled Clean Truck scenarios on jobs, GDP, and wages.

Compared with the baseline scenario, adoption of the ACT + NOx Omnibus policy and 100 x 40 ZEV + Clean Grid scenarios will increase national net jobs through 2040. The loss in 2045 is largely due to the reductions in spending on diesel fuel and decreases in the costs of M/HDV ZEVs over time, resulting in decreased spending and investments in the out years. Both scenarios also increase annual GDP through 2040 with the ACT + NOx Omnibus policy scenario increasing GDP for all years. For both scenarios in all years, the average wages for new jobs added to the economy are more than twice the average wages for jobs that are replaced. This is because the largest number of added jobs are in electrical component manufacturing and in construction of charging infrastructure, requiring many well-paid electricians and electrical engineers, while the largest job losses are in vehicle repair—due to lower maintenance required by ZEVs—as well as relatively low-paid retail workers at gas stations.

Table 3 Macroeconomic Effects of Illinois Clean Truck Policy Scenarios

Metric		ACT + NOx Omnibus		100 x 40 ZEV + Clean Grid	
		2035	2045	2035	2045
Net Change in Jobs		1,092	(329)	1,386	(1,353)
Net Change in GDP 2020$ (million)		$175	$51	$239	($5)
Average Annual Compensation	Added Jobs	$91,602	$86,912	$101,679	$92,464
	Replaced Jobs	$44,283	$47,689	$43,795	$44,712

Today many components used in electric and fuel cell vehicles—most notably batteries, but also many electric drivetrain components—are manufactured outside the United States and imported for final vehicle assembly. The percentage of imported content is higher for ZEV drivetrains today than for conventional drivetrains (gasoline and diesel engines, and transmissions). The scale of U.S. macroeconomic effects from the modeled Clean Truck policy scenarios will depend on how the nascent M/HD ZEV industry develops; for this analysis, ERM assumed that all incremental spending on ZEV batteries and electric drivetrain components would be in the United States, with no imported content. As such, the results summarized in Table 3 represent a higher-end estimate of what is possible from the ZEV transition, with the right federal and state policy supports in place to incentivize development of U.S.-based ZEV component manufacturing. If vehicle manufacturers continue to rely primarily on imported batteries and electric drivetrain components, the net job and GDP gains will be lower than those summarized here.

This macroeconomic analysis only includes direct, indirect, and induced impacts from changes in M/HD vehicle manufacturing and use, and from consumer re-spending of net utility revenue and fleet cost savings returned as lower prices for electricity and shipped goods. It does not include any effects on freight industry growth and investment due to lower operating costs, or any macroeconomic effects associated with the estimated climate and air quality (health) benefits of the modeled Clean Truck policy scenarios. These effects may increase economic and job numbers compared to those presented here.

Required Public and Private Investments

Using a detailed charging model that considers typical daily usage patterns for different vehicle types, this analysis assumes that most M/HD ZEVs in Illinois will use overnight charging at their place of business, though about 10 percent will need to rely on a publicly accessible network of higher-power chargers.[23] The exception are combination trucks, 70 percent of which are assumed to require high-power public chargers since they are used primarily for long-haul freight operations.

Table 4 summarizes estimated charging infrastructure required to support M/HD electric trucks and buses under the Clean Truck policy scenarios.

Table 4 Projected Charging Infrastructure Required for Clean Truck Policy Scenarios

Metric		ACT Rule			100 x 40 ZEV		
		2035	2045	2050	2035	2045	2050
Cumulative Charge Ports	Depot	72,951	210,574	260,561	110,965	342,994	425,090
	Public 150 kW	949	2,735	3,404	1,413	4,246	5,274
	Public 500 kW	1,840	4,761	5,912	2,693	9,566	12,865
Cumulative Investment, 2020$ (million)	Depot	$515	$1,389	$1,831	$781	$2,394	$3,247
	Public	$631	$1,586	$2,077	$923	$3,060	$4,236

Depot chargers will need to be 10–50 kW per port depending on vehicle type. The smaller 150 kW public chargers are needed primarily to support single-unit freight trucks, while the higher-capacity 500 kW public chargers are needed mostly for combination trucks.

As of January 2022, there were 112 publicly accessible charging stations in Illinois with a total of 507 direct current fast-charging (DCFC) ports (>50 kW).[24] Over 60 percent of these DCFC ports are Tesla superchargers that currently can be used only by Tesla owners.[25] In Illinois, there are only 197 DCFC ports fully available to any vehicle.

Under the ACT Rule policy scenario, Illinois's fleet owners will have to invest an average of $73 million per year (2020$) between 2025 and 2050 to purchase and install depot-based charging infrastructure. The government and private investors will need to invest an average of $83 million per year over the same time period to build out a publicly accessible charging network across the region to serve the EV M/HD truck fleet.

23 See the methodology report for a detailed discussion of M/HD EV charging needs

24 These numbers are from the U S Department of Energy's Alternative Fuel Data Center public charger database

25 https://www businessinsider com/tesla-elon-musk-chargers-supercharger-network-2021-11

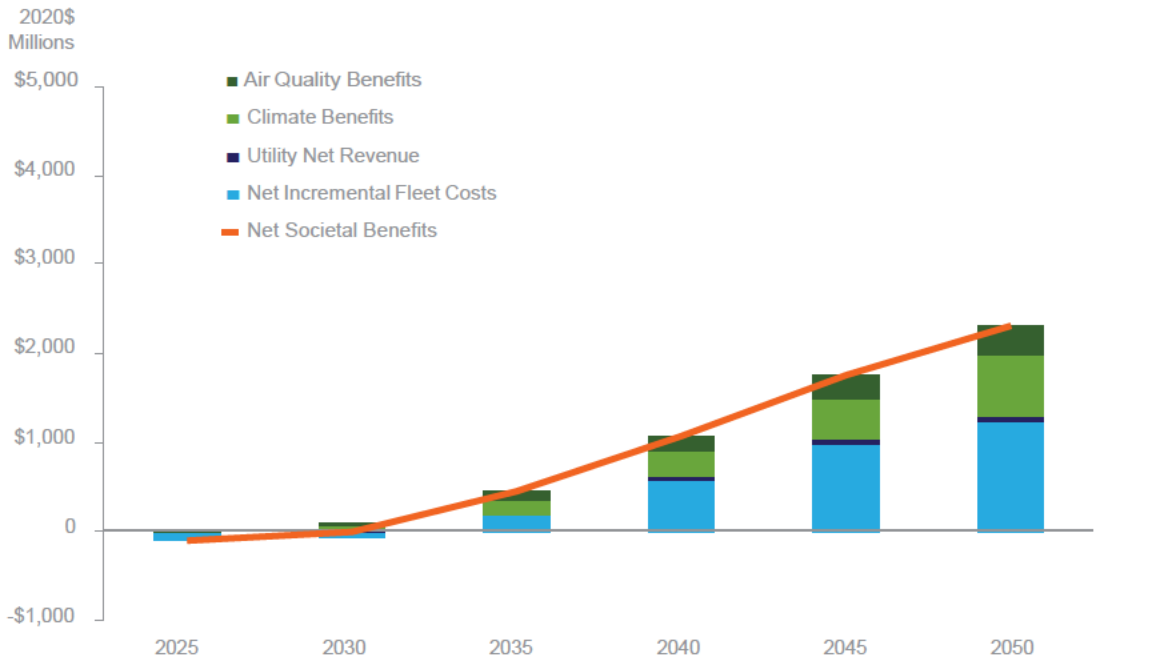
Under the 100 x 40 ZEV scenario, fleet investments in depot charging infrastructure from 2025 to 2050 will need to increase to an average of $130 million per year, and public and private investments in the public charging network will need to rise to an average of $169 million per year.

Net Societal Benefits

The net societal benefits from the modeled Illinois Clean Truck policy scenarios include the monetized value of public health and climate benefits, net cost savings for fleets, and net utility revenue from electricity sales for EV charging.

Figures 8–10 present projected annual net societal benefits under the ACT Rule, ACT + NOx Omnibus Rule, and 100 x 40 ZEV + Clean Grid scenarios, respectively. Under all three Clean Truck policy scenarios, near-term fleet costs are higher than fleet costs under the baseline.[26] However, after approximately 2030 all policy scenarios show annual net societal benefits, despite net fleet costs, due to growing utility net revenue in addition to public health and climate benefits. After approximately 2035 there is an annual net savings in fleet costs from operating ZEVs instead of diesel and gasoline trucks, and net societal benefits grow quickly.[27]

Figure 8 Projected Annual Net Societal Benefits From ACT Rule Policy Scenario



26 If an individual truck owner finances a vehicle, it would better equalize payments for increased vehicle price and fuel savings, resulting in a better balancing of cash flow On a net fleet-wide basis, however, the cost of financing reduces total net fleet savings

27 Note that fleet-wide annual net savings under the Clean Truck policy scenarios lag average ZEV life-cycle cost parity to combustion vehicles by about 5 years This is because even after life-cycle cost parity is achieved, most ZEVs will still have higher up-front purchase costs (vehicle plus charger) than combustion vehicles; these higher costs are then paid back over the next few years via fuel and maintenance cost savings

Figure 9 Projected Annual Net Societal Benefits From ACT + NOx Omnibus Policy Scenario

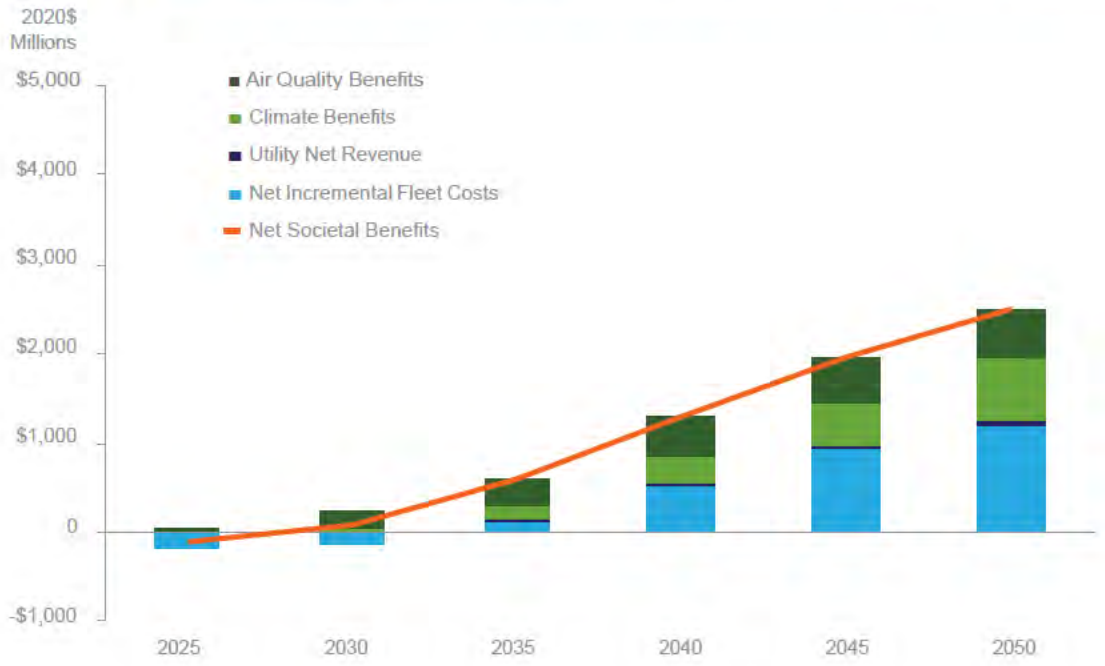
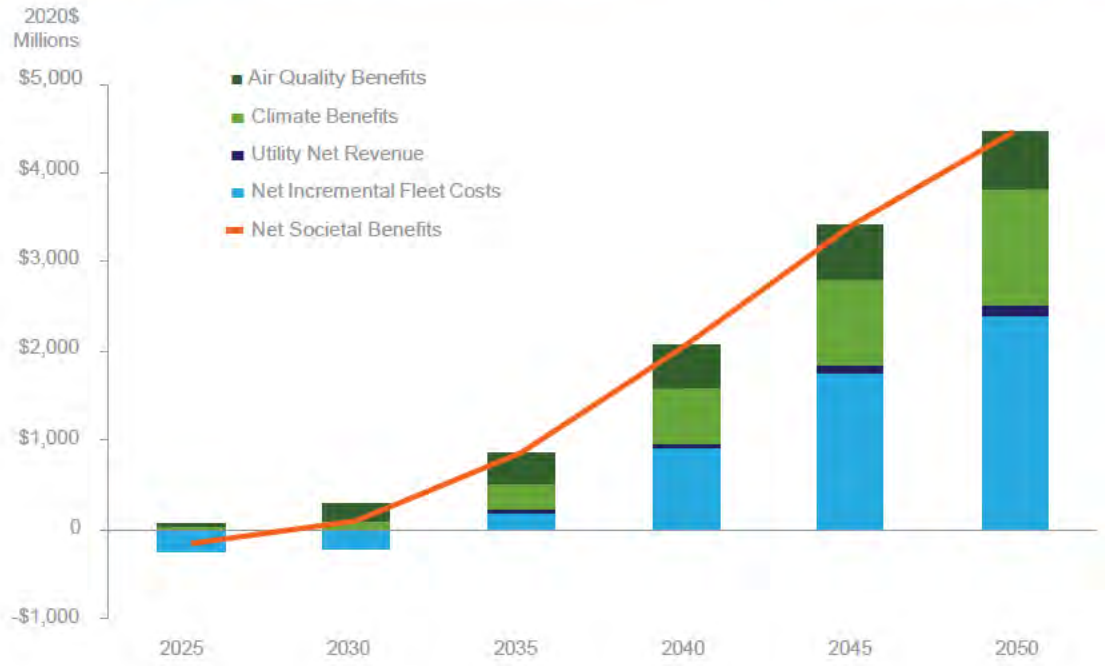


Figure 10 Projected Annual Net Societal Benefits from 100 x 40 ZEV + Clean Grid Policy Scenario



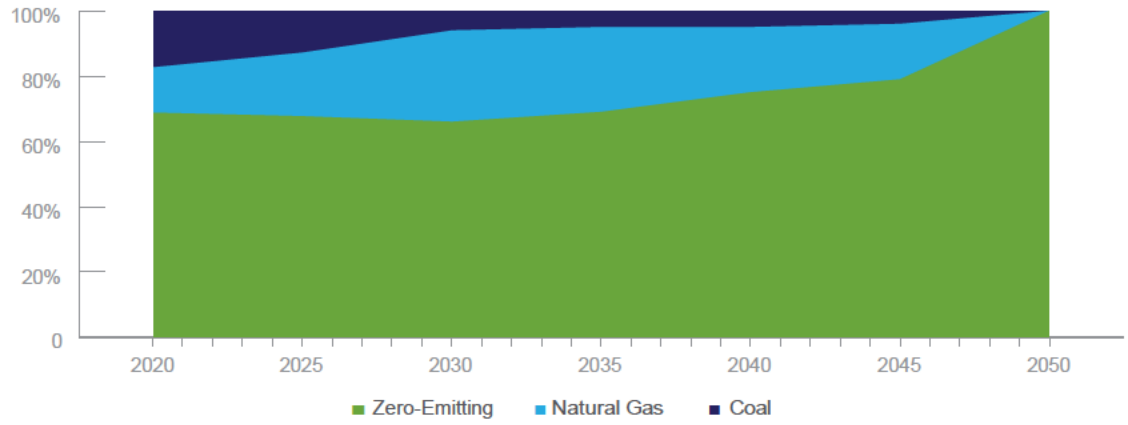
Under the ACT Rule scenario, by 2050 annual net societal benefits are estimated to be $2.3 billion, including $1.2 billion in net fleet savings and $63 million in utility net revenue. Cumulative estimated societal net benefits under this scenario total $22.7 billion between 2020 and 2050.

Under the ACT + NOx Omnibus scenario, by 2050 annual net societal benefits are estimated to be $2.5 billion, including $1.2 billion in net fleet savings and $63 million in utility net revenue. Cumulative estimated societal net benefits under this scenario total $26.4 billion between 2020 and 2050.

Under the 100 x 40 ZEV + Clean Grid scenario, by 2050 annual net societal benefits are estimated to be $4.5 billion, including $2.4 billion in net fleet savings and $103 million in utility net revenue. Cumulative estimated societal net benefits under this scenario total $44.6 billion between 2020 and 2050.

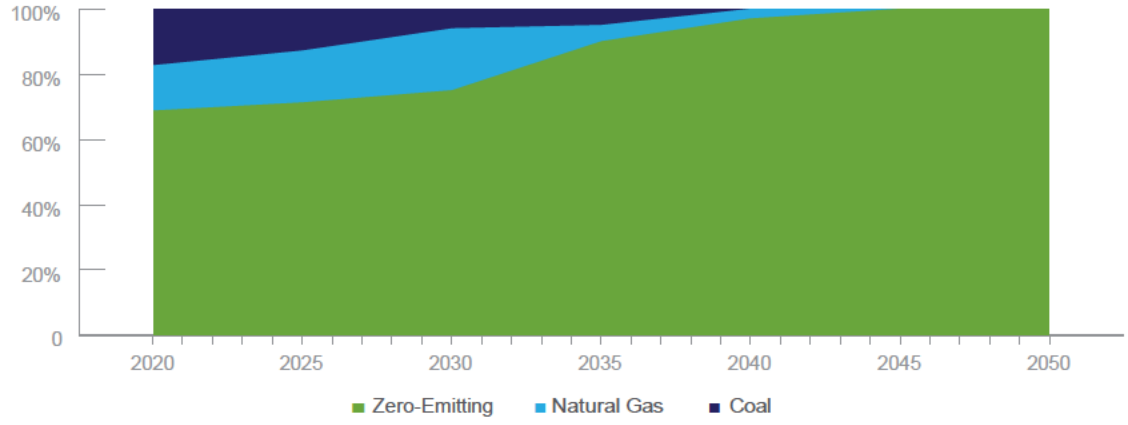
APPENDIX: Illinois Energy Cost Assumptions and Supplemental Material

Figure A1 Illinois Business as Usual Grid Mix Assumptions



These business-as-usual grid mix assumptions were applied to the baseline, ACT Rule, and ACT + NOx Omnibus policy scenarios.

Figure A2 Illinois Decarbonized Grid Mix Assumptions



These Decarbonized grid mix assumptions were applied to the 100 x 40 ZEV + Clean Grid policy scenario.

Table A1 M/HDV In-Use ZEVs Population

M/HDV In-Use ZEVs	2025	2030	2035	2040	2045	2050
Baseline	768	1,365	1,981	2,798	3,499	4,149
ACT	2,754	31,114	104,733	199,329	292,453	361,935
ACT + NOx OMN	2,754	31,114	104,733	199,329	292,453	361,935
100x40 ZEV + Clean Grid	3,741	47,028	156,202	316,713	485,688	609,693
Total M/HDV Fleet (ZEV + ICE)	628,495	636,743	645,195	653,857	662,735	671,835

Table A2 Net Incremental Fleet Benefits

2020$	2025	2030	2035	2040	2045	2050
ACT	($109)	($82)	$176	$585	$974	$1,248
ACT + NOx OMN	($161)	($156)	$118	$534	$925	$1,199
100x40 ZEV + Clean Grid	($237)	($212)	$196	$917	$1,757	$2,405

Table A3 Average Illinois Household and Commercial Customer Electric Bill Savings in 2050

2020$	Household	Commercial Customer
ACT	$8	$34
ACT + NOx OMN	$8	$34
100x40 ZEV + Clean Grid	$13	$55

Figure A3 Illinois Average Fuel Costs

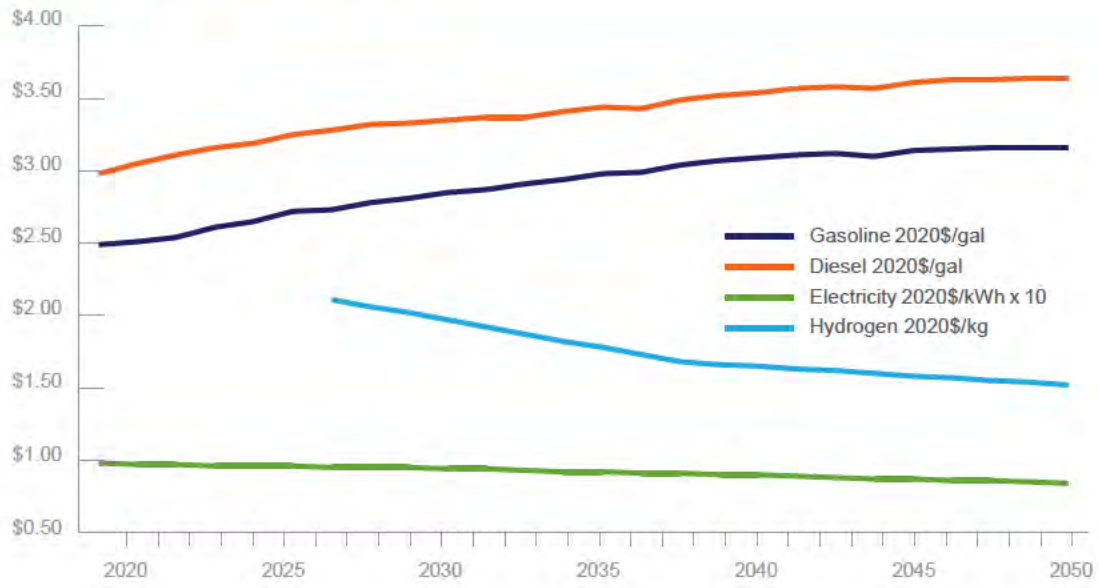


EXHIBIT 2

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Illinois Advanced Clean Cars II Program

September 2023

Acknowledgements

Lead Authors: Lauren Slawsky, David Seamonds, Fahim Saleem, Chuck Shulock, Miranda Freeman and Neah Patkunas.

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CONTENTS

List of Tables

List of Figures

EXECUTIVE SUMMARY

Nationally, light-duty vehicles (LDVs) currently make up almost 90 percent of all on-road vehicle miles traveled, and emit an estimated 67 percent of total greenhouse gas (GHG) emissions annually from the on-road vehicle fleet.[1] LDVs are also responsible for 33 percent of the nitrogen oxide (NOx) and 30 percent of the particulate matter (PM)[2] emitted by on-road vehicles, both of which contribute to poor air quality and negative health impacts in many urban areas, including in low-income and communities of color that are often disproportionately affected by emissions due to their proximity to transportation infrastructure.

For the study of Illinois, ERM investigated the state adopting the Advanced Clean Cars II (ACC II) regulation under two different manufacturer compliance scenarios:

- Manufacturers, as expected, use many of their compliance flexibilities to comply with the regulation.
- Manufacturers do not use these flexibilities to meet compliance.

These two compliance strategies provide, respectively, a reasonable midpoint estimate and an upper limit of zero-emission vehicles (ZEV) placements under ACC II policy.[3] ERM also investigated the impact of Illinois reaching 100 percent clean electricity by 2040 under both ACC II compliance scenarios.

Depending on the scenario chosen, the ACC II regulation will have significant cumulative net societal benefits through 2050. Shown in the table below are the cumulative benefits for each of the scenarios (in constant 2021 dollars).

Table 1: Cumulative Net Societal Benefits of ACC II Scenarios, 2027–2050

Scenario	Cumulative Net Societal Benefits ($ billions)
ACC II Flex	$169
ACC II Flex + Clean Grid	$170
ACC II Full + Clean Grid	$178

The cumulative net societal benefits illustrated above include the monetized value of climate and public health benefits resulting from reduced GHG, NOx, and PM emissions in the state, including up to 416 to 450 fewer premature deaths and 420 to 456 fewer hospital visits from breathing polluted air. Net societal benefits also include net cost savings to LDV owners from operating ZEVs and savings to all residential and commercial electricity customers due to lower electric rates made possible by the additional electricity sales for electric vehicle charging. Between the different scenarios, by 2050 annual vehicle cost savings for Illinois vehicle owners are estimated to be $9.3 billion.[4]

Implementing ACC II will require a continued shift in the automotive industry, as development and manufacturing of light-duty internal combustion engine vehicles transitions to producing new electric and plug-in hybrid vehicles. This change in vehicle technology will also affect the production and sale of petroleum fuels, which are replaced by increased generation and sale of electricity. This analysis indicates that this transition will have positive macroeconomic effects, including increased net jobs and

[1] The remainder of emissions are from commercial medium- and heavy-duty trucks.

[2] In this report all references to PM are particulate matter with mean aerodynamic diameter less than 2.5 microns ($PM_{2.5}$).

[3] Under the ACC II rule, battery electric, fuel cell electric and plug-in hybrid electric vehicles meeting a minimum all-electric range of 50 miles are eligible ZEVs; however, for the purposes of this analysis, only battery electric and plug-in hybrids are considered.

[4] The modeling tools used for this analysis could not apportion these estimated benefits to individual communities within Illinois.

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gross domestic product (GDP), as well as increased wages for the new jobs that will be added, relative to the jobs that will be replaced.

Compared with the baseline scenario, the ACC II scenarios broadly result in positive net national job gains, approximately 60 by 2050. This will be accompanied by a $1.2 billion increase in 2050 GDP, across the scenarios. Average wages for the new jobs created under the ZEV transition are expected to be, on average, about 50% higher than average wages for the jobs that will be replaced.

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INTRODUCTION

ERM was commissioned by the Natural Resources Defense Council to evaluate the costs and benefits of Illinois adopting the ACC II regulation. This rule, recently adopted by California, would require vehicle manufacturers to increase sales of light-duty ZEV within the state, reaching 100 percent sales by 2035. The ramp up of these vehicles to reach that 2035 goal is affected by manufacturer's use of compliance flexibilities in the first 5 years of the program. The analysis examines on-road vehicles registered in Illinois less than 8,500 pounds gross vehicle weight, encompassing passenger cars, crossovers, SUVs, and pickup trucks—collectively called light-duty vehicles (LDVs).[5]

The Illinois LDV fleet includes 8.5 million vehicles that annually travel more than 100 billion miles and consume more than 4.3 billion gallons of petroleum-based fuels.

Internal combustion engine (ICE) vehicles included in the LDV fleet emit criteria pollutant and greenhouse gas (GHG) emissions from their tailpipes that contribute to air pollution and climate change. Since the LDV fleet is projected to grow by 19 percent by 2050, this problem will only grow larger.

Advanced Clean Cars I and II

In 2012, California's Air Resource Board (CARB) adopted a regulation package to address criteria and GHG emissions from new LDVs. This package included the low emission vehicle (LEV) regulation for GHG and criteria emissions, and a manufacturer requirement to increase sales of ZEVs. Both regulations were applicable for model years (MY) 2015–2025.[6]

In 2022, CARB adopted the second phase of ACC, called ACC II, which increases the stringency of both the LEV and ZEV standards starting with MY 2026. The main goal of the ACC II program is to have all new passenger cars, light trucks, and SUVs sold in California be ZEV by 2035. To accomplish this, CARB developed a compliance trajectory that starts in MY 2026 and ramps up through 2035.

The ACC II regulation provides manufacturers with several types of flexibilities that can ease their transition to the required ZEV sales levels. The regulation measures compliance in terms of "vehicle values," which are obtained by manufacturing ZEVs, or through other provisions under which manufacturers can earn vehicle values, which then can be used to offset specified portions of the regulatory requirement for MY 2026 through 2031.[7,8]

CARB also increased the stringency of the LEV criteria pollutant standards for new ICE vehicles purchased in MY 2026 and beyond. As part of the new regulation, they eliminated several higher-emitting emission bins, introduced new lower-emission categories, and increased the durability requirements for vehicle's emission controls. On top of the per-vehicle emission certifications, they also changed the manufacturer's compliance requirements for fleet average oxides of nitrogen (NOx) and non-methane organic gas emissions, by phasing out ZEVs from being included in the average.

[5] ACC II also includes requirements for some medium-duty vehicles up to 14,000 pounds gross vehicle weight. Because this weight range overlaps with California's Advanced Clean Truck rule, ERM assumed manufacturers would certify these vehicles under that rule rather than ACC II.

[6] California Air Resources Board. "States that have Adopted California's Vehicle Standards under Section 177 of the Federal Clean Air Act". May 13, 2022. https://ww2.arb.ca.gov/sites/default/files/2022-05/%C2%A7177_states_05132022_NADA_sales_r2_ac.pdf.

[7] Manufacturers can use vehicle values from early compliance, converted vehicle values, proportional fuel cell allowances, and state-to-state shifting, called "pooling". For further details on these compliance flexibilities, see Advanced Clean Cars II Program: An Analysis of the Impacts of Zero-Emission Light-Duty Vehicles on the Environment, Public Health, Industry, and the Economy — Methodologies and Assumptions, February 2023.

[8] Regardless of which year a state adopts the ACC II regulation, its first year of compliance must be aligned with California's model year compliance percentage in that year. For Illinois, its first year of compliance would be MY 2027.

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POLICY SCENARIOS

This report summarizes the projected environmental and economic effects of Illinois adopting ACC II. To better understand the range of possible outcomes from adopting such a policy, three scenarios were modeled which varied the manufacturer compliance mechanisms as well as the electric grid. Three specific ACC II scenarios were evaluated:

- ACC II Flex: Illinois adopts California's ACC II regulation starting in MY2027 and manufacturers use many of the compliance flexibilities discussed above.[9] Due to these flexibilities, manufacturers would be able to sell fewer ZEVs needed for compliance in Illinois by about 14 percent of total sales in MY 2027 (i.e., about 29 percent of sales as opposed to the 43 percent of sales nominally required in that model year). A similar reduction of about 11 to 13 percent from the nominal requirement is assumed in each year for MYs 2028 through 2030, with full compliance needed in MY 2031 through the program's end in MY 2035. Under this scenario, new ICE vehicles that are purchased between MY 2027 and MY 2034 are certified to CARB's LEV standards.
- ACC II Flex + Clean Grid: Manufacturers follow the sales trajectories in the ACC II Flex scenario, and additionally Illinois decarbonizes their electric grid faster than currently required and Illinois reaches 100 percent clean generation by 2040.
- ACC II Full + Clean Grid: Illinois adopts California's ACC II regulation and manufacturers do not use any of the compliance flexibilities discussed above. Under this scenario, manufacturers follow the "ACC II Full" compliance schedule shown on Figure 1. Like the ACC II Flex + Clean Grid scenario, this scenario assumes that Illinois decarbonizes their electric grid faster than currently required and reaches 100 percent clean generation by 2040.

Additional details of the assumptions are provided in the corresponding technical document.[10] Figure 2 represents the resulting LDV in-use ZEV population starting in 2027 through 2050.

The Illinois ACC II policy scenarios are compared with a baseline "business-as-usual" (BAU) scenario in which all new LDVs sold in the state continue to meet existing United States Environmental Protection Agency (EPA) and National Highway Traffic Safety Administration vehicle standards,[11] and ZEV sales increase but never reach more than a third of new vehicle sales each year.[12]

[9] The ACC II regulation is structured such that manufacturers cannot simultaneously use the maximum amount of all available compliance flexibilities in all states. This scenario, based on projections provided by Shulock Consulting, provides a reasonable midpoint estimate of ZEV placements.

[10] *Advanced Clean Cars II Program: An Analysis of the Impacts of Zero-Emission Light-Duty Vehicles on the Environment, Public Health, Industry, and the Economy —Methodologies and Assumptions, February 2023*.

[11] For the BAU scenario, emission and vehicle standards are assumed to remain constant after 2025 and assume no introduction of more stringent emission regulations.

[12] The baseline ZEV sales assumptions used in this analysis were provided by Shulock Consulting based on estimates provided by NRDC.

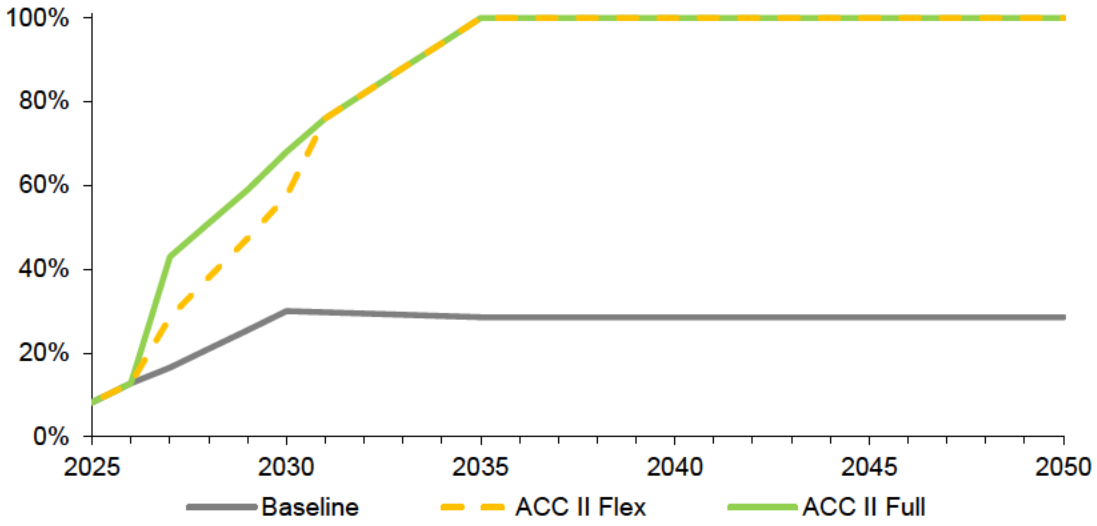

Figure 1: Annual Zero-Emission Vehicle Sales in ACC II Scenarios

The analysis assumes that light-duty annual vehicle miles traveled (VMT) in Illinois will continue to grow by approximately 0.6 percent annually through 2050, as projected by the Energy Information Administration, as the economy and population continue to grow.

The analysis was conducted using ERM's Transportation Policy toolkit as well as baseline ZEV sales estimates from Shulock Consulting. The climate and air quality impacts of each scenario were estimated on the basis of changes in LDV fleet fuel use and include both tailpipe emissions and "upstream" emissions from production of the transportation fuels used in each scenario.[13] These include petroleum fuels used by conventional ICE vehicles (gasoline, diesel, natural gas) and electricity used by ZEVs, which are assumed to include both battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV).[14]

To evaluate climate impacts, the analysis estimated changes in all combustion related GHGs, including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). To evaluate air quality impacts, the analysis estimated changes in total NO_x and PM emissions, and the resulting changes in ambient air quality and health metrics such as premature deaths, hospital visits, and lost workdays.

The economic analysis estimated the change in annual LDV fleet-wide spending on vehicle purchase, charging/fueling infrastructure to support ZEVs, vehicle fuel, and vehicle and infrastructure maintenance under each scenario. Currently, ZEVs are more expensive to purchase than equivalent ICE vehicles, but they have lower fuel and maintenance costs. In addition, recent cost projections have shown that ZEVs are rapidly approaching cost parity with ICE vehicles, adding to the fuel and maintenance savings received by vehicle owners.[15]

[13] While tailpipe emissions are assumed to be captive within Illinois, upstream emissions are not necessarily constrained to the state due to where petroleum fuel production and power generation take place. Regardless, reductions in upstream emissions will benefit society as a whole.

[14] Per ACC II stipulations, no more than 20 percent of a state's ZEV sales can be met with PHEV sales, which has been reflected in the analysis.

[15] Slowik, Peter et al. International Council on Clean Transportation (ICCT). "Assessment of Light-Duty Electric Vehicle Costs and Consumer Benefits in the United States in the 2022-2035 Time Frame". October 2022. https://theicct.org/wp-content/uploads/2022/10/ev-cost-benefits-2035-oct22.pdf.

The analysis also estimated the impact of each scenario on Illinois's electric utilities, including the total state change in power demand (kW) and energy consumption (kWh) for light-duty electric vehicle (LD EV) charging, as well as the additional costs that would be placed on the state's electric utilities for providing this power. Based on projected utility net costs, the analysis estimates the potential effect on state electricity rates for residential and commercial customers.

In addition, the analysis estimated the total number of vehicle chargers that will be required to support the increase in LD EVs under each scenario—both residential chargers and shared public chargers—compared with the existing charging network in the state.

For a full description of the modeling approach and sources of assumptions used for this analysis, see Advanced Clean Cars II Program: An Analysis of the Impacts of Zero-Emission Light-Duty Vehicles on the Environment, Public Health, Industry, and the Economy —Methodologies and Assumptions, February 2023.

The Illinois electric grid mix and energy cost assumptions used can also be found in Appendix A.

ILLINOIS RESULTS

The sections below detail the results of the Illinois ACC II analysis, beginning with a description of the current Illinois LDV fleet and the projected vehicle fleet under each ACC II scenario. This is followed by a summary of the environmental and public health benefits of each scenario and the economic impacts of the modeled ZEV transition.

Illinois LDV Fleet

This analysis uses current LDV fleet registrations in Illinois as the starting point, then assumes future vehicle sales under each of the scenarios. In 2022, Illinois had an estimated 10 million on-road LDVs registered, with the vast majority currently burning fossil fuels. Approximately 86 percent used gasoline, 8.0 percent used E85, 2.4 percent used gasoline hybrid, and 1.7 percent used diesel.[16] The remaining 1.6 percent was made up of BEVs (0.7 percent), PHEVs (0.3 percent), and unknown fuel (0.6%).[17]

The modeled scenarios envision an LDV fleet that transitions to ZEVs and sees significant reductions in fossil fuel combustion vehicles. Figure 2 summarizes the modeled turnover of the Illinois in-use fleet to ZEV under the ACC II scenarios as well as the BAU. Fleet turnover to new LDVs is based on historical survival rates and projected fleet growth rates. Approximately 6 percent of existing LDVs are retired each year and replaced with new vehicles.[18]

The BAU scenario experiences substantial increases in ZEV adoption relative to current low levels with 8 percent of the LDV in-use fleet being ZEVs by 2030, 22 percent by 2040, and 27 percent by 2050. As shown, the compliance flexibilities reduce ZEV adoption in 2026 to 2030, after which both scenarios assume the same level of ZEV sales. Under both ACC II Flex vehicle sales scenarios (ACC II Flex and ACC II Flex + Clean Grid) 13 percent of the in-use LDV fleet will turn over to ZEV by 2030, 65 percent by 2040, and 92 percent by 2050. Under the ACC II Full scenario, the in-use ZEV percentage grows faster earlier, reaching 16 percent by 2030 and 67 percent by 2040. By 2050, all ACC II scenarios have 92 percent in-use ZEVs.

[16] Alternative Fuels Data Center (AFDC). "2022 Light-Duty Vehicle Registration Counts by State and Fuel Type." https://afdc.energy.gov/vehicle-registration.

[17] AFDC. "2022 Light-Duty Vehicle Registration Counts by State and Fuel Type."

[18] This is a long-term average. Actual annual turnover is highly correlated to economic conditions and can vary widely from year to year.

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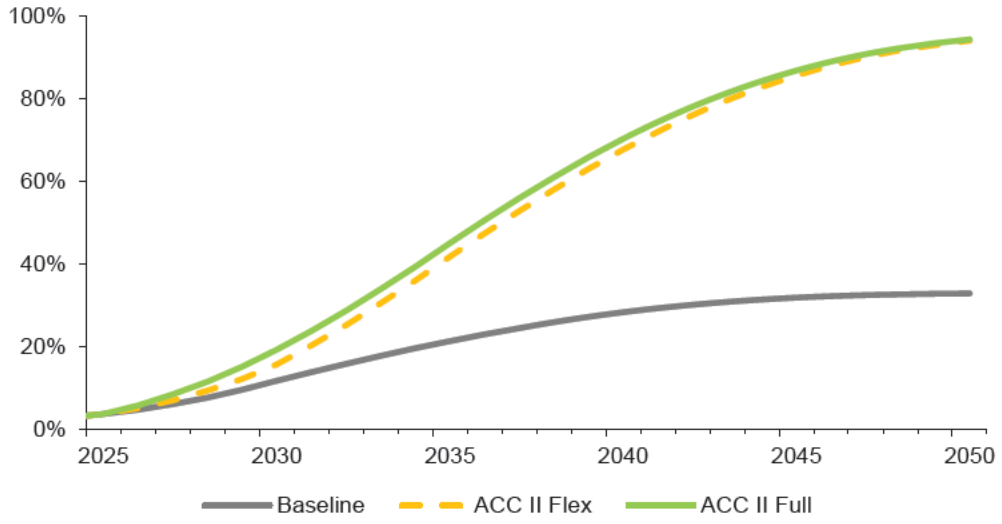

Figure 2: Fleet Turnover to Zero-Emission Vehicles in ACC II Scenarios

Changes in LDV Fuel Use

Under all modeled ACC II scenarios, ZEV sales result in a significant portion of the Illinois LDV population turning over to BEVs and PHEVs. As more and more ZEVs enter operation, petroleum fuel use is replaced with electricity.

Under the baseline scenario, total petroleum fuel use by the Illinois LDV fleet in 2050 is projected to be 2.7 billion gallons, and cumulative LDV fuel use is estimated to be 91 billion gallons between 2022 and 2050. Under the ACC II scenarios, petroleum fuel use in 2050 ranges from an estimated 160 to 170 million gallons (approximately a 94 percent decrease compared to estimated baseline scenario fuel use in 2050). Under the ACC II scenarios, cumulative fuel use by the LDV fleet is estimated to range between 56 to 58 billion gallons between 2022 and 2050. Therefore, compared to the baseline scenario, under the ACC II scenarios cumulative reductions in fuel use by the LDV fleet vary from 33 to 35 billion gallons between 2022 and 2050. This petroleum fuel is replaced by 334 to 350 million megawatt-hours (MWh) of electricity between 2022 and 2050. Electricity use for LD EV charging in 2050 is estimated to be about 25 million MWh, roughly a 10 percent increase from the estimated baseline electricity use by Illinois residential and commercial customers that year, according to AEO 2023 (243 million MWh)[19].

Public Health and the Environment

The modeled ACC II scenarios produce significant reductions in NOx, PM, and GHG emissions from the LDV fleet, even after accounting for the emissions from producing the electricity needed to power ZEVs. NOx and PM reductions will improve air quality resulting in public health benefits from reduced mortality and hospital visits.

Air Quality Impacts

Figures 3 and 4 show estimated annual LDV fleet NOx and PM emissions, respectively, under the baseline scenario and the modeled ACC II scenarios. Under the baseline scenario, annual LDV fleet NOx emissions are projected to fall by 62 percent and annual fleet PM emissions are projected to fall

[19] Energy Information Administration, Annual Energy Outlook 2023. March 2022.

37 percent through 2047, as the current fleet turns over to new gasoline and diesel vehicles with cleaner engines that meet more stringent EPA new engine emissions standards. After 2047 baseline annual NOx and PM emissions are then projected to start rising again as annual fleet VMT continues to grow.

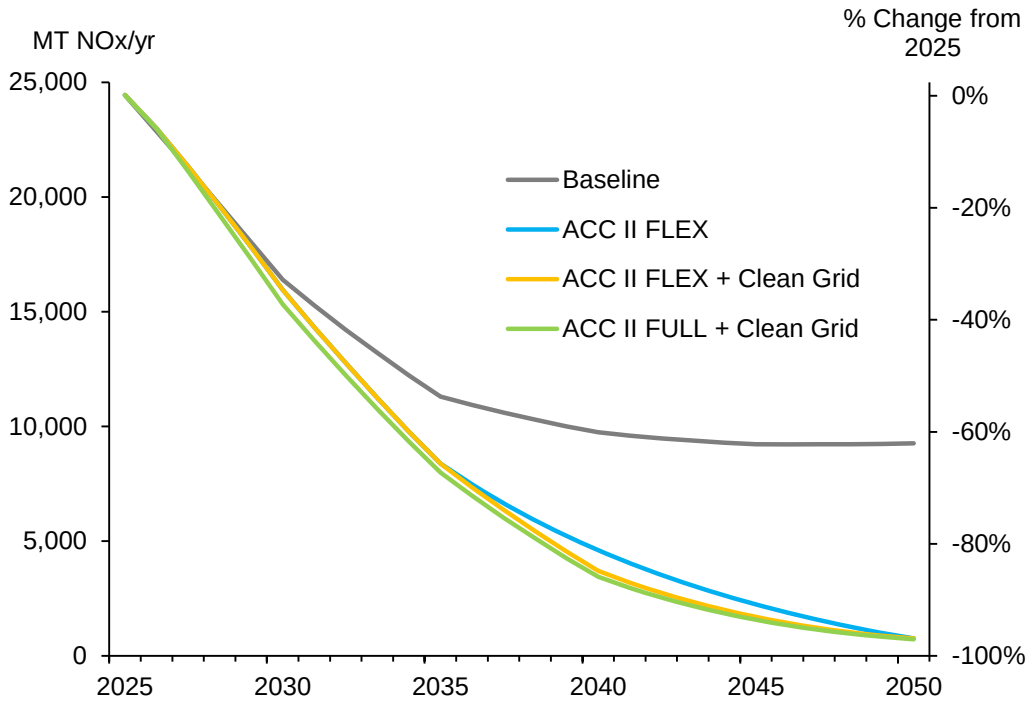

Figure 3: Projected LDV Fleet NOx Emissions

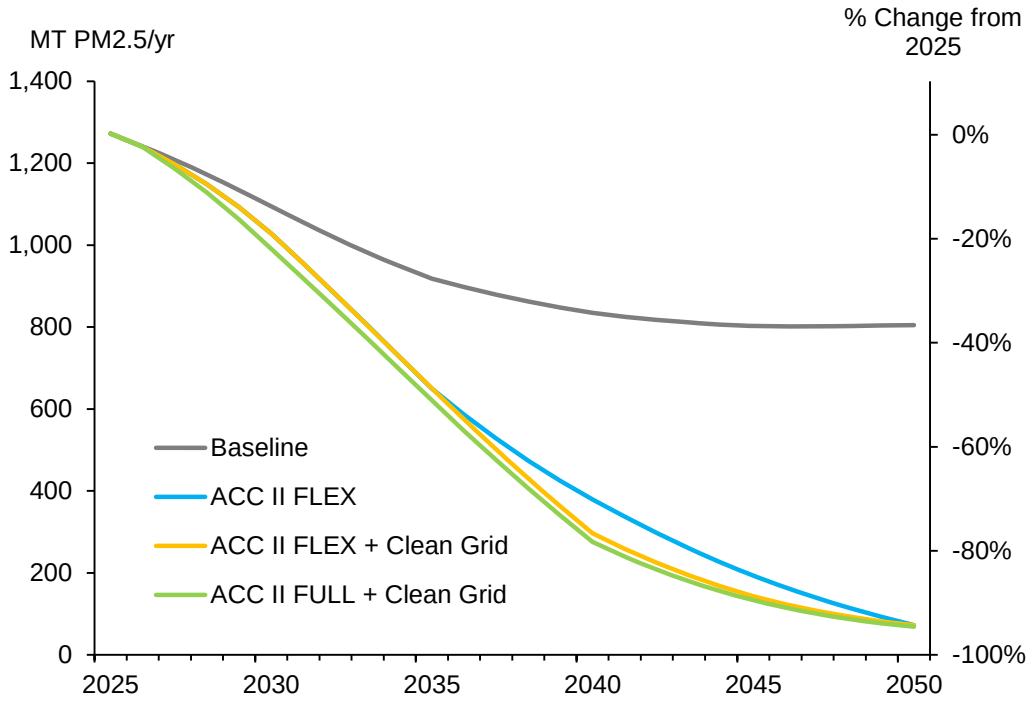

Figure 4: Projected LDV Fleet PM Emissions

Compared with the baseline, by 2050 the ACC II Flex scenario with a baseline grid is projected to reduce annual LDV fleet NOx and PM emissions by 97 percent and 94 percent, respectively. Both ACC II scenarios, Flex and Full with a clean grid are estimated to reduce annual LDV fleet NOx and PM emissions by 97 percent and 94 to 95 percent, respectively, as ICE vehicles are phased out and replaced with electric vehicles. As shown on Figures 3 and 4, emission levels during the ACC II compliance period, as well as several years after, vary between scenarios due to the compliance trajectories assumed, as well as the grid emission intensity.

Cumulative NOx and PM emission reductions from the ACC II scenarios (compared with the baseline scenario) range from 103,100 to 117,300 metric tons (MT) and 9,100 to 10,300 MT, respectively.

Public Health Benefits

The reduced annual NOx and PM emissions under the ACC II scenarios will decrease ambient particulate levels in the air, which will reduce negative health effects on Illinois residents breathing in these airborne particles.[20] Estimated public health impacts include reductions in premature mortality and fewer hospital admissions and emergency room visits for asthma. There will also be reduced cases of acute bronchitis, exacerbated asthma, and other respiratory symptoms, and fewer restricted activity days and lost workdays. Cumulative estimated reductions in these health outcomes in Illinois under the modeled ACC II scenarios are shown in Table 2; these benefits were estimated using the EPA's CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool.

[20] PM is directly emitted to the atmosphere from combustion sources as solid particles. NOx is emitted from combustion sources as a gas but contributes to the formation of secondary particles via chemical reactions in the atmosphere. Both direct and secondary particles have negative health effects when taken into the lungs.

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Table 2: Cumulative Public Health Benefits of ACC II Scenarios, 2027–2050

Health Metric	ACC II Flex	ACC II Flex + Clean Grid	ACC II Full + Clean Grid
Avoided Premature Deaths	416	426	450
Avoided Hospital Visits[a]	420	431	456
Avoided Minor Cases[b]	246,263	251,838	266,490
Monetized Value, 2022 dollars (billions)	$5.5	$5.6	$5.9

[a] *Includes hospital admissions and emergency room visits.*
[b] *Includes reduced cases of acute bronchitis, exacerbated asthma, and other respiratory symptoms, and reduced restricted activity days and lost workdays.*

As shown, the monetized value of cumulative public health benefits from the ACC II Flex scenario totals about $5.5 billion. If Illinois also implements strategies to reduce grid emissions such that electricity is 100 percent clean by 2040 (ACC II Flex + Clean Grid scenario) this would marginally increase the monetized value of cumulative net public health benefits to $5.6 billion. The monetized value of cumulative public health benefits under the ACC II Full + Clean Grid scenario also totals $5.9 billion through 2050.

Climate Benefits

Figure 5 illustrates estimated annual LDV fleet GHG emissions under the baseline scenario and the modeled ACC II scenarios. As shown, under the baseline scenario annual LDV fleet GHG emissions are projected to fall by 31 percent through 2050 as roughly one-third of the fleet electrifies, and the remaining ICE vehicles turn over to new, more efficient vehicles that meet more stringent EPA GHG emission and National Highway Traffic Safety Administration fuel economy standards.

Compared with the baseline, by 2050 all three ACC II scenarios are estimated to further reduce annual fleet GHG emissions due to increased sales of ZEVs. ACC II Full + Clean Grid reduces GHG emissions by 10 percent relative to the baseline in 2030—compared to only about a 6 percent reduction under ACC II Flex—due to the increase in ZEV adoption as well as the cleaner grid. Ultimately, all 3 scenarios realize approximately a 94 percent reduction in GHGs by 2050 compared to the baseline.

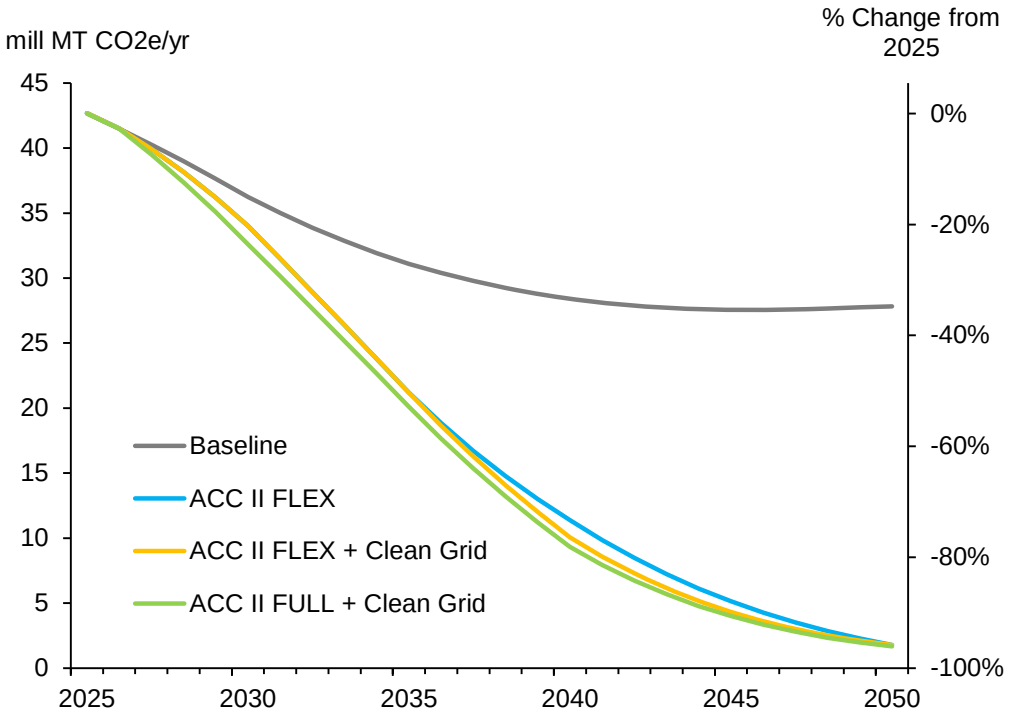

Figure 5: Projected LDV Fleet GHG Emissions

From 2027 through 2050, cumulative GHG emission reductions under the ACC II Flex scenario (compared with the baseline scenario) total 335 million MT, while cumulative GHG emission reductions from the ACC II Flex + Clean Grid scenario are projected to total 346 million MT, and the ACC II Full + Clean Grid scenario are projected to total 377 million MT. These estimates of GHG reductions from each scenario account for reductions in petroleum fuel use (gasoline, diesel fuel) by the LDV fleet, the decreased upstream emissions from gasoline and diesel production, as well as increased emissions from electricity production to fuel the EVs that will replace gasoline and diesel vehicles.

Using the social cost of greenhouse gases as estimated by the federal government's Interagency Working Group, these estimated cumulative GHG reductions have a monetized value of $29.4 billion for the ACC II Flex scenario, $30.3 billion for the ACC II Flex + Clean Grid scenario, and $32.7 billion for the ACC II Full + Clean Grid policy scenario.[21] The social value of GHG reductions represents potential societal cost savings from avoiding the negative effects of climate change, if GHG emissions are reduced enough to keep long-term warming below 2 degrees Celsius from preindustrial levels.[22]

The assumed grid mix for electricity production each year is shown in the Appendix for Illinois. For the baseline and ACC II Flex scenario, this analysis uses a BAU grid mix, while the ACC II Flex + Clean Grid and ACC II Full + Clean Grid scenarios assume a grid mix that decarbonizes more quickly. In 2022, the BAU grid mix is 17.0 percent coal-fired generation, 17.7 percent natural gas-fired generation, and 65.4

[21] For the social cost values used, see ERM's *Advanced Clean Cars II Program: An Analysis of the Impacts of Zero-Emission Light-Duty Vehicles on the Environment, Public Health, Industry, and the Economy—Methodologies and Assumptions.* February 2023.

[22] The Interagency Working Group developed GHG social cost estimates using a range of discount rates. These values are based on the average 3 percent discount rate, which is in the middle of the range of estimated values. The monetized value of cumulative GHG reductions under each policy scenario would be 72 percent lower if using the lowest published social cost values, and three times greater if using the highest published values.

percent “zero-emitting” generation sources. By 2030, the zero-emitting portion of the BAU grid mix increases to 86.3 percent while the coal portion decreases to 5.2 percent and gas decreases to 8.5 percent. By 2040, the BAU grid reaches about 94 percent zero-emitting, 2.4 percent gas and 3.4 percent coal. Lastly, by 2050, the BAU grid reaches 100 percent zero-emitting, with coal and natural gas completely phased out.

Under the ACC II Flex + Clean Grid and ACC II Full + Clean Grid scenarios, zero-emitting generation shifts to 86.3 percent in 2030 and reaches 100 percent in 2040.

Economic Impacts

This section summarizes projected economic impacts of the modeled ACC II scenarios, including changes in annual operating costs for Illinois vehicle owners, impacts to Illinois electric utilities and their customers, net societal benefits, and macroeconomic effects on jobs, wages, and GDP from the transition to zero-emission LDVs. This section also estimates the required public and private investment in electric vehicle charging infrastructure to support the electric LDV fleet under each scenario.

ZEV Owner Costs and Benefits

Average Incremental Costs for ZEV Owners

For all the modeled ACC II scenarios, this analysis estimated annual incremental costs associated with purchase and use of LD ZEVs compared with baseline conventional vehicles with combustion engines that operate on petroleum fuels. The analysis includes the incremental purchase cost of the new ZEV (instead of a new combustion vehicle), the cost of charging infrastructure, and the lifetime net fuel and maintenance costs.

Net fuel costs include reductions in purchases of petroleum fuels (due to fewer combustion vehicles), offset by the increased purchase of electricity to power ZEVs. Net maintenance costs include net savings in annual vehicle maintenance for the ZEVs in the fleet compared with combustion vehicles, offset by annual costs to maintain the charging infrastructure.

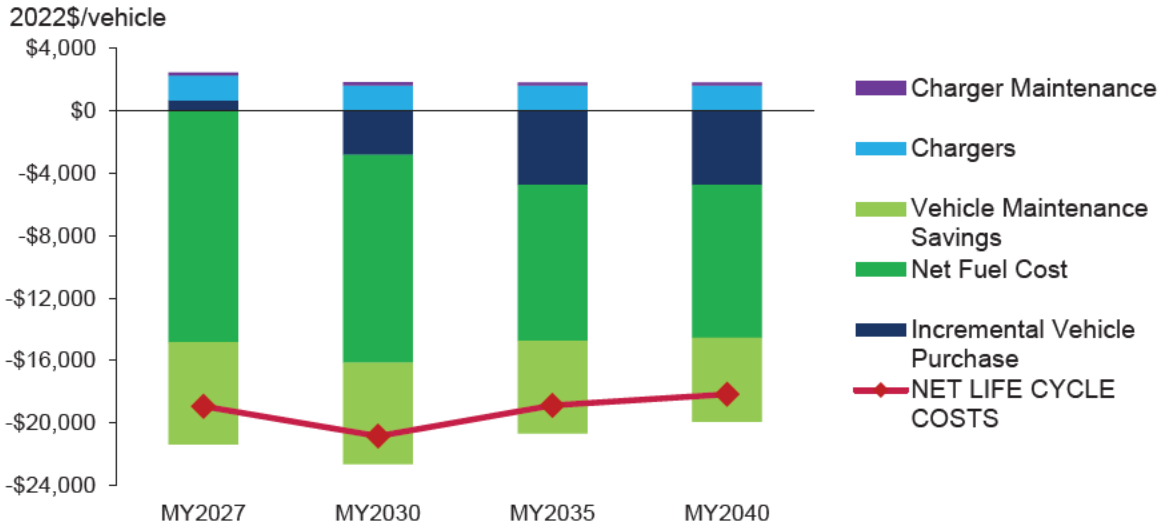

Figure 6: Average Incremental Cost for Illinois ZEVs Compared with Combustion Vehicles

Figure 6 shows projected average lifetime incremental costs for new ZEVs purchased in Illinois compared with lifetime costs for combustion vehicles purchased in the same MY; the bars show fleet average values for all LD ZEVs purchased each year under the ACC II Full + Clean Grid scenario. Incremental fuel and maintenance costs are discounted lifetime costs, assuming 16-year vehicle life, and 7 percent annual discount rate.

As shown, the average LD ZEV in Illinois is projected to produce between $15,000 and $22,000 in discounted fuel and maintenance cost savings over its lifetime. The average LD ZEV and charger purchased in MY 2027 will cost $2,200 more than an ICE vehicle, but the fuel and maintenance savings outweigh the projected incremental cost of vehicle as well as the charger costs, resulting in nearly $19,000 in lifetime savings. For MY 2030 and beyond, the average ZEV purchase price is projected to be lower than the average ICE vehicle, such that the ZEV owners will realize savings up to $21,000 over the lifetime of the vehicle. Net fuel costs shown in Figure 6 do not account for utility customer savings (discussed further below) and their potential to reduce utility rates – if these adjustments were included, net fuel savings and the resulting lifetime savings would be higher.

It is important to reiterate that the values on Figure 6 are average values, which masks variability across different vehicle types (e.g., passenger cars vs pickup trucks) or for different charging behaviors (e.g., home charging vs public direct current fast chargers [DCFC]).

LD ZEVs with smaller battery packs and reduced range will likely achieve lifetime cost parity with combustion vehicles earlier than 2026, while vehicles equipped with bigger batteries or all-wheel drive may lag current estimates predicted. Note that this analysis and the values shown on Figure 6 do not account for government incentives for vehicle purchase or development of fueling infrastructure. A recent study by ICCT and Energy Innovation estimate that the LDV tax credits provided under the Inflation Reduction Act could offer between $3,400 to $6,150 in incentives to vehicle owners.[23] If these tax credits,

[23] Slowik, Peter et al. International Council on Clean Transportation (ICCT) and Energy Innovation Policy & Technology LLC. "Analyzing the Impact Of The Inflation Reduction Act On Electric Vehicle Uptake In The United States". January 2023. https://theicct.org/wp-content/uploads/2023/01/ira-impact-evs-us-jan23-2.pdf.

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as well as other potential incentives such as improved electricity rates for EV charging are considered, then actual net costs to vehicle owners will be lower, resulting in purchase price parity sooner and increased savings for ZEV owners.

Incremental Cost for Rural ZEV Owners

As discussed in the previous section, the average ZEV owner in Illinois could save between $18,000 and $21,000, depending on the year of vehicle purchase and assuming 'typical' annual VMT. For rural drivers, who must travel further distances for work, school, or shopping, annual mileage can be much higher than the typical vehicle owner. Due to this higher mileage and potentially less access to charging infrastructure, ZEV owners may choose to purchase a vehicle with a longer range, such as a PHEV with 70 miles all-electric range or a BEV with 400 miles of all-electric range. These vehicles, due to their larger battery packs, will have a higher upfront purchase cost than other ZEVs, but the added battery capacity of these vehicles will help alleviate range concerns and could reduce (or eliminate) the need for ad-hoc charging on longer trips.

To better understand the cost impact of ZEV ownership for rural drivers in the state, the same cost calculation as described in the previous section was performed but with the assumption that ZEV owners purchase a longer-range offering and operate their vehicle 16,500 miles per year (approximately 62 percent more than the national average).[24] While the initial cost of the vehicle is higher, rural ZEV owners also experience increased fuel and maintenance savings due to the longer distances driven per year.

[24] US DOT Federal Highway Administration. Highway Statistics 2020. Table VM-1, 2020 Average miles traveled per vehicle – All Light Duty Vehicles (10,165 miles per vehicle). https://www.fhwa.dot.gov/policyinformation/statistics/2020/vm1.cfm.

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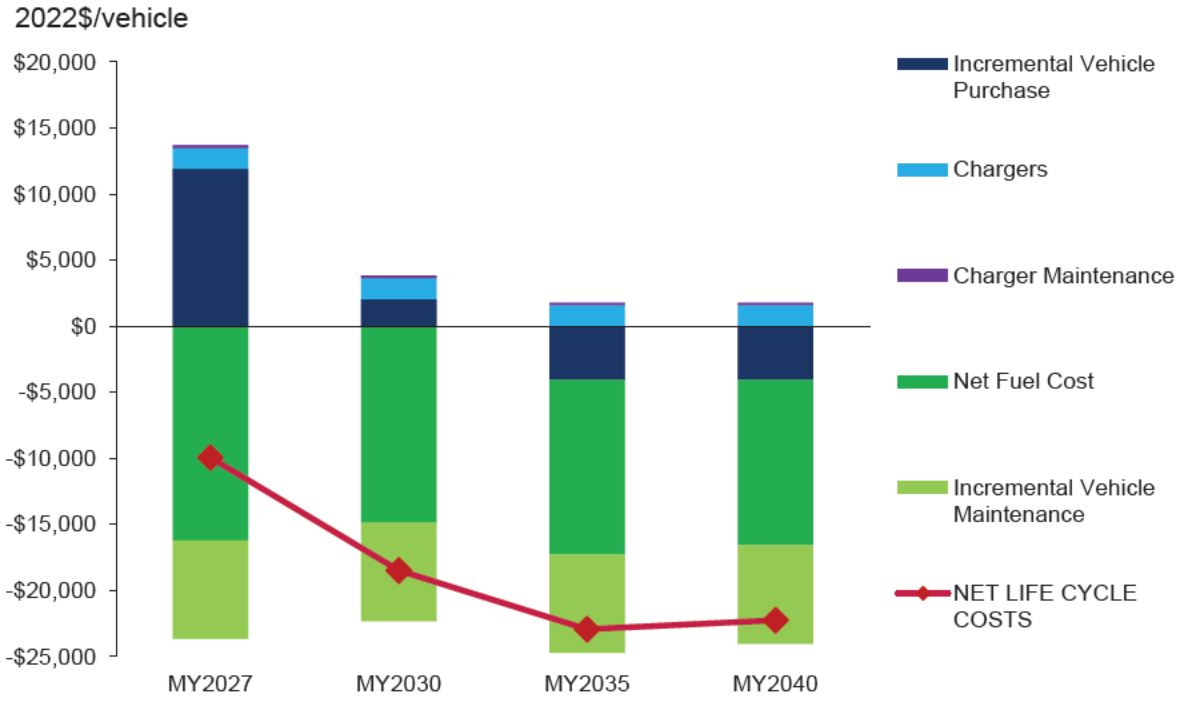

Figure 7: Average Incremental Cost for Illinois Rural ZEVs Compared with Combustion Vehicles

As shown on Figure 7, for MY 2027, rural ZEV owners save around $10,000 over the lifetime of the vehicle. This is lower than the lifetime savings for average ZEV owners and caused by the higher cost of a rural longer-range ZEV over the average ZEV. By MY 2030, there is greater annual savings of approximately $18,500 resulting from reduced maintenance costs and falling incremental purchase cost of a rural ZEV over a comparable ICE vehicle. This trend continues after MY 2030, with savings increasing to more than $22,000. Net fuel costs shown in Figure 7 do not account for utility customer savings (discussed further below) and their potential to reduce utility rates – if these adjustments were included, net fuel savings and the resulting lifetime savings would be higher.

Also note that rural drivers could alternatively choose to purchase a shorter-range ZEV to minimize the upfront cost. In turn, they will need to rely on publicly available charging infrastructure to refuel their vehicles on longer trips. Public charging stations, especially direct current fast chargers (DCFCs), can incur higher costs compared with charging at home, which can increase the charger and fuel costs for a vehicle.[25]

Used Light-duty Vehicle Market

Historically, used car prices have steadily increased from 1997 to 2019, and have exponentially increased in the past three years (2020 to 2023), as shown on Figure 8.[26] Cox Automotive tracks monthly pricing

[25] Gorzelany, Jim. "What it Costs to Charge an Electric Vehicle". https://www.myev.com/research/ev-101/what-it-costs-to-charge-an-electric-vehicle.

[26] "Manaheim Used Vehicle Value Index". https://publish.manheim.com/content/dam/consulting/ManheimUsedVehicleValueIndex-LineGraph.png.

trends in the U.S. used vehicle market using their 'Manheim Used Vehicle Value Index (MUVVI)'. The MUVVI applies statistical analysis to its database of more than 5 million used vehicle transactions annually.[27] Manheim's MUVVI measures used vehicle prices, independent of underlying shifts in the characteristics of vehicles being sold. The monthly MUVVI has been increasingly recognized by both financial and economic analysts as the premier indicator of pricing trends in the used vehicle market. The MUVVI differs slightly from the Consumer Price Index (CPI) in that its index accounts for seasonal adjustments based on vehicle mixes and mileage, whereas the CPI does not.

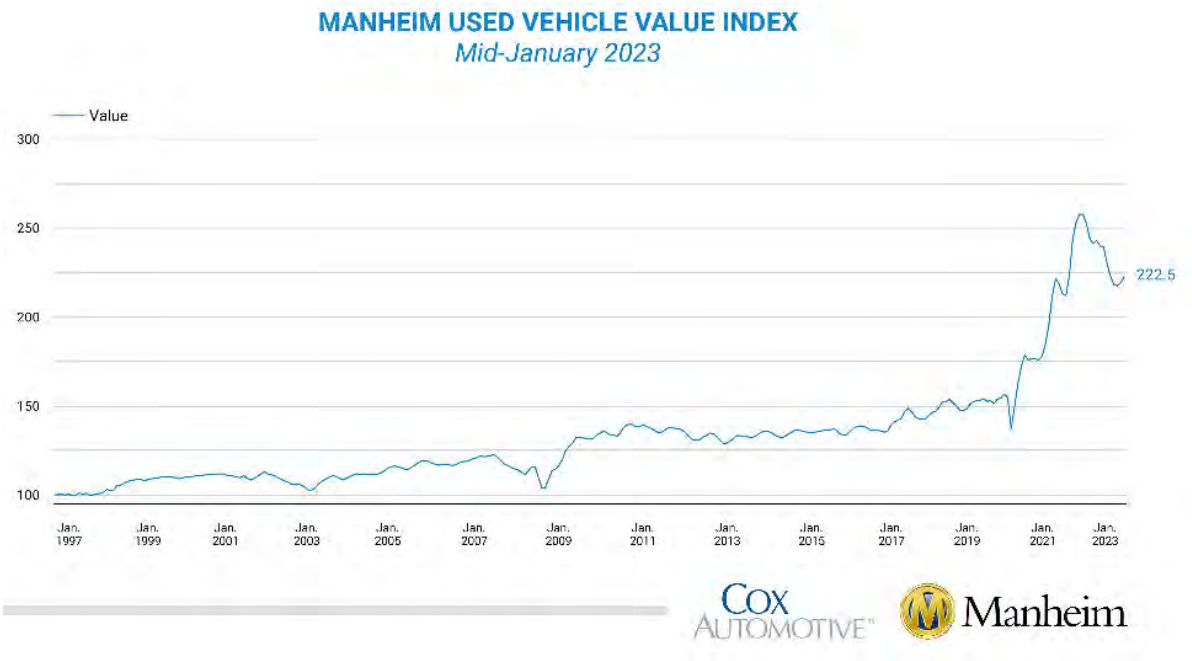

Figure 8: Manheim Used Vehicle Value Index (Mid-January 2023)

In 2021 and 2022, used vehicle prices rose due to global supply chain disruptions. These supply chain issues, including ongoing microchip shortages and elevated raw material costs, have been exacerbated due to recent geopolitical events and continue to impact the availability of new vehicles. The shortage of new cars has fueled demand for used cars, causing prices to surge in 2021 and 2022. This creates a compounding issue, as fewer new vehicles on the road also mean there are fewer second-hand vehicles to trade in, straining used car inventories. Many reports indicate that used car prices likely peaked at the end of 2022.[28] However, with uncertainty prevailing with the impacts of COVID-19 and geopolitical events on the supply chain and inventory, it may take more time for new vehicle sales to pick up the pace and the used vehicle market to return to its normal upward price trajectory.

In response to rising prices, President Biden signed the Inflation Reduction Act (IRA), which provides incentives for clean energy and transportation technologies, including an EV tax credit for new and used vehicles. Beginning in 2023, the IRA established a used clean vehicle tax credit (electric vehicles or fuel cell vehicles [FCVs]) of 30 percent of the sale price up to a maximum credit of $4,000. To qualify, a used vehicle must meet these requirements:

[27] The MUVVI excludes heavy trucks and motorcycles.

[28] Brinkman, Ryan. J.P. Morgan. "Inflation and the Auto Industry: When Will Car Prices Drop?" February 22, 2023. https://www.jpmorgan.com/insights/research/when-will-car-prices-drop.

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- Have a sale price of $25,000 or less;
- Have a model year at least two years earlier than the calendar year when you purchase it;
- Have a gross vehicle weight rating of less than 14,000 pounds;
- Be an eligible FCV or plug-in EV with a battery capacity of at least 7 kWh;
- Be for use primarily in the United States.

Although it is unclear how the dynamic between new and used vehicle sales will look in the future, vehicle tax credits will help incentivize consumers to choose cleaner vehicle options, while providing them the flexibility to purchase new or used vehicles that are within their budgets. Additionally, more states adopting the ACC II regulation would rapidly accelerate the prevalence of EVs in the marketplace. This rapid increase in new EV availability is expected to lead to growth in the used EV market, as first-generation EV drivers may choose to sell their vehicles to the used car market. While complementary policies may be required, ACC II is a policy that would make this technology and its benefits more accessible to more individuals, regardless of their income level.

Electric Utility Impacts

Projected annual electricity sales to residential and commercial customers in Illinois total 228 million MWh in 2030 and are projected to grow to 243 million MWh in 2050.[29]

Under the ACC II scenarios, additional annual electricity sales for LD EV charging are estimated to range from 2.1 to 3.4 million MWh in 2030, rising to 25 million MWh in 2050. This incremental load represents 0.9 to 1.5 percent and roughly 10.3 percent of the total electricity demand in 2030 and 2050, respectively. Incremental monthly peak charging demand under the ACC II scenarios is between 340 to 558 MW in 2030, and 5,200 to 5,236 MW in 2050.

This analysis estimated the revenue that Illinois electric utilities would receive from these incremental electricity sales, the marginal generation and transmission costs of providing this power, and the net costs that utilities would realize (net costs = revenue–marginal cost). The estimated marginal cost includes costs associated with procuring the necessary additional peak generation and transmission capacity to serve the load ($/MW) as well as marginal generation and transmission energy costs ($/MWh).

Figure 9 summarizes the estimated annual utility net revenue from LD EV charging under the modeled ACC II scenarios. Under the ACC II Flex and ACC II Flex + Clean Grid scenarios, annual net utility revenue for LD ZEVs is projected to be $50 million in 2030, increasing to $477 million in 2040 and $598 million in 2050. Under the ACC II Full + Clean Grid scenario, utility net revenue is projected to be $82 million in 2030, rising to $494 million in 2040 and to $600 million in 2050.

[29] This growth assumption is from the EIA Annual Energy Outlook 2022. It does not include sales to large industrial customers.

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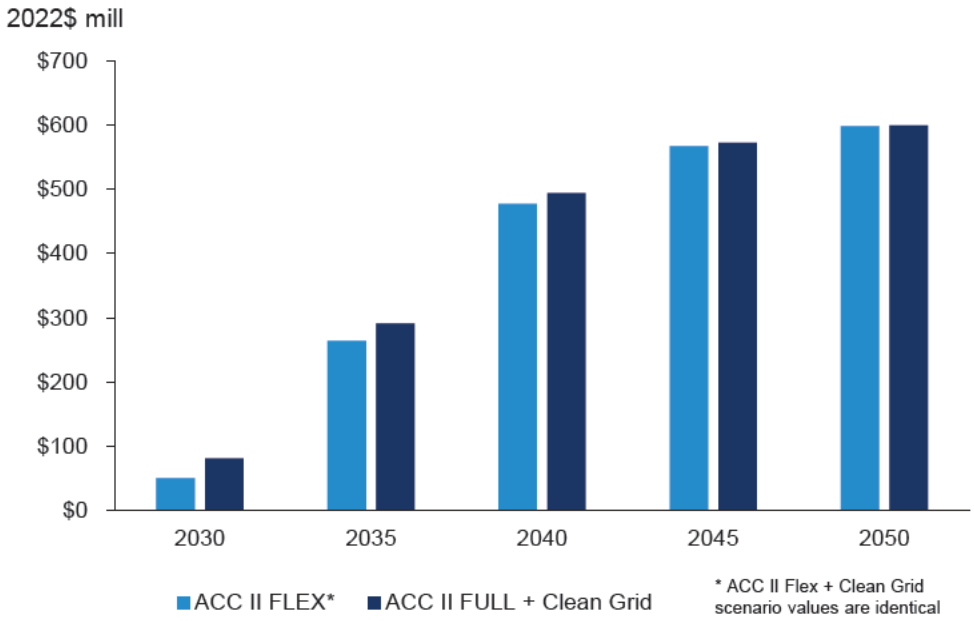

Figure 9: Projected Annual Utility Net Revenue from LD EV Charging

In general, a utility's costs to maintain its distribution infrastructure increase each year with inflation, and these costs are passed on to utility customers in accordance with rules established by the Illinois Commerce Commission via periodic increases in residential and commercial electric rates. However, projected utility net revenue from increased electricity sales for LD EV charging could lower energy distribution rates ($/kWh), since fixed annual distribution system costs would be spread over a larger energy sales base. This analysis indicates that utility net revenue from LD ZEV charging, could potentially reduce average residential and commercial electricity rates in Illinois by as much as 2.3 percent ($0.0048/kWh in 2022 dollars) by 2050. This could save the average Illinois household $42 per year and the average commercial customer $356 per year on their electricity bills (2022 dollars).[30]

Required Public and Private Investments

Using a detailed charging model that considers typical daily usage patterns, this analysis assumes that most LD ZEVs in Illinois will use overnight charging at single family and multi-family homes, though about 26 percent will need to rely on a publicly accessible network of chargers.[31] Overnight charging is assumed to meet the needs of the vast majority of vehicle owners, however owners without dedicated parking such as apartment buildings and locations where charging infrastructure will be difficult to site will need to rely on publicly available chargers.

The charging model evaluates the effect of ZEV charging on the Illinois grid under a "managed" charging scenario, assuming that ZEV owners participate in a utility managed charging program where owners plug in and charge their vehicles during designated periods of lower energy demand, rather than just charging their vehicles as soon as they arrive at home.

[30] Figures are based on average annual electricity use of 8,157 kWh per housing unit and 34,014 kWh per commercial customer in Illinois.

[31] See the methodology report for a detailed discussion of LD EV charging needs.

Home chargers are assumed to be either Level 1 (e.g., a standard 120V outlet) or Level 2, which requires a dedicated 208-240V circuit but can reduce charging times and provide flexibility to coincide with utility designated charging periods. Level 1 chargers can only add about 3 to 5 miles of range per hour, while Level 2 chargers can add 12 to 80 miles of range per hour, depending on the rating of the charger. [32] For public charging, two types of chargers were modeled – public Level 2 and DCFC ports, with the latter able to provide 150 to 350 kW of energy and the ability to replenish 3 to 20 miles of range per minute of charging.[33]

As of September 2023, there were 1,226 publicly accessible charging stations in Illinois with a total of 2,261 public Level 2 ports and 932 DCFC ports (>50 kW).[34] There are at least 46 fast-charging Tesla supercharger stations that currently can be used only by Tesla owners.[35] In Illinois, there were only 289 DCFC ports fully available to any vehicle.

Table 3 summarizes the estimated charging infrastructure required to support LD electric vehicles under the ACC II scenarios.

Table 3: Projected Charging Infrastructure Required for ACC II Scenarios

Metric		ACC II Flex*			ACC II Full + Clean Grid		
		2030	2040	2050	2030	2040	2050
In-Use Charge Ports	Home L1	9,414	88,161	143,999	15,448	92,711	145,033
	Home L2	339,775	3,181,825	5,197,039	557,550	3,346,039	5,234,361
	Public L2	1,928	18,053	29,487	3,163	18,985	29,699
	Public DCFC	1,216	11,385	18,595	1,995	11,972	18,729
Cumulative Investment, 2022 dollars (billions)	Home	$0.51	$5.00	$10.2	$0.83	$5.30	$10.5
	Public	$0.18	$1.80	$3.70	$0.30	$1.90	$3.80

** Represents both the ACC II Flex and ACC II Flex + Clean Grid scenarios due to equal number of ZEVs assumed under both scenarios.*

Under the ACC II Flex and ACC II Flex + Clean Grid scenarios, Illinois's LDV owners will have to invest an average of $443 million per year (2022 dollars) between 2027 and 2050 to purchase and install home-based charging infrastructure. The government and private investors will need to invest an average of $159 million per year over the same time period to build out a publicly accessible charging network across the region to serve the EV LD fleet.

Under the ACC II Full + Clean Grid scenario, fleet investments in home charging infrastructure from 2027 to 2050 increase to an average of $457 million per year (2022 dollars), and public and private investments in the public charging network rise to an average of $164 million per year.

[32] Moloughney, Tom. "What are the Different Levels of Electric Vehicle Charging?", October 4, 2021, https://www.forbes.com/wheels/advice/ev-charging-levels/

[33] Ibid.

[34] These numbers are from the U.S. Department of Energy's Alternative Fuel Data Center public charger database.

[35] Tesla state-by-state list of superchargers, https://www.tesla.com/findus/list/superchargers/United%20States.

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Jobs, Wages, and GDP

The transition from gasoline and diesel LD vehicles to ZEVs will have significant impacts on the U.S. economy, with substantial job gains in many industries (e.g., battery and electric component manufacturing, charging infrastructure construction, electricity generation), accompanied by fewer jobs in other industries (e.g., engine manufacturing, oil exploration and refining, gas stations, auto repair shops).[36]

This analysis used the Impact Analysis for Planning (IMPLAN) model to estimate these macroeconomic effects of the modeled Illinois ACC II scenarios based on estimated changes in spending in various industries (relative to the baseline scenario). These estimates of spending change by industry and were developed from the fleet cost analysis. For example, under the modeled ACC II scenarios, more money will be spent to manufacture batteries and electric drive components for ZEVs, but less will be spent to manufacture ICE engines and their transmissions. Similarly, vehicle owners will spend less money to purchase petroleum fuels, but more will be spent to purchase electricity.

The IMPLAN analysis also includes the effects of induced economic activity due to consumers having more money to spend, thanks to return of utility net revenue in the form of lower electric rates, and net savings for ZEV owners.

The IMPLAN analysis was run at the national level, but assuming only the industry spending changes (from application of the ACC II regulation) occurring due to LD vehicle purchase and use in Illinois. Table 3 offers a summary of estimated macroeconomic effects of the modeled ACC II scenarios on jobs, GDP, and wages.

[36] For example, in-state charging infrastructure is estimated to increase by 1,734 jobs in 2050 under the most aggressive scenario.

Compared with the baseline scenario, adoption of the ACC II Flex, ACC II Flex + Clean Grid and ACC II Full + Clean Grid scenarios will increase national net jobs through 2050 by around 60 jobs. The scenarios also increase annual GDP through 2050 by about $1.2 billion. For all scenarios in all years, the average wages for new jobs added to the economy are higher than average wages for jobs that are replaced by about 50%. This is because the largest number of added jobs are in electrical component manufacturing and in construction of charging infrastructure, requiring many well-paid electricians and electrical engineers, while the largest job losses are in vehicle repair—due to lower maintenance required by ZEVs—as well as relatively low-paid retail workers at gas stations.

Table 4: Macroeconomic Effects of Illinois ACC II Scenarios

Metric		ACC II Flex*			ACC II Full + Clean Grid		
		2030	2040	2050	2030	2040	2050
Net Change in Jobs		18,212	2,255	60	24,004	4,232	(46)
Net Change in GDP 2022 dollars (millions)		$2,977	$1,330	$1,257	$3,955	$1,606	$1,248
Average Annual Compensation	Added Jobs	$103,221	$92,195	$90,303	$103,418	$92,742	$96,318
	Replaced Jobs	$66,730	$61,870	$61,218	$66,271	$61,877	$60,545

** Represents both the ACC II Flex and ACC II Flex + Clean Grid scenarios due to equal number of ZEVs assumed under both scenarios.*

With passage of the IRA,[37] where tax incentives are tied to U.S. manufactured ZEVs and their batteries, the government is heavily investing in the domestic EV, EV battery, and EVSE industries. The scale of U.S. macroeconomic effects from the modeled ACC II scenarios will depend on how the emerging LD ZEV industry develops; for this analysis, ERM assumed that all incremental spending on ZEV batteries and electric drivetrain components would be in the United States. As such, the results summarized in Table 3 represent a higher-end estimate of what is possible from the ZEV transition, assuming the IRA domestic incentives are successful in spurring development of U.S.-based ZEV component manufacturing. If vehicle manufacturers rely on imported batteries and electric drivetrain components, the net job and GDP gains will be lower than those summarized here.

This macroeconomic analysis includes direct, indirect, and induced impacts from changes in LD vehicle manufacturing and use, and from consumer re-spending of net utility revenue and ZEV owner savings.

Net Societal Benefits

The net societal benefits from the modeled Illinois ACC II scenarios include the monetized value of public health and climate benefits, net cost savings for vehicle owners, and net utility costs from increased electricity demand for EV charging.

Figure 10 presents estimated cumulative net societal benefits (2027–2050) under the ACC II Flex, ACC II Flex + Clean Grid, and ACC II Full + Clean Grid scenarios, respectively. Under all three ACC II scenarios for all years, cumulative net societal benefits are positive, due to incremental vehicle savings, utility net revenue, as well as public health and climate benefits.

[37] Yarmuth, John. H.R.5376 – Inflation Reduction Act of 2022. August 16, 2022. https://www.congress.gov/bill/117th-congress/house-bill/5376/text.

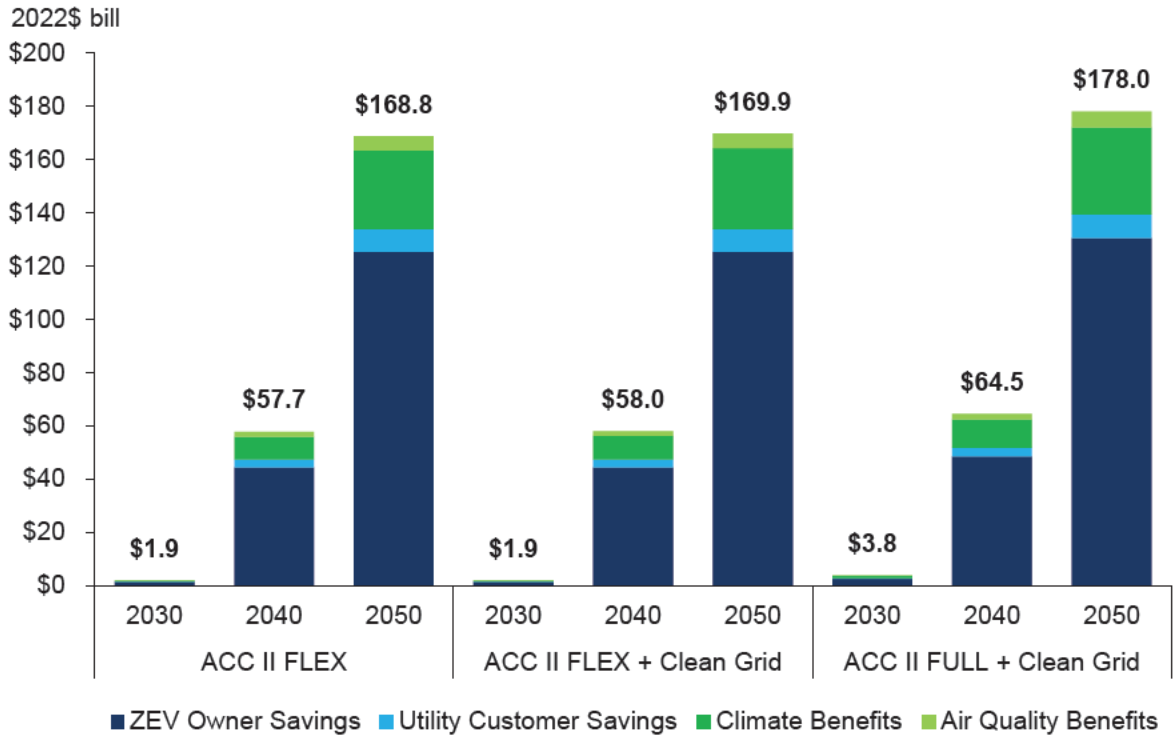
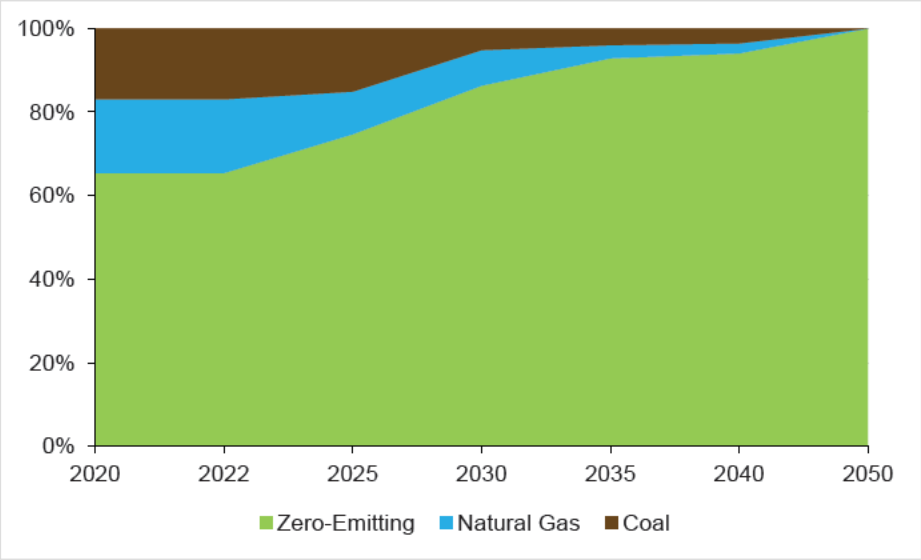


Figure 10: Projected Cumulative Net Societal Benefits from ACC II Scenarios

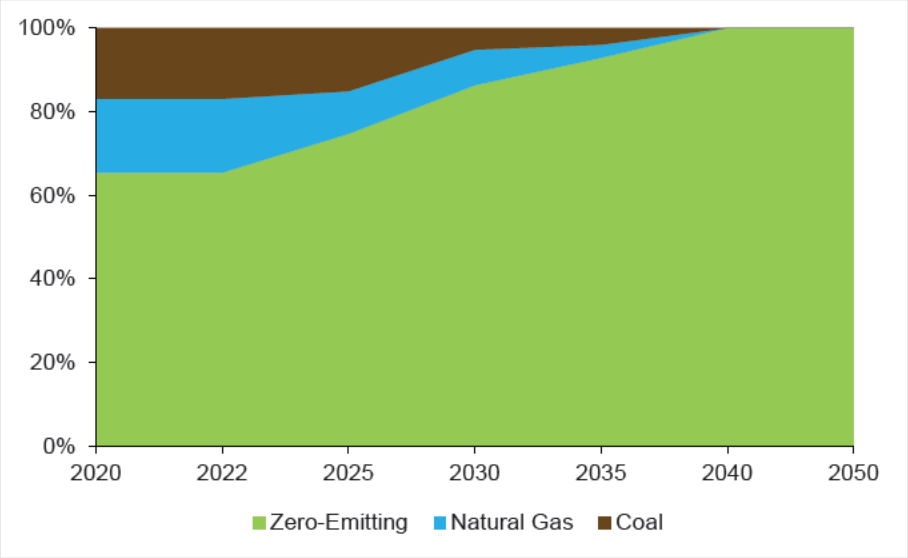
Under both ACC II Flex scenarios, the cumulative estimated net societal benefits see a very similar increase from $1.9 billion by 2030 to around $58 billion by 2040, and roughly $169 billion by 2050. Under the ACC II Full + Clean Grid scenario, the cumulative estimated net societal benefits increase to total $3.8 billion by 2030, $64.5 billion by 2040, and $178 billion by 2050.

APPENDIX A ILLINOIS ENERGY COST ASSUMPTIONS AND SUPPLEMENTAL MATERIAL



These BAU grid mix assumptions were applied to the baseline and the ACC II Flex scenarios.

Figure A1: Illinois Business-as-usual Grid Mix Assumptions



These decarbonized grid mix assumptions were applied to both the ACC II Flex + Clean Grid and ACC II Full+ Clean Grid scenarios.

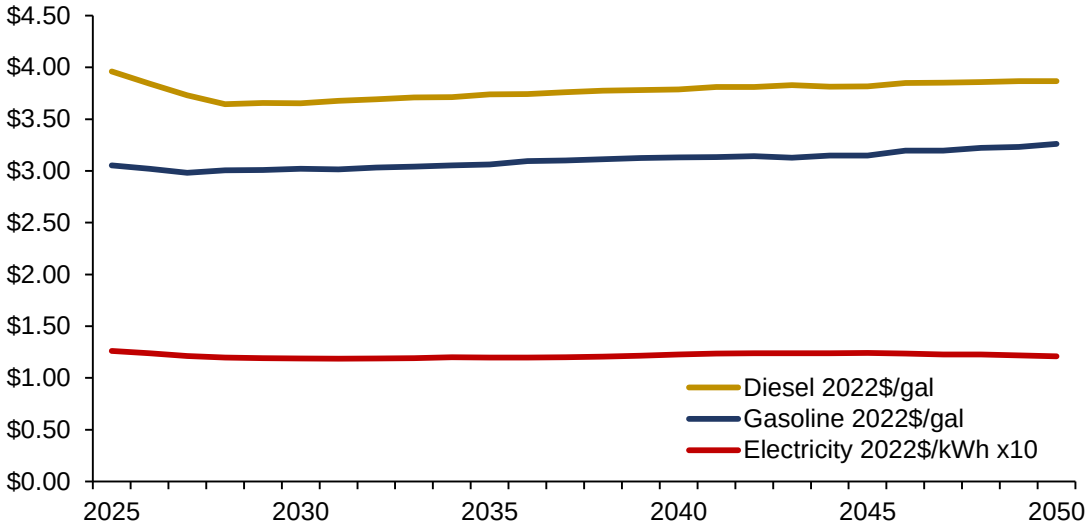
Figure A2: Illinois Decarbonized Grid Mix Assumptions

Table A1: Net Incremental Fleet Benefits

2022 dollars (billions)	2030	2035	2040	2045	2050
ACC II Flex	$0.87	$4.27	$6.43	$7.98	$9.30
ACC II Flex + Clean Grid	$0.87	$4.27	$6.43	$7.98	$9.30
ACC II Full + Clean Grid	$1.37	$4.59	$6.63	$8.07	$9.33

Table A2: Average Illinois Household and Commercial Customer Electric Bill Savings in 2050

2022 dollars	Household	Commercial Customer
ACC II Flex	$41.92	$355.87
ACC II Flex + Clean Grid	$41.92	$355.87
ACC II Full + Clean Grid	$41.98	$356.40



Source: EIA AEO 2023 and ERM analysis

Figure A3: Illinois Average Fuel Costs

Table A3: Annual LDV Climate Reductions in Illinois under ACC II Scenarios

Million Metric Tons CO_2e	2030	2035	2040	2045	2050
ACC II Flex	2.2	9.9	17.0	22.4	26.1
ACC II Flex + Clean Grid	2.2	9.9	18.4	23.2	26.1
ACC II Full + Clean Grid	3.6	11.0	19.1	23.6	26.2

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Table A4: Annual LDV NOx Reductions in Illinois under ACC II Scenarios

Metric Tons NOx	2030	2035	2040	2045	2050
ACC II Flex	445	2,925	5,142	6,989	8,498
ACC II Flex + Clean Grid	445	2,925	6,038	7,536	8,499
ACC II Full + Clean Grid	1,070	3,315	6,301	7,655	8,539

Table A5: Annual LDV PM Reductions in Illinois under ACC II Scenarios

Metric Tons PM	2030	2035	2040	2045	2050
ACC II Flex	66	268	456	609	733
ACC II Flex + Clean Grid	66	268	538	660	733
ACC II Full + Clean Grid	104	298	559	670	736

EXHIBIT 3

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The Benefits of Clean Trucks Policies in Illinois

Select Results from IL Clean Trucks Program analyses
Advanced Clean Trucks adoption through model year (MY) 2035
Modeled Sensitivities:

beginning with MY2025	Analysis conducted in 2021; results align with report posted on ERM website	-- costs in $2020
beginning with MY2028	Analysis conducted in 2024; includes updated baseline with results not comparable to 2021 analysis	-- costs in $2024
beginning with MY2029	Analysis conducted in 2024; includes updated baseline with results not comparable to 2021 analysis	-- costs in $2024

Modeled Scenarios:

Baseline	No Clean Trucks Policy; ZEV sales grow conservatively in 2021 analysis; ZEV sales grow based on EPA Phase 3 GHG Emissions Standards for HDV in 2024 analyses
ACT Rule	Advanced Clean Trucks Policy adopted with a BAU Grid
ACT + NOx Omnibus	Advanced Clean Trucks Policy and Heavy-Duty Omnibus Rule adopted wi h a BAU Grid
100x40 ZEV + Clean Grid	A 100% Clean Trucks by 2040 Policy adopted and the electric grid reaches 100% zero-emitting by 2040 (Clean Grid)

Note: EPA adopted the Heavy-Duty NOx Omnibus Rule after the publication of the 2021 report and it is part of the Baseline and within each scenario of the 2024 analyses

Visit ERM's website on this work for more information:
https://www.erm.com/public-information-sites/clean-truck-regulations-analysis-nrdc-ucs/
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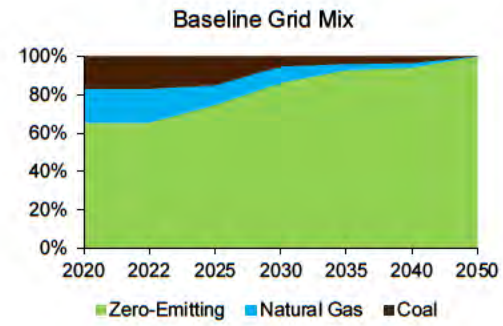
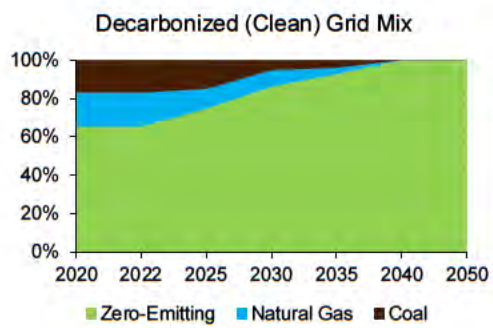
Assumed Electricity Grid Mix Informs Emissions in 2024 updated analysis	2020	2022	2025	2030	2035	2040	2050
Baseline Grid Mix	Used for 'BAU' and 'ACT' Scenarios						
Zero-Emitting	65%	65%	75%	86%	93%	94%	100%
Natural Gas	18%	18%	10%	9%	3%	2%	0%
Coal	17%	17%	15%	5%	4%	4%	0%
Decarbonized (Clean) Grid Mix	Used for '100x40 ZEV' under Clean Grid scenario						
Zero-Emitting	65%	65%	75%	86%	93%	100%	100%
Natural Gas	18%	18%	10%	9%	3%	0%	0%
Coal	17%	17%	15%	5%	4%	0%	0%

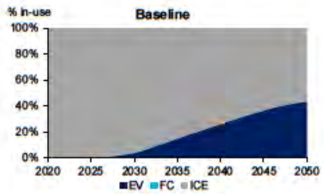


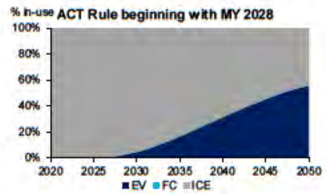


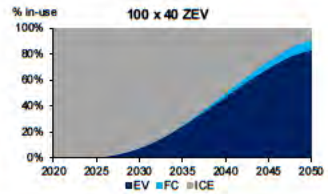
Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

Penetration of Medium/Heavy Duty Fleet zero emission vehicles (ZEV) = battery electric hydrogen fuel cell electric (FC) vehicles	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Annual New Zero Emission Vehicles																															
% share of new medium/heavy duty vehicles that are ZEVs																															
2021 report analysis																															
Baseline																															
2b Truck		1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Bus		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Single Unit Truck		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Combina ion Truck		1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
AC Rule scenarios beginning w th MY 2025																															
2b Truck		1%	0%	0%	0%	5%	7%	10%	15%	20%	25%	30%	35%	0%	5%	50%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
Bus		1%	1%	1%	1%	5%	7%	9%	13%	19%	2 %	29%	33%	37%	1%	5%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Single Unit Truck		1%	1%	1%	1%	7%	9%	12%	18%	26%	3 %	1%	6%	51%	56%	61%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%
Combina ion Truck		1%	0%	0%	0%	5%	7%	10%	15%	20%	25%	30%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
100 x 40 ZEV scenario																															
2b Truck		1%	0%	0%	0%	7%	10%	15%	23%	30%	38%	6%	5 %	61%	69%	77%	85%	92%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bus		1%	1%	1%	1%	23%	29%	37%	5%	53%	61%	69%	72%	75%	78%	80%	83%	86%	89%	92%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
Single Unit Truck		1%	1%	1%	1%	9%	12%	18%	27%	36%	5%	5 %	63%	72%	81%	90%	93%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Combina ion Truck		1%	0%	0%	0%	7%	10%	15%	22%	28%	35%	1%	8%	5 %	61%	67%	7 %	80%	87%	93%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2024 updated analysis																															
Baseline																															
2b Truck		0%	0%	0%	1%	2%	6%	11%	13%	21%	27%	38%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus		0%	0%	0%	1%	2%	6%	11%	1 %	17%	20%	29%	37%	37%	38%	38%	38%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%	39%
Single Unit Truck		0%	0%	0%	1%	2%	8%	1 %	17%	21%	25%	36%	6%	6%	6%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	%
Combina ion Truck		0%	0%	0%	0%	1%	1%	1%	5%	7%	12%	21%	3 %	3 %	3 %	3 %	3 %	3 %	3 %	3%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
AC Rule beginning with MY 2028																															
2b Truck		0%	0%	0%	1%	2%	6%	11%	15%	20%	25%	30%	35%	0%	5%	50%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
Bus		0%	0%	0%	1%	2%	6%	11%	13%	19%	2 %	29%	33%	37%	1%	5%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Single Unit Truck		0%	0%	0%	1%	2%	7%	12%	18%	26%	3 %	1%	6%	51%	56%	61%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%
Combina ion Truck		0%	0%	0%	0%	1%	1%	1%	15%	20%	25%	30%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AC Rule beginning with MY 2029																															
2b Truck		0%	0%	0%	1%	2%	6%	11%	13%	20%	25%	30%	35%	0%	5%	50%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
Bus		0%	0%	0%	1%	2%	6%	11%	1 %	19%	2 %	29%	33%	37%	1%	5%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Single Unit Truck		0%	0%	0%	1%	2%	7%	12%	15%	26%	3 %	1%	6%	51%	56%	61%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%
Combina ion Truck		0%	0%	0%	0%	1%	1%	1%	5%	20%	25%	30%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
100 x 40 ZEV scenario																															
2b Truck		0%	0%	0%	1%	7%	10%	15%	23%	30%	38%	6%	5 %	61%	69%	77%	85%	92%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bus		0%	0%	0%	1%	23%	29%	37%	5%	53%	61%	69%	72%	75%	78%	80%	83%	86%	89%	92%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
Single Unit Truck		0%	0%	0%	1%	9%	12%	18%	27%	36%	5%	5 %	63%	72%	81%	90%	93%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Combina ion Truck		0%	0%	0%	0%	7%	10%	15%	22%	28%	35%	1%	8%	5 %	61%	67%	7 %	80%	87%	93%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Medium/Heavy Duty Fleet umover																															
count of zero emission vehicles on road																															
2021 report analysis																															
Baseline																															
2b Truck	0	7	85	116	1 6	176	205	23	263	292	322	351	382	12		77	510	5 9	599	612	635	670	05	7 1	773	807	8 5	883	923	963	1,006
Bus	0	19	31		57	70	83	96	109	122	135	1 8	161	17	188	202	216	229	2	259	290	317	323	337	351	365	3 8	392	05	19	33
Single Unit Truck	0	122	199	279	363	6	529	613	696	780	86	9 7	1,031	1,116	1,20	1 292	1 380	1, 68	1,562	1,657	1,85	2,030	2,06	2,157	2,2 6	2,333	2, 19	2,506	2,593	2,6 9	2,766
Combina ion Truck	0	38	61	82	105	127	150	173	19	217	2 0	263	287	311	335	359	38	10	37	6	525	577	591	616	6 3	671	699	727	757	788	818
AC Rule scenarios beginning w th MY 2025																															
2b Truck	0	7	85	116	1 6	62	1,296	2,259	3,709	5,6 8	8,079	11,007	1 , 3	18,363	22,798	27,7 2	33,199	38,67	,167	9,631	55,122	60,639	66,175	71,281	76,212	80,871	85,061	88,781	92,027	9 ,796	97,085
Bus	0	19	31		57	16	30	85	761	1,151	1,656	2,276	2,977	3,760	,823	5 567	6 592	7 618	8,6 5	9,672	10,699	11, 27	12,737	13, 5	1 ,771	15,788	16,711	17,603	18, 53	19,210	19,853
Single Unit Truck	0	122	199	279	363	1,3 1	2,589	,165	6,569	10,031	1 ,553	20,136	26,397	33,335	0,95	9 252	58 231	67 21	76,202	85,195	9 ,193	103,195	112,080	121,015	129,950	138,888	1 6,935	15 ,717	162,1 6	168,813	17 ,395
Combina ion Truck	0	38	61	82	105	9	1,0 1	1,829	3,019	,615	6,623	9,0 8	11,896	15,171	18, 68	21,786	25,126	28, 87	31,871	35,276	38, 03	2,152	5,586	9,057	52,552	56,0 0	59,2 3	62,281	65,102	67,5 5	69,60
100 x 40 ZEV scenario																															
2b Truck	0	7	85	116	1 6	816	1,776	3,220	5, 16	8,368	12,082	16,562	21,81	27,8 2	3 651	2,2 7	50 635	59,820	69,807	79, 80	89, 96	99,852	109,9 2	119, 26	128,653	137, 29	1 5, 88	152,825	159, 3	161,577	162,112
Bus	0	19	31		57	53	1,139	1,917	2,86	3,981	5,267	6,723	8,2 0	9,818	11, 58	13,159	1 921	16,7 5	18,631	20,578	22,5 0	2 ,503	26, 8	28, 02	30,356	32,310	33,801	35,166	36,358	37,382	38,238
Single Unit Truck	0	122	199	279	363	1,610	3,185	5,588	9,207	1 ,0 3	20,098	27,37	35,870	5,590	56,533	68,702	81 327	9 , 10	107,950	121, 97	135,052	1 8,61	162,060	175,559	189,061	202,568	21 ,917	226,9 6	238,155	2 8,15	256,9 3
Combina ion Truck	0	38	61	82	105	6 9	1, 32	2,613	,321	6,562	9,3 2	12,669	16,550	20,991	25,999	31 583	37,7 8	50	51,855	59,811	68,379	77,002	85,6	9 ,356	103,127	111,953	120,315	128, 96	136,337	1 3,709	150,608
2024 updated analysis																															
Baseline																															
2b Truck	0	0	0	0	8	250	883	1,992	3,318	5, 83	8,301	12,279	17,073	21,892	26,7 5	31 629	36 5 7	1, 97	6, 80	51, 96	56,5 6	61,629	66,659	71,6 1	76,187	80,291	8 ,211	87,325	89,820	91,188	91,77
Bus	0	1	1	2	27	7	221	81	81	1,232	1,728	2, 3	3,353	,290	5 2 6	6 219	7 208	8,208	9,220	10,2 2	11,276	12,318	13,367	1 , 25	15, 92	16,5 3	17,580	18,527	19,368	20,1 6	20,8 7
Single Unit Truck	0	0	0	0	167	86	1,722	3,937	6,761	10,288	1 , 72	20,532	28, 97	36,568	,7 5	53 03	61, 37	69 9 5	78,559	87,278	96,107	105,037	11 ,070	123,208	132, 51	1 1,633	150,771	159,101	166,563	173,527	179,901
Combina ion Truck	0	0	0	1	25	71	117	21	5 5	1,036	1,889	3,353	5,678	8,007	10,338	12 673	15 011	17 352	19,697	22,0 5	2 ,396	26, 51	29,110	31, 73	33,839	36,187	38,517	0,851	3,138	5,19	7,095
AC Rule beginning with MY 2028																															
2b Truck	0	0	0	0	8	250	883	1,992	3,5 2	5,622	8,239	11,399	15,108	19,375	2 ,206	29 607	35 586	1,603	7,658	53, 52	59,88	66,056	72,182	78,266	83,923	89,1 3	93,962	98,292	102,127	105, 59	108,282
Bus	0	1	1	2	27	7	221	81	796	1,2 6	1,833	2,559	3,386	,315	5 3 8	6, 87	7,733	8,989	10,255	11,531	12,817	1 ,113	15, 20	16,737	18,06	19,3 8	20,680	21,893	23,00	2 ,071	25,01
Single Unit Truck	0	0	0	0	167	60	1,593	3,609	6,5 2	10,813	16, 52	23, 90	31, 70	0, 12	50,337	61 267	73 22	85 318	97,552	109,927	122, 5	135,107	1 7,915	160,871	173,977	187,066	200,182	212,613	22 ,317	235,263	2 5,031
Combina ion Truck	0	0	0	1	25	71	117	21	1,2 5	2,623	,3 8	6, 22	8,8 5	11,620	1 , 00	17,18	19 973	22,767	25,566	28,370	31,179	33,992	36,811	39,63	2, 61	5,271	8,063	50,860	53,611	55, 33	56,913
AC Rule beginning with MY 2029																															
2b Truck	0	0	0	0	8	250	883	1,992	3,318	5,398	8,01	11,17	1 ,88	19,151	23,981	29,382	35 361	1 378	7, 3	53,527	59,660	65,831	71,957	78,0 2	83,698	88,918	93,962	98,292	102,127	105, 59	108,282
Bus	0	1	1	2	27	7	221	81	81	1,26	1,851	2,577	3, 0	,333	5 366	6 505	7,751	9,007	10,273	11,5 9	12,835	1 ,131	15, 38	16,755	18,082	19,396	20,698	21,911	23,022	2 ,071	25,01
Single Unit Truck	0	0	0	0	167	60	1,593	3,609	6,125	10,396	16,035	23,073	31,053	39,995	9,920	60 850	72 807	8 901	97,135	109,510	122,028	13 ,690	1 7, 99	160, 5	173,560	186,6 9	199,765	212,196	223,900	235,263	2 5,031
Combina ion Truck	0	0	0	1	25	71	117	21	5 5	1,923	3,6 8	5,722	8,1 5	10,920	13,700	16, 8	19 273	22 067	2 ,866	27,670	30, 79	33,292	36,111	38,93	1,761	,571	7,363	50,160	52,911	55, 33	56,913
100 x 40 ZEV scenario																															
2b Truck	0	0	0	0	8	79	1,815	3,355	5,70	8,871	12,867	17,703	23,388	29,933	37,350	5,6 8	5 839	6 93	75 9	87,023	98,173	109,393	120,601	131,25	1 1,669	151,637	160,8 0	169,357	175,257	176,370	177, 89
Bus	0	1	1	2	27	561	1,2 3	2,127	3,212	, 99	5,99	7,698	9, 87	11,362	13 325	15 376	17 517	19, 50	22,075	2 , 9	26,951	29, 27	31,922	3 , 37	36,973	39,505	1,5 7	3, 62	5,197	6,752	8,12
Single Unit Truck	0	0	0	0	167	1,6 0	3,520	6, 19	10,83	16,800	2 ,351	33,523	,353	56,878	71,135	87,163	103 976	121,589	1 0,020	158,662	177,520	196,595	215,891	235, 08	255,151	27 ,955	293,682	312,236	330,006	3 6, 98	361,681
Combina ion Truck	0	0	0	1	25	503	1,189	2,218	3,700	5,63	8,022	10,867	1 ,170	17,932	22,15	26 8 0	31 989	37 60	3,686	50,237	57,259	6 ,293	71,339	78,398	85, 67	92,527	99,1 3	105,566	111,656	117,307	122,518
% share of medium/heavy duty vehicles on road																															
2021 report analysis																															
Baseline																															
Ba tery Elect ic	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%	0. %	0. %	0. %	0. %	0. %	0. %	0.5%	0.5%	0.5%	0 5%	0 5%	0 6%	0.6%	0.6%
Hydrogen Fuel Ce l Elect ic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low NOx Internal Combus ion Engine	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Internal Combus ion Engine	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	99%
AC Rule beginning with MY 2025																															
Ba tery Elect ic	0%	0%	0%	0%	0%	0%	1%	1%	2%	3%	5%	7%	9%	11%	13%	16%	19%	22%	25%	27%	30%	33%	36%	38%	1%	%	6%	8%	50%	52%	53%
Hydrogen Fuel Ce l Elect ic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low NOx Internal Combus ion Engine	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Internal Combus ion Engine	100%	100%	100%	100%	100%	100%	99%	99%	98%	97%	95%	93%	91%	89%	87%	8 %	81%	78%	75%	73%	70%	67%	6 %	62%	59%	56%	5 %	52%	50%	8%	7%
AC Rule NOx OMN beginning with MY 2025																															
Ba tery Elect ic	0%	0%	0%	0%	0%	0%	1%	1%	2%	3%	5%	7%	9%	11%	13%	16%	19%	22%	25%	27%	30%	33%	36%	38%	1%	%	6%	8%	50%	52%	53%
Hydrogen Fuel Ce l Elect ic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low NOx Internal Combus ion Engine	0%	0%	0%	0%	5%	10%	15%	19%	2 %	28%	31%	35%	38%	0%	3%	5%	8%	50%	52%	5 %	55%	56%	56%	57%	58%	55%	53%	51%	9%	7%	6%
Internal Combus ion Engine	100%	100%	100%	100%	95%	90%	8 %	79%	7 %	69%	6 %	59%	5 %	9%	%	39%	33%	28%	23%	18%	15%	11%	8%	%	1%	1%	1%	1%	1%	1%	1%
100 x 40 ZEV																															
Ba tery Elect ic	0%	0%	0%	0%	0%	1%	1%	2%	3%	5%	7%	10%	13%	16%	20%	23%	27%	32%	36%	1%	5%	50%	5 %	58%	63%	67%	0%	7 %	77%	80%	81%
Hydrogen Fuel Ce l Elect ic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	2%	2%	3%	3%	%	5%	5%	6%	6%	7%	7%	8%	9%
Low NOx Internal Combus ion Engine	0%	0%	0%	0%	5%	10%	1 %	19%	22%	26%	29%	31%	3 %	35%	37%	38%	38%	39%	39%	39%	37%	36%	3 %	33%	31%	27%	22%	18%	1 %	12%	9%
Internal Combus ion Engine	100%	100%	100%	100%	95%	90%	8 %	79%	7 %	69%	6 %	59%	5 %	9%	%	39%	33%	28%	23%	18%	15%	11%	8%	%	1%	1%	1%	1%	1%	1%	1%
2024 updated analysis																															
Baseline																															
Ba tery Elect ic	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.5%	1.0%	1.7%	2.7%	.0%	5.8%	8.1%	10. %	12.7%	15.0%	17.2%	19.5%	21.7%	23.9%	26.1%	28.3%	30.5%	32.6%	3 .7%	36.6%	38 5%	0.1%	1 5%	2.6%	3.5%
Hydrogen Fuel Ce l Elect ic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Internal Combus ion Engine	100%	100%	100%	100%	100%	100%	100%	99%	98%	97%	96%	9 %	92%	90%	87%	85%	83%	81%	78%	76%	7 %	72%	70%	67%	65%	63%	62%	60%	59%	5 %	5 %

AC Rule beginning with MY 2028																															
Ba tery Elect ic	0%	0%	0%	0%	0%	0%	0%	1%	2%	3%	5%	7%	9%	11%	1 %	17%	20%	23%	26%	28%	31%	3 %	37%	0%	3%	5%	8%	50%	52%	5 %	56%
Hydrogen Fuel Ce l Elect ic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Internal Combus ion Engine	100%	100%	100%	100%	100%	100%	100%	99%	98%	97%	95%	93%	91%	89%	86%	83%	80%	77%	7 %	72%	69%	66%	63%	60%	57%	55%	52%	50%	8%	6%	%
AC Rule beginning with MY 2029																															
Ba tery Elect ic	0%	0%	0%	0%	0%	0%	0%	1%	2%	3%	%	6%	9%	11%	1 %	16%	19%	22%	25%	28%	31%	3 %	37%	0%	3%	5%	8%	50%	52%	5 %	56%
Hydrogen Fu l C ll Electric	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Internal Combus ion Engine	100%	100%	100%	100%	100%	100%	100%	99%	98%	97%	96%	9 %	91%	89%	86%	8 %	81%	78%	75%	72%	69%	66%	63%	60%	57%	55%	52%	50%	8%	6%	%
100 x 40 ZEV																															
Ba tery Elect ic	0%	0%	0%	0%	0%	1%	1%	2%	%	5%	8%	10%	13%	17%	21%	25%	29%	33%	38%	3%	7%	52%	56%	61%	65%	69%	73%	6%	9%	81%	83%
Hydrogen Fu l C ll Elect ic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	2%	2%	3%	3%	%	%	5%	5%	6%	6%	7%	7%	8%
Internal Combus ion Engine	100%	100%	100%	100%	100%	99%	99%	98%	96%	95%	92%	90%	86%	83%	79%	75%	70%	65%	60%	55%	50%	5%	0%	35%	30%	26%	21%	17%	1 %	11%	9%



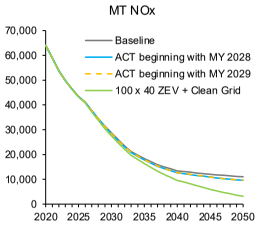


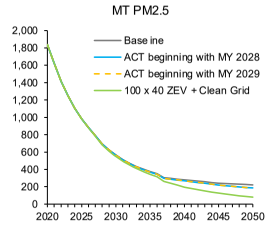


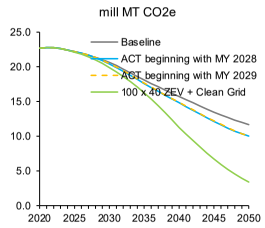
Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

Emissions Results Medium/Heavy-Duty Ve icles	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	'20 '50 2050 from bas line	
Projected Annual Emissions																																	
Annual NOx Emissions (metric tons)																																	
2021 report analysis																																	
Baseline	61,762	58,3 1	5 ,9 5	51,56	8,195	,86	3,352	1,8 0	0,3 5	38,867	37, 0	36,771	36,1 5	35,526	3 913	3 ,305	3 ,10	33,907	33,713	33,523	33,328	33,312	33,306	33,300	33 295	33,291	33, 1	33,591	33,7 2	33,893	3 ,0	- 5%	
ACT begin ing with MY 2025	61,762	58,3 1	5 ,9 5	51,56	8,195	, 58	3,106	1, 07	39,6 1	37,813	35,93	3 ,782	33,569	32,300	31 0 6	29,809	28,921	28,0 5	27,182	26,330	25, 90	2 ,750	2 ,015	23,276	22 535	21, 90	21,211	20,653	20,131	19,681	19,309	-69%	- 3%
ACT NOx OMN	61,762	58,3 1	5 ,9 5	51,56	6, 75	1,660	38, 08	3 , 53	31,826	29,0 1	26,398	2 , 00	22, 58	20,571	18,7 7	16,983	15, 29	13,899	12,390	10,905	9, 73	8,0 8	6,631	5,21	,798	,593	51	30	,156	,015	3,88	-9 %	-89%
100 x 0 ZEV Clean G id	61,762	58,3 1	5 ,9 5	51,563	6, 75	1,6 0	38,660	3 , 01	31,736	28,90	26,199	2 ,123	22,087	20,088	18,126	16,200	1 ,509	12,830	11,163	9,505	7,886	6,329	,790	3,262	2,7 7	2, 52	2,213	1,9 9	1,759	1,562	1,385	**98%**	-96%
2024 updated analysis																																	
Baseline	6 ,0 9	58,9 5	53,856	9,808	6, 20	3, 53	1,069	37,660	3 ,52	31,333	28,733	25,975	23, 79	21,260	19 681	18,299	17,075	15,882	1 ,98	1 ,207	13,39	13,121	12,8 5	12,568	12 289	12,013	11, 97	11,587	11,386	11,208	11,0 7	-83%	
ACT begin ing with MY 2028	6 ,0 9	58,9 5	53,856	9,808	6, 20	3, 5	1,071	37,666	3 , 15	31,088	28,361	25,5 9	23,08	20,8 2	19 221	17, 88	16,507	15,266	1 ,318	13, 90	12,636	12,287	11,935	11,581	11 225	10,871	10,568	10,269	9,977	9,760	9,581	-85%	-13%
ACT begin ing with MY 2029	6 ,0 9	58,9 5	53,856	9,808	6, 20	3, 5	1,071	37,666	3 ,535	31,199	28, 6	25,6 2	23,169	20,921	19 295	17,858	16,57	15,328	1 ,3 8	13,5 8	12,691	12,3 3	11,991	11,638	11 282	10,927	10,625	10,326	10,03	9,760	9,581	-85%	-13%
100 x 0 ZEV Clean G id	6 ,0 9	58,9 5	53,856	9,808	6, 20	3,310	0, 6	37,167	33,813	30,38	27,5 1	2 ,632	22,068	19,729	17 953	16,330	1 ,806	13,297	12,022	10,828	9,599	8,867	8,137	7, 10	6 686	5,967	5,336	,72	,152	3,637	3,171	**95%**	-71%
Annual PM2 5 Emissions (metric tons)																																	
2021 report analysis																																	
Baseline	1,703	1,556	1, 09	1,263	1,117	973	909	8	780	717	65	628	602	576	551	526	515	505	95	85	75	72	68	65	62	59	62	66	69	2	76	-72%	
ACT begin ing with MY 2025	1,703	1,556	1, 09	1,263	1,117	972	905	838	7 0	70	638	606	57	5 3	512	83	66	9	33	17	01	387	373	357	3 2	326	31	302	289	277	265	-8 %	- %
ACT NOx OMN	1,703	1,556	1, 09	1,263	1,117	972	905	838	7 0	70	638	606	57	5 3	512	83	66	9	33	17	01	387	373	357	3 2	326	31	302	289	277	265	-8 %	- %
100 x 0 ZEV Clean G id	1,703	1,556	1, 09	1,263	1,117	970	902	832	762	691	620	583	5 3	503	61	19	392	36	335	307	278	25	231	209	187	165	1 8	131	115	100	88	**95%**	-82%
2024 updated analysis																																	
Baseline	1,839	1,627	1, 15	1,250	1,107	982	883	89	69	62	567	51	71	32	03	375	352	306	297	288	280	272	265	257	2 9	2 1	237	233	229	225	221	-88%	
ACT begin ing with MY 2028	1,839	1,627	1, 15	1,250	1,107	982	883	89	693	621	562	508	66	26	396	367	3 3	297	287	277	267	258	2 9	239	230	219	213	206	199	193	187	-90%	-15%
ACT begin ing with MY 2029	1,839	1,627	1, 15	1,250	1,107	982	883	89	69	622	563	510	67	27	397	368	3	298	288	2 8	268	259	250	2 0	230	220	21	207	200	193	187	-90%	-15%
100 x 0 ZEV Clean G id	1,839	1,627	1, 15	1,250	1,107	980	879	82	68	611	5 9	9	51	09	376	3 5	31	263	2 2	220	196	182	168	153	139	126	116	105	96	88	80	**96%**	-6 %
Annual GHG Emissions **(mill on metric tons of CO2e)**																																	
2021 report analysis																																	
Baseline	22 0	22.1	22.0	21.9	21.6	21.	21.2	21.0	20.7	20.5	20 3	20.1	19.9	19.7	19.5	19.	19.2	19.1	18.9	18 8	18.6	18.5	18.	18.2	18.1	18.0	17.9	17.8	17.7	17.7	17.6	-20%	
ACT begin ing with MY 2025	22.1	22.1	22.1	22.0	21.7	21.5	21.2	20.9	20.5	20.2	19 8	19.3	18.8	18.3	17.9	17.	16.9	16.	15.9	15.	15.0	1 .	13.9	13.	12.8	12.3	11.8	11.3	10.8	10.	10.0	-55%	- 3%
ACT NOx OMN	22 0	22.1	22.0	21.9	21.6	21.	21.1	20.8	20.5	20.1	19.7	19.2	18.8	18.3	17.8	17.3	16.8	16.3	15.8	15 3	1 .9	1 .	13.8	13.3	12.8	12.2	11.7	11.3	10.8	10.	10.0	-55%	- 3%
100 x 0 ZEV Clean G id	22 0	22.1	22.0	21.9	21.6	21.3	21.1	20.7	20.2	19.7	19 2	18.5	17.9	17.1	16.3	15.	1 .6	13.7	12.8	11 8	10.8	9.9	9.0	8.1	7.2	6.	5.6	.8	.2	3 6	3.0	**86%**	-83%
2024 updated analysis																																	
Baseline	22.7	22.8	22.8	22.6	22.	22.2	22.0	21.7	21.	21.0	20 6	20.2	19.7	19.1	18.6	18.1	17.6	17.1	16.6	16 2	15.7	15.3	1 .8	1 .	13.9	13.5	13.1	12.7	12.3	12.0	11.7	- 9%	
ACT begin ing with MY 2028	22.7	22.8	22.8	22.6	22.	22.2	22.0	21.7	21.3	20.9	20.	19.9	19.	18.8	18.2	17.6	17.0	16.5	15.9	15.	1 .8	1 .3	13.7	13.2	12.7	12.1	11.7	11.2	10.7	10.	10.0	-56%	-1 %
ACT begin ing with MY 2029	22.7	22.8	22.8	22.6	22.	22.2	22.0	21.7	21.	20.9	20 5	20.0	19.	18.8	18.3	17.7	17.1	16.5	16.0	15.	1 .9	1 .3	13.8	13.3	12.7	12.2	11.7	11.2	10.8	10.	10.0	-56%	-1 %
100 x 0 ZEV Clean G id	22.7	22.8	22.8	22.6	22.	22.1	21.9	21.5	21.0	20.5	19 9	19.3	18.6	17.9	17.1	16.3	15.	1 .	13.	12.	11.3	10.3	9.	8.5	7.6	6.7	5.9	5.2	.5	3 9	3.	**86%**	-71%
Proejcted Cumulative Emissions Reductions from Baseline																																	
Cumulative NOx Emissions Reductions **(metric tons)**																																	
2021 report analysis																																	
ACT begin ing with MY 2025	0	0	0	0	0	-106	-352	- 85	-1, 89	-2,5	- ,01	-6,003	-8,579	-11,805	-15 671	-20,168	-25,351	-31,212	-37,7 3	- ,936	-52,77	-61,336	-70,627	-80,650	-91, 10	-102,912	-115,1 2	-128,080	-1 1,691	-155,902	-1 0,637		
ACT NOx OMN	0	0	0	0	-1,720	- ,92	-9,568	-16,65	-25,17	-35,000	- 6,007	-58,379	-72,066	-87,020	-103,186	-120,508	-139,183	-159,191	-180,513	-203,131	-226,987	-252,250	-278,926	-307,012	-335 508	-36 ,206	-393,196	- 22, 8	- 52,0 0	- 81,9 8	-512,108		
100 x 0 ZEV Clean G id	0	0	-1	-2	-1,72	- ,9 9	-9,6	-16, 86	-25,399	-35,367	- 6,5 8	-59,233	-73,300	-88,7 7	-105 5 5	-123,663	-1 3,271	-16 ,360	-186,92	-210,955	-236, 11	-263, 07	-291,936	-321,98	-352 5 1	-383,389	- 1 ,62	- 6,2 2	- 8,229	-510,562	-5 3,221		
2024 updated analysis																																	
ACT begin ing with MY 2028	0	0	0	0	0	1	3	9	-100	-3	-716	-1,1 2	-1,537	-1,955	-2, 15	-2,927	-3, 95	- ,111	- ,777	-5, 95	-6,253	-7,087	-7,996	-8,982	-10 0 6	-11,189	-12, 18	-13,736	-15,1 6	-16,59	-18,060		
ACT begin ing with MY 2029	0	0	0	0	0	1	3	9	20	-11	-383	-716	-1,025	-1,365	-1,751	-2,192	-2,693	-3,2 7	-3,853	- ,512	-5,215	-5,993	-6,8 7	-7,777	-8,78	-9,870	-11, 0 3	-12,303	-13,656	-15,10	-16,570		
100 x 0 ZEV Clean G id	0	0	0	0	0	-1	- 8	-9 1	-1,651	-2,600	-3,792	-5,135	-6,5 6	-8,077	-9 805	-11,77	-1 ,155	-16,988	-20,356	-2 ,320	-28,901	-33,911	-39,33	- 5,1 7	-51 332	-57,877	-6 ,7 5	-71,918	- 9,363	-87,0 0	-9 ,916		
Cumulative PM2 5 Emissions Reductions **(metric tons)**																																	
2021 report analysis																																	
ACT begin ing with MY 2025	0	0	0	0	0	-2	-5	-12	-21	-3	-51	-73	-100	-13	-172	-215	-265	-321	-383	- 52	-526	-610	-706	-81	-93	-1,067	-1,215	-1,3 9	-1,559	-1,75	-1,965		
ACT NOx OMN	0	0	0	0	0	-2	-5	-12	-21	-3	-51	-73	-100	-13	-172	-215	-265	-321	-383	- 52	-526	-610	-706	-81	-93	-1,067	-1,215	-1,3 9	-1,559	-1,75	-1,965		
100 x 0 ZEV Clean G id	0	0	0	0	0	-	-11	-23	- 1	-67	-102	-1 8	-207	-281	-372	- 79	-60	-7 7	-908	-1,087	-1,286	-1,50	-1,7 2	-1,999	-2 275	-2,569	-2,88	-3,220	-3,5 5	-3,9 7	- ,335		
2024 updated analysis																																	
ACT begin ing with MY 2028	0	0	0	0	0	0	0	0	-1	-	-9	-1	-19	-2	-31	-38	- 6	-55	-65	- 6	-88	-103	-119	-137	-156	-178	-203	-230	-260	-293	-327		
ACT begin ing with MY 2029	0	0	0	0	0	0	0	0	0	-1	-5	-9	-13	-17	-22	-29	-36	-	-53	-6	-75	-89	-10	-121	-1 0	-161	-185	-211	-2 1	-273	-307		
100 x 0 ZEV Clean G id	0	0	0	0	0	-2	-7	-13	-23	-36	-53	-72	-93	-116	-1 2	-172	-221	-287	-3 9	-502	-658	-820	-98	-1,1 9	-1 313	-1, 75	-1,635	-1,792	-1,9	-2,091	-2,232		
Cumulative GHG Emissions Reductions **(mill on metric tons of CO2e)**																																	
2021 report analysis																																	
ACT begin ing with MY 2025	0	0	0	0	0	1	1	0	0	0	-1	-1	-2	-	-5	-8	-10	-13	-16	-19	-23	-27	-31	-36	- 1	- 7	-53	-60	-67	-7	-81		
ACT NOx OMN	0	0	0	0	0	0	0	0	-1	-1	-2	-3	-	-5	-7	-9	-11	-1	-17	-21	-2	-29	-33	-38	- 3	- 9	-55	-62	-69	- 6	-8		
100 x 0 ZEV Clean G id	0	0	0	0	0	0	0	0	-1	-2	-3	-	-6	-9	-12	-16	-21	-26	-32	-39	- 7	-56	-65	-75	-86	-98	-110	-123	-137	-151	-165		
2024 updated analysis																																	
ACT begin ing with MY 2028	0	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	-2	-2	-3	-	-	-5	-6	-7	-8	-9	-11	-12	-13	-15	-16	-18	-20		
ACT begin ing with MY 2029	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	-2	-2	-3	-	-	-5	-6	-7	-8	-9	-11	-12	-1	-15	-17	-18		
100 x 0 ZEV Clean G id	0	0	0	0	0	0	0	0	-1	-1	-2	-3	-	-5	-7	-9	-11	-1	-17	-21	-25	-30	-36	- 1	- 8	-5	-62	-69	-77	-85	-93		







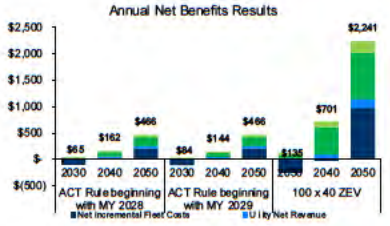
Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

Annual Net Benefits Results
$ million

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
2021 repot analysis																															
AC Rule beginning with MY 2025																															
Net Increment l Fleet Cos s						$ (109)	$ (121)	$ (130)	$ (150)	$ (139)	$ (82)	$ (65)	$ (2)	$ 28	$ 100	$ 176	$ 239	$ 326	$ 11	$ 87	$ 585	$ 670	$ 751	$ 838	$ 913	$ 97	$ 1,05	$ 1,115	$ 1,18	$ 1,216	$ 12 8
Climate Bene its						$ 2	$ 6	$ 10	$ 18	$ 28	$ 1	$ 57	$ 76	$ 99	$ 123	$ 1 8	$ 17	$ 202	$ 230	$ 259	$ 286	$ 32	$ 361	$ 396	$ 39	$ 80	$ 522	$ 56	$ 606	$ 6 6	$ 683
Air Quality Bene its						$ 3	$ 6	$ 11	$ 17	$ 25	$ 3	$ 5	$ 58	$ 72	$ 85	$ 98	$ 113	$ 127	$ 1 1	$ 15	$ 167	$ 182	$ 197	$ 212	$ 226	$ 2 1	$ 256	$ 270	$ 28	$ 296	$ 306
U l ity Net Revenue						$ 0	$ 1	$ 2	$ 3	$ 5	$ 7	$ 9	$ 12	$ 17	$ 21	$ 23	$ 26	$ 28	$ 31	$ 3	$ 36	$ 0	$	$ 7	$ 50	$ 5	$ 59	$ 62	$ 6	$ 6	$ 62
Net So ietal Bene its						$ (103)	$ (108)	$ (107)	$ (113)	$ (82)	$ (1)	$ 7	$ 123	$ 216	$ 326	$ 5	$ 552	$ 683	$ 813	$ 93	$ 1 078	$ 1 217	$ 1 362	$ 1, 96	$ 1,628	$ 1, 50	$ 1,890	$ 2,011	$ 2,118	$ 2,221	$ 2,300
AC Rule NOx OMN																															
Net Increment l Fleet Cos s						$ (161)	$ (166)	$ (231)	$ (2 5)	$ (220)	$ (156)	$ (157)	$ (109)	$ (0)	$ 37	$ 116	$ 186	$ 273	$ 359	$ 35	$ 53	$ 620	$ 700	$ 86	$ 863	$ 925	$ 1,00	$ 1,066	$ 1,115	$ 1,166	$ 1,199
Climate Bene its						$ 2	$ 6	$ 10	$ 18	$ 28	$ 1	$ 57	$ 76	$ 99	$ 123	$ 1 8	$ 17	$ 202	$ 230	$ 259	$ 286	$ 32	$ 361	$ 396	$ 39	$ 80	$ 522	$ 56	$ 606	$ 6 6	$ 683
Air Quality Bene its						$ 51	$ 7	$ 11	$ 139	$ 182	$ 183	$ 208	$ 232	$ 255	$ 278	$ 299	$ 32	$ 3 6	$ 372	$ 396	$ 16	$ 3	$ 69	$ 9	$ 503	$ 509	$ 516	$ 52	$ 531	$ 538	$ 5 5
U l ity Net Revenue						$ 0	$ 1	$ 2	$ 3	$ 5	$ 7	$ 9	$ 12	$ 17	$ 21	$ 23	$ 26	$ 28	$ 31	$ 3	$ 36	$ 0	$	$ 7	$ 50	$ 5	$ 59	$ 62	$ 6	$ 6	$ 62
Net So ietal Bene its						$ (107)	$ (85)	$ (10)	$ (66)	$ (26)	$ 75	$ 117	$ 211	$ 332	$ 58	$ 588	$ 709	$ 862	$ 903	$ 1,12	$ 1 278	$ 1, 27	$ 1 573	$ 1, 27	$ 1,695	$ 1,968	$ 2,101	$ 2,215	$ 2,316	$ 2, 1	$ 2, 89
100 x 40 ZEV																															
Net incremen al Fleet Costs						$ (237)	$ (253)	$ (3)	$ (357)	$ (311)	$ (212)	$ (193)	$ (122)	$ (29)	$ 75	$ 196	$ 309	$ 3	$ 586	$ 726	$ 917	$ 1 097	$ 1 269	$ 1, 5	$ 1,617	$ 1, 57	$ 1,933	$ 2,076	$ 2,197	$ 2,318	$ 2, 05
Climate Bene its						$ 31	$ 37	$ 5	$ 59	$ 77	$ 100	$ 129	$ 162	$ 202	$ 2 7	$ 299	$ 352	$ 11	$ 7	$ 5 2	$ 615	$ 686	$ 757	$ 829	$ 902	$ 976	$ 1,0 8	$ 1,118	$ 1,185	$ 1,2 7	$ 1,30
Air Quality Bene its						$ 52	$ 76	$ 117	$ 1 3	$ 168	$ 192	$ 219	$ 2 6	$ 273	$ 299	$ 325	$ 355	$ 386	$ 16	$ 6	$ 76	$ 508	$ 5 0	$ 572	$ 587	$ 599	$ 613	$ 627	$ 6 1	$ 653	$ 66
U l ity Net Revenue						$ 1	$ 2	$ 3	$ 5	$ 7	$ 11	$ 1	$ 16	$ 23	$ 28	$ 32	$ 35	$ 39	$ 3	$ 6	$ 52	$ 59	$ 65	$ 71	$ 76	$ 8	$ 91	$ 97	$ 101	$ 102	$ 103
Net So ietal Bene its						$ (15)	$ (138)	$ (178)	$ (150)	$ (58)	$ 90	$ 168	$ 30	$ 69	$ 6 9	$ 852	$ 1,052	$ 1,278	$ 1,518	$ 1,762	$ 2,060	$ 2 3 9	$ 2 631	$ 2 926	$ 3,183	$ 3, 16	$ 3,685	$ 3,919	$,123	$,320	$, 6
2024 updated analysis																															
AC Rule beginning with MY 2028																															
Net incremen al Fleet Costs						$ (0)	$ (0)	$ (1)	$ (8)	$ (106)	$ (102)	$ (6)	$ 29	$ (18)	$ (3)	$ (52)	$ (51)	$ (29)	$ (8)	$ 11	$ 30	$ 9	$ 68	$ 87	$ 10	$ 121	$ 1 3	$ 16	$ 182	$ 196	$ 209
Climate Bene its						$ (0)	$ (0)	$ (0)	$	$ 10	$ 18	$ 23	$ 2	$ 28	$ 33	$ 0	$ 8	$ 57	$ 65	$ 7	$ 82	$ 92	$ 101	$ 111	$ 121	$ 131	$ 1 2	$ 15	$ 165	$ 172	$ 1 6
Air Quality Bene its						$ (0)	$ (0)	$ (0)	$ 3	$ 7	$ 10	$ 11	$ 11	$ 11	$ 12	$ 1	$ 15	$ 16	$ 18	$ 20	$ 21	$ 23	$ 25	$ 27	$ 29	$ 32	$ 3	$ 37	$ 39	$ 1	$ 1
U l ity Net Revenue						$ (0)	$ (0)	$ (0)	$ 2	$ 6	$ 9	$ 12	$ 12	$ 1	$ 16	$ 18	$ 21	$ 23	$ 2	$ 27	$ 29	$ 30	$ 32	$ 33	$ 35	$ 37	$ 39	$ 0	$ 3	$ 2	$ 0
Net So ietal Bene its						$ (0)	$ (1)	$ (1)	$ (7)	$ (8)	$ (65)	$ (0)	$ 75	$ 35	$ 28	$ 20	$ 33	$ 66	$ 99	$ 131	$ 162	$ 19	$ 225	$ 259	$ 289	$ 321	$ 358	$ 395	$ 30	$ 51	$ 66
AC Rule beginning with MY 2029																															
Net incremen al Fleet Costs						$ (0)	$ (0)	$ (1)	$ (1)	$ (116)	$ (111)	$ (56)	$ 20	$ (27)	$ (3)	$ (60)	$ (60)	$ (38)	$ (17)	$ 3	$ 22	$ 1	$ 60	$ 80	$ 97	$ 11	$ 136	$ 157	$ 175	$ 196	$ 209
Climate Bene its						$ (0)	$ (0)	$ (0)	$ (1)	$ 6	$ 13	$ 18	$ 19	$ 23	$ 28	$ 35	$ 3	$ 51	$ 59	$ 68	$ 77	$ 86	$ 96	$ 106	$ 115	$ 125	$ 136	$ 1 7	$ 159	$ 1 2	$ 1 6
Air Quality Bene its						$ (0)	$ (0)	$ (0)	$ (0)	$	$ 7	$ 9	$ 8	$ 9	$ 10	$ 12	$ 1	$ 15	$ 16	$ 18	$ 20	$ 22	$ 2	$ 26	$ 28	$ 30	$ 33	$ 35	$ 38	$ 1	$ 1
U l ity Net Revenue						$ (0)	$ (0)	$ (0)	$ (0)	$ 3	$ 7	$ 9	$ 10	$ 11	$ 1	$ 16	$ 18	$ 20	$ 22	$ 2	$ 26	$ 27	$ 29	$ 31	$ 32	$ 3	$ 37	$ 38	$ 1	$ 2	$ 0
Net So ietal Bene its						$ (0)	$ (1)	$ (1)	$ (3)	$ (103)	$ (8)	$ (19)	$ 56	$ 16	$ 9	$ 2	$ 15	$ 6	$ 61	$ 113	$ 1	$ 176	$ 208	$ 2 2	$ 272	$ 30	$ 3 2	$ 378	$ 13	$ 51	$ 66
100 x 40 ZEV																															
Net Increment l Fleet Costs						$ (178)	$ (172)	$ (200)	$ (2 3)	$ (263)	$ (252)	$ (192)	$ (10)	$ (163)	$ (21)	$ (2 5)	$ (207)	$ (182)	$ (1 5)	$ (90)	$ (23)	$ 90	$ 197	$ 309	$ 07	$ 507	$ 622	$ 25	$ 812	$ 896	$ 980
Climate Bene its						$	$ 9	$ 16	$ 26	$ 0	$ 58	$ 72	$ 8	$ 102	$ 12	$ 153	$ 205	$ 267	$ 339	$ 21	$ 51	$ 56	$ 612	$ 688	$ 01	$ 7 3	$ 778	$ 812	$ 8 1	$ 86	$ 88
Air Quality Bene its						$	$ 9	$ 1	$ 20	$ 27	$ 33	$ 37	$ 39	$ 2	$ 8	$ 55	$ 65	$ 73	$ 87	$ 102	$ 117	$ 129	$ 1 1	$ 152	$ 162	$ 173	$ 183	$ 193	$ 202	$ 210	$ 217
U l ity Net Revenue						$ 2	$ 5	$ 8	$ 13	$ 19	$ 26	$ 31	$ 35	$ 0	$ 7	$ 5	$ 63	$ 70	$ 7	$ 8	$ 93	$ 99	$ 106	$ 116	$ 123	$ 132	$ 1 0	$ 1 5	$ 153	$ 158	$ 160
Net So ietal Bene its						$ (167)	$ (150)	$ (161)	$ (183)	$ (176)	$ (139)	$ (51)	$ 55	$ 20	$ 5	$ 17	$ 125	$ 227	$ 355	$ 516	$ 701	$ 882	$ 1 058	$ 1,23	$ 1,393	$ 1,555	$ 1, 2	$ 1,875	$ 2,007	$ 2,129	$ 2,2 1

2024 updated analysis

AC Rule beginning with MY	AC Rule beginning with MY		100 x 40 ZEV		
2030	2040	2050	2030	2040	2050
Net Increment l Fleet Cos s	$ (102)	$ 30	$ 209	$ (111)	$ 22	$ 209	$ (252)	$ (23)	$ 980
Climate Bene its	$ 18	$ 82	$ 176	$ 13	$ 77	$ 176	$ 58	$ 51	$ 88
Air Quality Bene its	$ 10	$ 21	$ 1	$ 7	$ 20	$ 1	$ 33	$ 117	$ 217
U l ity Net Revenue	$ 9	$ 29	$ 0	$ 7	$ 26	$ 0	$ 26	$ 93	$ 160
Net So ietal Bene its	$ (65)	$ 162	$ 66	$ (8)	$ 1	$ 66	$ (135)	$ 701	$ 2,2 1



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Utility Impacts Results	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Annual Utility Impacts																															
$ million																															
2021 report analysis																															
AC Rule beginning with MY 2025																															
U i ity Revenue						$8	$18	$32	$5	$83	$120	$163	$213	$268	$323	$378	$ 3	$ 88	$5 1	$595	$6 6	$697	$7 8	$797	$8	$895	$9 0	$981	$1,017	$1 0 3	$1,062
Genera ion and Transmis ion Cost						$6	$13	$23	$39	$59	$85	$115	$150	$186	$223	$261	$299	$335	$371	$ 06	$ 0	$ 73	$507	$538	$569	$601	$631	$657	$682	$700	$71
Incremental Capacity Cost						$2	$	$7	$12	$19	$28	$39	$51	$65	$79	$9	$109	$12	$1 0	$155	$170	$18	$198	$212	$226	$239	$250	$261	$271	$279	$285
Net U ility Revenue (Customer Sa ings)						$0	$1	$2	$3	$5	$7	$9	$12	$17	$21	$23	$26	$28	$31	$3	$36	$ 0	$	$ 7	$50	$5	$59	$62	$6	$6	$62
100 x 40 ZEV																															
U i ity Revenue						$12	$28	$51	$85	$128	$180	$239	$305	$376	$ 52	$532	$612	$692	$77	$859	$9 5	$1,032	$1,118	$1,199	$1,280	$1,36	$1, 0	$1,510	$1,571	$1 618	$1,655
Genera ion and Transmis ion Cost						$9	$20	$37	$61	$91	$128	$169	$21	$262	$312	$367	$ 22	$ 76	$530	$586	$6	$ 00	$ 57	$810	$862	$917	$966	$1,012	$1,05	$1 086	$1,113
Incremental Capacity Cost						$3	$6	$11	$19	$29	$ 2	$56	$73	$91	$111	$133	$155	$178	$201	$225	$2 9	$273	$296	$319	$3 1	$363	$383	$ 01	$ 17	$ 30	$ 0
Net U ility Revenue (Customer Sa ings)						$1	$2	$3	$5	$7	$11	$1	$18	$23	$28	$32	$35	$39	$ 3	$ 8	$52	$59	$65	$71	$ 6	$8	$91	$97	$101	$102	$103
2024 updated analysis																															
AC Rule beginning with MY 2028																															
U i ity Revenue						$0	$0	-$1	$13	$33	$5	$68	$68	$78	$92	$108	$126	$1 6	$165	$185	$206	$226	$2 6	$265	$28	$30	$323	$339	$360	$366	$365
Genera ion and Transmis ion Cost						$0	$0	-$1	$9	$22	$37	$ 6	$ 6	$52	$61	$71	$82	$95	$108	$121	$135	$150	$163	$1 6	$189	$202	$21	$22	$238	$2 1	$2 1
Incremental Capacity Cost						$0	$0	$0	$2	$5	$8	$11	$11	$12	$15	$19	$23	$28	$33	$37	$ 2	$ 7	$52	$56	$61	$66	$ 0	$ 5	$80	$83	$85
Net U ility Revenue (Customer Sa ings)						$0	$0	$0	$2	$6	$9	$12	$12	$1	$16	$18	$21	$23	$2	$27	$29	$30	$32	$33	$35	$37	$39	$ 0	$ 3	$ 2	$ 0
AC Rule beginning with MY 2029																															
U i ity Revenue						$0	$0	-$1	-$2	$18	$39	$53	$5	$6	$78	$9	$113	$132	$151	$172	$192	$213	$232	$251	$271	$291	$310	$326	$3 7	$366	$365
Genera ion and Transmis ion Cost						$0	$0	-$1	-$1	$12	$27	$36	$36	$ 3	$52	$62	$73	$86	$99	$112	$126	$1 1	$15	$167	$180	$193	$205	$215	$229	$2 1	$2 1
Incremental Capacity Cost						$0	$0	$0	-$1	$3	$6	$8	$8	$10	$13	$16	$21	$26	$30	$35	$ 0	$ 5	$ 9	$5	$59	$63	$68	$73	$ 8	$83	$85
Net U ility Revenue (Customer Sa ings)						$0	$0	$0	$0	$3	$7	$9	$10	$11	$1	$16	$18	$20	$22	$2	$26	$27	$29	$31	$32	$3	$37	$38	$ 1	$ 2	$ 0
100 x 40 ZEV																															
U i ity Revenue						$16	$3	$58	$88	$126	$169	$205	$229	$26	$310	$360	$ 17	$ 76	$539	$610	$687	$ 6	$839	$910	$983	$1,058	$1,115	$1,161	$1,217	$1 257	$1,28
Genera ion and Transmis ion Cost						$12	$25	$ 0	$61	$86	$115	$138	$153	$175	$205	$237	$271	$310	$353	$ 00	$ 51	$506	$556	$603	$653	$703	$739	$766	$802	$828	$8 5
Incremental Capacity Cost						$3	$5	$9	$1	$21	$29	$36	$ 1	$ 8	$58	$70	$83	$97	$111	$127	$1	$160	$176	$191	$207	$223	$236	$250	$261	$271	$279
Net U ility Revenue (Customer Sa ings)						$2	$5	$8	$13	$19	$26	$31	$35	$ 0	$ 7	$5	$63	$70	$7	$8	$93	$99	$108	$116	$123	$132	$1 0	$1 5	$153	$158	$160

ncremental Peak Load from EV Charging

MW

	AC Rule beginning with MY 2025			100 x 40 ZEV		
	2030	2040	2050	2030	2040	2050
2021 report analysis	308	1,971	3,588	61	2,89	5,528

	AC Rule beginning with MY 2028			AC Rule beginning with MY 2029			100 x 40 ZEV		
	2030	2040	2050	2030	2040	2050	2030	2040	2050
2024 updated analysis	80	397	822	58	375	822	27	1,3 8	2,705

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Average ZEV Owner Results

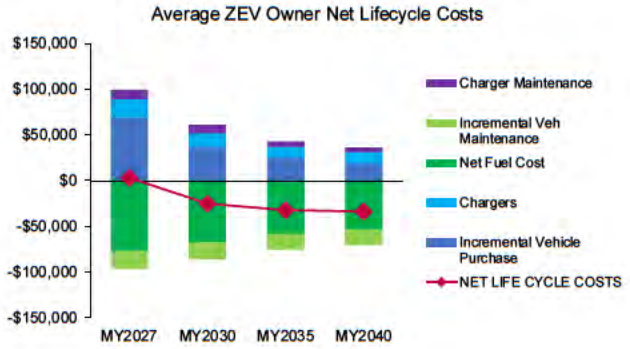
Projected Average Lifetime Incremental Cost (or Savings) for ZEVs Compared with ICE Vehicles (medium/heavy-duty fleet)

$ per vehicle

		Average ZEV Owner Net Lifecycle Costs			
beginning with MY 2025		**MY2025**	**MY2030**	**MY2035**	**MY2040**
Incremental Vehicle Purchase	<--per ZEV	$ 59,055	$ 14,469	$ 6,243	$ 4,256
Chargers	<--per ZEV	$ 11,602	$ 11,225	$ 10,833	$ 11,530
Net Fuel Cost	<--per in-use ZEV discounted lifetime	$ (54,045)	$ (55,566)	$ (56,161)	$ (58,156)
Incremental Veh Maintenance	<--per in-use ZEV discounted lifetime	$ (14,764)	$ (14,146)	$ (14,061)	$ (14,110)
Charger Maintenance		$ 6,739	$ 5,810	$ 4,598	$ 4,475
NET LIFE CYCLE COSTS		$ 8,587	$ (38,207)	$ (48,547)	$ (52,006)
NET OPTG COSTS	<--inclusive of fuel and maintenance costs only	$ (62,071)	$ (63,901)	$ (65,623)	$ (67,792)

beginning with MY 2026		**MY2027**	**MY2030**	**MY2035**	**MY2040**
Incremental Vehicle Purchase	<--per ZEV	$ 69,053	$ 37,187	$ 25,382	$ 18,839
Chargers	<--per ZEV	$ 19,943	$ 14,528	$ 11,701	$ 12,630
Net Fuel Cost	<--per in-use ZEV discounted lifetime	$ (76,420)	$ (67,655)	$ (57,934)	$ (53,396)
Incremental Veh Maintenance	<--per in-use ZEV discounted lifetime	$ (19,872)	$ (18,681)	$ (17,128)	$ (16,724)
Charger Maintenance		$ 10,411	$ 9,323	$ 5,664	$ 4,928
NET LIFE CYCLE COSTS		$ 3,115	$ (25,298)	$ (32,316)	$ (33,723)
NET OPTG COSTS	<--inclusive of fuel and maintenance costs only	$ (85,881)	$ (77,013)	$ (69,398)	$ (65,192)

beginning with MY 2029		**MY2027**	**MY2030**	**MY2035**	**MY2040**
Incremental Vehicle Purchase	<--per ZEV	$ 69,053	$ 37,187	$ 25,382	$ 18,839
Chargers	<--per ZEV	$ 19,943	$ 14,528	$ 11,701	$ 12,630
Net Fuel Cost	<--per in-use ZEV discounted lifetime	$ (76,420)	$ (67,655)	$ (57,934)	$ (53,396)
Incremental Veh Maintenance	<--per in-use ZEV discounted lifetime	$ (19,872)	$ (18,681)	$ (17,128)	$ (16,724)
Charger Maintenance		$ 10,411	$ 9,323	$ 5,664	$ 4,928
NET LIFE CYCLE COSTS		$ 3,115	$ (25,298)	$ (32,316)	$ (33,723)
NET OPTG COSTS	<--inclusive of fuel and maintenance costs only	$ (85,881)	$ (77,013)	$ (69,398)	$ (65,192)



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Charging Infrastructure Results		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Projected Charging Infrasructure Required																																
2021 report analysis																																
AC Rule beginning with MY 2025																																
In-Use Charge Ports	Depot						1,101	2,702	9 5	8,501	13,60	20,258	28, 68	37,870	8, 8	60,171	72,951	86,825	100,696	11 ,728	128,700	1 2,560	156, 5	170,372	183,929	197,369	210,57	222, 26	233,58	2 3,952	253,031	260,561
In-Use Charge Ports	Pub ic 150 kW						16	38	67	11	180	267	37	96	633	8	9 9	1,129	1,309	1, 90	1,671	1,850	2,029	2,209	2,386	2,561	2,735	2,891	3,039	3,179	3,302	3, 0
In-Use Charge Ports	Pub ic 500 kW						31	77	1 2	2 2	378	5 8	5	997	1,276	1,557	1,8 0	2,125	2, 12	2,701	2,991	3,281	3,573	3,867	,163	, 61	,761	5,032	5,290	5,530	5,738	5,912
Cum la ive Investment ($ mil ion)	Depot						$10	$23	$ 0	$67	$105	$153	$211	$278	$352	$ 32	$515	$60	$692	$780	$867	$953	$1,0 0	$1,127	$1,21	$1,301	$1,389	$1, 77	$1,565	$1,653	$1,7 2	$1,831
Cum la ive Investment ($ mil ion)	Pub ic						$12	$28	$51	$87	$13	$193	$26	$3 7	$ 1	$536	$631	$727	$823	$919	$1,01	$1,107	$1,202	$1,297	$1,393	$1, 89	$1,586	$1,683	$1,781	$1,879	$1,9 8	$2,077
100 x 40 ZEV																																
In-Use Charge Ports	Depot						1,778	330	8 280	1 212	22,1 1	32,072	,007	57,85	73,63	91,330	110,965	131,888	15 ,0 0	177,695	201, 88	225,362	2 9,286	273,276	296,757	320,06	3 2,99	363,791	383,5 0	01,71	1 ,762	25,090
In-Use Charge Ports	Pub ic 150 kW						2	57	108	18	285	11	562	738	939	1,163	1, 13	1,6 5	1,951	2,2 0	2,530	2,818	3,108	3,397	3,682	3,966	,2 6	, 99	,7 2	,965	5,135	5,27
In-Use Charge Ports	Pub ic 500 kW						6	112	212	358	550	88	1,073	1, 05	1, 86	2,215	2,693	3,220	3,799	, 28	5,109	5,839	6,575	7,315	8,061	8,811	9,566	10,281	10,979	11,6 9	12,277	12,865
Cum la ive Investment ($ mil ion)	Depot						$16	$36	$67	$112	$169	$2 0	$32	$ 20	$528	$6 8	$781	$922	$1,071	$1,229	$1,391	$1,557	$1,723	$1,890	$2,058	$2,226	$2,39	$2,56	$2,73	$2,90	$3,0 5	$3,2 7
Cum la ive Investment ($ mil ion)	Pub ic						$17	$ 1	$77	$128	$196	$279	$377	$ 91	$620	$ 6	$923	$1,095	$1,282	$1, 82	$1,69	$1,918	$2,1	$2,371	$2,599	$2,829	$3,060	$3,293	$3,526	$3,762	$3,998	$,236
2024 updated analysis																																
AC Rule beginning with MY 2028																																
In-Use Charge Ports	Depot									3	92	2, 97	3, 9	3, 01	,238	5,932	8,502	11,9 8	15, 90	19,037	22,620	26,236	29,897	33,601	37,351	1,1 6	,985	8,87	52,902	57,07	60,902	6 ,156
In-Use Charge Ports	Pub ic 150 kW									-3	8	30	3	0	52	79	121	1 9	237	297	356	17	78	539	602	665	728	793	860	929	997	1,056
In-Use Charge Ports	Pub ic 500 kW									59	135	209	261	269	307	3 5	38	23	62	501	5 0	580	619	659	698	738	778	818	858	898	8 8	8 3
Cum la ive Investment ($ mil ion)	Depot									$9	$23	$ 1	$53	$55	$6	$79	$101	$130	$160	$189	$218	$2 7	$277	$307	$337	$367	$398	$ 29	$ 60	$ 92	$52	$556
Cum la ive Investment ($ mil ion)	Pub ic									$23	$52	$82	$102	$105	$120	$136	$15	$173	$193	$212	$231	$250	$269	$288	$308	$327	$3 6	$366	$386	$ 06	$ 25	$ 5
AC Rule beginning with MY 2029																																
In-Use Charge Ports	Depot										369	1,9 2	2,939	2,8 5	3,682	5,37	7,9 3	11, 18	1 ,929	18, 5	22,057	25,673	29,333	33,036	36,786	0,580	, 18	8,328	52,356	56,529	60,902	6 ,156
In-Use Charge Ports	Pub ic 150 kW										2	2	37	3	5	72	11	1 2	231	290	350	10	71	533	595	658	722	787	85	923	997	1,056
In-Use Charge Ports	Pub ic 500 kW										75	150	201	210	2 8	286	32	363	02	1	81	520	560	599	639	679	718	758	798	838	8 8	8 3
Cum la ive Investment ($ mil ion)	Depot										$1	$32	$ 5	$ 6	$55	$70	$92	$122	$151	$180	$209	$239	$268	$298	$328	$358	$389	$ 20	$ 51	$ 83	$515	$5 7
Cum la ive Investment ($ mil ion)	Pub ic										$29	$59	$79	$82	$97	$113	$131	$150	$1 0	$189	$208	$227	$2 6	$266	$285	$30	$32	$3 3	$363	$383	$ 03	$ 23
100 x 40 ZEV																																
In-Use Charge Ports	Depot						1,537	2,738	,137	6,527	9,8 3	1 ,116	18,10	21,666	26,870	33,759	2,3 8	51,892	62,3 1	73,759	85,516	97,561	109,770	122,133	13 ,581	1 7,22	160,01	171,373	183,230	19 ,69	20 ,56	213,757
In-Use Charge Ports	Pub ic 150 kW						23	38	55	88	135	198	256	309	388	95	630	7 8	9 0	1,116	1,29	1, 75	1,657	1,8 3	2,028	2,217	2, 07	2,577	2,756	2,929	3,0 8	3,218
In-Use Charge Ports	Pub ic 500 kW						38	93	17	273	398	530	650	735	858	1,021	1,223	1, 6	1,7 5	2,066	2, 26	2,825	3,226	3,627	,029	, 32	,835	5,202	5,551	5,876	6,183	6, 66
Cumula ive Investment ($ mil ion)	Depot						$18	$3	$55	$86	$126	$17	$217	$253	$306	$375	$ 61	$557	$665	$783	$906	$1,035	$1,16	$1,29	$1, 25	$1,557	$1,690	$1,82	$1,958	$2,09	$2,231	$2,369
Cumula ive Investment ($ mil ion)	Pub ic						$17	$ 0	$73	$11	$165	$220	$269	$305	$358	$ 27	$512	$612	$725	$853	$99	$1,1 6	$1,299	$1, 52	$1,606	$1,760	$1,91	$2,069	$2,22	$2,380	$2,537	$2,693

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Health Metric Results

Cumulative Public Health Benefits of Policy Adoption 2020 - 2050

2021 report analysis	**ACT Rule beginning with MY 2025**	**ACT + NOx OMN**	**100 x 40 ZEV + Clean Grid**
Avoided Premature Deaths	310	765	878
Avoided Hospital Visits	347	874	995
Avoided Minor Cases	193,287	481,090	549,534
Monetized Value ($ billion)	$3.63	$8.95	$10.28

2024 updated analysis	**ACT Rule beginning with MY 2028**	**ACT Rule beginning with MY 2029**	**100 x 40 ZEV + Clean Grid**
Avoided Premature Deaths	35	33	184
Avoided Hospital Visits	38	35	201
Avoided Minor Cases	21,697	19,976	112,426
Monetized Value ($ billion)	$0.50	$0.46	$2.59

EXHIBIT 4

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The Benefits of Advanced Clean Cars II in Illinois

Select Results from IL Advanced Clean Cars II (ACC II) analyses
ACC II adoption through model year (MY) 2035
Modeled Sensitivities:

beginning with MY2027	Analysis conducted in 2023; results align with report posted on ERM website	-- costs in $2022
beginning with MY2028	Analysis conducted in 2024; includes updated baseline with results not comparable to 2023 analysis	-- costs in $2024
beginning with MY2029	Analysis conducted in 2024; includes updated baseline with results not comparable to 2023 analysis	-- costs in $2024

Modeled Scenarios:

Business-As-Usual (BAU	No ACC II; ZEV sales grow moderately, particularly driven by the Inflation Reduction Act (IRA)
ACC II Flex	Policy adopted, manufacturers utilize some of the compliance flexibilities built into the regulation with a BAU Grid
ACC II Flex + Clean Grid	Policy adopted, same ZEV adoption as ACC II Flex but the electric grid reaches 100% zero-emitting by 2040 (Clean Grid)
ACC II Full + Clean Grid	Policy adopted, no compliance flexibilities are used, includes a Clean Grid

Visit ERM's website on this work for more information:
https://www.erm.com/advanced-clean-cars-ii-analysis-natural-resources-defense-council-sierra-club/
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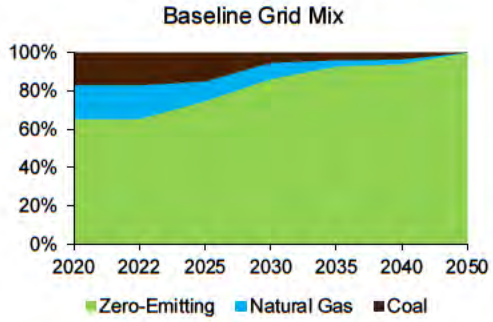
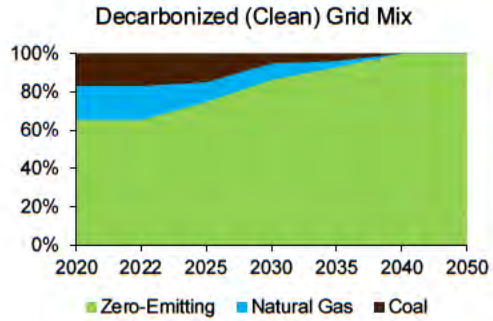
Assumed Electricity Grid Mix Informs Emissions	2020	2022	2025	2030	2035	2040	2050
Baseline Grid Mix	Used for 'BAU' and 'ACCII w/ Flexibilities' Scenarios						
Zero-Emitting	65%	65%	75%	86%	93%	94%	100%
Natural Gas	18%	18%	10%	9%	3%	2%	0%
Coal	17%	17%	15%	5%	4%	4%	0%
Decarbonized (Clean) Grid Mix	Used for 'ACCII w/ Flexibilities' and 'ACCII Full' under Clean Grid scenarios						
Zero-Emitting	65%	65%	75%	86%	93%	100%	100%
Natural Gas	18%	18%	10%	9%	3%	0%	0%
Coal	17%	17%	15%	5%	4%	0%	0%





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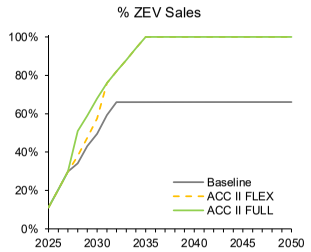
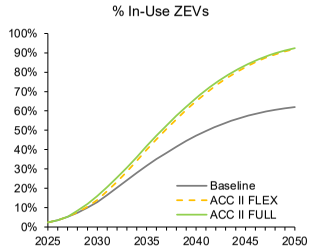
Penetration of Light Duty Fleet zero emission vehicles total battery electric + plug in hybrid electric vehicles)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Annual Zero Emission Vehicle Sales																													
% share of light duty vehicles sold																													
beginning with MY 2027																													
Baseline						17%	21%	25%	30%	30%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%
ACC II FLEX						29%	38%	47%	57%	76%	82%	88%	94%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ACC II FULL						43%	51%	59%	68%	76%	82%	88%	94%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
beginning with MY 2028																													
Baseline				11%	20%	30%	34%	43%	49%	59%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%
ACC II FLEX				11%	20%	30%	38%	47%	57%	76%	82%	88%	94%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ACC II FULL				11%	20%	30%	51%	59%	68%	76%	82%	88%	94%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
beginning with MY 2029																													
Baseline				11%	20%	30%	34%	43%	49%	59%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%
ACC II FLEX				11%	20%	30%	34%	47%	57%	76%	82%	88%	94%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ACC II FULL				11%	20%	30%	34%	59%	68%	76%	82%	88%	94%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Light Duty Fleet Turnover to Zero Emission Vehicles																													
count of zero emission vehicles on road																													
beginning with MY 2027																													
Baseline						334,118	445,136	581,499	743,153	902,563	1,058,943	1,211,510	1,359,363	1,501,445	1,638,239	1,768,769	1,892,486	2,008,879	2,117,216	2,216,875	2,307,411	2,388,484	2,460,267	2,524,578	2,580,574	2,630,337	2,675,860	2,715,040	2,750,405
ACC II FLEX						394,550	598,524	855,889	1,171,081	1,592,128	2,046,820	2,533,950	3,051,978	3,598,799	4,135,548	4,658,687	5,165,936	5,655,511	6,124,552	6,569,904	6,989,328	7,381,062	7,743,147	8,075,233	8,375,598	8,646,231	8,889,510	9,104,491	9,295,794
ACC II FULL						476,473	750,980	1,072,075	1,445,357	1,864,299	2,316,267	2,799,787	3,313,022	3,853,804	4,383,245	4,897,883	5,395,561	5,874,625	6,331,370	6,761,656	7,163,398	7,535,485	7,877,395	8,190,308	8,473,204	8,728,309	8,958,042	9,161,393	9,342,800
beginning with MY 2028																													
Baseline				204,232	309,566	466,348	648,764	882,154	1,151,575	1,476,683	1,839,292	2,199,050	2,554,392	2,903,478	3,243,645	3,572,325	3,887,868	4,188,724	4,472,791	4,738,485	4,984,856	5,211,148	5,416,809	5,602,598	5,767,394	5,913,934	6,045,281	6,160,519	6,263,457
ACC II FLEX				204,232	309,566	466,348	669,838	926,613	1,240,937	1,660,823	2,114,045	2,599,373	3,115,285	3,659,715	4,193,770	4,713,824	5,217,477	5,702,561	6,166,298	6,606,207	7,020,473	7,407,497	7,765,382	8,093,804	8,391,021	8,658,981	8,900,008	9,113,108	9,302,853
ACC II FULL				204,232	309,566	466,348	740,918	1,061,989	1,434,986	1,853,708	2,305,458	2,788,764	3,301,857	3,842,636	4,372,164	4,886,826	5,384,272	5,862,400	6,318,517	6,749,364	7,152,194	7,525,513	7,868,670	8,182,809	8,466,830	8,722,941	8,953,552	9,157,663	9,339,740
beginning with MY 2029																													
Baseline				204,232	309,566	466,348	648,764	882,154	1,151,575	1,476,683	1,839,292	2,199,050	2,554,392	2,903,478	3,243,645	3,572,325	3,887,868	4,188,724	4,472,791	4,738,485	4,984,856	5,211,148	5,416,809	5,602,598	5,767,394	5,913,934	6,045,281	6,160,519	6,263,457
ACC II FLEX				204,232	309,566	466,348	648,764	905,666	1,220,115	1,640,126	2,093,566	2,579,190	3,095,486	3,640,401	4,175,035	4,695,755	5,200,158	5,686,064	6,150,684	6,591,787	7,007,618	7,396,281	7,755,730	8,085,590	8,384,102	8,653,192	8,895,194	9,109,125	9,299,571
ACC II FULL				204,232	309,566	466,348	648,764	970,389	1,343,935	1,763,203	2,215,904	2,700,508	3,215,278	3,758,178	4,290,240	4,807,811	5,308,535	5,790,261	6,250,238	6,686,308	7,095,979	7,476,466	7,826,464	8,146,893	8,436,571	8,697,629	8,932,505	9,140,246	9,325,389
% shared of light duty vehicles on road																													
beginning with MY 2027																													
Baseline						4%	5%	7%	8%	10%	12%	13%	15%	16%	18%	19%	20%	21%	22%	23%	24%	25%	25%	26%	26%	27%	27%	27%	27%
ACC II FLEX						5%	7%	10%	13%	18%	23%	28%	33%	39%	45%	50%	55%	60%	65%	69%	73%	76%	80%	82%	85%	87%	89%	91%	92%
ACC II FULL						5%	9%	12%	16%	21%	26%	31%	36%	42%	47%	53%	58%	62%	67%	71%	75%	78%	81%	84%	86%	88%	90%	91%	92%
beginning with MY 2028																													
Baseline				2%	4%	5%	7%	10%	13%	16%	20%	24%	28%	32%	35%	38%	42%	44%	47%	50%	52%	54%	56%	57%	59%	60%	61%	61%	62%
ACC II FLEX				2%	4%	5%	8%	10%	14%	19%	23%	29%	34%	40%	45%	51%	56%	60%	65%	69%	73%	77%	80%	83%	85%	87%	89%	91%	92%
ACC II FULL				2%	4%	5%	8%	12%	16%	21%	26%	31%	36%	42%	47%	53%	57%	62%	67%	71%	74%	78%	81%	84%	86%	88%	90%	91%	92%
beginning with MY 2029																													
Baseline				2%	4%	5%	7%	10%	13%	16%	20%	24%	28%	32%	35%	38%	42%	44%	47%	50%	52%	54%	56%	57%	59%	60%	61%	61%	62%
ACC II FLEX				2%	4%	5%	7%	10%	14%	18%	23%	28%	34%	40%	45%	50%	56%	60%	65%	69%	73%	77%	80%	83%	85%	87%	89%	91%	92%
ACC II FULL				2%	4%	5%	7%	11%	15%	20%	25%	30%	35%	41%	46%	52%	57%	61%	66%	70%	74%	77%	80%	83%	86%	88%	90%	91%	92%





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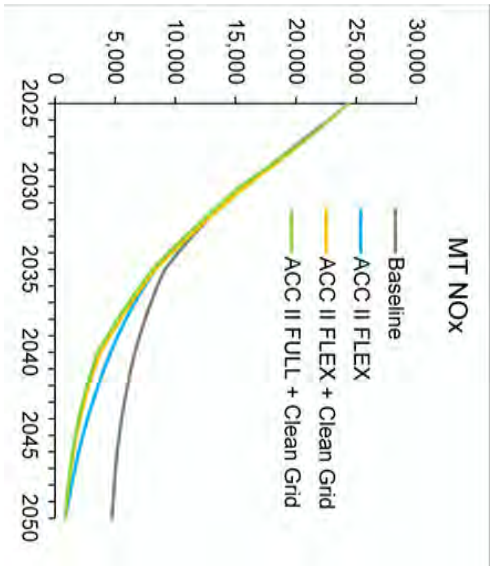
Emissions Results	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	'25 '50 2050 from bas line	
Projected Annual Emissions																															
Annual Light Duty Vehic e NOx Emissions (metric tons)																															
beginn ng w th MY27																															
Baseline	30,789	28,660	26,537	2 , 2	22,871	21,279	19,665	18,037	16,397	15,279	1 215	13 200	12 231	11,305	10,9 2	10,606	10,29	10,008	9,7 7	9,603	9, 83	9,382	9,299	9,228	9,219	9,220	9,228	9,2 3	9,261	-62%	
ACC I FLEX	30,805	28,67	26,550	2 , 5	22,997	21,3 2	19,608	17,812	15,952	1 ,337	12,76	11 2 1	9,777	8,380	7, 76	6,6 9	5,897	5,217	,605	,053	3,539	3,065	2,633	2,239	1,8 9	1,55	1,262	1,000	762	-97%	-92%
ACC I FLEX Clean G id	30,805	28,67	26,550	2 , 5	22,997	21,3 2	19,608	17,812	15,952	1 ,337	12,76	11 2 1	9,777	8,380	7,3 9	6,367	5, 32	,5 6	3, 09	3,200	2,7 7	2,3 5	1,995	1,692	1, 31	1,212	1,029	882	762	-97%	-92%
ACC I FULL Clean Grid	30,789	28,660	26,537	2 , 2	22,986	21,123	19,220	17,290	15,327	13,759	12 233	10,757	9 3 0	7,990	6,98	6,026	5,117	,257	3, 6	2,966	2,5 3	2,1 2	1,850	1,573	1,33	1,13	967	831	722	**97%**	-92%
beginn ng w th MY28																															
Baseline	30,807	28,660	26,512	2 ,375	22,698	20,933	19,166	17,3 6	15,517	1 ,110	12,718	11, 2	10 22	9,113	8,516	7,973	7, 80	7,036	6,639	6,31	6,022	5,760	5,529	5,323	5,168	5,033	,91	,810	,716	-81%	
ACC I FLEX	30,807	28,660	26,512	2 ,375	22,811	21,156	19, 0	17,662	15,823	1 ,228	12 675	11,171	9,723	8,337	7, 5	6,629	5,887	5,217	,61	,0 6	3,5 6	3,115	2,69	2,310	1,958	1,6 0	1,35	1,097	865	-96%	-82%
ACC I FLEX Clean G id	30,807	28,660	26,512	2 ,375	22,811	21,156	19, 0	17,662	15,823	1 ,228	12 675	11,171	9,723	8,337	7,320	6,352	5, 33	,562	3,7 0	3,2 5	2,80	2, 1	2,073	1,7 8	1,522	1,307	1,128	982	865	-96%	-82%
ACC I FULL Clean Grid	30,807	28,660	26,512	2 ,375	22,811	21,156	19,257	17,333	15,377	13,815	12 295	10 823	9, 07	8,05	7,053	6,103	5,201	,3 8	3,5	3,068	2,6 8	2,2 9	1,960	1,685	1, 6	1,2 5	1,078	9 3	833	**97%**	-82%
beginn ng w th MY29																															
ACC I FLEX	30,807	28,660	26,512	2 ,375	22,811	21,156	19, 9	17,713	15,870	1 ,271	12,715	11 207	9,755	8,366	7, 72	6,65	5,909	5,237	,632	,092	3,589	3,126	2,703	2,318	1,96	1,6 6	1,358	1,101	868	-96%	-82%
ACC I FLEX Clean G id	30,807	28,660	26,512	2 ,375	22,811	21,156	19, 9	17,713	15,870	1 ,271	12,715	11 207	9,755	8,366	7,3 8	6,378	5, 56	,583	3, 60	3,262	2,819	2, 26	2,083	1,786	1,529	1,312	1,132	986	867	-96%	-82%
ACC I FULL Clean Grid	30,807	28,660	26,512	2 ,375	22,811	21,156	19, 9	17,55	15,583	1 ,00	12, 69	10 981	9 550	8,181	7,172	6,213	5,302	, 1	3,629	3,1 3	2,712	2,333	2,00	1,721	1, 5	1,289	1,097	958	8 5	**97%**	-82%
Annual Light Duty Vehic e PM2 5 Emissions (metric tons)																															
beginn ng w th MY27																															
Baseline	1,360	1,330	1,301	1,272	1,2 1	1,208	1,173	1,135	1,095	1,055	1 017	982	9 9	918	898	879	863	8 8	835	825	818	811	807	803	802	802	803	80	805	-37%	
ACC I FLEX	1,360	1,331	1,301	1,273	1,2 0	1,197	1,1 8	1,093	1,029	955	880	80	727	650	586	528	7	2	379	337	297	260	225	193	165	139	11	92	72	-9 %	-91%
ACC I FLEX Clean G id	1,360	1,331	1,301	1,273	1,2 0	1,197	1,1 8	1,093	1,029	955	880	80	727	650	575	501	31	362	297	259	22	19	167	1 3	123	107	93	82	72	-9 %	-91%
ACC I FULL Clean Grid	1,360	1,330	1,301	1,272	1,2 0	1,187	1,128	1,063	991	918	8 5	771	696	621	5 7	75	06	3 0	276	2 0	208	1 9	155	133	115	100	87	77	69	**95%**	-91%
beginn ng w th MY28																															
Baseline	1,360	1,331	1,300	1,269	1,233	1,191	1,1 6	1,095	1,039	977	91	85	797	7	03	666	632	601	57	5 8	52	503	8	68	5	2	31	22	13	-67%	
ACC I FLEX	1,360	1,331	1,300	1,269	1,232	1,188	1,139	1,08	1,020	9 7	873	798	723	6 6	58	526	73	25	381	3 0	301	266	232	201	17	1 9	126	105	86	-93%	-79%
ACC I FLEX Clean G id	1,360	1,331	1,300	1,269	1,232	1,188	1,139	1,08	1,020	9 7	873	798	723	6 6	572	501	31	36	300	263	230	201	1 5	152	13	118	105	9	86	-93%	-79%
ACC I FULL Clean Grid	1,360	1,331	1,300	1,269	1,232	1,188	1,130	1,065	993	921	8 8	775	700	625	552	81	13	3 7	28	2 9	218	190	166	1	127	113	100	91	83	**93%**	-80%
beginn ng w th MY29																															
ACC I FLEX	1,360	1,331	1,300	1,269	1,232	1,188	1,1 2	1,087	1,023	950	876	801	725	6 9	586	528	75	26	382	3 1	303	266	233	202	17	1 9	126	105	86	-93%	-79%
ACC I FLEX Clean G id	1,360	1,331	1,300	1,269	1,232	1,188	1,1 2	1,087	1,023	950	876	801	725	6 9	57	502	33	366	301	265	232	202	1 6	153	13	118	105	9	86	-93%	-79%
ACC I FULL Clean Grid	1,360	1,331	1,300	1,269	1,232	1,188	1,1 2	1,078	1,006	933	860	785	710	635	561	90	21	355	291	255	223	19	169	1 7	130	115	102	92	8	**93%**	-80%
Annual Light Duty Vehic e GHG Emissions (mill on metric tons of CO2e)																															
beginn ng w th MY27																															
Baseline	6.0	.9	3.7	2.7	1.5	0.3	39.0	37.6	36.2	35.0	33.9	32.9	31.9	31.1	30.	29.8	29.2	28.8	28.	28.1	27.9	27.7	27.6	27.6	27.6	27.6	27.7	27.7	27.8	-35%	
ACC I FLEX	6.0	.9	3.8	2.7	1.5	39.9	38.2	36.2	3 .0	31.5	28.9	26.	23.8	21.2	18.9	16.7	1 .8	13.0	11.	9.9	8.5	7.2	6.1	5.1	3	3.5	2.9	2.3	1.8	-96%	-9 %
ACC I FLEX Clean G id	6.0	.9	3.8	2.7	1.5	39.9	38.2	36.2	3 .0	31.5	28.9	26.	23.8	21.2	18.7	16.3	1 .1	12.0	10.1	8.6	7.3	6.2	5.2	3	3 6	3.0	2.5	2.1	1.8	-96%	-9 %
ACC I FULL Clean Grid	6.0	.9	3.7	2.7	1.5	39.5	37.	35.1	32.6	30.1	27.7	25.2	22.6	20.1	17.7	15.	13.2	11.2	9.3	7.9	6.7	5.7	8	0	3.	2.8	2.3	2.0	1.7	**96%**	-9 %
beginn ng w th MY28																															
Baseline	6.0	.9	3.7	2.6	1.2	39.6	37.9	36.1	3 .1	32.1	30.0	28.1	26.2	2 .5	23.1	21.7	20.5	19.5	18.6	17.7	16.9	16.3	15.8	15.3	1 9	1 .6	1 .3	1 .1	1 .0	-67%	
ACC I FLEX	6.0	.9	3.7	2.6	1.2	39.6	37.8	35.8	33.7	31.2	28.6	26.1	23.5	20.9	18.6	16.5	1 .6	12.8	11.2	9.7	8.	7.1	6 0	5.1	2	3.5	2.8	2.3	1.8	-96%	-87%
ACC I FLEX Clean G id	6.0	.9	3.7	2.6	1.2	39.6	37.8	35.8	33.7	31.2	28.6	26.1	23.5	20.9	18.	16.1	13.9	11.8	9.9	8.5	7.2	6.1	5.1	3	3 6	3.0	2.5	2.1	1.8	-96%	-87%
ACC I FULL Clean Grid	6.0	.9	3.7	2.5	1.2	39.6	37.	35.1	32.7	30.2	27.7	25.2	22.7	20.1	17.7	15.	13.2	11.2	9.	8.0	6.8	5.7	8	0	3.	2.8	2.	2.0	1.7	**96%**	-88%
beginn ng w th MY29																															
ACC I FLEX	6.0	.9	3.7	2.6	1.2	39.6	37.9	36.0	33.8	31.3	28.7	26.2	23.6	21.0	18.7	16.6	1 .6	12.9	11.3	9.8	8.	7.2	6.1	5.1	2	3.5	2.8	2.3	1.8	-96%	-87%
ACC I FLEX Clean G id	6.0	.9	3.7	2.6	1.2	39.6	37.9	36.0	33.8	31.3	28.7	26.2	23.6	21.0	18.5	16.2	1 .0	11.9	10.0	8.5	7.3	6.1	5.1	3	3 6	3.0	2.5	2.1	1.8	-96%	-87%
ACC I FULL Clean Grid	6.0	.9	3.7	2.5	1.2	39.6	37.9	35.6	33.1	30.6	28.1	25.6	23.0	20.5	18.0	15.7	13.5	11.5	9.6	8.2	7.0	5.9	9	.1	3 5	2.9	2.	2.0	1.7	**96%**	-88%
Proejcted Cumulative Emissions Reductions from Baseline																															
Cumulative Light Duty Vehic e NOx Emissions Reductions (metric tons)																															
beginn ng w th MY27																															
ACC I FLEX	16	31		56	182	2 5	188	-37	- 82	-1, 2	-2 875	- 835	-7 290	-10,215	-13,681	-17,637	-22,033	-26,825	-31,967	-37,517	- 3, 62	- 9,7 8	-56,	-63, 33	-70,77	-78, 0	-86, 06	-9 ,650	-103,1 8		
ACC I FLEX Clean G id	16	31		56	182	2 5	188	-37	- 82	-1, 2	-2 875	- 835	-7 290	-10,215	-13,808	-18,0 7	-22,908	-28,370	-3 , 09	- 0,812	- 7,5 8	-5 ,585	-61,889	-69, 25	-77,21	-85,223	-93, 21	-101,783	-110,282		
ACC I FULL Clean Grid	0	0	0	0	115	- 1	- 86	-1,23	-2,30	-3,82	-5 806	-8 2 9	-11,1 0	-1 , 55	-18, 13	-22,993	-28,169	-33,921	- 0,222	- 6,859	-53,800	-61,010	-68, 59	-76,11	-83,999	-92,086	-100,3 8	-108,759	-117,298		
beginn ng w th MY28																															
ACC I FLEX	0	0	0	0	11	337	610	927	1,233	1,351	1 308	1 055	55	-221	-1,292	-2,636	- ,229	-6,0 9	-8,07	-10,311	-12,758	-15, 03	-18,239	-21,251	-2 , 62	-27,855	-31, 15	-35,127	-38,978		
ACC I FLEX Clean G id	0	0	0	0	11	337	610	927	1,233	1,351	1 308	1 055	55	-221	-1, 17	-3,038	-5,086	-7,560	-10, 59	-13,528	-16,7 6	-20,093	-23,5 9	-27,093	-30,739	-3 , 65	-38,251	- 2,079	- 5,930		
ACC I FULL Clean Grid	0	0	0	0	11	337	27	15	275	-20	- 3	-1 0	-1 860	-2,919	- ,382	-6,253	-8,533	-11,221	-1 ,317	-17,563	-20,937	-2 , 18	-27,987	-31,625	-35,3 7	-39,135	- 2,970	- 6,837	-50,720		
beginn ng w th MY29																															
ACC I FLEX	0	0	0	0	11	337	66	1,031	1,385	1,5 6	1 5 3	1 326	857	111	-93	-2,253	-3,82	-5,62	-7,631	-9,853	-12,286	-1 ,920	-17,7 6	-20,751	-23,955	-27,3 2	-30,898	-3 ,607	-38, 55		
ACC I FLEX Clean G id	0	0	0	0	11	337	66	1,031	1,385	1,5 6	1 5 3	1 326	857	111	-1,058	-2,65	- ,678	-7,131	-10,011	-13,063	-16,266	-19,600	-23,0 6	-26,583	-30,222	-33,9 3	-37,725	- 1,5 9	- 5,397		
ACC I FULL Clean Grid	0	0	0	0	11	337	66	872	938	833	583	1 0	-53	-1, 66	-2,810	- ,571	-6,7 9	-9,3 5	-12,356	-15,527	-18,837	-22,265	-25,790	-29,392	-33,085	-36,8 9	- 0,666	- ,518	- 8,389		
Cumulative Light Duty Vehic e PM2 5 Emissions Reductions (metric tons)																															
beginn ng w th MY27																															
ACC I FLEX	1	1	2	2	1	-9	-3	-76	-1 3	-2 2	-380	-558	-780	-1,0 8	-1,360	-1,711	-2,100	-2,52	-2,980	-3, 68	-3,988	- ,539	-5,120	-5,730	-6,367	-7,031	-7,719	-8, 30	-9,163		
ACC I FLEX Clean G id	1	1	2	2	1	-9	-3	-76	-1 3	-2 2	-380	-558	-780	-1,0 8	-1,371	-1,7 9	-2,181	-2,666	-3,205	-3,7 2	- ,365	- ,983	-5,623	-6,283	-6,961	-7,657	-8,366	-9,088	-9,821		
ACC I FULL Clean Grid	0	0	0	0	-1	-23	-68	-1 0	-2	-380	-552	-763	-1 016	-1,313	-1,66	-2,068	-2,52	-3,033	-3,592	- ,1 8	- ,788	-5, 20	-6,0 2	-6,7 2	-7, 29	-8,130	-8,8 6	-9,572	-10,309		
beginn ng w th MY28																															
ACC I FLEX	0	0	0	0	-1	-	-10	-21	-39	-69	-110	-166	-2 0	-338	- 57	-597	- 55	-932	-1,125	-1,332	-1,555	-1,792	-2,0	-2,311	-2,591	-2,88	-3,189	-3,506	-3,83		
ACC I FLEX Clean G id	0	0	0	0	-1	-	-10	-21	-39	-69	-110	-166	-2 0	-338	- 69	-63	-83	-1,071	-1,3 5	-1,629	-1,923	-2,225	-2,53	-2,850	-3,1 0	-3, 9	-3,820	- ,1 8	- , 76		
ACC I FULL Clean Grid	0	0	0	0	-1	-	-20	- 9	-95	-151	-216	-296	-393	-512	-663	-8 7	-1,065	-1,319	-1,609	-1,907	-2,21	-2,527	-2,8 5	-3,168	-3, 95	-3,82	- ,155	- , 86	- ,817		
beginn ng w th MY29																															
ACC I FLEX	0	0	0	0	-1	-	-7	-15	-31	-58	-96	-1 9	-222	-317	- 3	-572	- 29	-90	-1,096	-1,302	-1,523	-1,760	-2,011	-2,277	-2,556	-2,8 9	-3,15	-3, 71	-3,798		
ACC I FLEX Clean G id	0	0	0	0	-1	-	-7	-15	-31	-58	-96	-1 9	-222	-317	- 6	-609	-808	-1,0 3	-1,315	-1,598	-1,891	-2,192	-2,500	-2,815	-3,135	-3, 58	-3,78	- ,111	- , 39		
ACC I FULL Clean Grid	0	0	0	0	-1	-	-7	-2	-57	-101	-156	-22	-311	- 20	-562	-738	-9 9	-1,195	-1, 78	-1,771	-2,0 2	-2,381	-2,696	-3,016	-3,3 0	-3,667	-3,996	- ,326	- ,655		
Cumulative Light Duty Vehic e GHG Emissions Reductions (mill on metric tons of CO2e)																															
beginn ng w th MY27																															
ACC I FLEX	0	0	0	0	0	0	-1	-2	-5	-8	-13	-20	-28	-38	- 9	-62	-77	-93	-110	-128	-1 7	-168	-189	-212	-235	-259	-28	-309	-335		
ACC I FLEX Clean G id	0	0	0	0	0	0	-1	-2	-5	-8	-13	-20	-28	-38	- 9	-63	-78	-96	-113	-133	-153	-1 5	-197	-221	-2	-269	-29	-320	-3 6		
ACC I FULL Clean Grid	-1	-2	-2	-3	-3	-5	-7	-10	-1	-19	-26	-3	-	-55	-68	-83	-99	-117	-137	-157	-1 9	-201	-225	-2 9	-273	-298	-32	-350	-377		
beginn ng w th MY28																															
ACC I FLEX	0	0	0	0	0	0	0	0	-1	-2	-3	-5	-8	-11	-16	-21	-27	-3	- 1	- 9	-58	-67	-77	-87	-97	-109	-120	-132	-1		
ACC I FLEX Clean G id	0	0	0	0	0	0	0	0	-1	-2	-3	-5	-8	-11	-16	-22	-28	-36	- 5	-5	-6	-7	-85	-96	-107	-118	-130	-1 2	-155		
ACC I FULL Clean Grid	-1	-2	-2	-3	-3	-	-5	-6	-8	-10	-13	-17	-21	-25	-31	-38	- 6	-5	-6	-7	-85	-95	-107	-118	-130	-1 3	-155	-168	-180		
beginn ng w th MY29																															
ACC I FLEX	0	0	0	0	0	0	0	0	0	-1	-3	-5	-7	-11	-15	-20	-26	-33	- 0	- 8	-57	-66	- 5	-86	-96	-107	-119	-131	-1 3		
ACC I FLEX Clean G id	0	0	0	0	0	0	0	0	0	-1	-3	-5	-7	-11	-15	-21	-27	-35	-	-53	-62	-73	-83	-9	-106	-117	-129	-1 1	-153		
ACC I FULL Clean Grid	-1	-2	-2	-3	-3	-	-	-5	-7	-9	-11	-1	-17	-22	-27	-3	- 1	-50	-59	-69	- 9	-90	-101	-113	-125	-137	-1 9	-162	-17		


MT NOx
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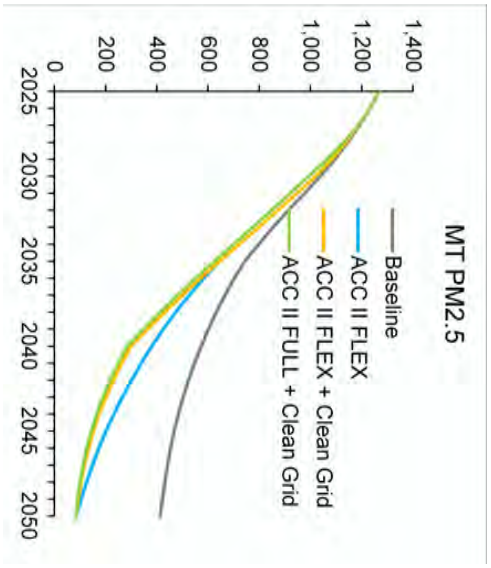
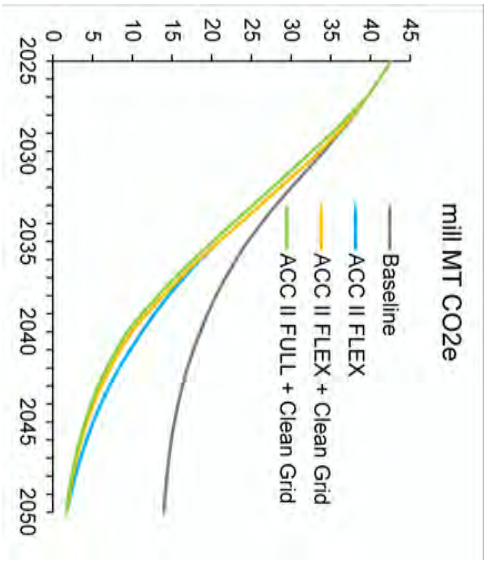
25,000
20,000
15,000
10,000
5,000
0
2025
2030
2035
2040
2045
2050
Baseline
ACC II FLEX
ACC II FLEX + Clean Grid
ACC II FULL + Clean Grid


MT PM2.5
1,400
1,200
1,000
800
600
400
200
0
2025
2030
2035
2040
2045
2050
Baseline
ACC II FLEX
ACC II FLEX + Clean Grid
ACC II FULL + Clean Grid


mill MT CO2e
45
40
35
30
25
20
15
10
5
0
2025
2030
2035
2040
2045
2050
Baseline
ACC II FLEX
ACC II FLEX + Clean Grid
ACC II FULL + Clean Grid

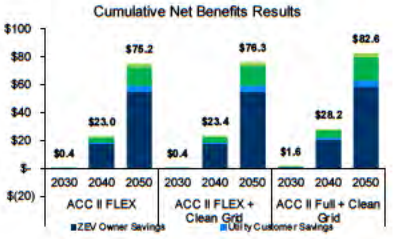
Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

Cumulative Net Benefits Results
$ billion

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
beg nning with MY27																													
ACC II FLEX																													
ZEV Owner Savings	$ (0.01)	$ (0.02)	$ (0.03)	$ (0.04)	$ (0.04)	$ (0.09)	$ 0.08	$ 0.57	$ 1.43	$ 3.00	$ 5.24	$ 8.19	$ 11.85	$ 16.12	$ 20.91	$ 26.16	$ 31.83	$ 37.90	$ 44.33	$ 51.08	$ 58.19	$ 65.58	$ 73.30	$ 81.28	$ 89.61	$ 98.18	$107.02	$116.06	$125.36
Climate Benefits	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.01)	$ (0.01)	$ 0.01	$ 0.07	$ 0.17	$ 0.33	$ 0.58	$ 0.94	$ 1.42	$ 2.04	$ 2.80	$ 3.70	$ 4.74	$ 5.91	$ 7.21	$ 8.64	$ 10.19	$ 11.87	$ 13.67	$ 15.59	$ 17.62	$ 19.77	$ 22.02	$ 24.38	$ 26.83	$ 29.38
Air Quality Benefits	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.00)	$ 0.00	$ 0.01	$ 0.04	$ 0.07	$ 0.13	$ 0.22	$ 0.32	$ 0.46	$ 0.62	$ 0.81	$ 1.02	$ 1.26	$ 1.52	$ 1.80	$ 2.10	$ 2.41	$ 2.74	$ 3.09	$ 3.46	$ 3.83	$ 4.23	$ 4.63	$ 5.05	$ 5.47
Utility Customer Savings	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.00)	$ 0.00	$ 0.02	$ 0.05	$ 0.10	$ 0.19	$ 0.31	$ 0.47	$ 0.68	$ 0.95	$ 1.26	$ 1.63	$ 2.02	$ 2.46	$ 2.94	$ 3.44	$ 3.96	$ 4.50	$ 5.05	$ 5.62	$ 6.20	$ 6.79	$ 7.38	$ 7.99	$ 8.58
Net Societal Benefits	$ (0.01)	$ (0.03)	$ (0.04)	$ (0.05)	$ (0.06)	$ (0.07)	$ 0.19	$ 0.82	$ 1.94	$ 3.90	$ 6.71	$ 10.41	$ 15.03	$ 20.49	$ 26.69	$ 33.55	$ 41.02	$ 49.09	$ 57.70	$ 66.81	$ 76.43	$ 86.49	$ 97.03	$107.98	$119.41	$131.22	$143.41	$155.93	$168.80
ACC II FLEX + Clean Grid																													
ZEV Owner Savings	$ (0.01)	$ (0.02)	$ (0.03)	$ (0.04)	$ (0.04)	$ (0.09)	$ 0.08	$ 0.57	$ 1.43	$ 3.00	$ 5.24	$ 8.19	$ 11.85	$ 16.12	$ 20.91	$ 26.16	$ 31.83	$ 37.90	$ 44.33	$ 51.08	$ 58.19	$ 65.58	$ 73.30	$ 81.28	$ 89.61	$ 98.18	$107.02	$116.06	$125.36
Climate Benefits	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.01)	$ (0.01)	$ 0.01	$ 0.07	$ 0.17	$ 0.33	$ 0.58	$ 0.94	$ 1.42	$ 2.04	$ 2.80	$ 3.72	$ 4.79	$ 6.02	$ 7.40	$ 8.94	$ 10.60	$ 12.38	$ 14.28	$ 16.28	$ 18.39	$ 20.60	$ 22.90	$ 25.29	$ 27.76	$ 30.31
Air Quality Benefits	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.00)	$ 0.00	$ 0.01	$ 0.04	$ 0.07	$ 0.13	$ 0.22	$ 0.32	$ 0.46	$ 0.62	$ 0.81	$ 1.03	$ 1.28	$ 1.55	$ 1.84	$ 2.16	$ 2.49	$ 2.83	$ 3.19	$ 3.56	$ 3.95	$ 4.35	$ 4.76	$ 5.17	$ 5.60
Utility Customer Savings	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.00)	$ 0.00	$ 0.02	$ 0.05	$ 0.10	$ 0.19	$ 0.31	$ 0.47	$ 0.68	$ 0.95	$ 1.26	$ 1.63	$ 2.02	$ 2.46	$ 2.94	$ 3.44	$ 3.96	$ 4.50	$ 5.05	$ 5.62	$ 6.20	$ 6.79	$ 7.38	$ 7.99	$ 8.56
Net Societal Benefits	$ (0.01)	$ (0.03)	$ (0.04)	$ (0.05)	$ (0.06)	$ (0.07)	$ 0.19	$ 0.82	$ 1.94	$ 3.90	$ 6.71	$ 10.41	$ 15.03	$ 20.49	$ 26.71	$ 33.60	$ 41.14	$ 49.31	$ 58.05	$ 67.28	$ 77.02	$ 87.19	$ 97.83	$108.85	$120.36	$132.22	$144.45	$155.99	$169.86
ACC II Fu l + Clean Grid																													
ZEV Owner Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (0.08)	$ 0.28	$ 1.12	$ 2.49	$ 4.46	$ 7.09	$ 10.40	$ 14.40	$ 18.99	$ 24.07	$ 29.59	$ 35.52	$ 41.82	$ 48.45	$ 55.39	$ 62.65	$ 70.17	$ 78.00	$ 86.07	$ 94.48	$103.11	$112.00	$121.09	$130.42
Climate Benefits	$ 0.07	$ 0.10	$ 0.13	$ 0.17	$ 0.20	$ 0.28	$ 0.43	$ 0.64	$ 0.93	$ 1.31	$ 1.80	$ 2.40	$ 3.14	$ 4.01	$ 5.04	$ 6.22	$ 7.55	$ 9.03	$ 10.66	$ 12.41	$ 14.27	$ 16.25	$ 18.32	$ 20.49	$ 22.76	$ 25.12	$ 27.56	$ 30.08	$ 32.68
Air Quality Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ 0.01	$ 0.04	$ 0.09	$ 0.15	$ 0.23	$ 0.34	$ 0.47	$ 0.63	$ 0.81	$ 1.02	$ 1.25	$ 1.51	$ 1.80	$ 2.11	$ 2.43	$ 2.77	$ 3.12	$ 3.49	$ 3.87	$ 4.26	$ 4.66	$ 5.07	$ 5.49	$ 5.92
Utility Customer Savings	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0.05	$ 0.10	$ 0.19	$ 0.30	$ 0.45	$ 0.64	$ 0.89	$ 1.18	$ 1.52	$ 1.90	$ 2.32	$ 2.78	$ 3.27	$ 3.79	$ 4.32	$ 4.87	$ 5.43	$ 6.00	$ 6.58	$ 7.18	$ 7.77	$ 8.38	$ 8.98
Net Societal Benefits	$ 0.07	$ 0.10	$ 0.13	$ 0.17	$ 0.20	$ 0.23	$ 0.79	$ 1.95	$ 3.75	$ 6.31	$ 9.68	$ 13.92	$ 19.04	$ 24.98	$ 31.65	$ 38.97	$ 46.90	$ 55.42	$ 64.49	$ 74.01	$ 84.01	$ 94.41	$105.24	$116.44	$128.09	$140.07	$152.41	$165.04	$178.00
beg nning with MY28																													
ACC II FLEX																													
ZEV Owner Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0.09	$ 0.29	$ 0.76	$ 1.41	$ 2.39	$ 3.75	$ 5.47	$ 7.46	$ 9.68	$ 12.12	$ 14.77	$ 17.61	$ 20.62	$ 23.82	$ 27.17	$ 30.70	$ 34.37	$ 38.23	$ 42.23	$ 46.37	$ 50.63	$ 55.02
Climate Benefits	$ -	$ -	$ -	$ -	$ -	$ -	$ (0.00)	$ (0.00)	$ 0.01	$ 0.03	$ 0.06	$ 0.13	$ 0.24	$ 0.40	$ 0.62	$ 0.91	$ 1.28	$ 1.73	$ 2.24	$ 2.83	$ 3.48	$ 4.20	$ 4.99	$ 5.85	$ 6.77	$ 7.75	$ 8.80	$ 9.91	$ 11.07	$ 12.29	$ 13.55
Air Quality Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.01)	$ (0.01)	$ (0.00)	$ 0.01	$ 0.03	$ 0.06	$ 0.10	$ 0.16	$ 0.23	$ 0.31	$ 0.41	$ 0.53	$ 0.65	$ 0.78	$ 0.92	$ 1.07	$ 1.23	$ 1.40	$ 1.57	$ 1.75	$ 1.94	$ 2.14	$ 2.34
Utility Customer Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.01	$ 0.02	$ 0.05	$ 0.09	$ 0.14	$ 0.23	$ 0.34	$ 0.48	$ 0.65	$ 0.84	$ 1.06	$ 1.30	$ 1.55	$ 1.82	$ 2.10	$ 2.39	$ 2.68	$ 2.99	$ 3.31	$ 3.63	$ 3.95	$ 4.27
Net Societal Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ 0.02	$ 0.12	$ 0.37	$ 0.95	$ 1.77	$ 2.99	$ 4.69	$ 6.88	$ 9.46	$ 12.38	$ 15.62	$ 19.18	$ 23.03	$ 27.15	$ 31.54	$ 36.18	$ 41.08	$ 46.20	$ 51.59	$ 57.19	$ 63.01	$ 69.00	$ 75.19
ACC II FLEX + Clean Grid																													
ZEV Owner Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0.09	$ 0.29	$ 0.76	$ 1.41	$ 2.39	$ 3.75	$ 5.47	$ 7.46	$ 9.68	$ 12.12	$ 14.77	$ 17.61	$ 20.62	$ 23.82	$ 27.17	$ 30.70	$ 34.37	$ 38.23	$ 42.23	$ 46.37	$ 50.63	$ 55.02
Climate Benefits	$ -	$ -	$ -	$ -	$ -	$ (0.00)	$ (0.00)	$ 0.01	$ 0.03	$ 0.06	$ 0.13	$ 0.24	$ 0.40	$ 0.62	$ 0.91	$ 1.30	$ 1.78	$ 2.35	$ 3.02	$ 3.79	$ 4.63	$ 5.52	$ 6.48	$ 7.49	$ 8.55	$ 9.66	$ 10.82	$ 12.01	$ 13.25	$ 14.52
Air Quality Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.01)	$ (0.01)	$ (0.00)	$ 0.01	$ 0.03	$ 0.06	$ 0.10	$ 0.16	$ 0.23	$ 0.32	$ 0.43	$ 0.55	$ 0.69	$ 0.84	$ 1.00	$ 1.16	$ 1.33	$ 1.51	$ 1.69	$ 1.88	$ 2.08	$ 2.27	$ 2.48
Utility Customer Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.01	$ 0.02	$ 0.05	$ 0.09	$ 0.14	$ 0.23	$ 0.34	$ 0.48	$ 0.65	$ 0.84	$ 1.06	$ 1.30	$ 1.55	$ 1.82	$ 2.10	$ 2.39	$ 2.68	$ 2.99	$ 3.31	$ 3.63	$ 3.95	$ 4.27
Net Societal Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ 0.02	$ 0.12	$ 0.37	$ 0.95	$ 1.77	$ 2.99	$ 4.69	$ 6.88	$ 9.47	$ 12.43	$ 15.75	$ 19.41	$ 23.39	$ 27.64	$ 32.15	$ 36.90	$ 41.90	$ 47.11	$ 52.57	$ 58.23	$ 64.08	$ 70.10	$ 76.29
ACC II Fu l + Clean Grid																													
ZEV Owner Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.05	$ 0.37	$ 0.94	$ 1.71	$ 2.63	$ 3.88	$ 5.48	$ 7.44	$ 9.65	$ 12.07	$ 14.70	$ 17.52	$ 20.51	$ 23.66	$ 26.98	$ 30.44	$ 34.05	$ 37.80	$ 41.72	$ 45.76	$ 49.95	$ 54.24	$ 58.66
Climate Benefits	$ 0.07	$ 0.10	$ 0.14	$ 0.18	$ 0.21	$ 0.25	$ 0.32	$ 0.42	$ 0.57	$ 0.75	$ 0.96	$ 1.23	$ 1.55	$ 1.94	$ 2.42	$ 2.99	$ 3.66	$ 4.41	$ 5.27	$ 6.18	$ 7.15	$ 8.18	$ 9.25	$ 10.38	$ 11.55	$ 12.76	$ 14.01	$ 15.29	$ 16.61
Air Quality Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ 0.00	$ 0.02	$ 0.04	$ 0.07	$ 0.11	$ 0.16	$ 0.21	$ 0.29	$ 0.37	$ 0.48	$ 0.60	$ 0.73	$ 0.88	$ 1.04	$ 1.20	$ 1.37	$ 1.55	$ 1.73	$ 1.92	$ 2.11	$ 2.31	$ 2.51	$ 2.71
Utility Customer Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0.04	$ 0.08	$ 0.13	$ 0.19	$ 0.28	$ 0.38	$ 0.52	$ 0.68	$ 0.87	$ 1.08	$ 1.31	$ 1.56	$ 1.83	$ 2.11	$ 2.40	$ 2.69	$ 2.99	$ 3.31	$ 3.62	$ 3.94	$ 4.27	$ 4.59
Net Societal Benefits	$ 0.07	$ 0.10	$ 0.14	$ 0.18	$ 0.21	$ 0.24	$ 0.39	$ 0.84	$ 1.63	$ 2.66	$ 3.90	$ 5.54	$ 7.63	$ 10.19	$ 13.13	$ 16.42	$ 20.04	$ 23.98	$ 28.23	$ 32.71	$ 37.44	$ 42.38	$ 47.55	$ 52.90	$ 58.49	$ 64.26	$ 70.21	$ 76.31	$ 82.58
beg nning with MY29																													
ACC II FLEX																													
ZEV Owner Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ 0.21	$ 0.65	$ 1.27	$ 2.22	$ 3.56	$ 5.26	$ 7.22	$ 9.42	$ 11.85	$ 14.48	$ 17.30	$ 20.30	$ 23.48	$ 26.82	$ 30.35	$ 34.01	$ 37.87	$ 41.86	$ 46.00	$ 50.25	$ 54.65
Climate Benefits	$ -	$ -	$ -	$ -	$ -	$ (0.00)	$ (0.00)	$ (0.00)	$ 0.01	$ 0.04	$ 0.10	$ 0.20	$ 0.35	$ 0.56	$ 0.85	$ 1.22	$ 1.65	$ 2.16	$ 2.74	$ 3.39	$ 4.11	$ 4.89	$ 5.75	$ 6.67	$ 7.65	$ 8.70	$ 9.80	$ 10.96	$ 12.18	$ 13.45
Air Quality Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.01)	$ (0.01)	$ (0.01)	$ (0.00)	$ 0.02	$ 0.04	$ 0.09	$ 0.14	$ 0.21	$ 0.30	$ 0.39	$ 0.50	$ 0.63	$ 0.76	$ 0.90	$ 1.05	$ 1.20	$ 1.37	$ 1.55	$ 1.73	$ 1.92	$ 2.11	$ 2.32
Utility Customer Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.01	$ 0.04	$ 0.07	$ 0.13	$ 0.21	$ 0.32	$ 0.46	$ 0.63	$ 0.82	$ 1.03	$ 1.27	$ 1.52	$ 1.79	$ 2.06	$ 2.35	$ 2.65	$ 2.96	$ 3.27	$ 3.59	$ 3.91	$ 4.24
Net Societal Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.01)	$ 0.05	$ 0.25	$ 0.79	$ 1.56	$ 2.75	$ 4.41	$ 6.57	$ 9.11	$ 12.00	$ 15.22	$ 18.76	$ 22.58	$ 26.68	$ 31.06	$ 35.68	$ 40.57	$ 45.66	$ 51.07	$ 56.66	$ 62.47	$ 68.46	$ 74.65
ACC II FLEX + Clean Grid																													
ZEV Owner Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.04	$ 0.21	$ 0.65	$ 1.27	$ 2.22	$ 3.56	$ 5.26	$ 7.22	$ 9.42	$ 11.85	$ 14.48	$ 17.30	$ 20.30	$ 23.48	$ 26.82	$ 30.35	$ 34.01	$ 37.87	$ 41.86	$ 46.00	$ 50.25	$ 54.65
Climate Benefits	$ -	$ -	$ -	$ -	$ -	$ (0.00)	$ (0.00)	$ (0.00)	$ 0.01	$ 0.04	$ 0.10	$ 0.20	$ 0.35	$ 0.56	$ 0.85	$ 1.23	$ 1.71	$ 2.27	$ 2.94	$ 3.70	$ 4.53	$ 5.43	$ 6.38	$ 7.38	$ 8.44	$ 9.55	$ 10.71	$ 11.90	$ 13.14	$ 14.41
Air Quality Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.01)	$ (0.01)	$ (0.01)	$ (0.00)	$ 0.02	$ 0.04	$ 0.09	$ 0.14	$ 0.21	$ 0.30	$ 0.41	$ 0.53	$ 0.67	$ 0.82	$ 0.97	$ 1.14	$ 1.31	$ 1.48	$ 1.67	$ 1.86	$ 2.05	$ 2.25	$ 2.45
Utility Customer Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.00	$ 0.01	$ 0.04	$ 0.07	$ 0.13	$ 0.21	$ 0.32	$ 0.46	$ 0.63	$ 0.82	$ 1.03	$ 1.27	$ 1.52	$ 1.79	$ 2.06	$ 2.35	$ 2.65	$ 2.96	$ 3.27	$ 3.59	$ 3.91	$ 4.24
Net Societal Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.01)	$ 0.05	$ 0.25	$ 0.79	$ 1.56	$ 2.75	$ 4.41	$ 6.57	$ 9.13	$ 12.06	$ 15.35	$ 18.98	$ 22.94	$ 27.17	$ 31.67	$ 36.40	$ 41.39	$ 46.59	$ 52.05	$ 57.70	$ 63.54	$ 69.56	$ 75.74
ACC II Fu l + Clean Grid																													
ZEV Owner Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.16	$ 0.60	$ 1.23	$ 2.03	$ 3.15	$ 4.65	$ 6.50	$ 8.61	$ 10.95	$ 13.49	$ 16.24	$ 19.16	$ 22.25	$ 25.52	$ 28.94	$ 32.52	$ 36.24	$ 40.13	$ 44.16	$ 48.33	$ 52.61	$ 57.02
Climate Benefits	$ 0.07	$ 0.10	$ 0.14	$ 0.18	$ 0.21	$ 0.25	$ 0.28	$ 0.35	$ 0.46	$ 0.61	$ 0.79	$ 1.02	$ 1.31	$ 1.68	$ 2.13	$ 2.68	$ 3.32	$ 4.05	$ 4.88	$ 5.78	$ 6.73	$ 7.74	$ 8.81	$ 9.92	$ 11.08	$ 12.29	$ 13.53	$ 14.82	$ 16.13
Air Quality Benefits	$ (0.00)	$ (0.00)	$ 0.00	$ (0.00)	$ (0.00)	$ (0.00)	$ (0.01)	$ (0.00)	$ 0.01	$ 0.03	$ 0.06	$ 0.10	$ 0.15	$ 0.22	$ 0.30	$ 0.40	$ 0.51	$ 0.64	$ 0.79	$ 0.94	$ 1.10	$ 1.27	$ 1.44	$ 1.62	$ 1.81	$ 2.00	$ 2.20	$ 2.40	$ 2.60
Utility Customer Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 0.01	$ 0.04	$ 0.08	$ 0.13	$ 0.21	$ 0.30	$ 0.43	$ 0.58	$ 0.76	$ 0.96	$ 1.19	$ 1.43	$ 1.69	$ 1.97	$ 2.25	$ 2.55	$ 2.85	$ 3.16	$ 3.47	$ 3.79	$ 4.12	$ 4.44
Net Societal Benefits	$ 0.07	$ 0.10	$ 0.14	$ 0.18	$ 0.21	$ 0.24	$ 0.27	$ 0.52	$ 1.11	$ 1.95	$ 3.02	$ 4.48	$ 6.41	$ 8.82	$ 11.62	$ 14.78	$ 18.28	$ 22.12	$ 26.27	$ 30.67	$ 35.32	$ 40.20	$ 45.32	$ 50.63	$ 56.18	$ 61.92	$ 67.85	$ 73.94	$ 80.19

beg nning with MY28

	ACC II FLEX			ACC II FLEX + Clean Grid			ACC II Full + Clean Grid		
	2030	2040	2050	2030	2040	2050	2030	2040	2050
ZEV Owner Savings	$ 0.29	$ 17.61	$ 55.02	$ 0.29	$ 17.61	$ 55.02	$ 0.94	$ 20.51	$ 58.66
Climate Benefits	$ 0.06	$ 3.48	$ 13.55	$ 0.06	$ 3.79	$ 14.52	$ 0.57	$ 5.27	$ 16.61
Air Quality Benefits	$ (0.00)	$ 0.65	$ 2.34	$ (0.00)	$ 0.69	$ 2.48	$ 0.04	$ 0.88	$ 2.71
Utility Customer Savings	$ 0.02	$ 1.30	$ 4.27	$ 0.02	$ 1.30	$ 4.27	$ 0.08	$ 1.56	$ 4.59
Net Societal Benefits	$ 0.37	$ 23.03	$ 75.19	$ 0.37	$ 23.39	$ 76.29	$ 1.63	$ 28.23	$ 82.58



Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

Utility Impacts Results	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Annual Utility Impacts																													
$ million																													
Note Flex and Flex+Clean Grid values are the same																													
beginning with MY27																													
ACC II FLEX																													
Utility Revenue	-$3	-$3	-$3	-$2	-$2	$35	$88	$157	$244	$393	$562	$749	$957	$1,172	$1,380	$1,584	$1,780	$1,971	$2,156	$2,324	$2,457	$2,574	$2,681	$2,780	$2,850	$2,897	$2,955	$2,992	$3,011
Generation and Transmission Cost	-$2	-$2	-$2	-$2	-$2	$25	$61	$107	$166	$265	$375	$498	$633	$769	$898	$1,030	$1,167	$1,290	$1,414	$1,538	$1,627	$1,706	$1,781	$1,848	$1,889	$1,912	$1,949	$1,971	$1,982
Incremental Capacity Cost	$0	$0	$0	$0	$0	$4	$10	$18	$28	$46	$65	$88	$112	$139	$165	$191	$216	$241	$264	$287	$309	$329	$348	$366	$382	$396	$409	$421	$431
Net Utility Revenue (Customer Savings)	$0	$0	$0	$0	$0	$6	$17	$32	$50	$83	$121	$163	$212	$264	$317	$363	$397	$440	$477	$499	$521	$539	$553	$567	$580	$589	$597	$601	$598
ACC II FULL + Clean Grid																													
Utility Revenue	$0	$0	$0	$0	$0	$82	$175	$280	$399	$544	$707	$889	$1,092	$1,300	$1,500	$1,695	$1,884	$2,066	$2,243	$2,402	$2,525	$2,631	$2,729	$2,819	$2,882	$2,922	$2,975	$3,008	$3,023
Generation and Transmission Cost	$0	$0	$0	$0	$0	$58	$121	$191	$271	$366	$473	$592	$723	$853	$976	$1,103	$1,235	$1,353	$1,471	$1,590	$1,672	$1,744	$1,812	$1,874	$1,909	$1,928	$1,962	$1,981	$1,990
Incremental Capacity Cost	$0	$0	$0	$0	$0	$10	$20	$33	$47	$64	$83	$105	$129	$156	$181	$207	$231	$255	$278	$300	$320	$339	$357	$373	$388	$402	$414	$425	$434
Net Utility Revenue (Customer Savings)	$0	$0	$0	$0	$0	$15	$34	$56	$82	$114	$151	$192	$241	$291	$342	$386	$418	$459	$494	$512	$532	$548	$560	$572	$584	$592	$599	$602	$599
beginning with MY28																													
ACC II FLEX																													
Utility Revenue	$0	$0	$0	$0	$0	$0	$15	$31	$62	$127	$188	$273	$382	$510	$634	$756	$874	$989	$1,101	$1,205	$1,291	$1,368	$1,439	$1,506	$1,556	$1,592	$1,634	$1,662	$1,679
Generation and Transmission Cost	$0	$0	$0	$0	$0	$0	$10	$21	$42	$85	$126	$181	$252	$334	$412	$492	$573	$647	$723	$798	$855	$907	$956	$1,001	$1,031	$1,050	$1,077	$1,094	$1,105
Incremental Capacity Cost	$0	$0	$0	$0	$0	$0	$2	$4	$7	$15	$23	$33	$47	$63	$79	$95	$110	$126	$140	$155	$169	$182	$195	$206	$217	$227	$236	$244	$252
Net Utility Revenue (Customer Savings)	$0	$0	$0	$0	$0	$0	$3	$6	$12	$26	$40	$58	$83	$112	$142	$169	$191	$216	$239	$253	$267	$279	$289	$299	$308	$314	$320	$323	$322
ACC II FULL + Clean Grid																													
Utility Revenue	$0	$0	$0	$0	$0	$0	$65	$125	$195	$257	$314	$394	$498	$620	$738	$854	$966	$1,074	$1,180	$1,276	$1,354	$1,421	$1,484	$1,542	$1,585	$1,615	$1,652	$1,677	$1,691
Generation and Transmission Cost	$0	$0	$0	$0	$0	$0	$45	$85	$132	$173	$210	$262	$330	$407	$480	$555	$633	$703	$774	$845	$897	$942	$985	$1,025	$1,050	$1,066	$1,090	$1,104	$1,113
Incremental Capacity Cost	$0	$0	$0	$0	$0	$0	$8	$15	$24	$31	$39	$49	$62	$78	$94	$109	$124	$139	$153	$167	$180	$192	$203	$214	$224	$233	$241	$248	$255
Net Utility Revenue (Customer Savings)	$0	$0	$0	$0	$0	$0	$12	$25	$39	$53	$65	$83	$107	$135	$164	$189	$209	$232	$253	$265	$278	$288	$295	$304	$311	$317	$322	$324	$323
beginning with MY29																													
ACC II FLEX																													
Utility Revenue	$0	$0	$0	$0	$0	$0	$0	$16	$48	$113	$175	$260	$370	$498	$623	$746	$865	$981	$1,094	$1,199	$1,285	$1,363	$1,435	$1,502	$1,553	$1,590	$1,632	$1,661	$1,678
Generation and Transmission Cost	$0	$0	$0	$0	$0	$0	$0	$11	$32	$76	$117	$173	$244	$327	$406	$485	$567	$642	$717	$793	$851	$904	$953	$999	$1,029	$1,049	$1,076	$1,094	$1,104
Incremental Capacity Cost	$0	$0	$0	$0	$0	$0	$0	$2	$6	$14	$21	$32	$45	$61	$77	$93	$109	$124	$139	$154	$168	$181	$194	$206	$217	$227	$236	$244	$251
Net Utility Revenue (Customer Savings)	$0	$0	$0	$0	$0	$0	$0	$3	$10	$24	$37	$55	$80	$110	$140	$167	$189	$214	$237	$252	$266	$279	$289	$298	$307	$314	$320	$323	$322
ACC II FULL + Clean Grid																													
Utility Revenue	$0	$0	$0	$0	$0	$0	$0	$62	$134	$197	$256	$339	$446	$571	$692	$810	$925	$1,037	$1,146	$1,246	$1,328	$1,400	$1,466	$1,528	$1,574	$1,607	$1,645	$1,671	$1,686
Generation and Transmission Cost	$0	$0	$0	$0	$0	$0	$0	$42	$91	$133	$171	$226	$295	$375	$450	$527	$607	$679	$752	$825	$880	$928	$974	$1,016	$1,043	$1,060	$1,085	$1,101	$1,110
Incremental Capacity Cost	$0	$0	$0	$0	$0	$0	$0	$7	$16	$24	$31	$42	$55	$71	$87	$103	$118	$133	$147	$161	$175	$188	$200	$211	$221	$230	$239	$247	$253
Net Utility Revenue (Customer Savings)	$0	$0	$0	$0	$0	$0	$0	$12	$27	$41	$54	$72	$96	$125	$155	$181	$201	$225	$247	$260	$274	$285	$293	$302	$310	$316	$321	$324	$323

Incremental Peak Load from EV Charging

MW

	ACC II FLEX			ACC II FULL + Clean Grid		
	2030	2040	2050	2030	2040	2050
beginning with MY27	340	3,183	5,199	558	3,347	5,236
beginning with MY28	71	1,345	2,414	225	1,466	2,443
beginning with MY29	54	1,333	2,411	153	1,412	2,432

Average Customer Bill Savings

$ saved per year

	ACC II FULL + Clean Grid
	2050
beginning with MY27	
Average Household Residential Customer Savings	$42
Average Commercial Customer Savings	$356
beginning with MY28	
Average Household Residential Customer Savings	$24
Average Commercial Customer Savings	$202
beginning with MY29	
Average Household Residential Customer Savings	$24
Average Commercial Customer Savings	$202

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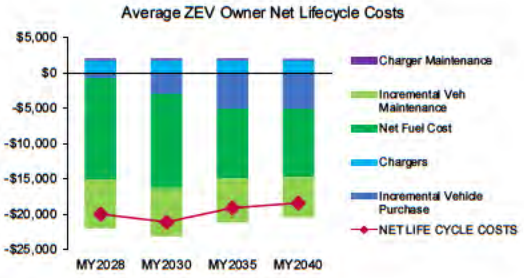
Average ZEV Owner Results

Projected Average Lifetime Incremental Cost (or Savings) for ZEVs Compared with ICE Vehicles (light-duty fleet)

$ per vehicle

		Average ZEV Owner Net Lifecycle Costs				Average ZEV Owner Net Lifecycle Costs			Rural Owners
beginning with MY27		MY2027	MY2030	MY2035	MY2040	MY2027	MY2030	MY2035	MY2040
Incremental Vehicle Purchase	<--per ZEV	$ 637	$ (2,850)	$ (4,776)	$ (4,776)	$ 11,896	$ 2,040	$ (4,072)	$ (4,072)
Chargers	<--per ZEV	$ 1,593	$ 1,590	$ 1,590	$ 1,590	$ 1,593	$ 1,590	$ 1,590	$ 1,590
Net Fuel Cost	<--per in-use ZEV discounted lifetime	$ (14,826)	$ (13,309)	$ (9,972)	$ (9,763)	$ (16,197)	$ (14,882)	$ (13,202)	$ (12,514)
Incremental Veh Maintenance	<--per in-use ZEV discounted lifetime	$ (6,539)	$ (6,477)	$ (5,919)	$ (5,402)	$ (7,444)	$ (7,444)	$ (7,444)	$ (7,444)
Charger Maintenance		$ 201	$ 202	$ 195	$ 183	$ 201	$ 202	$ 195	$ 183
NET LIFE CYCLE COSTS		$ (18,937)	$ (20,845)	$ (18,883)	$ (18,168)	$ (9,952)	$ (18,494)	$ (22,934)	$ (22,258)
NET OPTG COSTS	<--inclusive of fuel and maintenance costs only	$ (21,166)	$ (19,584)	$ (15,696)	$ (14,982)	$ (23,441)	$ (22,124)	$ (20,452)	$ (19,775)
beginning with MY28		MY2028	MY2030	MY2035	MY2040	MY2028	MY2030	MY2035	MY2040
Incremental Vehicle Purchase	<--per ZEV	$ (735)	$ (3,030)	$ (5,078)	$ (5,078)	$ 8,563	$ 2,169	$ (4,329)	$ (4,329)
Chargers	<--per ZEV	$ 1,819	$ 1,817	$ 1,817	$ 1,817	$ 1,819	$ 1,817	$ 1,817	$ 1,817
Net Fuel Cost	<--per in-use ZEV discounted lifetime	$ (14,334)	$ (13,282)	$ (9,859)	$ (9,701)	$ (15,680)	$ (14,947)	$ (13,366)	$ (12,616)
Incremental Veh Maintenance	<--per in-use ZEV discounted lifetime	$ (6,929)	$ (6,802)	$ (6,170)	$ (5,619)	$ (7,915)	$ (7,915)	$ (7,915)	$ (7,915)
Charger Maintenance		$ 202	$ 199	$ 190	$ 180	$ 202	$ 199	$ 190	$ 180
NET LIFE CYCLE COSTS		$ (19,977)	$ (21,098)	$ (19,099)	$ (18,401)	$ (13,011)	$ (18,676)	$ (23,602)	$ (22,863)
NET OPTG COSTS	<--inclusive of fuel and maintenance costs only	$ (21,061)	$ (19,885)	$ (15,838)	$ (15,140)	$ (23,393)	$ (22,662)	$ (21,090)	$ (20,351)
beginning with MY29		MY2029	MY2030	MY2035	MY2040	MY2029	MY2030	MY2035	MY2040
Incremental Vehicle Purchase	<--per ZEV	$ (2,039)	$ (3,030)	$ (5,078)	$ (5,078)	$ 5,088	$ 2,169	$ (4,329)	$ (4,329)
Chargers	<--per ZEV	$ 1,818	$ 1,817	$ 1,817	$ 1,817	$ 1,818	$ 1,817	$ 1,817	$ 1,817
Net Fuel Cost	<--per in-use ZEV discounted lifetime	$ (13,901)	$ (13,418)	$ (9,945)	$ (9,721)	$ (15,286)	$ (14,947)	$ (13,366)	$ (12,616)
Incremental Veh Maintenance	<--per in-use ZEV discounted lifetime	$ (6,930)	$ (6,871)	$ (6,224)	$ (5,631)	$ (7,915)	$ (7,915)	$ (7,915)	$ (7,915)
Charger Maintenance		$ 203	$ 201	$ 192	$ 181	$ 203	$ 201	$ 192	$ 181
NET LIFE CYCLE COSTS		$ (20,849)	$ (21,300)	$ (19,236)	$ (18,431)	$ (16,091)	$ (18,674)	$ (23,600)	$ (22,861)
NET OPTG COSTS	<--inclusive of fuel and maintenance costs only	$ (20,629)	$ (20,087)	$ (15,976)	$ (15,171)	$ (22,998)	$ (22,660)	$ (21,088)	$ (20,349)



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Charging Infrastructure Results		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Projected Charging Infrasructure Required																														
Note Flex and Flex Clean G id values are the same																														
beginning with MY27																														
ACC II FLEX																														
In-Use Charge Ports	Home L1						1,329	3,375	6,037	9, 1	15,1 0	21,733	29,09	37,238	6,1 2	5 9 1	63 578	72 016	80 226	88,161	95,767	103,002	109,837	116,223	122,11	127, 91	132,350	136,700	1 0,568	1 3,999
In-Use Charge Ports	Home L2						7,983	121,790	217,866	339,7 5	5 7,515	78 ,3 5	1,050,017	1,3 3,936	1,665,299	1,982 86	2,29 595	2,599,119	2,895, 26	3,181 825	3, 56,305	3,717, 3	3,96 ,107	,19 ,607	, 07,220	,601,2 9	,776,620	,933,638	5,073,22	5,197,039
In-Use Charge Ports	Public L2						272	691	1,236	1,928	3,106	, 50	5,958	7,625	9, 9	11 250	13 019	1 ,7 7	16, 28	18 053	19,610	21,092	22, 92	23,799	25,006	26,107	27,102	27,992	28,78	29, 87
In-Use Charge Ports	Public DCFC						172	36	780	1,216	1,959	2,807	3, 57	,809	5 959	7 095	8 210	9 300	10 360	11 385	12,367	13,301	1 ,18	15,009	15,769	16, 6	17,091	17,653	18,152	18,595
Cumula ive Investment ($ m llion)	Home						$76	$185	$327	$509	$818	$1,173	$1,57	$2,021	$2 515	$3 010	$3 507	$ 00	$ 503	$5 00	$5,507	$6,012	$6,521	$7,033	$7,5 9	$8,069	$8,593	$9,121	$9,653	$10,188
Cumula ive Investment ($ m llion)	Public						$27	$67	$118	$183	$29	$ 21	$565	$ 25	$902	$1 079	$1 257	$1, 35	$1 61	$1,79	$1,97	$2,155	$2,337	$2,521	$2,706	$2,892	$3,080	$3,269	$3, 59	$3,651
ACC II FULL Clean Grid																														
In-Use Charge Ports	Home L1						3,132	6,729	10,793	15, 8	21,158	27,661	3 ,9 2	2,980	51,752	60 390	68 8 1	77 068	85 0 6	92,711	99,985	106,832	113,23	119,177	12 ,6 6	129,638	13 ,155	138,208	1 1,820	1 5,033
In-Use Charge Ports	Home L2						113,029	2 2,8 0	389,518	557,550	763,618	998,315	1,261,092	1,551,205	1,867,773	2,179 535	2, 8 516	2,781, 1	3,069, 02	3,3 6039	3,608,556	3,855,65	,086,719	,301,200	, 98,590	,6 8,7 8	,8 1,790	,988,052	5,118, 05	5 23 ,361
In-Use Charge Ports	Public L2						6 1	1,378	2,210	3,163	,333	5,66	7,155	8,801	10 597	12 366	1 097	15,781	17, 15	18 985	20, 7	21,876	23,187	2 , 0	25,52	26,5 6	,27, 71	28,301	29,0 1	29,699
In-Use Charge Ports	Public DCFC						0	869	1,39	1,995	2,732	3,5 2	,512	5,550	6 683	7,799	8 890	9 952	10 983	11 972	12,912	13,796	1 ,623	15,390	16,096	16,7 1	17,32	17,8 8	18,31	18,729
Cumula ive Investment ($ m llion)	Home						$167	$359	$577	$828	$1,138	$1, 93	$1,89	$2,3 1	$2 83	$3 330	$3 826	$ 32	$ 823	$5 323	$5,826	$6,332	$6,8 0	$7,353	$7,869	$8,389	$8,913	$9, 0	$9,972	$10,508
Cumula ive Investment ($ m llion)	Public						$60	$129	$208	$298	$ 09	$536	$679	$8 0	$1 016	$1,19	$1 372	$1 550	$1,729	$1 908	$2,089	$2,270	$2, 52	$2,636	$2,820	$3,007	$3,195	$3,38	$3,57	$3,766
beginning with MY28																														
ACC II FLEX																														
In-Use Charge Ports	Home L1						0	6	9 8	1,966	,051	6,0 5	8,807	12,3 0	16 637	20 903	25,113	29 251	33 30	37 257	1,090	,78	8,320	51,669	5 ,807	57,720	60,391	62,80	6 ,957	66,867
In-Use Charge Ports	Home L2						0	16,733	35,300	70,953	1 6,207	218,15	317,856	5,3 9	600, 52	75 399	906 351	1,055,709	1,201 986	1,3 6 5	1, 82,971	1,616,280	1,7 3,901	1,86 ,766	1,9 8,017	2,083,160	2,179,567	2,266,653	2,3 ,356	2, 13,280
In-Use Charge Ports	Public L2						0	95	200	03	830	1,238	1,803	2,527	3, 07	280	5,1 2	5 990	6 820	7 629	8, 1	9,170	9,895	10,580	11,223	11,819	12,366	12,861	13,301	13,692
In-Use Charge Ports	Public DCFC						0	60	126	25	523	81	1,137	1,593	2,1 8	2 699	3 2 3	3,777	301	811	5,306	5,783	6,2 0	6,672	7,078	7, 5	7,799	8,110	8,388	8,635
Cumula ive Investment ($ m llion)	Home						$0	$29	$62	$125	$259	$387	$565	$ 9	$1 07	$1 355	$1 637	$1 919	$2 202	$2, 86	$2,771	$3,057	$3,3 6	$3,636	$3,929	$ 22	$ 521	$ 820	$5,122	$5, 25
Cumula ive Investment ($ m llion)	Public						$0	$9	$19	$38	$ 8	$116	$170	$238	$322	$ 07	$ 91	$576	$660	$7 6	$831	$917	$1,00	$1,091	$1,179	$1,267	$1,356	$1, 6	$1,536	$1,627
ACC II FULL Clean Grid																														
In-Use Charge Ports	Home L1						0	2,027	3,956	6,235	8,295	10,256	12,97	16,	20 661	2 827	28 919	32 921	36 821	0 606	,239	7,681	50,916	53,9 1	56,765	59,388	61,798	63,982	65,937	67,678
In-Use Charge Ports	Home L2						0	73,170	1 2,790	225,028	299,358	370,136	68,233	593, 87	7 5 691	896 0	1,0 3,715	1,188,1 5	1,328 899	1, 65 507	1,596,638	1,720,866	1,837,605	1,9 6,777	2,0 8,688	2,1 3,353	2,230,351	2,309,167	2,379,732	2, 2,569
In-Use Charge Ports	Public L2						0	15	810	1,277	1,698	2,100	2,657	3,367	231	5 08	5 922	6,7 1	7 5 0	8 315	9,059	9,76	10, 26	11,0 6	11,62	12,161	12,655	13,102	13,502	13,859
In-Use Charge Ports	Public DCFC						0	262	511	805	1,071	1,32	1,675	2,12	2 668	3 206	3,73	251	,755	5 2	5,713	6,157	6,575	6,966	7,330	7,669	7,980	8,262	8,515	8,7 0
Cumula ive Investment ($ m llion)	Home						$0	$129	$252	$399	$532	$660	$838	$1,067	$1 3 7	$1 628	$1 910	$2,192	$2, 75	$2,759	$3,0	$3,330	$3,619	$3,909	$ 202	$, 97	$,79	$5,093	$5,395	$5,698
Cumula ive Investment ($ m llion)	Public						$0	$39	$76	$120	$160	$198	$252	$320	$ 0	$ 89	$573	$658	$7 3	$828	$913	$999	$1,086	$1,173	$1,261	$1,3 9	$1, 38	$1,528	$1,618	$1,710
beginning with MY29																														
ACC II FLEX																														
In-Use Charge Ports	Home L1						0	0	517	1,508	3,596	5,59	8,363	11,90	16,212	20, 91	2 ,715	28 870	32 9 1	36 91	0,773	,501	8,073	51, 56	5 ,626	57,568	60,26	62,698	6 ,869	66,795
In-Use Charge Ports	Home L2						0	0	18,668	5 , 21	129,77	201,893	301,831	29,628	585,117	739 52	892 00	1,0 1 958	1,188 888	1,332 2 7	1, 71 522	1,606,073	1,73 ,995	1,857,103	1,971, 96	2,077,666	2,17 ,971	2,262,831	2,3 1,193	2, 10,675
In-Use Charge Ports	Public L2						0	0	106	309	736	1,1 6	1,713	2, 38	3,320	,196	5 061	5 912	6,7 6	7 559	8 3 9	9,113	9,8	10,537	11,186	11,788	12,3 0	12,839	13,283	13,678
In-Use Charge Ports	Public DCFC						0	0	67	195	6	722	1,080	1,537	2,09	2 6 6	3,192	3,728	25	,767	5 265	5,7 7	6,208	6,6 5	7,05	7, 3	7,782	8,097	8,377	8,626
Cumula ive Investment ($ m llion)	Home						$0	$0	$33	$96	$229	$358	$536	$ 65	$1,0	$1 326	$1 607	$1 889	$2,172	$2, 56	$2,7 1	$3,028	$3,316	$3,607	$3,899	$,19	$, 91	$,791	$5,092	$5,396
Cumula ive Investment ($ m llion)	Public						$0	$0	$10	$29	$69	$107	$161	$229	$313	$398	$ 82	$567	$652	$737	$822	$908	$995	$1,082	$1,170	$1,258	$1,3 7	$1, 37	$1,527	$1,619
ACC II FULL Clean Grid																														
In-Use Charge Ports	Home L1						0	0	1,9 1	,232	6,303	8,285	11,032	1 ,539	18,803	23 025	27,181	31 255	35 23	39,10	2,852	6, 5	9,837	53,012	55,97	58,722	61,2 1	63,519	65,55	67,363
In-Use Charge Ports	Home L2						0	0	70,059	152,733	227, 97	299,030	398,158	52 ,7	678,631	830 996	980 976	1,128 010	1,271 621	1, 11 293	1,5 6 572	1,676,231	1,798,662	1,913,266	2,020,170	2,119,326	2,210,25	2,292, 56	2,365,90	2, 31,17
In-Use Charge Ports	Public L2						0	0	397	867	1,291	1,697	2,259	2,977	3,850	,715	5 566	6, 00	7 215	8 007	8,775	9,511	10,205	10,855	11, 62	12,025	12,5 1	13,007	13, 2	13,79
In-Use Charge Ports	Public DCFC						0	0	251	5 6	81	1,0 0	1, 25	1,878	2, 28	2,973	3 510	036	550	5 050	5 53	5,998	6, 36	6,8 6	7,228	7,583	7,908	8,203	8, 65	8,699
Cumula ive Investment ($ m llion)	Home						$0	$0	$123	$270	$ 03	$531	$710	$938	$1,218	$1, 99	$1,781	$2 063	$2 3 6	$2 630	$2 915	$3,201	$3, 90	$3,780	$,073	$,368	$,665	$,96	$5,266	$5,569
Cumula ive Investment ($ m llion)	Public						$0	$0	$37	$81	$121	$159	$213	$282	$365	$ 50	$53	$619	$70	$789	$87	$960	$1,0 7	$1,13	$1,222	$1,310	$1,399	$1, 89	$1,580	$1,671

Annual Spending on Chargers by Location and Category ($ million)

Note Flex and Flex Clean G id values are the same

	ACC II FLEX			ACC II FULL Clean Grid		
beginning with MY27	**2030**	**2040**	**2050**	**2030**	**2040**	**2050**
Home - Purchase	$106	$293	$31	$1 7	$293	$31
Home - Install	$75	$207	$222	$10	$207	$222
Home - Maintenance	$6	$ 8	$69	$9	$50	$69
Public - Purchase	$ 9	$13	$1	$67	$13	$1
Public - Install	$16	$ 5	$ 8	$23	$ 5	$ 8
Public - Maintenance	$1	$11	$15	$2	$11	$15
Total	$253	$739	$811	$352	$7 1	$811
beginning with MY28	**2030**	**2040**	**2050**	**2030**	**2040**	**2050**
Home - Purchase	$37	$166	$178	$86	$166	$178
Home - Install	$26	$117	$126	$61	$117	$126
Home - Maintenance	$1	$20	$31	$	$22	$31
Public - Purchase	$1	$6	$68	$33	$6	$68
Public - Install	$5	$21	$23	$11	$21	$23
Public - Maintenance	$0	$	$7	$1	$5	$7
Total	$8	$39	$ 33	$195	$395	$ 33
beginn ng with MY29	**2030**	**2040**	**2050**	**2030**	**2040**	**2050**
Home - Purchase	$37	$166	$178	$86	$166	$178
Home - Ins all	$26	$117	$126	$61	$117	$126
Home - Maintenance	$1	$20	$31	$3	$21	$31
Public - Purchase	$1	$6	$68	$33	$6	$68
Public - Install	$5	$21	$23	$11	$21	$23
Public - Maintenance	$0	$	$7	$1	$5	$7
Total	$83	$393	$ 33	$193	$395	$ 33

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Health Metric Results

Cumulative Public Health Benefits of Policy Adoption through 2050

beginning with MY27	ACC II FLEX	ACC II FLEX + Clean Grid	ACC II FULL + Clean Grid
Avoided Premature Deaths	416	426	450
Avoided Hospital Visits	420	431	456
Avoided Minor Cases	246,263	251,838	266,490
Monetized Value ($ billion)	$5.47	$5.60	$5.92
beginning with MY28			
Avoided Premature Deaths	167	176	193
Avoided Hospital Visits	166	177	194
Avoided Minor Cases	98,137	103,570	113,626
Monetized Value ($ billion)	$2.34	$2.48	$2.71
beginning with MY29			
Avoided Premature Deaths	165	174	185
Avoided Hospital Visits	165	175	186
Avoided Minor Cases	97,038	102,463	108,786
Monetized Value ($ billion)	$2.32	$2.45	$2.60

EXHIBIT 5

icct

THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Benefits of adopting California's Advanced Clean Truck Program, Heavy-Duty Vehicle Omnibus Standards and a 100% sales requirement in Illinois

September 2022

In July 2020, fifteen states and the District of Columbia, who together represent roughly 35% of the U.S. medium- and heavy-duty (M/HD) market, signed a Memorandum of Understanding (MOU), committing themselves "to work together to foster a self-sustaining market for zero-emission medium- and heavy-duty vehicles."[1] The signatories of this Multi-State MOU share a goal of 30% M/HD zero-emission vehicle (ZEV) sales by 2030 and 100% ZEV sales no later than 2050. The MOU further recognizes the importance of "low-NOx heavy-duty trucks to reduce harmful emissions of NOx, particulate matter, and toxic air contaminants that adversely impact public health." Taken together, the combined actions of these signatories have the potential to accelerate the national transition toward the cleanest combustion engines and to rapidly expand the fleet of zero-emission M/HD vehicles.

The State of California has adopted two regulations that are cornerstones in the state's effort to reduce emissions from heavy-duty vehicles and meet the targets of the M/HD ZEV MOU. If adopted by other signatories, these regulations could assist states in achieving the goals of the M/HD ZEV MOU: the Advanced Clean Trucks (ACT) rule, which requires the sale of at least 30% zero-emission trucks by 2030, and the Heavy-Duty Vehicle Omnibus rule, which requires a 90% reduction in NOx emissions from model year 2027 engines. States could go even further and adopt a 100% ZEV sales requirement, as the New York State legislature has done, or the California Air Resources Board proposes to do under a new Advanced Clean Fleets rule.

The ICCT commissioned Sonoma Technology, Inc. (STI) in 2022 to estimate the cumulative avoided nitrogen oxides (NO_x), fine particulate matter ($PM_{2.5}$) and well-to-wheel carbon dioxide equivalent (WTW CO_2e) emission reductions expected from implementation of these rules beginning in 2026 in Illinois. Building on a methodology first published in 2021,[2] this new analysis also includes lower

[1] The signatories are California, Colorado, Connecticut, Hawaii, Maine, Maryland, Massachusetts, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, and the District of Columbia, "Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding," (2020, July 14), https://www.nescaum.org/documents/multistate-truck-zev-governors-mou-20200714.pdf. Additional signatories since 2020 are Virginia, Nevada, and Quebec. STI did not model results for California or Hawaii, but did model results for non-signatories including Delaware, New Mexico, and Illinois.

[2] Jeff Houk, Joey Huang, Shih Ying Chang, and Doug Eisinger, "Benefits of state-level adoption of California medium- and heavy-duty vehicle regulations," (Washington, DC: ICCT, 2021), https://theicct.org/publications/state-level-hdv-emissions-reg-oct21

estimates of vehicle electricity consumption to account for the fact that ZEVs are more efficient on a tank-to-wheel basis than conventional vehicles, updates to upstream emission factors taken from GREET2021, and adjustments to account for energy transmission losses from EVSE equipment. The full spreadsheet analysis with detailed emissions and vehicle population projections is available on the ICCT website.[3] As part of the analysis, a business as usual (BAU) case was developed along with three regulatory scenarios: Omnibus only, ACT only, and Omnibus and ACT combined. New this year is a scenario reflecting 100% M/HD ZEV sales in 2040.

Table 1 presents the estimated M/HD truck and bus population in Illinois by powertrain type, conventional or electric, between 2025 and 2050. These projections include all ZEVs, regardless of whether they are produced to meet the requirements of the ACT program or the GHG Phase 2 program, and assume 100% M/HD ZEV sales beginning with model year 2040. The summary spreadsheet prepared for this project includes additional projections reflecting the ACT program individually, and also provides more detailed projections by vehicle weight class.

Table 1. Effect of the Advanced Clean Trucks Program and a MY2040 100% ZEV sales requirement in on M/HD vehicle population, by fuel type, 2025–2050

Year	M/HD vehicle population		
	Internal combustion engine vehicles	Zero emission vehicles	Total
2025	832,439	4,511	836,950
2030	792,592	51,868	844,460
2035	733,575	160,585	894,160
2040	632,415	317,335	949,750
2045	458,371	549,409	1,007,780
2050	308,907	765,993	1,074,900

Note: The M/HD vehicle category includes all vehicles with a Gross Vehicle Weight Rating of 8500 pounds or higher. Estimates for 2040 and later include 100% ZEV sales beginning with model year 2040. ZEV sales projections for baseline and ACT only scenarios—without a 100% requirement in 2040—can be found in the Excel report accompanying this fact sheet.

Table 2 shows the estimated cumulative emissions avoided between 2020 and 2050 in Illinois compared to the Business as Usual (BAU) emissions scenario. These results reflect the benefits of all M/HD ZEVs following California's approach to estimating in-use fleet penetration under the ACT program without adjustments to account for vehicles purchased out-of-state, ZEVs that may migrate out-of-state over time, or ZEVs that would have been produced to meet other requirements like the federal GHG Phase II standards. For estimates with these adjustments, which enable direct comparisons to California Air Resources Board ACT benefits estimates, please refer to the 'ACT-only' scenario results included in the accompanying spreadsheet files.

[3] Available at https://theicct.org/benefits-ca-multi-state-reg-data/

Table 2. Cumulative M/HD emissions benefits in Illinois compared to BAU, 2020–2050

Program	Cumulative emissions reduction		
	NO_x (U.S. tons)	$PM_{2.5}$ (U.S. tons)	CO_2e (MMT*)
ACT	146,430	1,249	140.62
HDV omnibus	105,490	N/A	N/A
ACT + HDV omnibus	206,920	1,249	140.62
ACT + HDV omnibus + 100% HD ZEV sales in 2040	252,240	1,885	187.77

*million metric tons

Figures 1–3 illustrate the emissions trends in Illinois over the timeframe of the analysis.

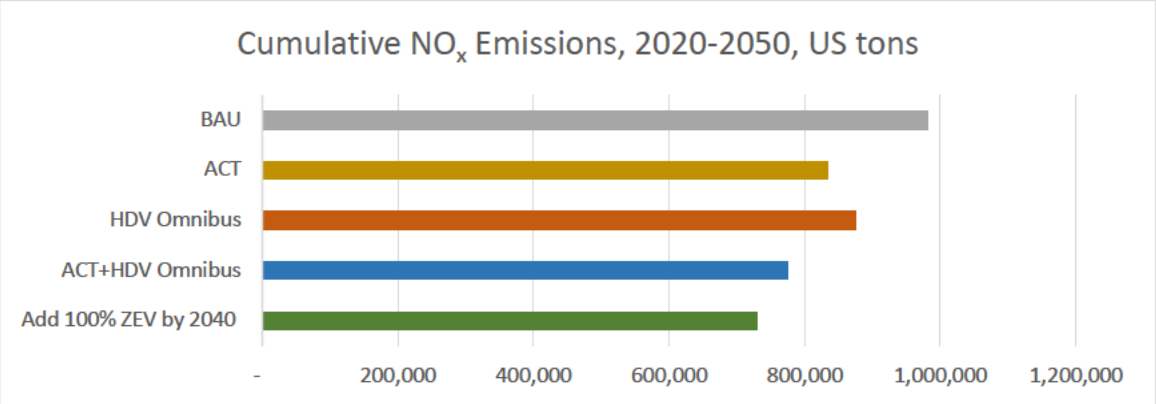

Figure 1. Tank-to-wheel HDV NOx emissions by scenario 2020–2050

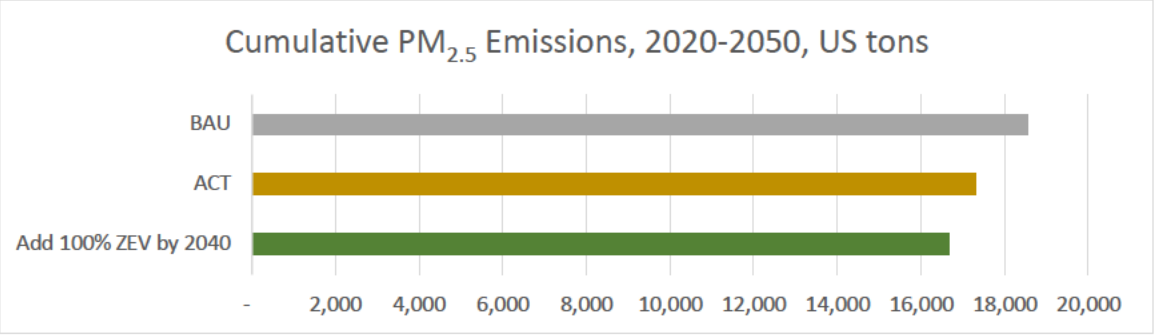

Figure 2. Tank-to-wheel HDV PM emission by scenario 2020–2050

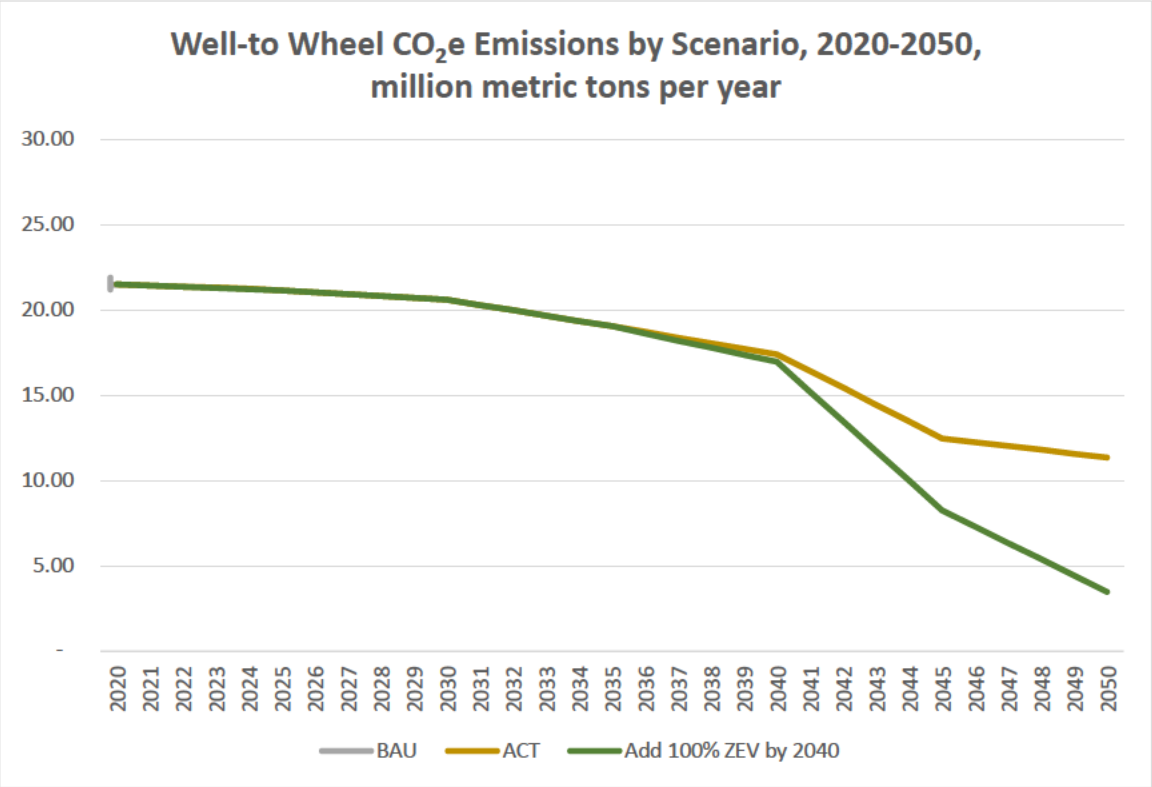

Figure 3. Well-to-wheel HDV CO2 emissions by scenario 2020–2050

Related Publications

Title: Benefits of state-level adoption of California medium- and heavy-duty vehicle regulations
Authors: Jeff Houk, Joey Huang, Shih Ying Chang, and Doug Eisinger for Sonoma Technology
Download: https://theicct.org/publications/state-level-hdv-emissions-reg-oct21

Title: Update: Benefits of adopting California medium- and heavy-duty vehicle regulations under Clean Air Act Section 177
Authors: Ray Minjares
Download: https://theicct.org/publication/state-level-hdv-emissions-reg-fs-dec21/

Supporting files and detailed estimates are available, by state, year, rule, vehicle category, and pollutant are also posted here: https://theicct.org/benefits-ca-multi-state-reg-data/

Contact: Ray Minjares, ray@theicct.org

EXHIBIT 6

Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

Racial Disparities in Childhood Asthma
Chicago, 2016-2021

May 2022

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Introduction and Background

In its 2018 report, *Persisting Racial Disparities Among Chicago Children with Asthma,* Respiratory Health Association (RHA) identified significant racial health disparities among Chicago children. RHA found that while the number of asthma-related emergency department visits among Chicago children declined between 2009 and 2015, significant racial and ethnic disparities existed in the rates of ED visits, and the disparity showed only modest decreases over the six-year period. Black children with asthma experienced five times the rate of hospital emergency room visits as their white counterparts. This troubling data signaled a serious health disparity with respect to asthma, the biggest cause of school absenteeism due to chronic illness.

Respiratory Health Association recently reviewed available health data from 2016-2021, to measure the progress, if any, in addressing asthma health disparities. The data reveal continuing and serious racial disparities in asthma-related emergencies for Chicago children. While the Black/White gap in the rate of ED visits remained stable among Chicago's youngest children (ages 0-4), the gap for children ages 5 to 19 years has increased in the past six years.

Because asthma is not a reportable condition to local health departments, it is difficult to understand the true scope of the problem. The most recently available survey data reveal that 21% of Chicago middle school students and 20% of Chicago high school students have been told by a doctor that they have asthma[i]. Among middle school students, 26.1% of Black students reported they have asthma, compared to 22.8% of Hispanic students, 14% of White students and 24.8% of students of other races. These racial disparities in asthma prevalence also exist among high school students, with 29% of Black students reporting they have asthma, a rate significantly higher the Hispanic (18.7%) and White (12%) students, and students from other races (7.8%).

In this updated report, data from 2016 through 2021 are considered. As with the 2018 report, information is provided on (a) the number of pediatric asthma-related emergency department visits, stratified by age and race/ethnicity, (b) rates of visits per 10,000 population, also demographically stratified, and (3) racial disparities. In addition, cumulative data on ambulance calls to schools for asthma is presented. Data on asthma-related emergency department (ED) visits are from the Hospital Discharge Dataset, and data on ambulance visits to Chicago schools for presumptive asthma are from the Emergency Medical Services database. Both datasets were analyzed and provided by the Illinois Asthma Program and obtained from the Illinois Department of Public Health (IDPH), Division of Patient Safety and Quality.

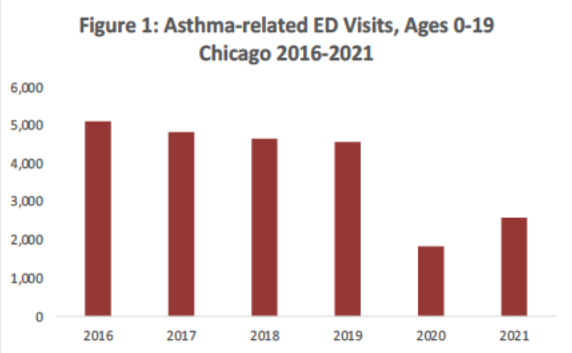
Opportunities for comparison to the data presented in the 2018 report are not possible due to changes in asthma diagnostic codes that occurred in 2015.

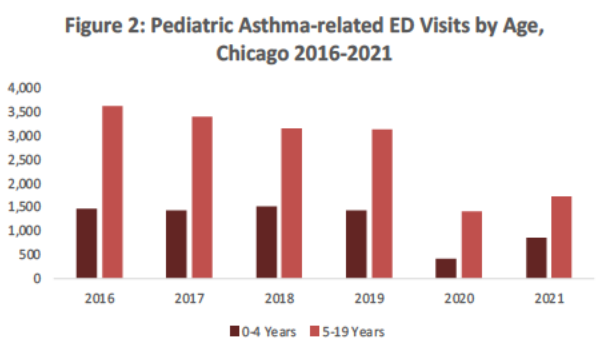
When reviewing the data which follows, it is important to keep in mind the impact that the COVID-19 pandemic has had on hospital visits of all types. A study of 27 children's hospitals looked at the rate of ED visits from March 2020 to August 2020[ii]. While the study found that ED visit rates declined by 45.7% compared to the same period in previous years, one of the largest decreases – 73.9% – occurred among visits for asthma. Another retrospective study looked at ED visits from

January to June 2020, compared to the same period in 2019. The study considered 144 EDs and four urgent care centers in 18 states. The study found that while overall adult visits declined by 29% and pediatric visits declined by 59%, visits for asthma decreased by 76%[iii].

Asthma-Related Emergency Department Visits

Between 2016 and 2021, there were 23,550 asthma-related ED visits among Chicago children 19 years old and younger. Most of those visits, 70% or 16,436, were among children ages 5-19 years, while the remaining 7,114 visits were among 0–4-year-olds. While children ages 4 years old and younger comprised about 30% of annual visits during this six-year period, in 2020, they made up just 23% of total visits.





Black children had the most asthma-related ED visits across all ages and years. Among children four years old and younger, Blacks comprised 40% of the 7,114 visits during the past six years, while Hispanics accounted for 27% and Whites, 23%. These proportions remained relatively stable, although the number of visits among Blacks comprised 43% of visits in 2020, a year when overall visits dropped dramatically due to the COVID-19 pandemic. Asians and persons of 'other' races made up 4% and 6% of visits.

Among Chicago children ages 5 to 19 years old, Black children made up over half (53%) of the 16,436 asthma-related ED visits from 2016 to 2021. Hispanic and White children accounted for 23% and 16% of visits respectively, followed by Asians (2%) and 'other' (6%)

Rates of Asthma-Related Hospital Emergency Department Visits

Between 2016 and 2021, overall rates of emergency department visits for asthma were higher among children ages 0 to 4 than among older children. For all ages there were significant decreases in 2020, attributed largely to the COVID-19 pandemic. 2021 rates remain lower than pre-pandemic

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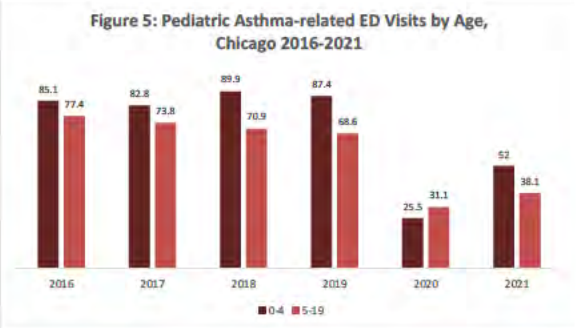
rates (Figure 5) but have increased since 2020. Though the statewide stay-at-home order was lifted before the 2021 school year, 2021 data may still be affected by other COVID-19 measures.



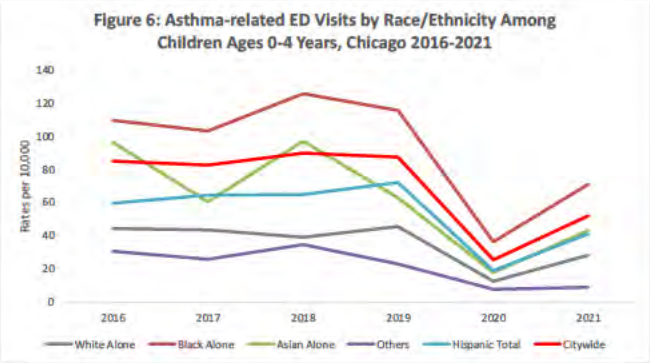
Among children 0-4 years of age, the 2019 rate of 87.4 per 10,000 was a 2.7% increase over the 2016 rate of 85.1. The 2019 rate for this age group declined by 40.5% by 2021. Among children 15 to 19 years of age, the rate decreased by 11.4% between 2016 (77.4) and 2019 (68.6), and the 2021 rate of 38.1 represented a 44.5% from 2019.

Breaking down rates of asthma-related ED visits by race and ethnicity reveal troubling disparities. In each year and across both age groups, the rates of asthma-related ED visits were highest among Black children. While much of this discussion focuses on changes in rates over time, actual rates are included at the end of this report.

Children Ages 0 to Four Years of Age

Among children ages 0-4 years of age, the ED visits among Black children ranged from 109.9 per 10,000 population in 2016 to 71 in 2021. In each year, the rate of visits among Blacks exceeded the citywide rate. Rates among young Asian children were second highest in 2016, 2018 and 2021, while rates among Hispanic children were second highest in 2017, 2019 and 2020 (Figure 6).

Between 2016 and 2019, rates increased among Hispanic (21.2% increase), Black (5.5%) and White (2.7%) children. Rates of ED visits among Asians and children of other races decreased during this period by 34% and 61.3% respectively. Rates among children of all races and ethnicities declined significantly between 2019 to 2021. Notably, the decreases among Hispanic (43%) and Black children (38.7%) were greater than that of White children in this age group (37.9%).



Children Ages 5 to 19 Years of Age

Between 2016 and 2019, asthma-related ED visit rates among children ages 5 to 19 years decreased across all races/ethnicities except for Asians who had an 18.5% increase. The rate of visits among White children declined by 15.1%, while Black and Hispanic children saw more modest decreases of

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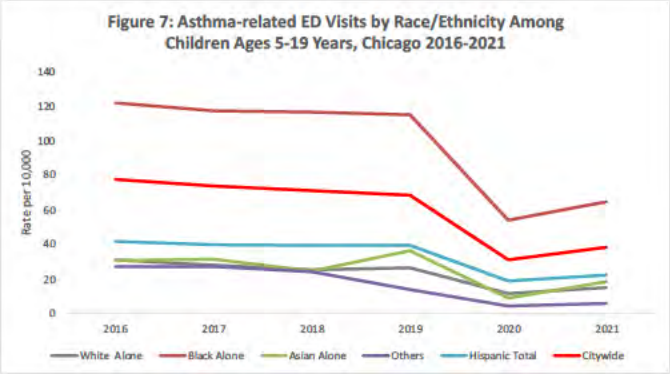
5.4% and 5.3% respectively. Rates among Black children exceeded the citywide rate in each year. (Figure 7).



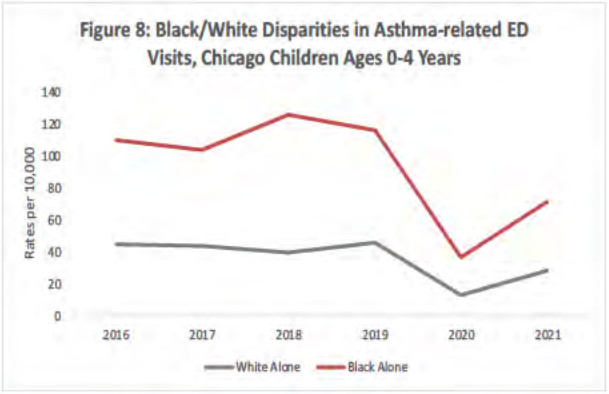
As with younger children, those between ages 5 to 19 years of age experienced notable decreases in ED visit rates between 2019 and 2021. The largest decreases were for persons of 'Other' races (58.7%) and Asians (49%). The decrease in rates of visits were smaller, but still significant, for Blacks (43.9%), Hispanics (43.8%) and White (42.7%) children.

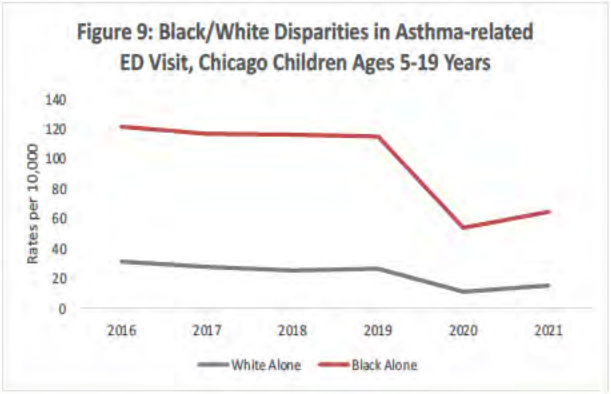
The Greatest Racial Gaps Are Between White and Black Children

While disparities in asthma-related ED visits exist across all races, the greatest gaps exist between Black and White children. In both 2016 and 2021, Black children four years old and younger in Chicago were 2.5 times more likely to go to an emergency department for their asthma than their White counterparts (Figure 8).

While rates of visits were, with few exceptions, higher for all races among younger children, the racial disparities are more profound among children between the ages of 5 and 19 years (Figure 8). In 2021, Black children in this age group were 4.3 times more likely to have an asthma-related ED visit than a White child. This is a 9% increase from the 3.9 racial gap in 2016.

In Chicago, the child on the left is more than 4 times as likely to end up in a hospital emergency room with asthma than the child on the right.





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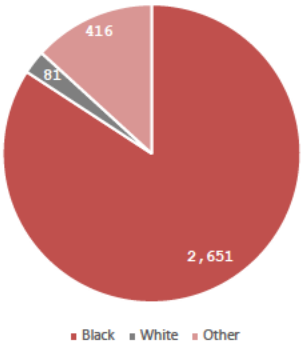
Ambulance Visits to Schools for Asthma Emergencies

In addition to exacerbations requiring a visit to hospital emergency departments, Emergency Medical Services (EMS) visits to schools is another indicator of poorly managed asthma. An asthma EMS visit is defined by the Illinois Department of Public Health as wheezing, coughing or the presences of at least one other core symptom of an asthma exacerbation where albuterol is administered by EMS.

Between 2016 and 2021 there were 3,603 ambulance visits to Chicago schools for asthma emergencies; student race was recorded for 3,148 visits. Just over 45% of these visits (1647) were to schools in just 10 zip codes: 60628, 60621, 60637, 60620, 60617, 60644, 60649, 60624, 60636, and 60623. For visits where race was known, 84% of students requiring an EMS visit were Black, 3% were White, and students of 'Other' races represented 13% of students.

Figure 10: EMS Visits for Asthma to Chicago School by Race, 2016 -2021



Discussion and Recommendations

Asthma can be well managed with trigger avoidance and proper medication use. When managed correctly, children with asthma should be able to live active and otherwise normal lives. Yet data released in 2019 by the U.S. Centers for Disease Control and Prevention noted that over a three-year study period, 53.5% of all Illinois children with asthma had one or more asthma attacks[iv]. In Chicago, a network of providers, organizations, and the Illinois Department of Public Health has invested heavily over the past several years in teaching students (and the adults in their lives) about how best to control their asthma. Those efforts have focused largely on Black and Hispanic communities with the highest asthma rates.

Since 2001, RHA has helped led partner efforts to advance three successful statewide legislative initiatives to enable schools to support children more effectively with asthma. Three key policies have ensured that: (a) students with asthma can carry and self-administer their asthma medication

while at school (2001), (b) every school has an asthma emergency response protocol in place and trained staff (2016), and (c) schools are permitted to maintain a stock of undesignated asthma medication for emergency use (2018. Additionally, in 2021 RHA worked with state legislators and the Illinois Department of Public Health to increase State funding for asthma management programs by $1 million.

Those efforts may have contributed to declines in pediatric asthma-related ED visits since 2016, though it remains to be seen if the more recent rate decreases will continue or return to pre-pandemic levels. Of significant concern, however, is that despite the progress made, there has been no progress in efforts to close the racial disparities gap in ED visits. As previously noted, the disparities in asthma-related ED visits among Black and White children ages 0 to 4 years was the same in 2016 and 2021, while the racial gap among older Black and White children increased by 9% during this period.

Respiratory Health Association offers the following recommendations moving forward:

1. Increase research into racial disparities: Despite improvements in addressing pediatric asthma (as evidenced by decreases in both the numbers and rates of ED visits) more research is needed to identify and better understand the factors contributing to the racial disparities. Evidence-based programming and clinical care appear are making a difference, yet they are not enough to reduce the gaps between White and Black children.

   Consideration should also be given to using the EMS data set as a tool for evaluating the impact of the three school-based asthma policies identified above.

2. Expand community- and school-based asthma services: As previously noted, current asthma management education and other services are largely targeted toward Chicago communities with the highest rates of pediatric asthma-related ED visits. Consistent with the data presented in this report, these are primarily Black and Hispanic communities. But as noted in RHA's 2018 report, these efforts still reach just a small fraction of the populations affected by childhood asthma.

3. Advocate for City of Chicago funding to address childhood asthma: The City has stated its commitment to eliminating racial health disparities and the life expectancy gap between Black and White Chicagoans. According to its own data, chronic diseases account for 50% of this gap, yet comprise just 1% (~$1.5 million) of the Chicago Department of Public Health (CDPH) budget. The other top drivers of the life expectancy gap (homicide, infant mortality, HIV/infectious disease, and opioid overdose) have a combined budget of over $100 million. The CDPH budget to address childhood asthma is currently $0.00.

Respiratory Health Association acknowledges the Illinois Department of Public Health's Asthma Program for analyzing and providing the data used for this report.

For additional information about Respiratory Health Association's asthma services, including its school-based asthma management education program, Fight Asthma Now®, go to www.resphealth.org

For additional information about this report, contact esalem@resphealth.org

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Data Tables

Asthma-related ED Visits by Year and Race, Chicago

0 to 4 Years

	White	Black	Asian	Other	Hispanic
2016	337	561	73	117	382
2017	338	554	56	81	396
2018	342	628	66	85	390
2019	334	556	63	73	397
2020	91	183	16	27	106
2021	203	359	39	31	230

5 to 19 Years

	White	Black	Asian	Other	Hispanic
2016	579	1864	64	300	827
2017	535	1768	77	254	757
2018	506	1701	56	182	705
2019	535	1658	83	120	737
2020	204	788	20	48	345
2021	269	942	42	60	410

Asthma-related ED Visit Rates by Year and Race, Chicago
(Rates per 10,000 population)

0-4 Year Olds

	2016	2017	2018	2019	2020	2021
White Alone	44.4	43.5	39.3	45.6	12.7	28.3
Black Alone	109.9	103.5	125.8	115.9	36.2	71.0
Asian Alone	96.6	60.4	97.4	63	17.7	43.1
Others	30.6	25.7	34.8	23.2	7.8	9.0
Hispanic Total	59.7	64.7	64.9	72.3	19	41.2
Citywide	85.1	82.8	89.9	87.4	25.5	52

5-19 Year Olds

	2016	2017	2018	2019	2020	2021
White Alone	31.1	27.9	25.3	26.4	11.5	15.1
Black Alone	121.7	117.1	116.3	115.1	54	64.5
Asian Alone	30.8	31.5	24.7	36.5	8.9	18.6
Others	27.3	27.4	24.2	13.8	4.5	5.7
Hispanic Total	41.7	39.9	39.5	39.5	18.7	22.2
Citywide	77.4	73.8	70.9	68.6	31.1	38.1

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[i] Chicago Public Schools. Youth Risk Behavioral Survey, 2019 Data Tables. Accessed May 3, 2022. https://www.cps.edu/about/district-data/health-data/

[ii] DeLaroche AM, Rodean J, Aronson PL, Fleegler EW, Florin TA, Goyal M, Hirsch AW, Jain S, Kornblith AE, Sills MR, Wells JM, Neuman MI. Pediatric Emergency Department Visits at US Children's Hospitals During the COVID-19 Pandemic. Pediatrics. 2021 Apr;147(4):e2020039628.

[iii] Kiara Taquechel, Avantika R. Diwadkar, Samir Sayed, Jesse W. Dudley, Robert W. Grundmeier, Chén C. Kenyon, Sarah E. Henrickson, Blanca E. Himes, David A. Hill, Pediatric Asthma Health Care Utilization, Viral Testing, and Air Pollution Changes During the COVID-19 Pandemic, The Journal of Allergy and Clinical Immunology: In Practice, Volume 8, Issue 10, 2020, Pages 3378-3387

[iv] U.S. Centers for Disease Control and Prevention. Asthma attacks among people with current asthma, 2014-2017.

EXHIBIT 7

Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

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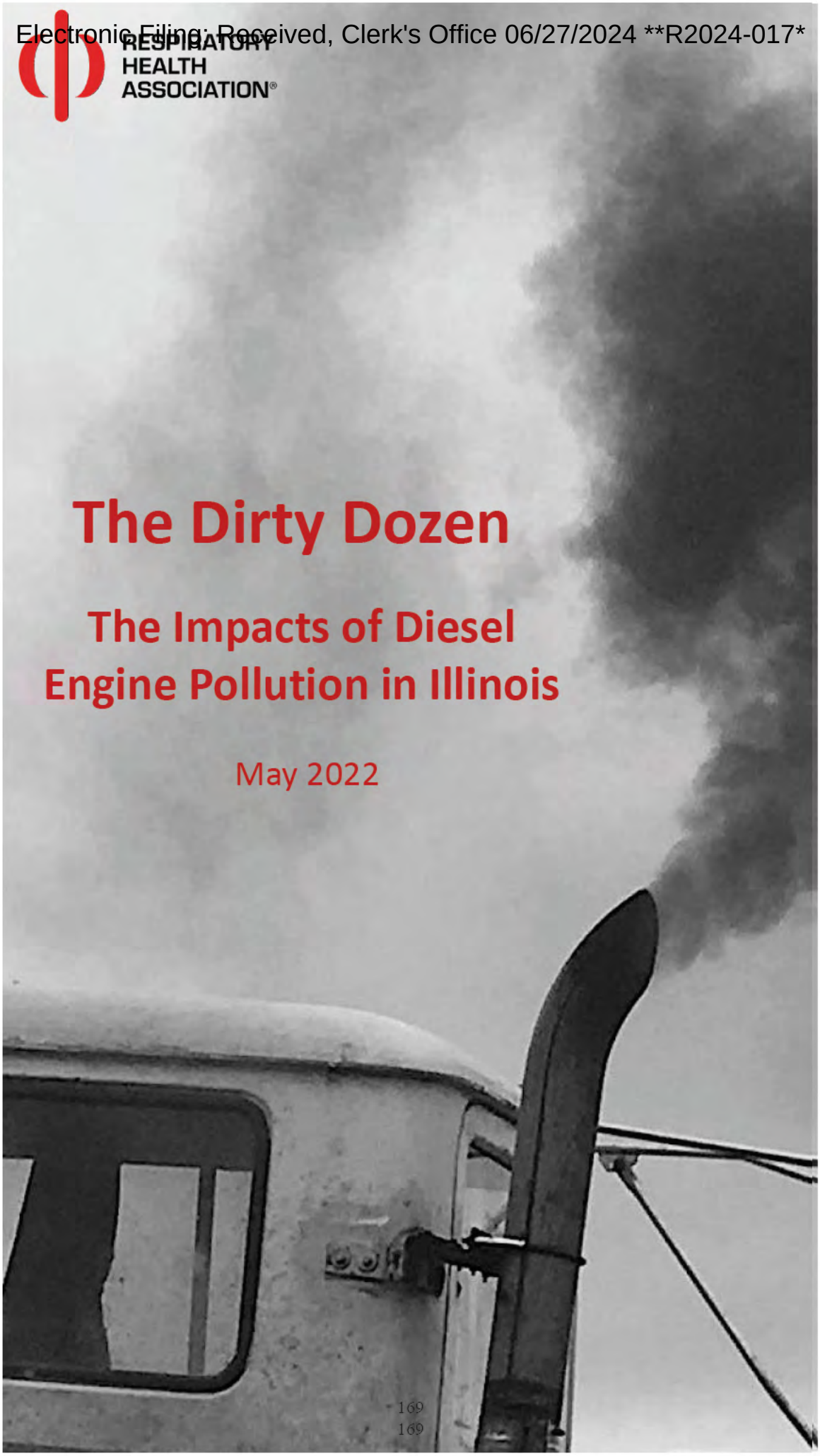
The Dirty Dozen

The Impacts of Diesel Engine Pollution in Illinois

May 2022



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Background and Introduction

Diesel trucks are responsible for many types of air pollution. While all forms of air pollution are concerning, emissions from diesel engine are particularly harmful for the health of communities. Recent data suggest that some of Illinois' most populous communities are disproportionally harmed by diesel exhaust pollution. In this report, we look at the local health impact of emissions from diesel trucks and other large diesel vehicles and identify the Illinois "Dirty Dozen" counties with the highest concentrations of diesel vehicle pollution.

Diesel truck emissions of fine particulate matter ($PM_{2.5}$), the term for solid or liquid particles found in the air that are less than 2.5 millionths of a meter in size, may be concentrated enough to be seen as soot or smoke. Individual fine particles are so small that they generally cannot be seen by the naked eye. This $PM_{2.5}$ from diesel engine exhaust can exacerbate asthma and chronic obstructive pulmonary disease and contribute to premature death, particularly among those with lung and heart disease. The latest available data from the U.S. Environmental Protection Agency indicate that heavy-duty diesel vehicles account for 25 percent of fine particulate matter emissions from all vehicles in the country, despite making up only four percent of the vehicles on the road.[i] [ii] A recent analysis found Illinois's medium and heavy-duty vehicle diesel fleet includes 424,132 trucks that travel nearly 12 billion miles each year and use more than 1.6 billion gallons of petroleum-based fuels.[iii]

In January 2022, the Clean Air Task Force (CATF) released an interactive map that explores the negative health impacts of diesel emissions across the U.S., with projected data on expected 2023 deaths, as well other health and economic risks associated with diesel pollution.[iv] CATF generously provided Respiratory Health Association with the underlying data for this tool, which provide the basis for this report.

It is important to note that the data and projections used in this report are limited to the impacts of $PM_{2.5}$ diesel engine air pollution only. There are other pollutants that are also emitted in diesel engine exhaust pollution, such as nitrogen oxides (NO_x), sulfur dioxide (SO_2), carbon monoxide (CO), as well as many EPA designated air toxic compounds[v] that present further threats to clean air and health. The report also considers $PM_{2.5}$ diesel engine pollution from both on-road vehicles (e.g., cars, trucks, buses, etc.) and pollution from diesel-powered equipment that does not travel on roads, such as that used for farming, construction and intermodal freight movement within ports and railyards.

Death by Diesel: Impacts of Diesel Engine Pollution on Illinois Residents

With an average diesel $PM_{2.5}$ concentration of 0.309 $\mu g/m^3$, Illinois' diesel engine pollution exposure levels are 21 percent greater than national levels of 0.255 $\mu g/m^3$. Diesel $PM_{2.5}$ levels in Illinois reflect 1,019 tons per year of on-road engine air pollution and 2,476 tons per year of non-road engine air pollution.

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Illinois ranks fifth among all states with the highest number of deaths from $PM_{2.5}$ diesel engine pollution per capita in 2023. While Illinois residents comprise 3.8 percent of the U.S. population, they are disproportionately impacted by diesel air pollution. The 416 projected deaths in 2023, represent 4.7 percent of the 8,822 projected deaths due to diesel engine $PM_{2.5}$ pollution nationally.

In 2023, Illinois residents will account for 6.3 percent of asthma-related emergency department visits and 5.3 percent of non-fatal heart attacks due to diesel engine $PM_{2.5}$ air pollution nationwide.

These and other health impacts will also impact the work lives of residents. The Clean Air Task Force projects a total of 24,601 missed workdays in Illinois in 2023 and 144,930 days of "minor restricted activity" where people need to change their normal activities because of poor health.

Projected Health Impacts of Diesel Pollution in Illinois and U.S., 2023

	Illinois	U.S.	% IL
Population (in millions)	12.7	331.9	3.8%
Heart Attacks - Number	199	3,728	5.3%
Acute Bronchitis - Cases	264	5,606	4.7%
Upper Respiratory Symptoms - Cases	4,788	101,733	4.7%
Lower Respiratory Symptoms - Cases	3,357	71,334	4.7%
Emergency Room Visits, Asthma	129	2,063	6.3%
Asthma Exacerbation - Cases	5,003	105,947	4.7%

The Dirty Dozen

In Illinois, as elsewhere, exposure to factors that increase threats to human health is not equal. This includes exposure to diesel engine $PM_{2.5}$ air pollution. People who live, work, or go to school closer to highways, warehouses, intermodal rail, and truck freight facilities, loading docks, fleet garages, etc. (as well as those who work at these facilities) are more likely to be affected by diesel engine fine particulate matter and other forms of air pollution from diesel engines.

With data provided by the Clean Air Task Force, Respiratory Health Association (RHA) was able to identify the Illinois counties most affected by diesel engine $PM_{2.5}$ air pollution. Analysis of these data reveal that 12 of Illinois' 102 counties rank in the top nine percent of *all* U.S. counties at risk of the health, societal, and economic impacts caused by diesel fine particle air pollution. Percentiles were based on $PM_{2.5}$ levels in comparison to all counties nationally. RHA classifies these counties as the Dirty Dozen.

The Dirty Dozen

County	Delta PM 2.5 (ug/m3)	Percentile
Cook	0.40	99%
Du Page	0.38	99%
Will	0.33	98%
Lake	0.31	98%
Kane	0.28	97%
Grundy	0.26	96%
Kankakee	0.26	95%
Kendall	0.25	95%
McHenry	0.24	94%
De Kalb	0.24	94%
Madison	0.22	91%
Iroquois	0.22	91%

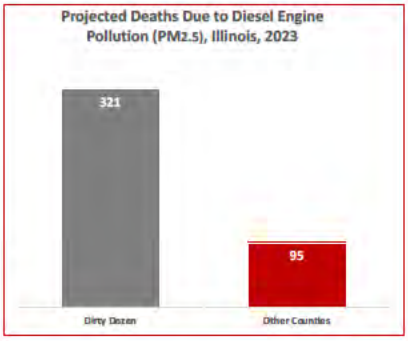
Diesel engine $PM_{2.5}$ levels among Dirty Dozen counties range from a low of 0.22 $\mu g/m^3$ in Madison and Iroquois Counties to a high of 0.40 $\mu g/m^3$ in Cook County. The county with lowest exposure to $PM_{2.5}$ in Illinois is Hardin County, with a level of 0.15 $\mu g/m^3$.

Three counties had diesel engine $PM_{2.5}$ levels above the state average of 0.31 $\mu g/m^3$: Cook (+28 percent), DuPage (+22 percent) and Will (+5.8 percent). Diesel engine $PM_{2.5}$ levels for seven

counties also exceeded the national average: Cook (+55.6 percent). DuPage (+47.8 percent), Will (+28.6 percent), Lake (+23.1 percent), Kane (10.2 percent), and Grundy and Kankakee, with each having levels 2.4 percent greater than the national average. Primarily located in northern Illinois, the combined population of the 12 most impacted counties represent 64 percent of the state's total population.

The Dirty Dozen Face Disproportionately High Negative Health Impacts

While no part of the state is safe from diesel engine $PM_{2.5}$ air pollution, residents of the 12 counties with the greatest exposure face significantly greater health threats.



As previously noted, the Clean Air Task Force projects 416 deaths in 2023 attributable to diesel engine $PM_{2.5}$ air pollution. While the populations of Dirty Dozen counties constitute 64 percent of the state's population residents, 77 percent of the diesel-related deaths will occur in these 12 counties.

Non-Fatal Heart Attacks

Diesel Engine Pollution Impacts, Dirty Dozen, 2023	
County	Non-Fatal Heart Attacks
Cook	95
Du Page	19
Will	13
Lake	12
Kane	8
Grundy	1
Kankakee	2
Kendall	2
McHenry	4
De Kalb	1
Madison	3
Iroquois	0

Pollution from diesel engine emissions can lead to cardiovascular conditions such as artery blockages, which in turn can result in heart attacks (arterial occlusion) and ischemic strokes.[vi] Increases in fine particulate matter ($PM_{2.5}$) have been shown to increase hospital admissions for heart attacks, heart disease and congestive heart failure.[vii]

Diesel engine $PM_{2.5}$ emissions in Illinois are projected to result in an additional 199 non-fatal heart attacks. It is projected that 80 percent of these, or 159, will occur among residents of Dirty Dozen counties, with 48 percent of statewide cases affecting Cook County residents.

Asthma

Numerous studies have linked $PM_{2.5}$ exposure with increased asthma attacks, use of asthma medication in children, and increased emergency department visits and hospitalizations.[viii] In Illinois, 5,003 asthma attacks attributed to diesel engine $PM_{2.5}$ pollution are projected for 2023. The vast majority of these exacerbations (4,136 or 83 percent) will occur among residents living in a Dirty Dozen county, and half of the statewide cases will be among Cook County residents living with asthma. For many people, their asthma attacks are so severe that they are forced to seek emergency medical care. In 20 The Dirty Dozen: The impacts of diesel Engine Pollution in illinois

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23, it is anticipated that an additional 129 asthma-related ED visits in Illinois will result from exposure to diesel engine $PM_{2.5}$ emissions. Eighty-three percent of these visits will be made by residents of Dirty Dozen counties.

Other Respiratory Conditions

Acute bronchitis occurs when airways swell and produce mucus in the lungs. Also known as a chest cold, acute bronchitis is the most common type of bronchitis.[ix] Symptoms typically include coughing, soreness in the chest, headache, and fatigue.

Exposure to diesel engine $PM_{2.5}$ pollution is projected to increase the number of acute bronchitis cases in Illinois by 264 in 2023. Eighty-three percent of these excess cases (219) will occur in Dirty Dozen counties.

Exposure to $PM_{2.5}$ increases the risk of respiratory infections by weakening the defenses of the respiratory system. Several studies have identified a positive correlation with the number of outpatient health care visits, emergency department visits, and hospitalizations for acute upper and lower respiratory infections.[x]

Upper respiratory tract illnesses have symptoms primarily above the neck, including sore throats, headaches, and sneezing. Lower respiratory illnesses involve the airways, below the larynx, with coughing often the primary symptom.

The Clean Air Task Force data suggest that in 2023, there will be 4,788 and 3,357 cases of upper and lower respiratory illnesses, respectively. In both cases, 83 percent of cases will be among residents of Dirty Dozen counties (3,974 cases of upper and 2,785 cases of lower respiratory illness.

Diesel Engine Pollution Impacts on Respiratory Health, Dirty Dozen, 2023

County	Asthma Attacks	Asthma ED Visits	Acute Bronchitis	Upper Respiratory Illness	Lower Respiratory Illness
Cook	2,521	66	135	2,450	1,717
Du Page	438	12	23	421	295
Will	339	9	17	317	222
Lake	302	7	15	282	197
Kane	217	5	11	205	144
Grundy	18	0	1	18	12
Kankakee	36	1	2	34	24
Kendall	53	1	3	50	35
McHenry	99	3	5	93	65
De Kalb	33	1	2	28	20
Madison	72	2	4	69	49
Iroquois	7	0	0	7	5

Societal and Economic Impacts

The significant health impacts of exposure to diesel engine pollution come with societal and economic costs. Respiratory illnesses, along with non-fatal heart attacks, contribute to missed school and workdays, and days when activities are reduced. Across the state, in 2023 diesel engine $PM_{2.5}$ exposure is expected to contribute to 144,930 days of minor restricted activity, of which 120,665 days (83 percent) will come from Dirty Dozen counties. Over half of those days will be from the impact on Cook County residents.

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Residents of Dirty Dozen counties are expected to miss 20,521 workdays collectively in 2023, 83 percent of the total 24,601 missed workdays anticipated statewide.
Using a computer model developed by U.S. EPA consultants, the Clean Air Task Force calculated monetized health damages from the human health impacts, including deaths, medical treatments and other health-related economic losses caused by diesel engine $PM_{2.5}$ air pollution. For Illinois, these monetized health damages will exceed $4.6 billion in 2023, with 77 percent of those damages experienced in Dirty Dozen county residents.

Diesel Engine Pollution Societal and Economic Impacts, 2023

Counties	Minor Restricted Activity Days	Lost Work Days	Monetized Health Damages
Cook	74,848	12,802	$2,220,360,649
Du Page	13,124	2,222	$387,863,680
Will	9,595	1,611	$268,550,872
Lake	8,296	1,394	$240,074,911
Kane	5,731	965	$146,368,488
Grundy	509	86	$17,261,509
Kankakee	990	167	$41,293,790
Kendall	1,341	226	$29,260,740
McHenry	2,981	498	$92,142,380
De Kalb	1,004	171	$25,373,163
Madison	2,047	346	$89,371,734
Iroquois	199	33	$11,563,833

The Road to Clean Trucks in Illinois

Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding

In July 2020, 15 states and the District of Columbia signed the Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding (MDHD MOU) expressing their commitment to stop selling MDHD polluting vehicles by 2050[xi]. As of April 2022, 17 states had signed the MDHD MOU.[xii] The MDHD MOU is not legally binding, but does demonstrate the intention of signatory states to protect the health of their residents.

Despite pressure from environmental and public health advocates and the May 2021 passage of resolutions by the Illinois House of Representatives (HR 293)[xiii] and the Illinois Senate (SR296)[xiv] urging Governor Pritzker to sign the MDHD MOU, the Governor has not yet signed Illinois onto the multistate agreement. Despite its lack of legal standing, the MDHD MOU is viewed as an important step towards adopting enforceable state policies that foster vehicle electrification.
State signatories to the MDHD MOU are currently working to finalize a draft Action Plan for achieving the goals of the MOU. The draft discusses the barriers and opportunities associated with

electrifying MHD vehicles, including large trucks, vans, and buses; underscores the importance of an equitable transition to MHD Zero-Emission Vehicles (ZEVs); and prioritizes deployment of these vehicles in frontline and overburdened communities disproportionately impacted by air pollution and climate change. With a focus on near-term strategies, the draft Action Plan includes recommendations for state policymakers to promote the rapid, equitable, and widespread deployment of MHD ZEVs with an eye towards ensuring 100% of MHD sales are ZEVs by 2050, if not before.[xv]

The most important initial policy action a state can take is the adoption of the Advanced Clean Trucks rule.

Advanced Clean Trucks Rule

In June 2020, California adopted the Advanced Clean Trucks rule (ACT), the world's first zero-emission commercial truck requirement. The ACT requires manufacturers who sell medium- and heavy-duty vehicles to sell zero-emission vehicles as an increasing percentage of their annual sales from 2024 to 2035.[xvi] Following California's lead, five additional states that signed onto the MDHD MOU - Oregon, Washington, New York, New Jersey, and Massachusetts - have already adopted the Advanced Clean Truck rule within their borders as well, setting firm deadlines for increasing sales of zero-emission medium- and heavy-duty vehicles. On May 10, 2022 legislation was signed by the governor of Connecticut that allows the rule to be put into effect there as well[xvii].

The California rule includes a manufacturer sales requirement and a reporting requirement[xviii]:

- Zero-emission truck sales: Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines would be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales. [xix]

- Company and fleet reporting: Large employers including retailers, manufacturers, brokers and others are required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, are required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

Conclusion

Illinois is uniquely situated squarely in the middle of the country's transportation network. While it benefits from that economic impact, it also pays the price with a higher burden of deadly diesel exhaust. Unfortunately, that specific burden falls most heavily on communities in and near areas

with large concentrations of activity that now involve diesel engines – intermodal freight terminals, warehousing and industry, and along major roadways and highways. In many cases those industrial areas overlap with or adjoin low-income and minority communities that are already at higher risk of lung disease and lung disease exacerbation.

Electric vehicle technology is becoming more commercially available, and larger commercial electric vehicles like buses and trucks are already being built in Illinois. The personal electric vehicle industry in Illinois is also poised for dramatic expansion over the next several years.

Illinois clearly wants to be a leader in the electric vehicle industry, but it must also simultaneously commit to eliminating a huge source of emissions that not only increase global warming but create local pollution that is often concentrated in the communities where its most vulnerable residents live. Governor Pritzker has the power to make this commitment by joining the 17 other states who have signed the Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding, and then follow up on that promise with concrete policy action - such as the Advanced Clean Truck Rule - that assures the reduction of the harmful diesel pollution to which Illinois residents are exposed.

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[i] Union of Concerned Scientists, published July 15, 2005 updated Feb. 11, 2022. Diesel Engines and Public Health. https://www.ucsusa.org/resources/diesel-engines-public-health#1

[ii] National Renewable Energy Lab. September 21, 2021. Breakthrough Analysis Finds Electrified Heavy-Duty Vehicle Powertrains Could Provide Lower Total Cost of Ownership. https://www.nrel.gov/news/program/2021/breakthrough-analysis-finds-electrified-heavy-duty-powertrains-could-provide-lower-total-cost-ownership.html.

[iii] Results from the forthcoming *Illinois Clean Trucks Program* report by ERM.

[iv] Clean Air Task Force. 2022. Deaths by diesel: Mapping the health impacts of diesel nationwide. https://www.catf.us/deathsbydiesel/

[v] US EPA lists 188 air toxics, a category of chemical compound associated with increased risk of cancer, neurological damage or reproductive effects. https://www.epa.gov/haps/what-are-hazardous-air-pollutants. The State of California states that diesel particulate matter includes "… over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene."

[vi] Zachary J. Rhinehart, MD; Ellen Kinnee, MS; Utibe R. Essien, MD, MPH; Melissa Saul, MS; Emily Guhl, MD; Jane E. Clougherty, MSc, ScD; Jared W. Magnani, MD, MSc. Association of Fine Particulate Matter and Risk of Stroke in Patients with Atrial Fibrillation. https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2770640

[vii] Physicians for Social Responsibility. How air pollution contributes to heart disease. 2018. https://www.psr.org/wp-content/uploads/2018/05/air-pollution-effects-cardiovascular.pdf. Accessed March 31, 2022.

[viii] Asthma Initiative of Michigan for Healthy Lungs. Outdoor air quality. https://getasthmahelp.org/outdoor-air-quality.aspx Accessed March 31, 2022.

[ix] Centers for Disease Control and Prevention. https://www.cdc.gov/antibiotic-use/bronchitis.html. Accessed March 31 2022.

[x] Yang Liyao, Li Cheng, Tang Xiaoxiao. Frontiers in cell and developmental biology. Vol 8, 2020.

[xi] Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding https://www.nescaum.org/documents/mhdv-zev-mou-20220329.pdf/

[xii] States signing the MDHD MOU include California, Colorado, Connecticut, Hawaii, Maine, Maryland, Massachusetts, New Jersey, Nevada, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, and Washington.

[xiii] Illinois General Assembly, House Resolution 293 (2021) https://ilga.gov/legislation/fulltext.asp?DocName=&SessionId=110&GA=102&DocTypeId=HR&DocNum=0293&GAID=16&LegID=136208&SpecSess=&Session=

[xiv] Illinois General Assembly, Senate Resolution 296 (2021) https://ilga.gov/legislation/billstatus.asp?DocNum=296&GAID=16&GA=102&DocTypeID=SR&LegID=136213&SessionID=110

[xv] Multi-state Medium - and Heavy-duty Zero-Emission Vehicle Action Plan: A Policy Framework to Eliminate Harmful Truck and Bus Emissions, Draft for Public Comment, March 10, 2022 https://www.nescaum.org/documents/mhd-zev-action-plan-public-draft-03-10-2022.pdf

[xvi] Atlas EV Hub. The advance of the Advanced Clean Truck (ACT) rule, September 13, 2021.

[xvii] Connecticut General Assembly Senate Bill No. 4. https://www.cga.ct.gov/asp/cgabillstatus/cgabillstatus.asp?selBillType=Bill&bill_num=SB00004&which_year=2022

[xviii] Advanced Clean Truck Rule CARB fact sheet. California Air Resources Board https://ww2.arb.ca.gov/sites/default/files/2021-08/200625factsheet_ADA.pdf

[xix] Class 2b-3 vehicles include large pick-up trucks and vans, Class 3-8 vehicles include buses and single-unit work or freight trucks and Class 7-8 vehicles are combination trucks using semi-tractors.

EXHIBIT 8

November 1, 2023

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Re: Vehicles' Contribution to Illinois Ozone Pollution:
Implications for Public Health and Environmental Justice in Illinois

On behalf of Sierra Club, Respiratory Health Association, Environmental Defense Fund, Natural Resources Defense Council, Little Village Environmental Justice Organization (LVEJO), Active Transportation Alliance, Center for Neighborhood Technology, Illinois Environmental Council, Environmental Defenders of McHenry County, Union of Concerned Scientists, Metropolitan Planning Council, Evanston Transit Alliance, and Bike Wilmette, and our members and supporters, we write to urge the Illinois Environmental Protection Agency ("IEPA") to adopt three rules that would dramatically reduce air pollution from passenger cars and medium and heavy duty trucks that have been promulgated by the California Air Resources Board: the Advanced Clean Cars II ("ACC II") Rule, the Advanced Clean Trucks ("ACT") Rule, and the Heavy-Duty Engine and Vehicle Omnibus ("HDO") Rule. We urge the Governor's Office and IEPA to take immediate steps to incorporate these rules into Illinois' ozone air quality state implementation plan ("SIP") in 2023. Adoption of these rules would reduce greenhouse gas emissions, make the air cleaner to breathe for all Illinois residents, and provide a critical boost toward meeting Illinois' goals of ensuring "the protection of the health of the people of Illinois and its environment [and] equity in the administration of the State's environmental programs."[1]

Based on a Sonoma Technology modeling report that analyzes the amount of statewide ozone pollution attributable to emissions from vehicles driving on Illinois' roads, these comments explain how adopting vehicle rules requiring reductions in vehicle pollution would improve public health; reduce disproportionate burdens of pollution on environmental justice communities; and assist Illinois in achieving its goals for electrifying its transportation sector and reducing its contribution to climate change.

These rules are also critical to addressing Illinois' long-standing air quality attainment challenges. The Chicago area is currently designated as Moderate Nonattainment under the 2015 8-hour National Ambient Air Quality Standards ("NAAQS") issued by the U.S. Environmental Protection Agency ("EPA"), as is the Illinois portion of the St. Louis area.[2] Roughly 9 million Illinois residents, comprising 71% of the state's entire population, continue to live in areas that are designated as failing to meet EPA's health-based NAAQS.[3] High ozone levels have documented adverse health impacts, including higher levels of asthma and asthma morbidity.[4]

Ozone formation in Illinois is traceable in significant part to emissions of nitrogen oxides ("NOx"), which are released by the combustion of gasoline and diesel fuel in Illinois' vehicles.

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[1] Illinois Environmental Protection Agency, *Environmental Justice*, https://epa.illinois.gov/topics/environmental-justice.html; *see also* Office of the Mayor, City of Chicago, *Executive Order No.* 2023-3 (May 10, 2023), https://www.chicago.gov/content/dam/city/depts/cdph/environment/CoC_Executive-Order-2023-3.pdf.

[2] EPA, *8-Hour Ozone (2015) Designated Area/State Information* (Mar. 31, 2023), https://www3.epa.gov/airquality/greenbook/jbtc.html.

[3] https://www3.epa.gov/airquality/greenbook/jbtc.html. *See infra* note 13.

[4] EPA, *Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards* (EPA-HQ-OAR-2008-0699-0404, Aug. 2014). *https://www3.epa.gov/ttn/naaqs/standards/ozone/data/20140829pa.pdf*. *See infra* notes 17-20.

Nearly a quarter of Illinois' total NOx emissions, approximately 24.9%, are attributable to pollution from vehicles driving on Illinois' roads.[5]

Recent modeling commissioned by the Sierra Club, as set out below, confirms the massive contribution of on-road vehicles to ozone pollution in Illinois. On-road vehicles in Illinois contribute up to a staggering 11.26 parts per billion ("ppb") of ozone, which means that up to 16.1% of the total minimum federal air quality standard of 70 ppb of ozone is driven by pollution from in-state vehicles alone.[6] In other words, on days with high amounts of ozone, or smog, pollution from cars and trucks alone can bring smog levels in Illinois to 16.1 percent of their allowable healthy limits, leaving total smog more likely to exceed safe levels.

Illinois' historically high ozone levels are exacerbating race- and income-based health disparities and have an outsized impact on communities of color in Illinois. From 2016 to 2021, Black children in Chicago with asthma went to the emergency room five times more than white children with asthma.[7] At the city level, EPA's EJScreen Tool indicates that Chicago is in the 88th percentile nationally for the ozone EJ index. EPA's EJScreen is an environmental justice mapping tool that combines environmental, demographic, and socioeconomic indicators. The tool allows users to compare environmental and socioeconomic data in specific geographic areas with state and national populations.[8] Reducing NOx emissions, an ozone precursor, is therefore essential for mitigating the adverse and unjust health impacts affecting Illinois residents.

Adopting ACC II, ACT, and HDO Rules will significantly reduce NOx and greenhouse gas emissions from Illinois' on-road vehicles. Nitrogen oxides (NOx) are emitted as gasses by automobiles, trucks, and various industrial applications such as construction equipment, boilers, power plants, and cement kilns. When emitted, nitrogen oxides combine with volatile organic compounds (VOCs) to produce ozone (smog), especially on hot summer days.[9] Adopting these rules is therefore critical for bringing Illinois back into compliance with legally binding federal NAAQS standards for ozone and the state's own goal for reducing greenhouse gas emissions from on-road vehicles by placing one million electric vehicles on the road by 2030.[10] Our modeling demonstrates that adoption of the ACT Rule alone would reduce tailpipe NOx emissions from medium- and heavy-duty vehicles in Illinois by over 132,000 metric tons through 2050—and adoption and implementation of the ACT and HDO Rules together would reduce NOx emissions by nearly 188,000 metric tons by 2050. Adopting ACC II could avoid nearly 38,000 metric tons of NOx

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[5] EPA, *2020 National Emissions Inventory (NEI) Supporting Data and Summaries* (last accessed April 19, 2023), https://www.epa.gov/air-emissions-inventories/2020-nei-supporting-data-and-summaries. *See infra* note 41 and accompanying text. Data available at https://www.epa.gov/air-emissions-inventories/2020-nei-supporting-data-and-summaries.

[6] Lynn Alley & Kenneth Craig, Sonoma Technology, *Technical Memorandum Re: Analysis of Air Quality Impacts from Onroad Mobile Sources on Ozone Nonattainment areas in Connecticut, Illinois, Maryland, Michigan, New Jersey, and Pennsylvania* (May 19, 2023). *See infra* note 43 and accompanying text.

[7] Respiratory Health Association, *Racial Disparities in Childhood Asthma: Chicago, 2016-2021*, at 1 (May 2022), https://resphealth.org/wp-content/uploads/2022/05/Updated-Asthma-Disparities-Report.pdf. *See infra* note 32-36 and accompanying text.

[8] EPA, *EJ and Supplemental Indexes in EJScreen*, https://www.epa.gov/ejscreen/ej-and-supplemental-indexes-ejscreen.

[9] https://www3.epa.gov/region1/airquality/nox.html.

[10] Ill. S.B. 1718 (2021).

emissions from the state's light-duty fleet by 2050. In addition to improving statewide air quality, implementing these three rules would significantly reduce the State's transportation related climate pollution. By implementing the ACT Rule, Illinois would also avoid a projected 140.62 million metric tons of greenhouse gas emissions by 2050.[11] With ACC II, Illinois would avoid 207.43 million metric tons by that time. Thus, by adopting and implementing the ACC II, ACT, and HDO Rules, the Governor's Office and IEPA would improve air quality for all Illinois residents and ease the heavy burden of transportation-related air pollution on vulnerable populations within the State.

The ACC II Rule is a critical tool in reducing emissions because it requires gradual increases in the sales of zero-emission light-duty vehicles, while the ACT Rule requires increasing sales of zero-emission medium- and heavy-duty vehicles. The HDO Rule serves the important role of reducing pollution from the remaining medium- and heavy-duty internal combustion vehicles on the market by requiring reduced NOx emissions. The signatories to the HDO Rule share a goal to reach at least 30% medium- and heavy-duty zero-emission vehicle sales by 2030 and 100% sales no later than 2050. We urge Illinois to expeditiously adopt these rules and incorporate them into Illinois' federally-enforceable moderate ozone nonattainment SIP.

I. ILLINOIS RESIDENTS CONTINUE TO EXPERIENCE HIGH OZONE LEVELS FAR IN EXCESS OF NATIONAL AMBIENT AIR QUALITY STANDARDS, PARTICULARLY IN URBAN AREAS AND IN COMMUNITIES OF COLOR.

For decades, Illinois has had a persistent problem with high levels of ozone pollution in excess of health-based national ambient air quality standards. As reflected below, the majority of Illinois residents continue to live in nonattainment areas that regularly experience air that EPA has determined is unsafe to breathe. The disproportionate burden of higher pollution levels in disadvantaged, overburdened communities of color creates inequitable, poorer health outcomes among those communities.[12]

A. Most Illinois Residents Live in Nonattainment Areas where Ozone Levels Regularly Exceed Health-Based Limits Set by NAAQS

High ozone levels are a persistent public health issue in Illinois, with the vast majority of Illinois residents living in areas that are failing to attain safe, healthy levels of ozone. This has particularly been the case in the Chicago nonattainment area. An alarmingly high 71% of all Illinois residents live in an ozone nonattainment area, based on current nonattainment designations in the Chicago metro area and the Illinois portion of the St. Louis area:[13]

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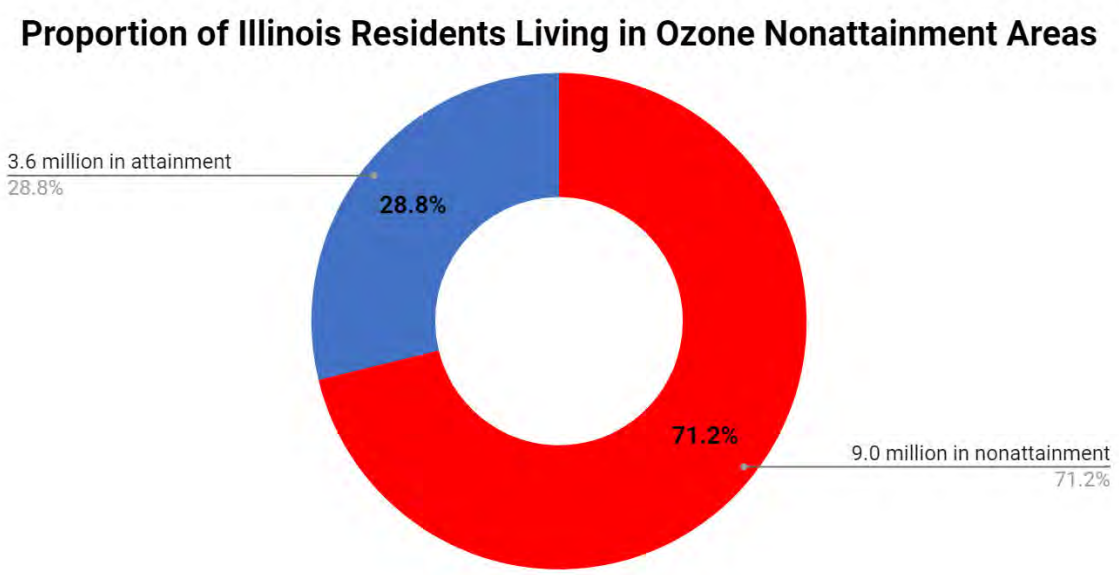
[11] ICCT, "Fact Sheet: Benefits of adopting California's Advanced Clean Truck Program, Heavy Duty Vehicle Omnibus Standards and a 100% sales requirement in Illinois," (Sept. 2022), https://theicct.org/wp-content/uploads/2022/09/HDV-fact-sheet-IL-092122.pdf. *See infra* note 67 and accompanying text. Data quantify well-to-wheel CO_2e emissions reductions under the ACT rule.

[12] *See, e.g.*, Madison Lisle and Yana Kalmyka, *Warehouse Workers for Justice, For Good Jobs & Clean Air: How A Just Transition to Zero Emission Vehicles Can Transform Warehousing*, https://www.ww4j.org/uploads/7/0/0/6/70064813/wwj_report_good_jobs_clean_air.pdf.

[13] EPA, *8-Hour Ozone (2015) Designated Area/State Information* (last accessed April 19, 2023), https://www3.epa.gov/airquality/greenbook/jbtc.html. Data was sourced from this report and compared to



The Chicago nonattainment area has continued to log high 8-hour daily ozone values, reaching as high as 104 ppb in 2020—which is 48% higher than the NAAQS of 70 ppb—as well as 96 ppb in both 2017 and 2018 and 95 ppb in 2019.[14] The number of ozone exceedance days, or days in which the monitored value exceeds 70 ppb, similarly shows chronic air quality violations that are not improving. Chicago residents experienced nearly an entire month of unhealthy ozone pollution in 2016, and 20 days of exceedances in both 2020 and 2021. Even as recently as 2022, ozone levels reached 91—21 ppb in excess of the 70 ppb standard—and the Chicago region exceeded the 70 ppb limit on 12 different days.[15]

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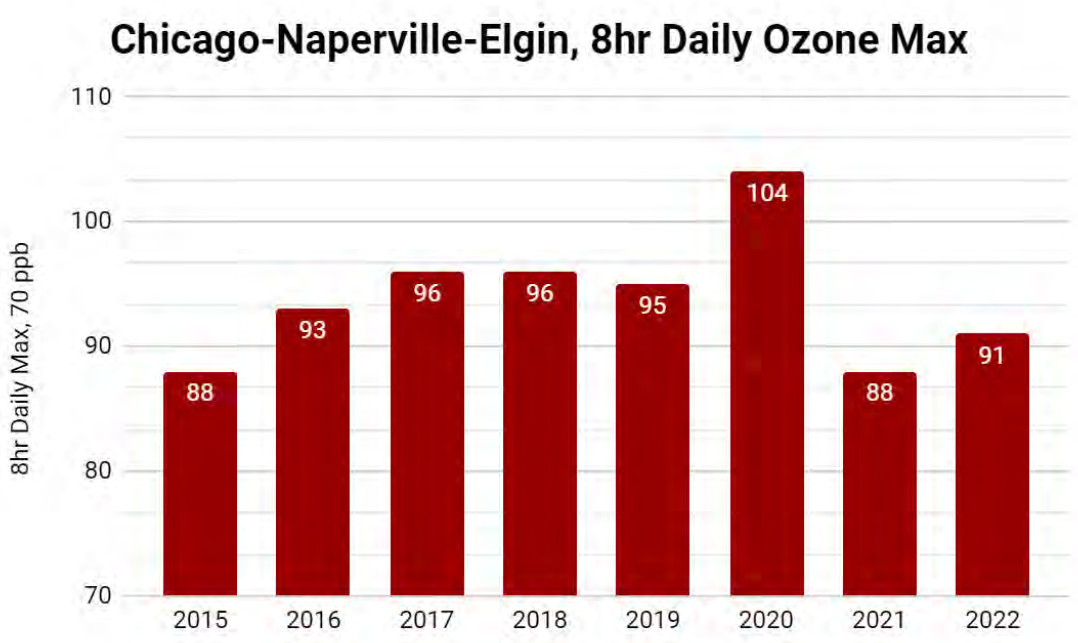
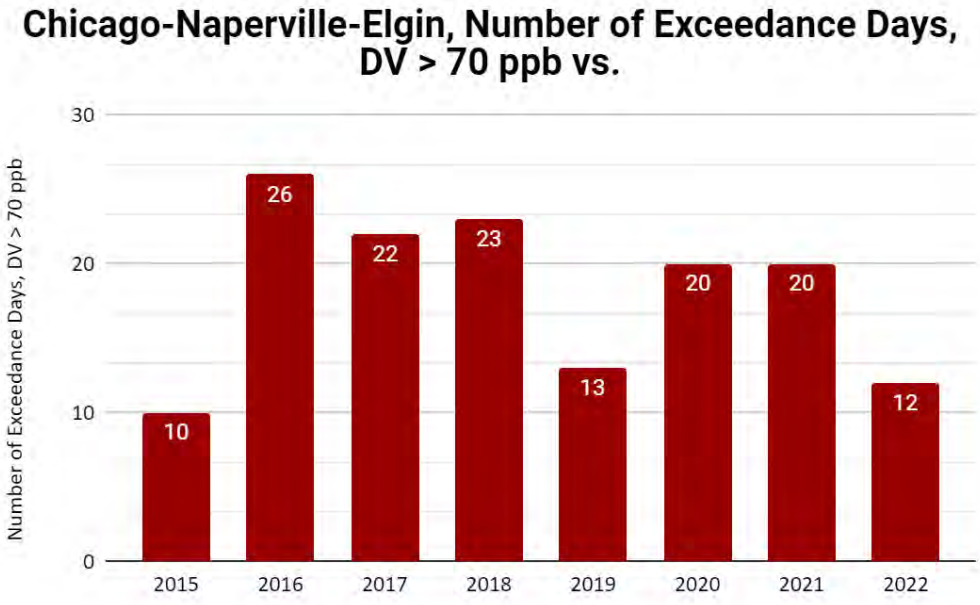
the latest Census numbers for Illinois. EPA reports 2010 population in nonattainment, meaning the above percentage is likely a very slight overcount, as Illinois' total shrank from 12.84 million in 2010 to 12.67 million today. For a map of nonattainment areas, *see* EPA, *Interactive Map of Air Quality Monitors* (last accessed April 19, 2023), https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors.

[14] EPA, *Outdoor Air Quality Data, Monitor Values Report* (last accessed April 19, 2023), https://www.epa.gov/outdoor-air-quality-data/monitor-values-report. This data excludes exceptional events.

[15] EPA, *Outdoor Air Quality Data, Air Data - Ozone Exceedances* (last accessed April 19, 2023), https://www.epa.gov/outdoor-air-quality-data/air-data-ozone-exceedances. The number of exceedance days (DV > 0.070 ppm) from 2015 to 2022 for the specified nonattainment area was downloaded and graphed. For the Chicago nonattainment area, these values are likely an undercount, as they were sourced from EPA's Air Quality System based on the Chicago-Naperville-Elgin Core Based Statistical Area and therefore may not be inclusive of every monitor in the Chicago nonattainment area.





As the numbers above demonstrate, the Chicago nonattainment area is failing to make meaningful and lasting progress toward meeting the ozone NAAQS, and communities in and surrounding urban areas are routinely exposed to extremely high ozone concentrations. This ozone exposure has a negative impact on human health, as explained in the following section.

B. Ozone Exposure At Levels Below What Illinois Regularly Experiences Has Significant Adverse Health Impacts

Ozone emissions are harmful to people at any level, particularly young children, the elderly, and those with existing respiratory conditions. Even where ozone levels are recorded below the EPA NAAQS threshold, harmful effects can still occur. Indeed, at its most recent meeting in March, the ozone panel of EPA's Clean Air Scientific Advisory Committee—composed of preeminent national experts on ozone air pollution—voted to recommend tightening the primary health-based ozone standard from its current 70 ppb level to a range of 55-60 ppb.[16]

Exposure to ozone, the main component of smog, has detrimental effects on human health. Even short-term ozone exposure is linked to chronic conditions affecting the respiratory, cardiovascular, reproductive, and central nervous systems, as well as mortality.[17] Respiratory symptoms of ozone exposure include coughing, wheezing, and shortness of breath.[18] Notably, ozone exacerbates asthma and can contribute to new onset asthma.[19] Accordingly, ozone exposure is associated with increased asthma attacks, emergency room visits, hospitalization, and the need for asthma medications.[20]

The health effects of ozone exposure are cumulative, increasing with higher ozone concentrations and increased exposure time.[21] The impacts of ozone exposure on the respiratory system can occur at concentration levels below the 2015 8-hour ozone NAAQS of 70 ppb.[22] In fact, ozone concentrations as low as 60 ppb can cause inflammation and decreased lung function in healthy, exercising adults after 6.6 hours of exposure.[23] Furthermore, studies have observed an association between short-term ozone exposure and hospital admission or emergency department visits at concentrations as low as 31 ppb.[24]

While the health impacts of ozone are ubiquitous, certain populations are at an increased risk of ozone-related health effects. Those populations include people with asthma and/or lung disease, children, people over the age of 65, pregnant people, people of color, and outdoor workers.[25] Factors contributing to an individual's risk of ozone-induced health burdens include exposure,

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[16] *See* Sean Reilly, E&E News, "EPA advisers recommend steep cut to ozone standards" (May 2, 2023), https://subscriber.politicopro.com/article/eenews/2023/05/02/epa-panel-recommends-to-steep-cut-to-ozone-standards-00094886.

[17] *See* EPA, *Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards* (EPA-HQ-OAR-2008-0699-0404, Aug. 2014). https://www3.epa.gov/ttn/naaqs/standards/ozone/data/20140829pa.pdf.

[18] *Id.* at 3-27.

[19] *Id.* at 3-28.

[20] *See id.*; *see also* Respiratory Health Association, *The Dirty Dozen: The Impacts of Diesel Engine Pollution in Illinois* (May 2022), https://resphealth.org/wp-content/uploads/2022/05/Dirty-Dozen-Impact-of-Diesel-Engine-Pollution-in-Illinois.pdf; Clean Air Task Force, *Deaths by Dirty Diesel: Mapping the health impacts of diesel nationwide*, https://www.catf.us/deathsbydiesel/.

[21] *See id.*

[22] EPA, *National Ambient Air Quality Standards for Ozone*, 80 Fed. Reg. 65,292, 65,292 (Oct. 26, 2015).

[23] EPA, *Integrated Science Assessment for Ozone and Related Photochemical Oxidants at IS-1* (2020), https://www.epa.gov/isa/integrated-science-assessment-isa-ozone-and-related-photochemical-oxidants/.

[24] *Id.* at IS-27.

[25] *Id.* at 2-30; EPA, *National Ambient Air Quality Standards for Ozone*, 80 Fed. Reg. 65,292, 65,310 (Oct. 26, 2015).

susceptibility, access to healthcare, and psychosocial stress.[26] These factors can intersect to place certain individuals at even greater risk. For example, children experience increased exposure to ozone because they are more likely to spend time being active outdoors, and increased susceptibility to the health impacts of ozone due to their developing lungs and higher occurrences of respiratory infections than adults.[27]

The pervasive impacts of ozone exposure disproportionately burden communities of color and economically marginalized populations. Higher levels of exposure can be attributed to the historical siting of polluting facilities in marginalized communities as opposed to more affluent, predominantly white neighborhoods.[28] Accordingly, people of color, especially Black individuals, carry a higher asthma burden than white people, and are overrepresented in the nation's ozone nonattainment areas. Furthermore, people of color are more susceptible to the impacts of air pollution, such as asthma, diabetes, and heart conditions, because they are more likely than white individuals to be living with one or more chronic conditions.[29]

C. Elevated Ozone Levels In the Chicago Nonattainment Area Are Having Significant Adverse Impacts On Environmental Justice Communities

The adverse health impacts of ozone exposure do not affect all Illinois residents equally. EPA's EJScreen tool shows that communities in the Chicago nonattainment area have high environmental justice index values for ozone, considering both exposure to pollution and socioeconomic indicators. These impacts are reflected in disproportionately poor health outcomes for people of color.

The environmental justice ("EJ") index for ozone is calculated by combining the environmental factor of ozone concentration with demographic factors, including populations of low-income individuals and people of color residing in a geographic area.[30] In Chicago, the EJ index for ozone is in the 77th percentile compared to the state of Illinois and the 88th percentile compared to the United States. This means that only 23% of the state and 12% of the country's population have worse EJ index values for ozone than Chicago.[31] This illustrates that ozone nonattainment in Illinois is especially harmful when considering the impacts of ozone pollution on people of color and low-income populations in nonattainment areas.

The unequal burden of ozone-caused public health impacts in Illinois is affirmed by asthma data. Asthma is one of the primary public health impacts of ozone exposure and affects Black communities, especially Black children, at disproportionate rates in Illinois, as shown by emergency department visits, hospitalizations, and death rates. A May 2022 study conducted by the Respiratory

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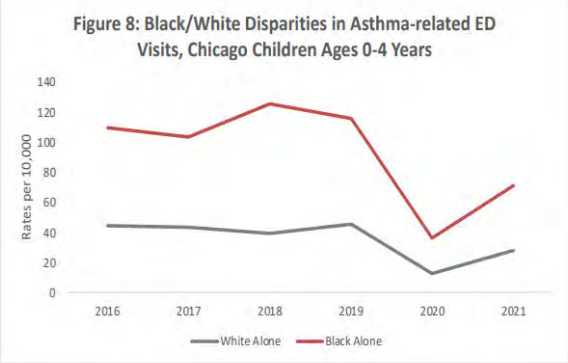
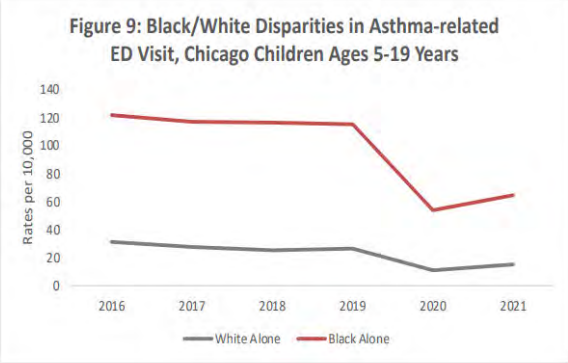
[26] American Lung Ass'n, *State of the Air 2022, Tracking Air Pollution & Championing Clean Air 25* (2022), https://www.lung.org/getmedia/74b3d3d3-88d1-4335-95d8-c4e47d0282c1/sota-2022/.
[27] *Id.* at 26.
[28] *Id.*
[29] *Id.*
[30] For EPA's explanation of this indicator, *see* EPA, *EJ and Supplemental Indexes in EJScreen* (last accessed Feb. 13, 2023), https://www.epa.gov/ejscreen/ej-and-supplemental-indexes-ejscreen.
[31] *See* EPA, *EJScreen* (last accessed April 19, 2023), https://ejscreen.epa.gov/mapper/. Numbers for Chicago were generated by selecting the city and generating the "Printable Standard Report."

Health Association illustrates that emergency department visits for asthma are much more frequent—nearly four times higher—among Black children aged 5-19 years than white children:[32]



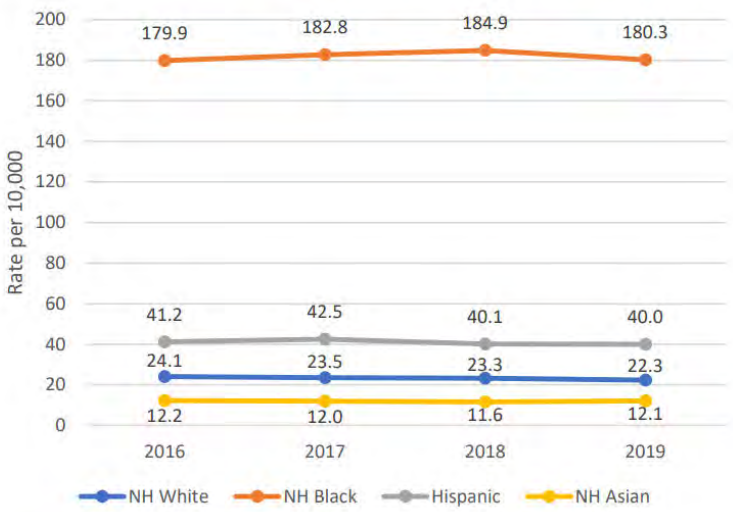


Apart from the obvious health impacts of these disparities, asthma and asthma-related conditions also disrupt students' education. The same study found that between 2016 and 2021, there were 3,603 ambulance visits to Chicago schools for asthma emergencies. Of the 3,148 visits in which the student's race was recorded, 84% were black; only 3% were white. In fact, "just over 45% of these [EMS] visits were to schools in just 10 zip codes: 60628, 60621, 60637, 60620, 60617, 60644, 60649, 60624, 60636, and 60623."[33]

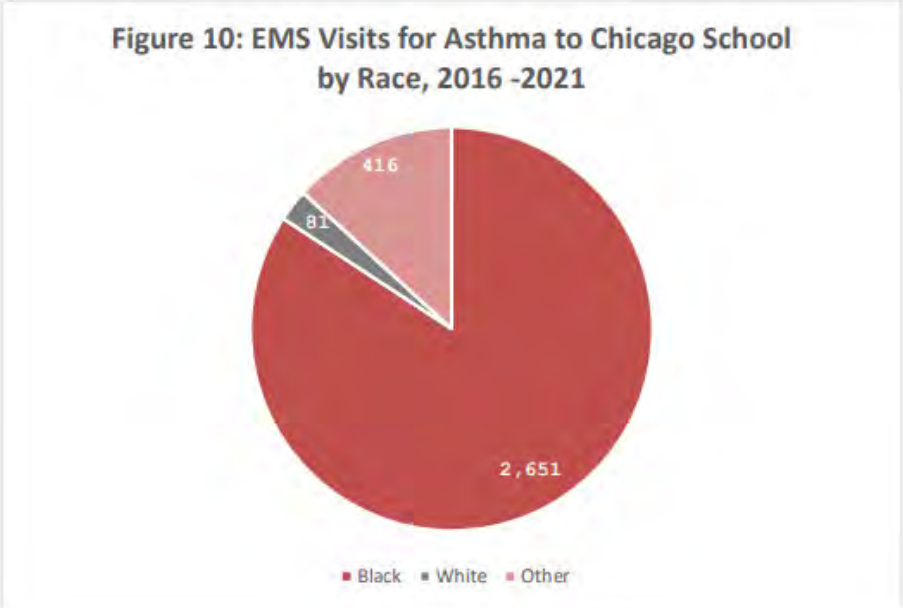
These trends remain consistent among adults. According to the Illinois Department of Public Health, asthma ED visits among Black Illinois residents generally, which includes adults, are 6 times higher than the white rate.[34] Meanwhile, the Black asthma mortality rate in Illinois is 4 times higher than the white rate.[35] In 2018, for example, the Non-Hispanic African American asthma mortality rate per million was 35; the Non-Hispanic White rate was 6.5.[36]

[32] Respiratory Health Association, *Racial Disparities in Childhood Asthma: Chicago, 2016-2021* (May 2022), https://resphealth.org/wp-content/uploads/2022/05/Updated-Asthma-Disparities-Report.pdf. The report notes that 2020 was an anomalous year in the data due to the COVID-19 pandemic.
[33] *Id* at 5.
[34] Illinois Department of Public Health, *Asthma Trends: Hospital Discharge Data, 2016-2019*, https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/asthma-trends-hospital-discharge-data-2016-2019.pdf.
[35] Illinois Department of Public Health, A*sthma Trends: Mortality, 2000-2016*, https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/asthma-trends-hospital-discharge-data-2016-2019.pdf.
[36] Illinois Department of Public Health, *Asthma Trends: Mortality Tables 2000-2018*, https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/asthma-mortality-tablessept20docx-10062020.pdf.

Figure 13. Asthma ED Visit Rate by Race/Ethnicity, Illinois, 2016-2019



The Respiratory Health Association report analyzing data on visits from emergency medical services to Chicago schools (Figure 10) reflects similar disproportionate impacts on Black children.[37]



The American Lung Association named Chicago "one of the most polluted cities" and in its 2023 "State of the Air" report gave Cook, DuPage, Kane, Lake, Madison, and McHenry counties the grade of F in terms of the number of high ozone days that they experienced.[38] According to the

[37] Respiratory Health Association, *supra* note 32.
[38] American Lung Association, *2023 State of the Air Report Card: Illinois*, https://www.lung.org/research/sota/city-rankings/states/illinois.

American Lung Association, "[b]oth ozone and particle pollution are dangerous to public health and can increase the risk of premature death and other serious health effects such as lung cancer, asthma attacks, cardiovascular damage, and developmental and reproductive harm."[39]

Reducing ozone pollution and NOx emissions, a precursor to ozone pollution, is therefore essential to reducing the unequal public health harms unjustly borne by low-income populations and people of color in Illinois. As discussed below, adopting the ACC II, ACT, and HDO Rules, which require sales of increasing percentages of zero-emission vehicles, as well as decreasing quantities of NOx emissions from internal combustion engines, is critical for improving public health in Illinois' urban and rural environmental justice communities.

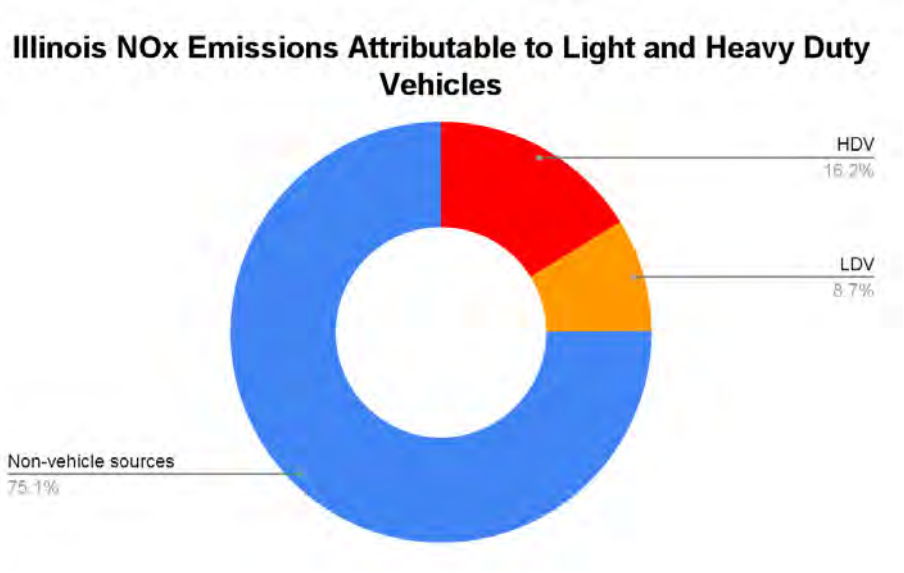
II. POLLUTION FROM VEHICLES IS A MAJOR DRIVER OF ILLINOIS' ELEVATED OZONE LEVELS.

Pollution from light-duty, medium-duty, and heavy-duty vehicles is a significant source of NOx emissions—and therefore ozone formation—in Illinois. These emissions must be reduced to come into attainment with the ozone NAAQS and minimize public health harms. In order to reduce these emissions, Illinois must adopt and enforce California's ACC II, ACT, and HDO Rules.

A. Overview: NOx Emissions from Illinois Vehicles

As of January 1, 2023 there are 7,276,445 light-duty vehicles and 2,247,792 medium- and heavy-duty vehicles registered in Illinois.[40] NOx emissions emanate from a range of sources, including coal-fired power plants and industrial operations, but nearly a quarter of the state's total NOx emissions stem from vehicles' exhaust. Medium- and heavy-duty vehicles contribute an estimated 16.2% of Illinois' total NOx emissions, while light-duty vehicles contribute approximately 8.7% of those total NOx emissions:[41]

[39] American Lung Association, "Chicago Named One of the Most Polluted Cities in New Lung Association Report" (Apr. 20, 2022), https://www.lung.org/media/press-releases/chicago-sota-report-2022.
[40] Office of the Illinois Secretary of State, *2022 Registration Counts by County,* https://www.ilsos.gov/departments/vehicles/statistics/lpcountycounts/2022countycounts.pdf
[41] EPA, *2020 National Emissions Inventory (NEI) Supporting Data and Summaries* (last accessed April 19, 2023), https://www.epa.gov/air-emissions-inventories/2020-nei-supporting-data-and-summaries. NOx emissions by state and sector were downloaded and compared to determine the relative contribution of NOx emissions from on-road light-duty and heavy-duty vehicles.



Many of these emissions are in areas where Illinois is already in nonattainment of ozone NAAQS—that is, these areas fail to meet minimum health-based federal air quality standards.

B. Vehicles Are Major Drivers of High Ozone Levels In Nonattainment Areas and Environmental Justice Communities

Sierra Club retained Sonoma Technology to model the ozone impacts of light-duty, medium-duty, and heavy-duty vehicles on Illinois' nonattainment areas and environmental justice communities, and to estimate how high a contribution each of these vehicle types make to state ozone pollution.[42] Vehicles driving on Illinois' roads contribute nearly a quarter of Illinois' total NOx emissions, approximately 24.9%. These NOx emissions, in turn, contribute to ozone pollution, which meaningfully contributes to Illinois' violations of NAAQS by having air pollutant levels in excess of the minimum allowable safe levels.

Sonoma Technology found that emissions from on-road vehicles in Illinois frequently have impacts greater than 1% of the 2015 ozone NAAQS at Air Quality System ("AQS") monitoring locations within ozone nonattainment areas.[43] In fact, the highest modeled ozone impacts from vehicles in the Chicago nonattainment area in 2016 and 2023 exceed 0.7 ppb nearly every day when the monitors register exceedances of the ozone standard of 70 ppb.[44]

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[42] This modeling utilized the Comprehensive Air Quality Model with Extensions ("CAMx") with Ozone Source Apportionment Technology ("OSAT") for the 2016 ozone season (April to October) in Illinois. The source apportionment modeling simulations used EPA's 2016v2 (2016fj_6j) modeling platform, which relies on emissions data from the National Emissions Inventory, as well as EPA's 2023 projections platform.

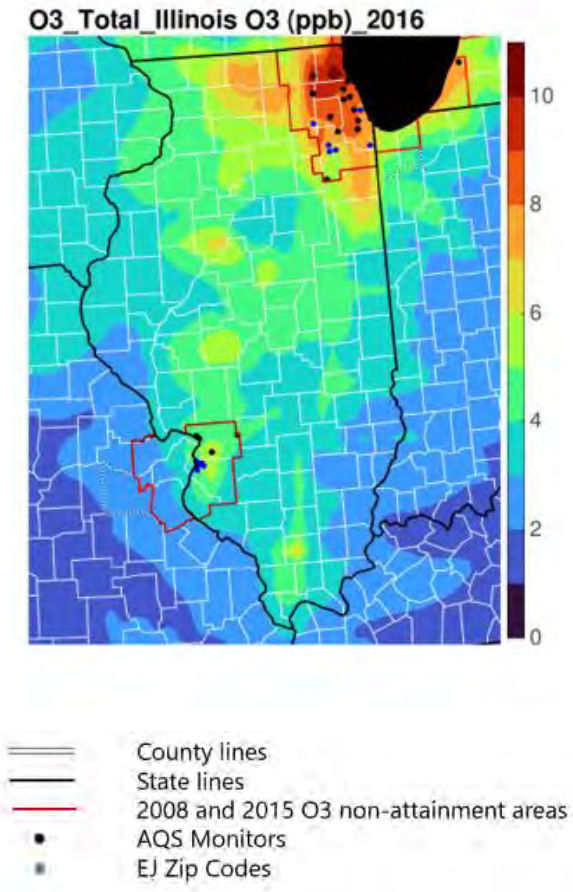
[43] Lynn Alley & Kenneth Craig, Sonoma Technology, *Technical Memorandum Re: Analysis of Air Quality Impacts from Onroad Mobile Sources on Ozone Nonattainment areas in Connecticut, Illinois, Maryland, Michigan, New Jersey, and Pennsylvania* (May 19, 2023). https://shorturl.at/abfoT.

[44] For an in-depth explanation of the data analysis methods of this report, *see id.* at 1-2, Appendix A.

EPA has considered contributions from *all anthropogenic emissions in an upwind state* to be significant if they exceed 1% of the ozone NAAQS averaged over a subset of high ozone days during an ozone season.[45] Consequently, results showing that *a single* class of vehicles on Illinois' roads *alone* contributes more than 1% of the ozone NAAQS on high ozone days are extremely significant.

C. Vehicles Operated In Illinois Have Significant Ozone Impacts On the Chicago Nonattainment Area

On days in 2016 that exceeded the 2015 ozone NAAQS of 70 ppb, the ozone impacts from vehicles in Illinois frequently contributed multiple parts per billion of ozone to the atmosphere. On the day in 2016 with the highest combined contribution to ozone from all on-road vehicles in Illinois, *11.26 ppb, or 16.1% of the 70 ppb ozone NAAQS limit, came from vehicles alone.* The collective impact of this pollution is reflected in the following map of ozone impacts on Illinois generated by Sonoma Technology:



[45] *See, e.g.*, EPA, *Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS*, 86 Fed. Reg. 23054, 23057 (Apr. 30, 2021); EPA, *Federal "Good Neighbor Plan" for the 2015 Ozone National Ambient Air Quality Standards*, EPA-HQ-OAR-2021-0668, Mar. 2023).

Table 5. Maximum **2016** Modeled Impacts from **Illinois** onroad mobile sources on days that exceeded the ozone NAAQS of 70 ppb at any monitor in the nonattainment area during the 2016 ozone season. 8-hr maximum modeled ozone contributions are relative values (ppb) at AQS monitors and absolute values (ppb) at EJ zip codes. Values that equal or exceed 1% of the NAAQS (0.70 ppb) are highlighted in red, while values that equal or exceed 0.5% of the NAAQS (0.35 ppb) are highlighted in yellow. Maximum source contributions are highlighted in **bold.**

Chicago, IL Nonattainment Area Receptors

Ozone Nonattainment Day	Max Ozone Impact at any AQS Monitor (ppb)			Max Ozone Impact at any EJ zip code (ppb)		
	LDV	MHDV	Total Vehicle	LDV	MHDV	Total Vehicle
16-Apr	0.42	0.35	0.77	0.72	0.57	1.29
17-Apr	1.47	0.66	2.13	1.03	0.79	1.82
18-Apr	0.99	1.75	2.74	0.70	1.53	2.23
23-May	1.04	1.24	2.28	0.68	1.40	2.08
24-May	2.29	3.23	5.52	1.08	1.89	2.97
3-Jun	1.75	2.72	4.47	1.28	2.33	3.61
11-Jun	3.15	2.04	5.19	1.96	1.33	3.29
13-Jun	1.79	2.98	4.77	1.17	1.95	3.12
14-Jun	1.05	1.50	2.55	0.54	0.80	1.34
15-Jun	3.41	4.22	7.63	1.04	2.38	3.42
18-Jun	1.93	1.10	3.03	3.13	2.24	5.37
19-Jun	2.09	1.67	4.96	2.09	1.67	3.76
24-Jun	1.92	2.28	4.20	1.57	1.73	3.30
25-Jun	3.54	3.16	6.70	2.20	2.52	4.72
19-Jul	3.48	4.58	8.06	2.54	4.16	6.70
20-Jul	2.88	3.40	6.28	2.04	3.09	5.13
22-Jul	3.19	3.19	6.38	2.63	3.56	6.19
26-Jul	3.05	4.22	7.27	2.75	4.89	7.64
27-Jul	**4.96**	6.30	**11.26**	**3.28**	4.83	**8.11**
3-Aug	2.71	4.91	7.62	2.06	4.76	6.82
4-Aug	2.54	4.12	6.66	1.89	3.26	5.15
10-Aug	4.49	**6.42**	10.91	2.65	**5.21**	7.86

Table 6. Maximum **2023** Projected Modeled Impacts from **Illinois** onroad mobile sources on days that exceeded the ozone NAAQS of 70 ppb at any monitor in the nonattainment area during the 2016 ozone season. 8-hr maximum modeled ozone contributions are relative values (ppb) at AQS monitors and absolute values (ppb) at EJ zip codes. Values that equal or exceed 1% of the NAAQS (0.70 ppb) are highlighted in red, while values that equal or exceed 0.5% of the NAAQS (0.35 ppb) are highlighted in yellow. Maximum source contributions are highlighted in **bold.**

Chicago, IL Nonattainment Area Receptors

Ozone Nonattainment Day	Max Ozone Impact at any AQS Monitor (ppb)			Max Ozone Impact at any EJ zip code (ppb)		
	LDV	MHDV	Total Vehicle	LDV	MHDV	Total Vehicle
16-Apr	0.22	0.35	0.57	0.44	0.56	1.00
17-Apr	0.98	0.68	1.66	0.63	0.75	1.38
18-Apr	0.64	1.87	2.51	0.44	1.51	1.95
23-May	0.74	1.40	2.14	0.43	1.64	2.07
24-May	1.29	2.96	4.25	0.58	1.79	2.37
3-Jun	1.20	3.31	4.51	0.84	2.69	3.53
11-Jun	1.51	2.07	3.58	0.70	1.50	2.20
13-Jun	1.08	3.78	4.86	0.71	2.10	2.81
14-Jun	0.69	1.56	2.25	0.32	0.91	1.23
15-Jun	2.00	4.27	6.27	0.71	2.43	3.14
18-Jun	1.46	1.56	3.02	1.90	2.44	4.34
19-Jun	0.97	1.27	2.24	0.97	1.27	2.24
24-Jun	1.78	0.18	2.25	1.13	2.46	3.59
25-Jun	1.78	2.56	4.34	1.13	1.87	3.00
19-Jul	2.14	4.91	7.05	1.36	4.75	6.11
20-Jul	1.80	3.72	5.52	1.21	3.31	4.52
22-Jul	2.06	3.48	5.54	1.63	4.00	5.63
26-Jul	2.07	5.85	7.92	1.60	4.92	6.52
27-Jul	**3.06**	**7.07**	**10.13**	**2.03**	**5.22**	**7.25**
3-Aug	1.46	4.50	5.96	1.12	4.36	5.48
4-Aug	1.65	4.61	6.26	1.12	3.34	4.46
10-Aug	2.40	5.94	8.34	1.53	5.12	6.65

Modeling based on AQS monitor data from the St. Louis nonattainment area, which also encompasses part of Illinois,[46] shows high contributions from both light-duty and medium- and heavy-duty vehicles to total ozone levels. In 2016, the total contribution from Illinois' on-road vehicles reached a sizable 3.67 ppb one day. When projected impacts in 2023 were modeled for the St. Louis nonattainment area, impacts of up to 2.38 ppb are still expected.

[46] *See* EPA, *Final Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document (TSD)*, https://www.epa.gov/sites/default/files/2018-05/documents/st._louis_tsd_final.pdf.

Table 7. Maximum **2016** Modeled Impacts from **Illinois** onroad mobile sources on days that exceeded the ozone NAAQS of 70 ppb at any monitor in the nonattainment area during the 2016 ozone season. 8-hr maximum modeled ozone contributions are relative values (ppb) at AQS monitors and absolute values (ppb) at EJ zip codes. Values that equal or exceed 1% of the NAAQS (0.70 ppb) are highlighted in red, while values that equal or exceed 0.5% of the NAAQS (0.35 ppb) are highlighted in yellow. Maximum source contributions are highlighted in **bold**.

St. Louis, IL Nonattainment Area Receptors

Ozone Nonattainment Day	Max Ozone Impact at any AQS Monitor (ppb)			Max Ozone Impact at any EJ zip code (ppb)		
	LDV	MHDV	Total Vehicle	LDV	MHDV	Total Vehicle
23-May	**1.52**	1.31	2.83	1.11	1.12	2.23
9-Jun	0.50	0.62	1.12	0.56	0.74	1.30
10-Jun	1.24	1.57	2.81	0.51	0.63	1.14
13-Jun	1.44	1.84	3.28	0.89	1.10	1.99
16-Jun	0.21	0.25	0.46	0.24	0.30	0.54
18-Jun	0.97	0.74	1.71	0.97	0.66	1.63
24-Jun	0.39	0.41	0.80	0.59	0.61	1.20
4-Aug	1.41	**2.02**	**3.43**	**1.50**	**2.17**	**3.67**
9-Aug	0.80	1.02	1.82	0.63	0.83	1.46
22-Sep	0.37	0.41	0.78	0.39	0.50	0.89
23-Sep	0.25	0.31	0.56	0.48	0.61	1.09

Table 8. Maximum **2023** Projected Modeled Impacts from **Illinois** onroad mobile sources on days that exceeded the ozone NAAQS of 70 ppb at any monitor in the nonattainment area during the 2016 ozone season. 8-hr maximum modeled ozone contributions are relative values (ppb) at AQS monitors and absolute values (ppb) at EJ zip codes. Values that equal or exceed 1% of the NAAQS (0.70 ppb) are highlighted in red, while values that equal or exceed 0.5% of the NAAQS (0.35 ppb) are highlighted in yellow. Maximum source contributions are highlighted in **bold**.

St. Louis, IL Nonattainment Area Receptors

Ozone Nonattainment Day	Max Ozone Impact at any AQS Monitor (ppb)			Max Ozone Impact at any EJ zip code (ppb)		
	LDV	MHDV	Total Vehicle	LDV	MHDV	Total Vehicle
23-May	**0.73**	0.97	1.70	0.55	0.89	1.44
9-Jun	0.24	0.46	0.70	0.27	0.53	0.80
10-Jun	0.69	1.33	2.02	0.25	0.49	0.74
13-Jun	0.70	1.38	2.08	0.45	0.86	1.31
16-Jun	0.11	0.20	0.31	0.16	0.35	0.51
18-Jun	0.45	0.52	0.97	0.42	0.46	0.88
24-Jun	0.21	0.35	0.56	0.35	0.59	0.94
4-Aug	0.70	**1.53**	**2.23**	**0.74**	**1.64**	**2.38**
9-Aug	0.49	1.02	1.51	0.37	0.78	1.15
22-Sep	0.22	0.37	0.59	0.22	0.45	0.67
23-Sep	0.15	0.28	0.43	0.27	0.59	0.86

As these data reflect, on every single ozone nonattainment day except one, the maximum ozone impact from on-road vehicles in Illinois exceeded 0.5% of the ozone NAAQS, and typically exceeded 1%—which, again, EPA considers a "significant contribution" triggering statewide NOx reductions in other regulatory contexts. Indeed, on-road transportation is the most significant single in-state contributor to ozone levels that we are aware of, reaching 16.1% of the 70 ppb NAAQS standards. Therefore, adopting all of California's vehicle rules would likely be the single strongest measure for reducing ozone pollution across Illinois.

The data also highlights the fact that schools with high populations of minority students are located in areas with dangerously high levels of ozone pollution. For example, one of the AQS monitors that registered elevated ozone levels was located at Larsen Middle School in Elgin, IL. On various nonattainment days in 2016, the monitor at Larsen showed Illinois' vehicles contributing 2.13-10.28 ppb of ozone, or 3-15% of the NAAQS. EPA's EJScreen tool indicates that Larsen's zip code, 60120, is 89th percentile in terms of ozone pollution within both the state of Illinois and nationally. Eighty-eight percent of Larsen's students identify as people of color—with 69.9% identifying as Hispanic/Latino, 6.7% identifying as Asian or Asian/Pacific Islander, 4.8% identifying as American Indian or Alaska Native, and 4% identifying as Black.[47] Illinois' leaders should take steps to ensure that students of color at Larson and elsewhere throughout the state have the opportunity to breathe the same air quality as their white counterparts.

III. ILLINOIS MUST REDUCE NOX EMISSIONS BY ADOPTING MORE STRINGENT RULES THAT SET LOW- AND ZERO-EMISSION REQUIREMENTS FOR VEHICLES.

In order to achieve the transportation electrification goals set forth in Illinois law, protect public health, and reduce climate-changing emissions, Illinois should swiftly adopt the ACC II, ACT, and HDO Rules, which reduce pollution from light-duty, medium-duty, and heavy-duty vehicles.

A. Light-Duty Vehicles Rule: ACC II

The ACC II Rule requires manufacturers to sell an increasing percentage of new zero-emission cars and light-duty trucks starting in model year 2027, with 100% of these sales comprising zero-emission vehicles in 2035.[48] By adopting this rule, the Illinois EPA would greatly improve its chance of meeting the ambitious transportation-related goals set forth in the Climate and Equitable Jobs Act ("CEJA"). CEJA provides:

(1) Illinois should increase the adoption of electric vehicles in the State to 1,000,000 by 2030.

(2) Illinois should strive to be the best state in the nation in which to drive and manufacture electric vehicles.

(3) Widespread adoption of electric vehicles is necessary to electrify the transportation sector, diversify the transportation fuel mix, drive economic development, and protect air quality.

[47] U.S. News & World Report, *Larsen Middle School,* https://www.usnews.com/education/k12/illinois/larsen-middle-school-255634.
[48] California Air Resources Board, *Proposed Advanced Clean Cars II (ACC II) Regulations*, https://ww2.arb.ca.gov/rulemaking/2022/advanced-clean-cars-ii.

(4) Accelerating the adoption of electric vehicles will drive the decarbonization of Illinois' transportation sector.[49]

Illinois has made reducing greenhouse gas emissions from its vehicle fleet a clear priority. For example, enacted by the state legislature in 2021, the Climate and Equitable Jobs Act ("CEJA") mandates the states phase carbon emissions out of the electric sector and drastically reduce transportation sector GHG emissions. Among other provisions, CEJA created a $4,000 electric vehicle purchase rebate.[50] In order to achieve Illinois' important goal of dramatically increasing the quantity of electric vehicles on its roads, the Illinois EPA should adopt the ACC II Rule as soon as possible,[51] and adequately enforce the zero-emission light-duty vehicle sales requirements mandated by that Rule.

B. Medium- and Heavy-Duty Vehicle Rules: ACT and HDO

The ACT and HDO Rules are both critical measures for improving public health, reducing greenhouse gas emissions, and complying with CEJA's target for electric vehicle adoption. As the ACC II Rule does for light-duty vehicles, the ACT Rule requires increasing sales of zero-emission medium- and heavy-duty vehicles from model year 2024 through model year 2035.[52] The HDO Rule works in tandem with the ACT Rule to increase the costs of—and thereby reduce demand for—medium- and heavy-duty vehicles with internal combustion engines by requiring increasing reductions in NOx emissions from those vehicles.[53]

While the ACT Rule does not require sales of 100% zero-emission trucks, the HDO Rule would ensure that the diesel trucks that are still sold and purchased in the coming years are cleaner and safer for public health, and that the cost of these trucks reflects the actual societal cost of the dangerous air pollutants they emit. More specifically, the HDO Rule sets standards for the acceptable levels of certain harmful air pollutants—including NOx, non-methane hydrocarbons, carbon dioxide, and particulate matter—emitted by heavy-duty trucks.[54] These standards grow stricter over time, requiring trucks' NOx emissions to decrease by 75% in 2024 and by 90% beginning in 2027.[55]

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[49] 20 ILCS 627/45(a).
[50] 20 ILCS 686/20(a); 415 ILCS 120/27(a)(1). The State's EV purchase rebate incentive program proved successful, as consumers used the full amount of the legislature's funding allocation in less than a year.
[51] *Id.* ERM and NRDC recently released an analysis of climate and social benefits of Illinois adopting ACC II. ERM, "Illinois Advanced Clean Cars II Program," (Sept. 2023), https://www.erm.com/globalassets/documents/reports/illinois_acc_ii_report_2023.pdf.
[52] ACT Rule § 1963.1(b). The ACT rule's requirements vary for different weight classes of vehicles; several classes of trucks must attain 75% zero-emission sales by model year 2035, while others, like tractors, are required to reach 40% zero-emission sales by model year 2035. *Id.*
[53] California Air Resources Board, *Heavy-Duty Omnibus Regulation*, https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox; California Air Resources Board, *Heavy-Duty Low NOx*, https://ww2.arb.ca.gov/our-work/programs/heavy-duty-low-nox.
[54] HDO § 1956.8(A)(2)(D).
[55] California Air Resources Board, Heavy-Duty Omnibus Regulation, https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox; California Air Resources Board, Heavy-Duty Low NOx, https://ww2.arb.ca.gov/our-work/programs/heavy-duty-low-nox.

C. Adopting the ACC II, ACT, and HDO Rules Would Be Feasible and Beneficial for Illinois

We urge the Illinois EPA to adopt the ACT and HDO Rules alongside the ACC II Rule, in order to increase the share of clean, electric on-road vehicles from each vehicle class, while reducing emissions that will harm Illinois residents, especially those living in environmental justice communities.

Requiring sales of cleaner light-duty, medium-duty, and heavy-duty vehicles is a key strategy for complying with the federal Clean Air Act's ozone NAAQS and achieving CEJA's goal. As noted above, CEJA sets forth an ambitious statewide goal of placing 1 million electric vehicles on Illinois' roads by 2030, which will necessarily require a large quantity of older vehicles to be replaced with electric models, rather than new gasoline-burning models.[56] This is going to be a challenging goal to meet, and the Pritzker Administration should use every measure in its toolkit to meet it. Modeling projects that if Illinois adopts ACC II, it would have 1.53 million light-duty electric vehicles on the road in 2030.[57] ACT adoption would result in 51,900 medium- and heavy-duty electric vehicles on Illinois' roads in 2030.[58]

Further, adopting the vehicle rules is important for meeting any and all greenhouse gas emission reduction targets in the state, including the Chicago Metropolitan Agency for Planning ("CMAP")'s goal of reducing greenhouse gas emissions by 80% below 2005 levels by 2050.[59] CMAP's greenhouse gas emissions inventory from counties in northeastern Illinois provides a helpful illustration of the outsized impact of vehicles on statewide greenhouse gas emissions.[60] From 2010 through 2019, CMAP warned that "[t]ransportation emissions — almost entirely from cars, buses, and trucks — increased by 2 percent between 2010 and 2019. It is the only sector that saw an increase in emissions."[61] CEJA sums up the importance of requiring increased adoption of electric vehicles—which is exactly the purpose of the ACC II, and ACT Rules—by explaining that "[w]idespread adoption of electric vehicles is necessary to electrify the transportation sector" and "drive the decarbonization of Illinois' transportation sector."[62]

There are a number of reasons why adopting these vehicle rules would be prudent and proactive. First, the ACT Rule, as promulgated by the California Air Resources Board, has a two-year lead time between adoption and implementation that is carefully calibrated to the rapidly progressing technology of medium- and heavy-duty electric vehicles. Second, the Illinois EPA will be in the company of numerous sister states that either already have adopted, or are in the process of adopting, the ACT Rule, reflecting their collective judgment that there is no need to delay

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[56] 20 ILCS 627/45(a).
[57] *See infra* note 65 and accompanying text.
[58] International Council on Clean Transportation, "Fact Sheet: Benefits of adopting California's Advanced Clean Truck Program, Heavy Duty Vehicle Omnibus Standards and a 100% sales requirement in Illinois," at 2, Table 1 (Sept. 2022). https://theicct.org/wp-content/uploads/2022/09/HDV-fact-sheet-IL-092122.pdf. *See infra* note 67 and accompanying text.
[59] Chicago Metropolitan Agency for Planning, *Greenhouse Gas Emissions in Northeastern Illinois*, https://www.cmap.illinois.gov/data/greenhouse-gas-inventory.
[60] *Id.*
[61] *Id.*
[62] 20 ILCS 627/45(a).

adoption of the ACT Rule. Third, Illinois can take advantage of the many available federal funds that can accelerate the state's adoption of charging infrastructure and accelerate the acquisition of electric vehicles themselves. These federal funding sources include billions of dollars in grants for electric vehicle purchases under the Infrastructure Investment & Jobs Act's Low-No NOx program; the Competitive Bus & Bus Facilities funding; and the Congestion Mitigation and Air Quality grant programs; as well as grants for light-duty vehicle charging infrastructure under the National Electric Vehicle Infrastructure and Charging & Fueling Infrastructure grant programs.[63] Fourth, there is nothing unique about Illinois that would suggest that Illinois, unlike all of the states that have already adopted the ACT Rule—California, Colorado, New York, New Jersey, Washington, Oregon, Massachusetts and Vermont—cannot effectively adopt the ACC II, ACT, and HDO Rules in the immediate future.

By adopting these important vehicle rules, Illinois will contribute to country-wide reductions in greenhouse gas emissions by assisting in precipitating a national shift toward electric trucks. A number of states have already adopted some combination of the ACC II, ACT, and HDO Rules, including Connecticut, Maine, Massachusetts, New Jersey, New York, Oregon, Washington, and Vermont.[64] If Illinois adopts these rules, manufacturers will receive a stronger message that demand for electric cars and trucks is rising. As more and more states adopt these vehicle rules, manufacturers will receive a stronger incentive to shift toward producing only electric trucks.

D. Adopting the ACC II, ACT, and HDO Rules Would Significantly Reduce Illinois' NOx Emissions and Ozone Levels

Modeling demonstrates that Illinois can dramatically reduce NOx emissions—and ozone pollution that forms from the interaction of NOx emissions with other pollutants in the atmosphere—by adopting the ACC II, ACT, and HDO Rules.

Sierra Club used EV-REDI, a transportation analysis tool developed by Synapse Energy Economics, to model the impacts of Illinois adopting the ZEV program of the ACC II Rule. One can then compare the ACC II adoption scenario to a business-as-usual scenario where ZEV sales shares meet state-specific projections by Rhodium in the central scenario of its 2022 Taking Stock and IRA baseline.[65]

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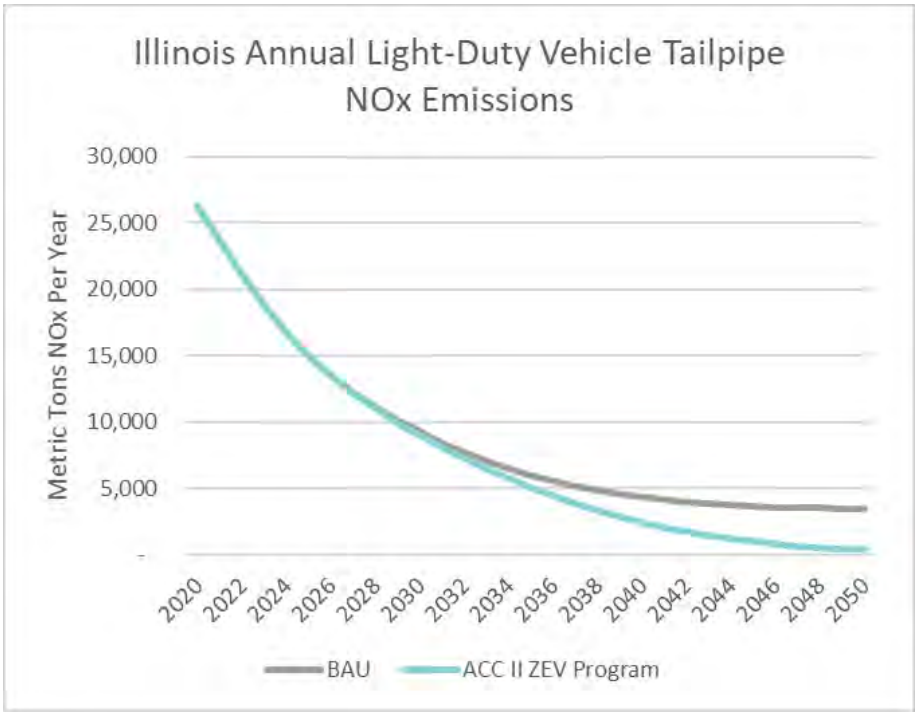
[63] *See* Federal Transit Administration, "FTA Program Fact Sheets under the Bipartisan Infrastructure Law," https://www.transit.dot.gov/funding/grants/fta-program-fact-sheets-under-bipartisan-infrastructure-law.

[64] *See* National Caucus of Environmental Legislators, "What California's New Advanced Clean Car Rule Means for Other States" (Jan. 10, 2023), https://www.ncelenviro.org/articles/what-californias-new-advanced-clean-car-rule-means-for-other-states/#:~:text=Six%20states%20(Massachusetts%2C%20New%20Jersey,in%20adopting%20the%20ACT%20rule; Sierra Club New Jersey Chapter, "Advocates Urge New Jersey to Catch up to Ten Other States & Adopt the Advanced Clean Cars II Standards This Year" (Mar. 13, 2023), https://www.sierraclub.org/new-jersey/blog/2023/03/advocates-urge-new-jersey-catch-ten-other-states-adopt-advanced-clean-cars.

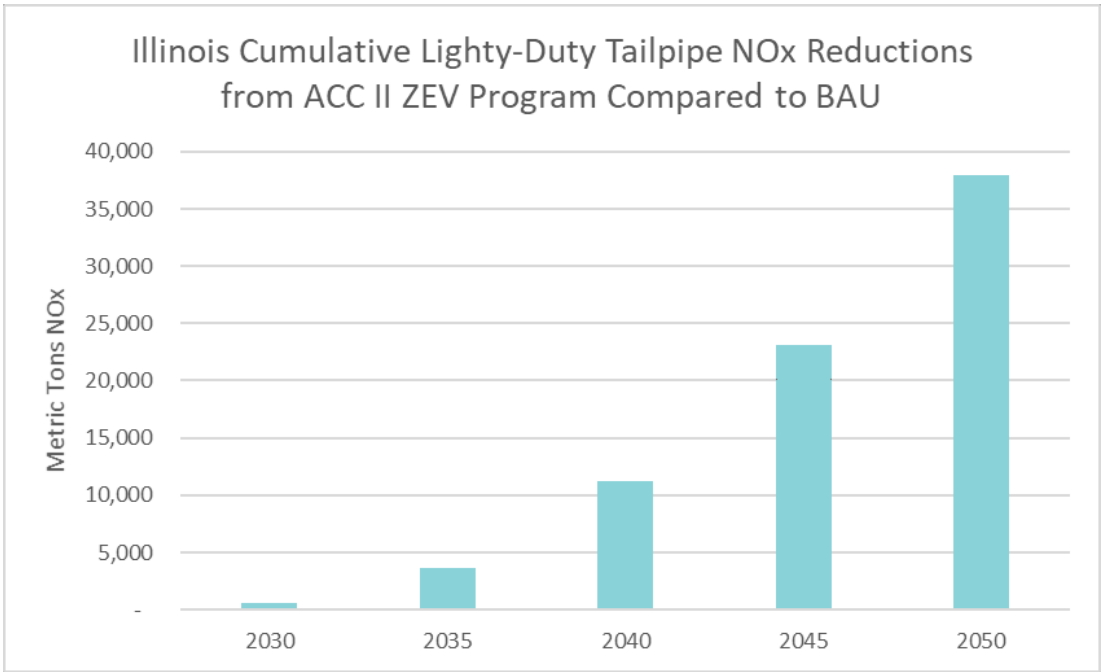
[65] This reflects an analysis of the ZEV component of the ACC II Rule by Sierra Club using EV-REDI, a transportation analysis tool developed by Synapse Energy Economics. In this case, EV-REDI takes inputs of annual EV sales percentage of new light-duty vehicles, and the allowed split between BEVs and PHEVs, and uses state-specific vehicle turnover and VMT data to quantify the impacts on emissions and other metrics. This analysis assumes that in the ACC II scenario, the state's EV sales share matches that of the business-as-usual scenario between historical data from 2022 and the rule's onset in model year 2027; that manufacturers

As illustrated in the graph below, Illinois's adoption of ACC II is expected to result in a 98% reduction in the state's light-duty vehicle tailpipe NOx emissions by 2050, relative to 2022 levels. This is higher than the expected 84% reduction in NOx emissions under the business-as-usual scenario. Under business as usual, a transition toward zero-emission vehicles is still predicted, but it would take place at a slower pace.



With these annual savings, Illinois could cumulatively avoid emissions of over 3,600 metric tons of NOx by the ACC II program's end in 2035. By 2050, this quantity of avoided emissions increases tenfold, with cumulative NOx reductions at nearly 38,000 metric tons.

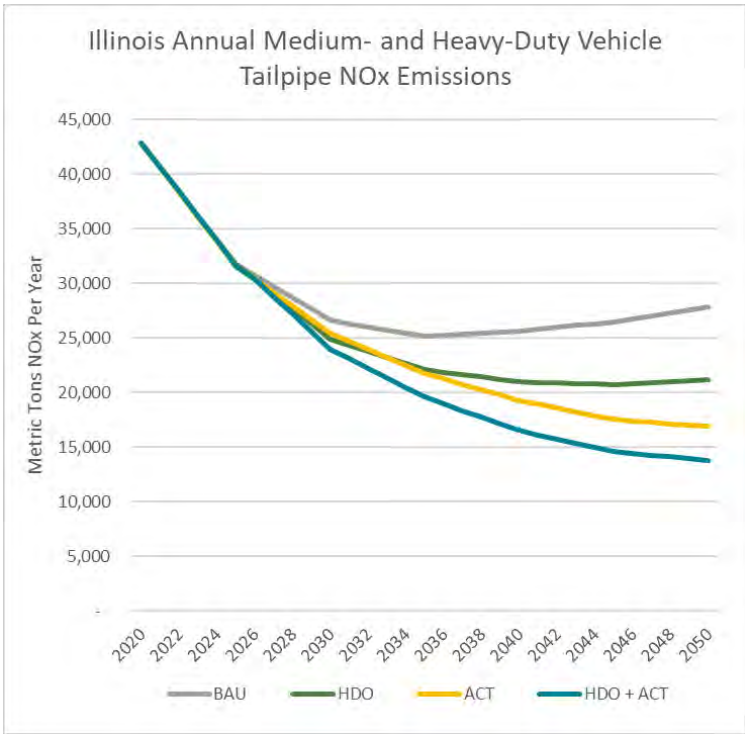
use no compliance flexibilities; and that Class 2b trucks are credited under the ACT regulation rather than ACC II. The BAU scenario models the state reaching the state-specific EV sales shares projected by Rhodium Group in the central scenario of its 2022 Taking Stock + IRA baseline in 2025, 2030, and 2035, with interpolation in between, and with EV sales share held constant at 2035 levels through 2050.



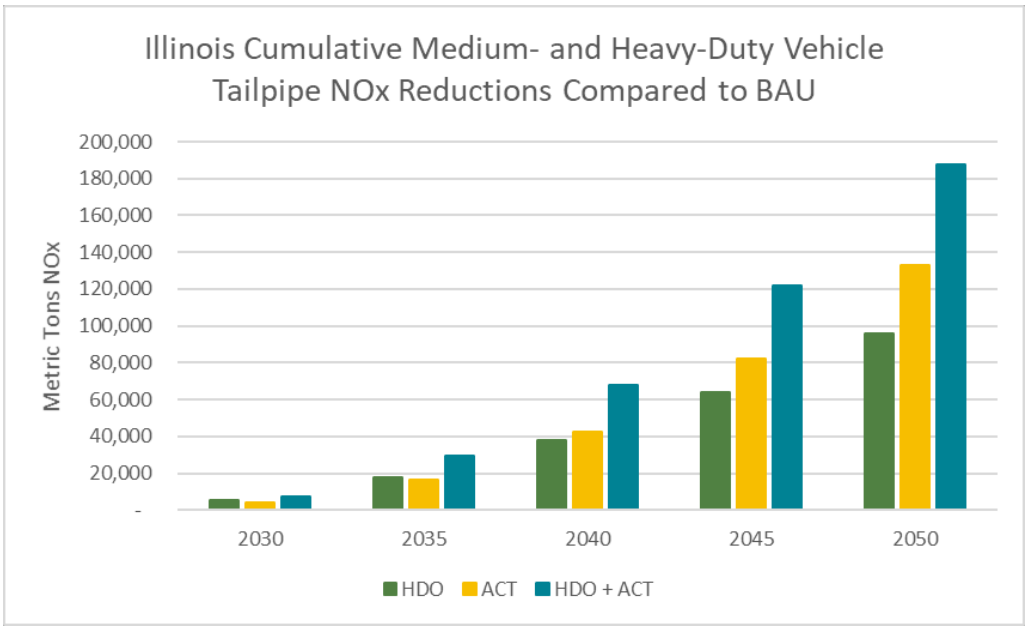
Further modeling of the anticipated impacts of adopting the ACT and HDO rules shows that these rules are calculated to markedly decrease NOx emissions statewide from 2030 through 2050.[66] The International Council on Clean Transportation commissioned Sonoma Technology to model the impacts of Illinois adopting the ACT and HDO rules, as compared to a business-as-usual scenario reflecting federal programs that were in place as of year-end 2021.[67] The graph below shows that adopting only HDO could reduce the tailpipe NOx emissions by 45% below 2022 levels by 2050, while adopting only ACT could result in reductions of 56%. Adopting both programs could reduce Illinois's medium- and heavy-duty NOx emissions by 64% below 2022 levels in 2050. These scenarios are compared to a business as usual scenario, where NOx emissions are only reduced by 28% in the same time period.

[66] *See* NRDC, Illinois Clean Trucks Program: An Analysis of the Impacts of Zero-Emission Medium- and Heavy-Duty Trucks on the Environment, Public Health, Industry, and the Economy (2022), https://www.nrdc.org/sites/default/files/media-uploads/il_clean_trucks_report_06.pdf; ICCT, "Benefits of adopting California's Advanced Clean Truck Program, HeavyDuty Vehicle Omnibus Standards and a 100% sales requirement in Illinois," (Sept. 2022).

[67] International Council on Clean Transportation, "Fact Sheet: Benefits of adopting California's Advanced Clean Truck Program, Heavy Duty Vehicle Omnibus Standards and a 100% sales requirement in Illinois," (Sept. 2022). https://theicct.org/wp-content/uploads/2022/09/HDV-fact-sheet-IL-092122.pdf. These figures include tank-to-wheel NOx emissions from all medium- and heavy-duty vehicles, mirroring California's method for estimating vehicle adoption under the ACT program, without adjusting to account for vehicles purchased out-of-state, ZEVs that may migrate out-of-state over time, or ZEVs that would have been produced to meet other requirements such as a federal GHG standards. *Id.* at 2. These policy scenarios are compared to a business-as-usual scenario reflecting Federal programs as of the end of 2021, and non-implementation of the GHG Phase 2 trailer requirements, which were under litigation.



By adopting HDO, Illinois could see cumulative NOx emissions reductions from its medium- and heavy-duty fleet reach nearly 95,700 metric tons by 2050. With ACT, the state could see over 132,800 metric tons of NOx emissions. If Illinois adopts both rules, the state could benefit from cumulative NOx emissions reductions of *over 187,700 metric tons* by 2050.



E. Illinois Should Codify Its Adoption of the ACC II, ACT, and HDO Rules In Its Ozone Nonattainment State Implementation Plans

Because adopting California's vehicle rules would reduce NOx emissions and ozone levels in Illinois, this policy should be designated as a control measure to ensure reasonable further progress to compliance with ozone standards, and potentially a "reasonably available control measure" ("RACM"), in a future Illinois SIP.

In areas that are designated as moderate nonattainment under the Clean Air Act, states are required to provide for "reasonable further progress," which means measures that would reduce states' emissions of volatile organic compounds—another ozone precursor—by at least 15%.[68] EPA has clarified that measures to reduce NOx emissions can also count toward this 15% requirement.[69] California has also listed its vehicle rules as proposed measures for reducing NOx emissions in its 2022 ozone nonattainment SIP.[70]

Illinois may also conclude that adopting the ACC II, ACT, and HDO Rules meets the definition of RACM for the purpose of future SIPs. The Clean Air Act requires nonattainment SIPs to "provide for the implementation of all reasonably available control measures [RACM] as expeditiously as practicable."[71] There are various criteria for categorizing a measure as a RACM:

> RACM is defined by the EPA as any potential control measure for application to point, area, on-road and non-road emission source categories that meets the following criteria:
>
> • The control measure is technologically feasible
>
> • The control measure is economically feasible
>
> • The control measure does not cause "substantial widespread and long-term adverse impacts"
>
> • The control measure is not "absurd, unenforceable, or impracticable"
>
> • The control measure can advance the attainment date by at least one year.[72]

In order to pave a pathway toward redesignation to attainment for the ozone NAAQS, Illinois should adopt the ACC II, ACT, and HDO Rules. Illinois cannot be redesignated to attainment unless it can demonstrate that its "improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable

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[68] 42 U.S.C. § 7511a(b)(1)(A).
[69] EPA, Guidance on Issues Related to 15 Percent Rate-of-Progress Plans (Aug. 23, 1993), https://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/19930823_shapiro_15pct_rop_guidance.pdf.
[70] *See* California Air Resources Board, *2022 State Strategy for the State Implementation Plan* (Sept. 22, 2022), https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf.
[71] 42 U.S.C. § 7502(c)(1).
[72] *See, e.g.*, Approval and Promulgation of Implementation Plans; New York Reasonably Available Control Technology and Reasonably Available Control Measures, 74 Fed. Reg. 42,813, 42,817-42,818, https://www.govinfo.gov/content/pkg/FR-2009-08-25/pdf/E9-20394.pdf.

reductions."[73] Adopting and implementing these vehicle rules would lead to significant, sustained reductions in NOx emissions that would support future efforts to redesignate the Chicago and St. Louis areas to attainment.

F. Adopting the ACC II, ACT, and HDO Rules Would Substantially Improve Public Health Outcomes Across the State

Timely adoption of the ACC II, ACT, and HDO Rules will have long-lasting positive impacts on Illinois residents' health. Decreasing emissions of NOx and particulate matter from medium- and heavy-duty vehicles' diesel exhaust is expected to reduce the prevalence of asthma, lung disease, and cancer.[74] This public health improvement would be especially pronounced in communities of color and low-income communities, which tend to be disproportionately impacted by many forms of environmental pollution, as illustrated by the much higher rates of asthma experienced in communities of color in Illinois.[75]

IV. CONCLUSION: ILLINOIS SHOULD ADOPT THE ACC II, ACT, AND HDO RULES WITHOUT DELAY IN 2023.

Our organizations urge the Illinois Environmental Protection Agency to take steps to begin adoption of the ACC II, ACT, and HDO Rules without delay in 2023. Adopting this suite of clean vehicles rules is a critical step in fulfilling the state's commitment to protecting environmental justice communities and addressing the existential threat of climate change. Together these rules will deliver enormous public health benefits and secure lasting reductions in greenhouse gas emissions.

Our organizations look forward to working with IEPA, the Governor's Office, and other stakeholders to move Illinois toward a clean and equitable transportation future.

Sincerely,

[signature blocks appear on the following page]

[73] 42 U.S.C. § 7407(d)(3)(E)(iii).
[74] *See* Ghassan B Hamra, et al., "Lung Cancer and Exposure to Nitrogen Dioxide and Traffic: A Systematic Review and Meta-Analysis," Environmental Health Perspectives (Apr. 14, 2015), https://pubmed.ncbi.nlm.nih.gov/25870974/; Malgorzata Kowalska, et al., "Effect of NOx and NO2 Concentration Increase in Ambient Air to Daily Bronchitis and Asthma Exacerbation, Silesian Voivodeship in Poland," International Journal of Environmental Research and Public Health (Jan. 24, 2020), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7037218/; *see also* California Air Resources Board, *Overview: Diesel Exhaust & Health*, https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health.
[75] *See* Section I.B.

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Darlene Hightower
President and CEO
Metropolitan Planning Council

Glossary Appendix

ACC II Rule……Advanced Clean Cars II Rule

ACT Rule……..Advanced Clean Trucks Rule

AQS……..Air Quality System monitors

CAMx……Comprehensive Air Quality Model with Extensions

CEJA……..……Climate and Equitable Jobs Act

CMAP……Chicago Metropolitan Agency for Planning

EPA……U.S. Environmental Protection Agency

HDO Rule……..……Heavy-Duty Engine and Vehicle Omnibus Rule

IEPA……..Illinois Environmental Protection Agency

NAAQS……..…National Ambient Air Quality Standards

NOx……..nitrogen oxides (air pollutant)

OSAT……...……Ozone Source Apportionment Technology

ppb…….……parts per billion

RACM……reasonably available control measure

SIP……State Implementation Plan

EXHIBIT 9

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

	)	
	)	
IN THE MATTER OF:	)	
	)	R
PROPOSED CLEAN CAR AND	)	
TRUCK STANDARDS	)	(Rulemaking – Air)

JOINT TESTIMONY OF KATHY HARRIS AND MUHAMMED PATEL

I. Introduction

On behalf of Natural Resources Defense Council, Sierra Club, Environmental Defense Fund, Respiratory Health Association, Chicago Environmental Justice Network, and Center for Neighborhood Technology, thank you for the opportunity to provide joint testimony in support of the rulemaking petition submitted by these organizations. The petition requests that the Illinois Pollution Control Board adopt the Advanced Clean Cars II (ACC II), Advanced Clean Truck (ACT), and Heavy-Medium Duty Low NOx Omnibus (Low-NOx) regulations (collectively referred to as the "Clean Vehicle Standards" or simply the "Rules"). Our organizations represent thousands of Illinois residents, many of whom suffer from health conditions that are exacerbated by tailpipe pollution, and all of whom stand to suffer from the climate crisis. For that reason, we are acutely interested in the proposed Rules, which, if adopted, would constitute one of the most significant steps the state has ever taken to combat the climate crisis and reduce air pollution.

The Rules achieve dramatic benefits not by regulating individual consumers in Illinois, but instead by requiring manufacturers to produce and deliver an increasing number of zero emission vehicles (ZEVs), including plug-in hybrids and battery electric vehicles, for sale in Illinois. Manufacturers must also comply with increasingly tighter emission limits for gas and diesel-fueled vehicles that are delivered to the state. The Rules build on over three decades of experience implementing ZEV and low emission vehicle programs in California and 16 other states. Adopting

these rules would provide a significant boost in helping Illinois achieve the statewide goal of having one million EVs on the road by 2030, set out in the Climate and Equitable Jobs Act, while also providing significant reductions in tailpipe emissions for those that live along transportation corridors or near truck shipping facilities.

II. Qualifications

Kathleen Harris is the Director of Clean Vehicles at the Natural Resources Defense Council (NRDC). She leads NRDC's vehicles work at the state and federal level. In 2023, she testified before the Senate Environment and Public Works Subcommittee on the benefits of ZEVs in the United States. She holds a Bachelor's of Science in Environmental Science with a concentration in Marine Science and a minor in Political Science and a Master's of Marine Policy, both from the University of Delaware. Prior to joining NRDC, Ms. Harris worked for the State of Delaware as a Clean Transportation Planner and the Delaware Clean Cities Coordinator. Her resume is attached as Rule Proponents' Exhibit 11.

Muhammed Patel is the Midwest Transportation Advocate at the Natural Resources Defense Council (NRDC). He leads NRDC's transportation advocacy in Illinois and other Midwest states, and testified earlier this year in the Illinois House Public Utilities Committee. Mr. Patel holds a Bachelor's of Science in Environmental Engineering from Northwestern University. Prior to NRDC, he worked as a consultant for state and local governments on transportation policy, including workforce development, program/project funding, and strategies for building equitable transportation infrastructure. His resume is Rule Proponents' Exhibit 12.

III. Summary of Proposed Clean Vehicle Standards

A. Advanced Clean Cars II

The ACC II rule applies to vehicle manufacturers and sets requirements for *new* light-duty and Class 2b-3 medium-duty vehicles delivered for sale in Illinois beginning in MY 2028.[1] The Rule has a low-emission vehicle (LEV) component and a ZEV component. The LEV standards set criteria pollutant emission limits for internal combustion engine vehicles and the ZEV standards establish annual ZEV sales requirements. Both components of the ACC II rule build on the Advanced Clean Cars I (ACC I) program, which was first enacted by the California Air Resources Board (CARB) in 2012.

The ZEV standards are designed to reduce emissions by requiring that 100% of new light-duty vehicles delivered for sale in Illinois meet zero-emission standards in MY 2035 and in all subsequent model years. Beginning with MY 2028, the ZEV standards require manufacturers to produce and deliver for sale an increasing number of ZEVs as a percent of total sales in Illinois, rising from 51% in MY 2028 to 100% in MY 2035.[2] The table below identifies the percent ZEV sales requirements for each covered vehicle model year.

Model Year	2028	2029	2030	2031	2032	2033	2034	2035 and subsequent
ZEV new sales requirement	51%	59%	68%	76%	82%	88%	94%	100%

[1] Because the ACT rule also covers class 2b and 3 vehicles, manufacturers of these vehicles can choose whether to comply with the ACT or ACC II standards. ERM's analysis assumes that manufacturers will certify class 2b and 3 vehicles under ACT, rather than ACC II. Exhibit 2, ERM, *Illinois Advanced Clean Cars II Program* at 3 n.5.
[2] The regulation measures compliance in terms of "vehicle values," which are obtained by manufacturing ZEVs (one ZEV = one vehicle value), or through other provisions under which manufacturers can earn vehicle values, which then can be used to offset specified portions of the regulatory requirement for MYs 2028 through 2031.

These percentages apply to each manufacturers' total new vehicle sales. Assessing compliance is straightforward: the sale of a new ZEV that meets the rule's technical requirements and ZEV assurance measures earns one ZEV vehicle value (or credit) toward fulfilling the annual ZEV sales requirement. The ZEV assurance measures set requirements for durability, warranty, battery labeling, and serviceability to help ensure consumers choose and retain ZEVs, especially as the vehicles enter the secondary market.

The ACC II rule includes numerous compliance flexibilities. Plug-in hybrid electric vehicles (PHEVs) that meet specified requirements can be used to meet up to 20% of a manufacturer's annual ZEV requirements. Manufacturers can buy, sell, trade, and bank ZEV credits. In the event of a credit shortfall, manufacturers may carry a deficit forward for three years. The ACC II rule also includes voluntary opportunities for manufacturers to earn credits by increasing the sale of ZEVs before the rule goes into effect and by increasing access to ZEVs in communities that have faced disproportionate levels of air pollution. In addition, the rule includes provisions that allow manufacturers to "pool" their credits from ZEV sales across the states that have adopted the ZEV regulations under Section 177 of the Clean Air Act.[3]

B. Advanced Clean Trucks

Beginning with MY 2028, the ACT rule requires vehicle manufacturers to produce and deliver for sale in Illinois specified quantities of ZEVs and near-zero emission vehicles in

[3] To ensure that emissions are reduced as intended, these provisions are limited to no more than 15% of a manufacturer's obligation in MY 2028 and phase out completely after MY 2030.

Classes 2b-8[4] based on increasingly higher percentages of their annual sales of on-road M/HD vehicles.

The ZEV sales percentage requirement is implemented through a credit and deficit mechanism. In each model year, manufacturers must comply by retiring sufficient credits to offset their deficits. Manufacturers generate "ZEV credits" by producing and selling ZEVs and near zero emission vehicles to ultimate purchasers in Illinois. Deficits are calculated as the product of a manufacturer's annual sales volume in Illinois, the ZEV sales percentage requirements and the weight class modifiers set out in the tables below.

Both credits and deficits are adjusted by specified modifiers that are based on a vehicle's weight class, to account for the higher emissions associated with heavier vehicles. This approach also provides flexibility for manufacturers, by allowing them to use extra sales in one category to meet compliance in another. However, to ensure ZEV tractors, which includes class 7 and 8 vehicles that typically haul freight on highways, will be available to reduce emissions at ports and other areas with high tractor concentrations, only Class 7 and 8 tractor credits may be used to satisfy Class 7 and 8 tractor deficits.

[4] Class 2b-8 Vehicles refer to a range of medium- to heavy-duty trucks categorized by their Gross Vehicle Weight Rating (GVWR). This classification spans from 8,501 lbs. to over 33,000 lbs., encompassing vehicles used for various purposes. Class 2b includes light-duty pickups, while Classes 3 through 5 cover larger pickups and delivery trucks. Classes 6 to 8 denote increasingly heavier trucks, including heavy-duty and regional haul trucks, as well as semi-trucks used for commercial freight and long-haul transport.

ACT Manufacturer ZEV Sales Requirements

Model Year (MY)	Class 2b-3 Group	Class 4-8 Group	Class 7-8 Tractor Group
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	50%	30%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035 and beyond	55%	75%	40%

ACT Rule Weight Class Modifiers

	Vehicles in the Class 2b-3 Group	Class 4-5 Vehicles in the Class 4-8 Group	Class 6-7 Vehicles in the Class 4- 8 Group	Class 8 Vehicles in the Class 4-8 Group	Vehicles in the Class 7 and 8 Tractor Group
Weight Class Modifier	0.8	1	1.5	2	2.5

The ACT regulation also allows manufacturers to "bank" and trade credits. For example, if Manufacturer A's deficits exceed its credits in a given model year, Manufacturer A could comply with the ACT Regulation by using banked credits or by buying credits from Manufacturer B. Deficits may be carried forward for one model year, but failure to satisfy those deficits by the end of the following model year subjects manufacturers to civil penalties for non-compliance.

C. Low-NOx Rule

The Low-NOx rule primarily establishes NOx and PM exhaust emission standards for M/HD diesel-cycle and Otto-cycle engines. In Illinois, these new emission standards would take effect beginning with MY 2028. The NOx standards set by the regulation are more protective than the new federal standards set to take effect in MY 2027,[5] and the rule's PM standards are aligned with the new federal standards.[6]

The Low-NOx rule's emission standards are based on three pre-existing certification cycles,[7] as well as on a new low load cycle (LLC) that reflects engine operations under low load and low speed urban driving operations. The rule proposed here has two phases (MY 2028 and MY 2031+) and sets different NOx emission limits under the four cycles. In addition, the Low-NOx rule extends useful life and warranty provisions for covered vehicles.

The Low-NOx rule's emission standards and associated test procedures apply to new heavy-duty diesel-cycle and Otto-cycle engines used in heavy-duty vehicles with a gross vehicle weight rating (GVWR) of greater than 14,000 lbs., and new medium-duty diesel-cycle and Otto-cycle engines used in medium-duty vehicles with GVWR between 10,001 and 14,000 lbs. that optionally certify to the rule's requirements.

[5] In 2023, EPA adopted new NOx emission limits for HD vehicles beginning in MY 2027. *See* 88 Fed. Reg. 4 (Jan. 24, 2023). The Low-NOx rule requires MY 2027 MHD vehicles to achieve an emission rate of 0.02 g/bhp-hr, compared to 0.035 g/bhp-hr under the EPA standard.
[6] The Low-NOx rule establishes a PM exhaust emission standard of 0.005 g/bhp-hr for 2024 and subsequent MY engines.
[7] These test procedures include the heavy-duty transient Federal Test Procedure (FTP), the ramped modal cycle (RMC), and the idling test procedure.

IV. Statutory Authority Under State and Federal Law

The Pollution Control Board has clear authority under state and federal law to adopt the proposed rules. Specifically, the Board is authorized to adopt the ACC II, ACT, and Low-NOx rules under the Illinois Environmental Protection Act's provisions for enacting air quality regulations, and under the federal Clean Air Act's provisions for states to adopt and enforce motor vehicle emissions standards identical to those adopted by California.

The Illinois Environmental Protection Act ("the Act") empowers the Board to adopt regulations to "restore, maintain, and enhance" state air quality "to protect health, welfare, property, and the quality of life and to assure that no air contaminants are discharged into the atmosphere without being given the degree of treatment or control necessary to prevent pollution."[8] Among other things, the Board may "prescribe[] [e]mission standards specifying the maximum amounts or concentrations of various contaminants that may be discharged into the atmosphere" and establish "[s]tandards and conditions regarding the sale, offer, or use of any . . . vehicle."[9] The proposed rules would establish standards for vehicle emissions and conditions regarding the sale of new vehicles in the state. Thus, under the Board's organic act, it may adopt the proposed rules.

The three rules proposed here also satisfy Clean Air Act section 177's requirements. First, Illinois has adopted provisions in the state's SIP under Title I, Part D of the CAA due to nonattainment of the 8-Hour Ozone standard in the Chicago and St. Louis metro areas.[10] Second, the proposed rules would first take effect for model year 2028 vehicles. That model year will not

[8] 415 ILCS § 5/8; § 5/10. *See also* 415 ILCS § 5/27.
[9] 415 ILCS § 5/10.
[10] *See, e.g.,* Approval and Promulgation of Illinois Implementation Plan with New Source Review Amendments, 68 Fed. Reg. 25504 (May 13, 2003).

commence until, at the earliest, January 2, 2027, which is more than two years in the future.[11] Third, each rule presented in this regulatory proposal would directly adopt the same standards that have been enacted in California for each covered model year, thus ensuring that Illinois' standards are identical. Though the U.S. EPA has not yet issued waivers for the ACC II and Low-NOx rules,[12] settled precedent holds that a waiver is a precondition to enforcement of standards, not adoption.[13] In other words, states may adopt California's standards before a waiver has been granted so long as they do not enforce the standards until after a waiver has been issued. States routinely rely on this settled legal principle. Indeed, outside of California, thirteen states have adopted the ACC II rule, ten have adopted the ACT rule, and nine have adopted the Low-NOx rule.[14]

V. The Rules Would Significantly Reduce GHG, NOx, and PM Pollution

In Illinois and nationwide, transportation is the highest-GHG emitting economic sector.[15] In Illinois, the transportation sector emits more than 60 million metric tons of CO_2 per year, or more than 32% of the state's annual total; nationally, transportation accounts for 37% of U.S. CO_2 emissions.[16] Within the transportation sector, light-duty vehicles are responsible for 58% of

[11] 40 C.F.R. §§ 85.2302, 85.2303.
[12] U.S. EPA granted California a waiver for ACT on April 6, 2023. *See* Waiver of Preemption for Advanced Clean Trucks Regulation, 88 Fed. Reg. 20688, 20725 (Apr. 6, 2023). An initial notice of a proposed waiver for ACC II was issued by U.S. EPA on December 16, 2023 and an initial notice of a proposed waiver for the Low-NOx rule was issued on June 13, 2022. *See* Request for Waiver of Preemption for Advanced Clean Cars II Regulation, 88 Fed. Reg. 88908, 88908-09 (proposed Dec. 26, 2023) and Request for Waiver of Preemption for "Omnibus" Low NOx Regulation, 87 Fed. Reg. 35765, 35766 (proposed June 13, 2022).
[13] *Motor Vehicle Mfrs. Ass'n of the United States v. New York State Dep't of Env't Conservation*, 17 F.3d 521, 534 (1994) (holding "the waiver is a precondition to enforcement of the standard that has been adopted"); see also *Am. Auto. Mfrs. Ass'n v. Greenbaum*, No. CIV. A. 93-10799-MA, 1993 WL 443946, at *8 (D. Mass. Oct. 27, 1993), *aff'd sub nom. Am. Auto. Mfrs. Ass'n v. Comm'r, Massachusetts Dep't of Env't Prot.*, 31 F.3d 18 (1st Cir. 1994) (finding that requiring a state to wait until after a waiver issues to adopt standards "seem[s] likely to lead to utter chaos").
[14] Sierra Club, Clean Vehicle Programs: State Tracker, https://www.sierraclub.org/transportation/clean-vehicle-programs-state-tracker.
[15] U.S. Energy Information Administration, *Energy-Related CO_2 Emissions Data Tables, Table 3: State energy-related carbon dioxide emissions by sector*, (July 12, 2023), https://www.eia.gov/environment/emissions/state/.
[16] *Id.*

GHG emissions, with medium- and heavy-duty trucks responsible for another 23%.[17] Vehicle emissions also contribute to poor air quality, including elevated levels of ozone and fine particulate matter (PM). These pollutants cause respiratory and cardiovascular problems, increasing the risk of premature death. Roughly nine million Illinois residents, comprising 71% of the state's population, live in areas that are designated as failing to meet EPA's health-based standards for ozone pollution.[18]

Nitrogen Dioxide (NO_2) is a regulated pollutant and component of ozone that primarily forms from vehicle emissions.[19] NO_2 is associated with many negative health impacts, is particularly dangerous to the young, elderly, or asthmatic, and "exposures over short periods can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections."[20] Within the scientific community there is high confidence linking NO_2 exposure to higher death rates.[21] These NO_2-attributable high death rates have been known to persist even when concentrations of the pollutant are below regulated thresholds.[22] NO_2 is extremely harmful to health, and reducing vehicle emissions will help reduce its presence in the air.

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[17] U.S. EPA, *Fast Facts: U.S. Transportation Sector Greenhouse Gas Emissions 1990 –2022*, https://www.epa.gov/system/files/documents/2024-05/420f24022.pdf.
[18] U.S. EPA, *8-Hour Ozone (2015) Designated Area/State Information*, (May 31, 2024), https://www3.epa.gov/airquality/greenbook/jbtc html.
[19] U.S. EPA, *Nitrogen Dioxide (NO_2) Pollution*, (last visited May 30, 2024), https://www.epa.gov/no2-pollution/basic-information-about-no2.
[20] *Id.*
[21] Sara F. Camilleri, et al., "All-Cause NO_2-Attributable Mortality Burden and Associated Racial and Ethnic Disparities in the United States," *Environmental Science & Technology Letters*, 10, 1159-1164, (2023), https://pubs.acs.org/doi/10.1021/acs.estlett.3c00500, ("Camilleri NO_2 Report").
[22] *Id.*

In addition to ozone, fine particulate matter ($PM_{2.5}$)—air particles less than 2.5 millionths of a meter in size—can cause significant health effects. Medium- and heavy-duty diesel trucks emit significant amounts of $PM_{2\,5}$, individual particles of which typically are too small to be seen by the human eye. These emissions can become concentrated enough to be seen as smoke or soot and can exacerbate health conditions like asthma and contribute to premature deaths, particularly among those with lung and heart disease. Data from the U.S. EPA indicate that nationally, heavy-duty diesel vehicles account for 25% of fine particulate matter emissions from all vehicles, despite making up only 4% of the vehicles on the road.[23] This holds true for Illinois as well, where despite making up only 7% of on-road vehicles, trucks are responsible for 67% of the NOx, 59% of the PM, and 36% of the greenhouse gas emissions from on-road vehicles.[24]

Together, these rules would deliver significant public health and climate benefits. Adopting all three rules would reduce particulate matter and nitrogen oxide pollution from vehicle tailpipe emissions, cleaning up the air for Illinois residents. These emission reductions would create real world benefits for the people of Illinois, particularly in environmental justice communities. The rules would also reduce cumulative greenhouse gas emissions, helping the state to reach its climate and clean economy goals while providing billions of dollars in societal benefits from avoided carbon dioxide emissions.

VI. Conclusion

Adopting the proposed Clean Vehicle Standards, (Advanced Clean Cars II, Advanced Clean Trucks, and the Low-NOx Rule) will put Illinois on a path towards a healthier, more

[23] Respiratory Health Association, *The Dirty Dozen: The Impacts of Diesel Engine Pollution in Illinois*, (May 2022), https://resphealth.org/wp-content/uploads/2022/05/Dirty-Dozen-Impact-of-Diesel-Engine-Pollution-in-Illinois.pdf.
[24] Exhibit 1, ERM, *Illinois Clean Truck Program,* (2022), https://www nrdc.org/sites/default/files/media-uploads/il_clean_trucks_report_06.pdf.

prosperous, and more equitable transportation future. The rules will increase the amount of zero emission cars and trucks on Illinois' roads, dramatically reduce tailpipe emissions, and improve air quality of millions of Illinois residents that breathe unhealthy air. For these reasons, we support the petition requesting the Pollution Control Board adopt the rules without delay.

This summary of my testimony is accurate to the best of my knowledge. I declare under penalty of perjury that the foregoing is true and correct.

Dated: June 27, 2024.

Kathy Harris

_____

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/s/

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Midwest Transportation Advocate
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EXHIBIT 10

TOM CACKETTE Consultant in Vehicle Emission Control

Consultant providing analysis and strategic advice on implementation of advanced emission control technologies, and electric and alternative fuel vehicles. (2012 – present)

RELEVANT EXPERIENCE

- **Chief Deputy Executive Officer, California Air Resources Board.**

  1982-2012. Managed and directed 500 professional staff developing, implementing and enforcing emission control programs for all types of vehicles and mobile equipment.

- **Chief, Vehicle Inspection Programs, US EPA.**

  1974-1982. Developed policy and analyses to support implementation of over 25 vehicle inspection programs implemented by states with serious air pollution problems.

- **Rocket Engineer, Rocketdyne,** 1969-1972. Rocket engine performance analysis.

EDUCATION

- **Bachelor of Science, Aeronautics and Astronautics,** University of Washington, 1969
- **Masters of Science, Engineering,** California State University, Northridge, 1974

KEY PROJECTS

- Directed development and implementation of the:
  - Low emission vehicle program (LEV) to reduce smog-forming emissions;
  - Zero emission vehicle program (ZEV), including electric and hydrogen refueling infrastructure;
  - Nation's first greenhouse gas emission reduction program for passenger vehicles;
  - ACCI Advanced Clean Car regulation
  - On-board diagnostics (OBD) program;
  - Heavy-duty vehicle emission standards (new engines and retrofit requirements);
  - Truck-trailer GHG reduction program (aerodynamics of trailers);
  - Off-road vehicle emission requirements (lawn mowers to construction equipment);
  - Policy for the state's vehicle smog inspection program;
  - Service station refueling emission control program;
  - Large financial incentive programs in support of the above programs, including proposal evaluation and assessment of project success (technical and fiscal).
- Member of the National Academies of Science National Research Council panel on fuel economy improvements for medium-duty and heavy-duty trucks. (2013-2019)
- Consulting on electric vehicles and charging infrastructure, advanced emission controls for cars and heavy trucks, and vehicle emission regulatory and compliance programs.

EXHIBIT 11

Electronic Filing: Received, Clerk's Office 06/27/2024 **R2024-017*

KATHLEEN (KATHY) HARRIS

Work address—40 W 20th Street, New York, NY 10011 | 646.889.1465 | Email: kharris@nrdc.org

EXPERIENCE

JUNE 2019 – PRESENT

DIRECTOR OF CLEAN VEHICLES, NATURAL RESOURCES DEFENSE COUNCIL (NRDC)

- Lead NRDC's Clean Vehicles team in the Transportation Division.
- Serve as the Clean Cars lead for both state and federal policy to reduce greenhouse gas emissions from the transportation sector through the transition to zero-emission vehicles, including electric vehicles. Represent NRDC in Coalitions, lead comment writing and outreach to decision makers and regulatory bodies on standards.
- Testified in front of the United States Senate's Environment and Public Works Subcommittee on Clean Air, Climate, and Nuclear Safety on the benefits of zero-emission vehicles.
- Lead NDRC's work on Advanced Clean Cars II and the federal EPA light-duty vehicle tailpipe emission standards.
- Prepare policy briefs and memos, comments, and presentations to assist with NRDC's clean transportation advocacy at the state level.
- Represent NRDC and partner organizations in front of state utility commissions and other regulatory bodies on issues related to electric transportation. Submit both written and oral testimony, assist with the development of legal briefs, and serve as an expert resource and witness.
- Previously led advocacy efforts in Northeast and Mid-Atlantic regions. Worked with in-state advocates, policymakers, and other stakeholders to advance clean transportation policy at the regulatory, administrative, and legislative level.

JUNE 2015 – JUNE 2019

CLEAN TRANSPORTATION PLANNER, STATE OF DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

- Managed $2.7 million Delaware Clean Transportation Incentive Program for electric, propane, and natural gas vehicle rebates; commercial, residential, and workplace electric vehicle charger rebates; and large-scale infrastructure grants— processing over 1,100 rebate applications
- Researched, analyzed, and developed policies and programs to expand clean transportation and in disadvantaged communities
- Provided written testimony in regulatory hearings related to clean transportation
- Engaged stakeholders and community groups at workshops and public hearings
- Served as the primary point of contact for national and state reporting on the status and deployment of alternative fuel vehicles in the state of Delaware
- Worked with the Public Service Commission, large-scale public utilities, and private businesses to develop legislation to promote widespread electric vehicle deployment
- Represented Delaware on regional and national working groups and Coalition

- Collaborated across departments to create, develop, and implement comprehensive environmental and transportation policies for the state
- Led the Delaware Clean Cities Coalition, served as Coordinator, and act as key liaison between the state and the US Department of Energy; responsible for annual and quarterly reporting on fuel usage and vehicle deployment.

AUGUST 2013 – JUNE 2015

RESEARCH ASSISTANT, UNIVERSTIY OF DELAWARE

- Consulted with site owners and municipalities to facilitate installation of electric vehicle charging stations across the state of Delaware.
- Gained experience in qualitative and quantitative research methods.

EDUCATION

MAY 2017

MASTER OF MARINE POLICY, UNIVERSITY OF DELAWARE

- Masters research—"Improving the Electric Vehicle Driver's Experience"
- Interdisciplinary program that focused on the intersection of environmental science and policy
- Relevant Coursework: Electric Vehicles and the Grid, Climate Change Policy and Equity, and Electricity Policy and Planning

MAY 2013

BACHELOR OF SCIENCE, ENVIRONMENTAL SCIENCE, UNIVERSITY OF DELAWARE

- Minors: Marine Science; Political Science

VOLUNTEER EXPERIENCE

JULY 2019- PRESENT

- Board member, Empire Clean Cities

SELECTED TRAININGS AND CERTIFICATIONS

UNIVERSITY OF MICHIGAN

- Institute of Public Utilities Annual Regulatory Studies Program Fundamentals Course. 2021

EXPERT TESTIMONY

UNITED STATES SENATE

- **Senate Committee on Environment and Public Works, Subcommittee on Clean Air, Climate, And Nuclear Safety.** *Cleaner Cars: Good for Consumers and Public Health*. April 18, 2023

DELAWARE

- Docket No. 19-0377, *In the Matter of the Commission's Jurisdiction over Electric Vehicle Charging Stations and Service Providers*. 2019
- **Delmarva Power and Light Company**, Docket No. 17-1094, *In the Matter of the Application of Delmarva Power and Light Company for Approval of a Program for Plug In Vehicle Charging*. 2018

MASSACHUSSETTS

- **National Grid**, Docket No. D.P.U. 21-91 *Electric Vehicle Infrastructure Program, Phase III.* 2021
- **Eversource Energy**, Docket No. D.P.U 21-90 *Electric Vehicle Infrastructure Program, Phase II*. 2021

NEW JERSEY

- **Public Service Electric and Cas Company (PSE&G)**, Docket No. EO18101111. *In the Matter of the Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future- Electric Vehicle and Energy Storage Program on a Regulated Basis.* 2020.
- **Atlantic City Electric Company**, Docket No. EO18028190, *In the Matter of the Petition of Atlantic City Electric Company for Approval of a Voluntary Program for Plug-In Vehicle Charging.* 2020.

NEW MEXICO

- **Environmental Improvement Board and Albuquerque-Bernalillo County and Air Quality Control Board,** EIB Docket No. 21-66 (R) and AQCB No. 2022-01. *In The Matter Of: Proposed 20.2.91 NMAC- New Motor Vehicle Emission Standards And The Petition To Repeal Existing Rule 20.11.104 NMAC And Adopt Proposed Replacement 20,11.104 NMAC.*

NEW YORK

- **Niagara Mohawk Power Corporation**, Case No. 20-E-0380, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation*, 2020

PENNSLYVANIA

- **Duquesne Light Company**, Docket No. P-2020-3019522, *Petition of Duquesne Light Company for Approval of Default Service Plan for the Period June 1, 2021 Through May 31, 2025*. 2020
- **Duquesne Light Company**, Docket No. R-2021-3024750, *Petition of Duquesne Light Company for Approval of the Transportation Electrification Programs*. 2021
- PECO, Docket No. R-2021-3024601, *Electric Vehicle Charging Pilot and Small Business Relief Program*. 2021

SELECTED PUBLICATIONS AND PRESENTATIONS

- Frequent blogger on transportation electrification, available at: https://www.nrdc.org/experts/kathy-harris

- Senate Committee on Environment and Public Works, Subcommittee on Clean Air, Climate, And Nuclear Safety. *Cleaner Cars: Good for Consumers and Public Health*. April 18, 2023. Available at: https://www.epw.senate.gov/public/index.cfm/2023/4/cleaner-vehicles-good-for-consumers-and-public-health

- Regional Plan Association, Moderator, "The Path to Clean, Electrified Buses in the Tri-State Region," March 17, 2022, available at: https://rpa.org/events/clean-electric-bus-webinar-con-edison

- New York State Technical Conference on Electric Vehicle Make-ready Program. Recording available at http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=18-e-0138&submit=Search

- NESCAUM, "Northeast Corridor Regional Strategy for Electric Vehicle Charging Infrastructure 2018-2021," May 16, 2018, available at: http://www.nescaum.org/documents/northeast-regional-charging-strategy-2018.pdf/view

EXHIBIT 12

MUHAMMED PATEL

361-331-2661, mpatel@nrdc.org

Email· LinkedIn · Articles/Blogs/Studies

EXPERIENCE

6/22 – PRESENT

MIDWEST TRANSPORTATION ADVOCATE (formerly consultant), NATURAL RESOURCES DEFENSE COUNCIL, CLIMATE AND CLEAN ENERGY PROGRAM

- Leads NRDCs transportation advocacy across the Midwest with a focus on Illinois and Michigan. Work with in-state advocates, policymakers, and other stakeholders to advance clean transportation policy at the regulatory, administrative, and legislative level.
- Advocates for a variety of policies that reduce pollution from the transportation sector, including clean vehicles, charging infrastructure, grid readiness, renewable fuels, transit, highway construction, and land use.
- Testified before the Illinois House Public Utilities Committee and supported multiple advocacy campaigns at the state, local, and federal level. This includes drafting comment letters, policy briefs and memos, presentations, and media outreach to assist with NRDCs transportation advocacy.
- As a consultant, led NRDCs successful engagement on the Advanced Clean Fleets regulation which included drafting comment letters and testifying before CARB. Assisted NRDCs engagement on clean truck policies in several states, including Colorado, Maine, Washington, and Illinois.
- Sits on the Steering Committee of the Illinois Clean Jobs Coalition, the largest environmental coalition in Illinois that spans 200 environmental, public health, affordability, trade associations, and environmental justice groups.

6/19 – 6/22

SENIOR EQUITY AND GRANTS CONSULTANT – TRANSPORTATION AND INFRASTRUCTURE, WSP

- Project Development and Finance – Provided strategic guidance on closing funding gaps to state and local entities, **secured over $200M** in state and federal grant funds, and co-authored federally-funded research on state transportation funding for the Transportation Research Board.
- Workforce Development - Authored innovative research on workforce development policy with the Accelerator for America – featured in conferences and presented to local, state, and federal policymakers.
- Racial Equity - Co-led the creation of a new business line centered on racial equity in transportation. Authored the WSP DEI Strategic Plan, guiding the DEI vision for the nearly 10,000-person company.

5/18 – 9/18

ASSET-BASED COMMUNITY DEVELOPMENT - GHANA, BUFFETT INSTITUTE FOR GLOBAL AFFAIRS

- Using existing tools and capabilities within the area, established a composting and snail farming cooperative among local farmers. Planned, programmed, and worked to establish long term viability of the cooperative over 4 months. The composting program has expanded in the subsequent years, decreasing reliance on government fertilizer for subsistence farmers.

EDUCATION

JUNE 2019

BS ENVIRONMENTAL ENGINEERING, NORTHWESTERN UNIVERSITY

With a focus on sustainable cities, I studied the various ways the built environment can be changed to create a healthy and habitable future for all. Received numerous Deans List awards and led several community and entertainment groups on and off-campus.

SKILLS

- Office - Word, Excel, PPT, Visio
- Data Visualization – Tableau, Power BI
- Presenting – Hearings, Panels, Webinars

LANGUAGE OF PROPOSED RULE
(35 Ill. Admin. Code § 102.202(a))

Pursuant to 35 Ill. Adm. Code 102.202(a), Rule Proponents provide the following language of the proposed amendments, which would add a new code section, 35 Ill. Admin. Code 242:

SUBTITLE B

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE B: AIR POLLUTION
CHAPTER II: POLLUTION CONTROL BOARD

PART 242
ILLINOIS CLEAN CAR AND TRUCK STANDARDS

SUBPART A: GENERAL

Section

SUBPART B: LOW EMISSION VEHICLE REGULATION

Section

SUBPART C: ZERO EMISSION VEHICLE REGULATION

Section

SUBPART D: HEAVY-DUTY LOW NO_x REGULATION

Section

SUBPART E: ADVANCED CLEAN TRUCKS REGULATION

Section

AUTHORITY: Implementing Section 10 and authorized by Section 27 of the Environmental Protection Act (415 ILCS §§ 5/10; 5/27).

SOURCE: Adopted as Chapter 2: Air Pollution, Rule 242: Clean Car and Truck Standards, R24__, __ PCB ___, __/__/____, filed and effective __/__/____.

SUBPART A: GENERAL

Section 242.101 Purpose and Applicability

a) This Part establishes emission standards and associated requirements for new motor vehicles and new motor vehicle engines pursuant to Section 10 of the Environmental Protection Act (415 ILCS 5/10) and Section 177 of the federal Clean Air Act (42 USC 7507).

b) This Part applies to all new passenger cars, light-duty trucks, medium-duty passenger vehicles, medium-duty vehicles, heavy-duty vehicles, engines, and emissions control systems offered for sale or lease, or sold, or leased, for registration in Illinois, except as provided in Section 242.101(e) of this Part or otherwise provided herein.

c) The provisions of this Part apply throughout the State of Illinois.

d) The provisions of this Part apply to motor vehicles of the United States and its agencies; and to motor vehicles of the State of Illinois and its agencies and political subdivisions.

Section 242.102 Definitions

For the purposes of this Part, the following definitions apply. If a definition in this Section 242.102 is found to conflict with a definition elsewhere in Illinois law, the definition in this Section 242.102 shall apply to the provisions of this Part unless context requires otherwise.

"Agency" means the Illinois Environmental Protection Agency.

"Authorized Emergency Vehicle" has that meaning given in the Illinois Vehicle Code, Section 1-105 (625 ILCS § 5/1-105).

"CARB" means the California Air Resources Board, as defined in California's Health and Safety Code, Division 26, Part 1, Chapter 1, Section 39003.

"Certification" means a finding by the CARB that a motor vehicle, motor vehicle engine, or emissions control system satisfies the criteria adopted by CARB for the control of specified air contaminants from vehicular sources.

"Community-Based Clean Mobility Program" means a program that: 1) provides access to clean mobility solutions other than vehicle ownership including zero emission vehicle car sharing, ride-sharing, vanpools, ride-hailing, or on-demand first-mile/last-mile services; 2) serves an "equity investment eligible community," as defined in Illinois by 20 ILCS 627/45(b), or a tribal community regardless of federal recognition; and 3) is implemented by a community-based organization; Native American Tribal government regardless of federal recognition; or a public agency or nonprofit organization that has received a letter of support from a project-related community-based organization or local community group that represents community members that will be impacted by the project or has a service background related to the type of project.

"Director" means the Director of the Illinois Environmental Protection Agency, unless the context requires otherwise.

"Emissions Control System" means equipment designed for installation on a motor vehicle or motor vehicle engine for the purpose of reducing the air contaminants emitted from the motor vehicle or motor vehicle engine, or a system or engine modification on a motor vehicle or motor vehicle engine which causes a reduction of air contaminants emitted from the motor vehicle or motor vehicle engine, including but not limited to exhaust control systems, fuel evaporation control systems and crankcase ventilating systems.

“Financial assistance program” means a vehicle purchase incentive program where approved dealerships accept a point-of-sale incentive for used zero emission vehicles and plug-in hybrid electric vehicles for lower-income consumers. Qualifying programs in Illinois will be approved by the Agency and posted on the Agency’s designated website.

“Greenhouse Gas” or “GHG” means the following gases: carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons.

“GVWR” means “gross vehicle weight rating.”

“Heavy-Duty Engine” means an engine which is used to propel a heavy-duty vehicle.

“Heavy-Duty Vehicle” means any motor vehicle having a manufacturer's gross vehicle weight rating greater than 8,500 pounds, except passenger cars.

“Hydrogen fuel-cell electric vehicle” or “FCEV” means a vehicle with an electric motor where energy for the motor is supplied by an electrochemical cell that produces electricity via the non-combustion reaction of hydrogen.

“Light-Duty Truck” means any motor vehicle certified to the standards in California Code of Regulations, Title 13, Section 1961.4 rated at 8,500 pounds’ gross vehicle weight or less, and any other motor vehicle, rated at 6,000 pounds’ gross vehicle weight or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use.

“Medium-Duty Passenger Vehicle” means any medium-duty vehicle with a gross vehicle weight rating of less than 10,000 pounds that is designed primarily for the transportation of persons. The medium-duty passenger vehicle definition does not include any vehicle which: (1) is an “incomplete truck” i.e., is a truck that does not have the primary load carrying device or container attached; or (2) has a seating capacity of more than 12 persons; or (3) is designed for more than 9 persons in seating rearward of the driver's seat; or (4) is equipped with an open cargo area of 72.0 inches in interior length or more. A covered box not readily accessible from the passenger compartment will be considered an open cargo area, for purposes of this definition.

“Medium-Duty Vehicle” means any heavy-duty low-emission, ultra-low-emission, super-ultra-low-emission or zero-emission vehicle certified to the standards in California Code of Regulations, Title 13, Section 1961.4 or 1956.8(h) having a manufacturer's gross vehicle weight rating between 8,501 and 14,000 pounds.

“Military Tactical Vehicles and Equipment” means all land combat and transportation vehicles, excluding rail-based, which are designed for and are in use by any of the United States armed forces, or in use as an Authorized Emergency Vehicle by or for a governmental agency.

“Model year” means the annual production period that includes January 1st of a calendar year, or if the manufacturer has no annual production period, the calendar year. The model year for a motor vehicle manufactured in two or more stages is the model year in which the chassis is completed. For vehicles subject to California Code of Regulations, Title 13, Sections 1963 to 1963.5, the term is defined as provided in California Code of Regulations, Title 13, Section 1963(c).

“Neighborhood Electric Vehicle” or “NEV” means a motor vehicle that meets the definition of Low-Speed Vehicle either in the California Vehicle Code Division 1 VEH Section 385.5, or in 49 CFR 571.500 (as it existed on July 1, 2000) and is certified to Zero Emission Vehicle standards.

“New Motor Vehicle” means a vehicle with an odometer reading of less than 7,500 miles the equitable or legal title to which has never been transferred to the ultimate purchaser.

“Near-zero-emission vehicle” or “NZEV” shall have the meaning given in California Code of Regulations, Title 13, Section 1963(c).

“Passenger Car” means any motor vehicle designed primarily for transportation of persons and having a design capacity of twelve persons or less.

“Person” means any individual or entity and shall include, without limitation, corporations, companies, associations, societies, firms, partnerships, and joint stock companies, and shall also include, without limitation, all political subdivisions of any states, and any agencies or instrumentalities thereof.

“Plug-In Hybrid Electric Vehicle” or “PHEV” means any vehicle that is off-vehicle charge capable, that is not a zero-emission vehicle, and that can draw propulsion energy from both of the following on-vehicle sources of stored energy: 1) a consumable fuel and 2) an energy storage device such as a battery, capacitor, or flywheel.

“Ultimate Purchaser” means, with respect to any vehicle, the first person who in good faith purchases a new motor vehicle for purposes other than resale and registers it with the Illinois Secretary of State.

“Used Motor Vehicle” means a motor vehicle that has accumulated 7,500 miles or more of use as of the date of sale or lease.

“Vehicle” or “motor vehicle” means any passenger car, light-duty truck, medium-duty passenger vehicle, medium-duty vehicle, or heavy-duty vehicle, as appropriate.

“Zero Emission Vehicle” or “ZEV” means a vehicle that produces zero or near-zero exhaust emissions of any criteria pollutant (or precursor pollutant) or greenhouse gas under any possible operational modes or conditions.

Section 242.103 Incorporations by Reference

This Regulation incorporates and adopts by reference the sections of Title 13 of the California Code of Regulations identified in the table below. All references to the California Code of Regulations in this Part mean the versions specified in the table.

For the purposes of applying the incorporated sections of the California Code of Regulations, unless the context requires otherwise, "California" means Illinois. Depending on context, "CARB" or "Air Resources Board" means the Illinois Environmental Protection Agency, and "Director" means the Director of the Illinois Environmental Protection Agency.

Table 1.
Code of California Regulations, Title 13. Motor Vehicle, Division 3. Air Resource Board

Section	Title	Section Amended Date
Chapter 1 Motor Vehicle Pollution Control Devices		
Article 1. General Provisions		
1900	Definitions	*November 30, 2022*
Article 2. Approval of Motor Vehicle Pollution Control Devices (New Vehicles)		
1956.8	Exhaust Emissions Standards and Test Procedures--1985 and Subsequent Model Heavy-Duty Engines and Vehicles, 2021 and Subsequent Zero-Emission Powertrains, and 2022 and Subsequent Model Heavy-Duty Hybrid Powertrains.	*May 31, 2024*
1961.3	Greenhouse Gas Exhaust Emission Standards and Test Procedures – 2017 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.	*November 30, 2022*
1961.4	Exhaust Emission Standards and Test Procedures--2026 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.	*November 30, 2022*
1962.3	Electric Vehicle Charging Requirements	*November 30, 2022*
1962.4	Zero-Emission Vehicle Requirements for 2026 and Subsequent Model Year Passenger Cars and Light-Duty Trucks.	*November 30, 2022*
1962.5	Data Standardization Requirements for 2026 and Subsequent Model Year Light-Duty Zero Emission Vehicles and Plug-in Hybrid Electric Vehicles.	*November 30, 2022*
1962.6	Battery Labeling Requirements.	*November 30, 2022*
1962.7	In-Use Compliance, Corrective Action and Recall Protocols for 2026 and Subsequent Model Year Zero-Emission and Plug-in Hybrid Electric Passenger Cars and Light-Duty Trucks.	*November 30, 2022*
1962.8	Warranty Requirements for Zero-Emission and Batteries in Plug-in Hybrid Electric 2026 and Subsequent Model Year Passenger Cars and Light-Duty Trucks.	*November 30, 2022*

Section	Title	Section Amended Date
1963	Advanced Clean Trucks Purpose, Applicability, Definitions, and General Requirements	*March 15, 2021*
1963.1	Advanced Clean Trucks Deficits	*March 15, 2021*
1963.2	Advanced Clean Trucks Credit Generation, Banking, and Trading	*March 15, 2021*
1963.3	Advanced Clean Trucks Compliance Determination	*March 15, 2021*
1963.4	Advanced Clean Trucks Reporting and Recordkeeping	*March 15, 2021*
1963.5	Advanced Clean Trucks Enforcement	*March 15, 2021*
1965	Emission Control and Smog Index Labels – 1979 and Subsequent Model Year Vehicles	*November 30, 2022*
1968.2	Malfunction and Diagnostic System Requirements – 2004 and Subsequent Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles	*November 30, 2022*
1969	Motor Vehicle Service Information--1994 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Engines and Vehicles, and 2007 and Subsequent Model Heavy-Duty Engines.	*November 30, 2022*
1971.1	On-Board Diagnostic System Requirements - 2010 and Subsequent Model-Year Heavy-Duty Engines	*May 31, 2024*
1976	Standards and Test Procedures for Motor Vehicle Fuel Evaporative Emissions	*November 30, 2022*
1978	Standards and Test Procedures for Vehicle Refueling Emissions	*November 30, 2022*
Article 6. Emission Control System Warranty		
2035	Purpose, Applicability and Definitions	*April 1, 2022*
2036	Defects Warranty Requirements for 1979 Through 1989 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles; 1979 and Subsequent Model Motorcycles and Heavy-Duty Vehicles; and Motor Vehicle Engines Used in Such Vehicles	*April 1, 2022*
2037	Defects Warranty Requirements for 1990 and Subsequent Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles and Motor Vehicle Engines Used in Such Vehicles	*November 30, 2022*
2038	Performance Warranty Requirements for 1990 and Subsequent Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles and Motor Vehicle Engines Used in Such Vehicles	*November 30, 2022*
2039	Emission Control System Warranty Statement	*December 26, 1990*
2040	Vehicle Owner Obligations	*October 1, 2019*
2041	Mediation; Finding of Warrantable Condition	*December 26, 1990*
2046	Defective Catalyst	*February 15, 1979*
Chapter 2 Enforcement of Vehicle Emission Standards and Enforcement Testing		
Article 1. Assembly-Line Testing		

Section	Title	Section Amended Date
2062	Assembly-line Test Procedures 1998 and Subsequent Model years	*August 7, 2012*
Article 1.5. Enforcement of Vehicle Emission Standards and Surveillance Testing for 2005 and Subsequent Model Year Heavy-Duty Engines and Vehicles		
2065	Applicability of Chapter 2 to 2005 and Subsequent Model Year Heavy-Duty Engines and Vehicles	*April 1, 2019*
Article 2. Enforcement of New and In-use Vehicle Standards		
2109	New Vehicle Recall Provisions	*December 30, 1983*
Article 2.1. Procedures for In-Use Vehicle Voluntary and Influenced Recalls		
2111	Applicability	*April 1, 2022*
2112	Definitions	*April 1, 2022*
2113	Initiation and Approval of Voluntary and Influenced Emission-Related Recalls	*April 1, 2022*
2114	Voluntary and Influenced Recall Plans	*April 1, 2022*
2115	Eligibility for Repair	*April 1, 2022*
2116	Repair Label	*April 1, 2022*
2117	Proof of Correction Certificate	*April 1, 2022*
2118	Notification	*April 1, 2022*
2119	Recordkeeping and Reporting Requirements	*April 1, 2022*
2120	Other Requirements Not Waived	*January 26, 1995*
2121	Penalties	*April 1, 2022*
Article 2.2. Procedures for In-Use Vehicle Ordered Recalls		
2122	General Provisions	*December 8, 2010*
2123	Initiation and Notification of Ordered Emission-Related Recalls	*April 1, 2022*
2124	Availability of Public Hearing	*January 26, 1995*
2125	Ordered Recall Plan	*April 1, 2022*
2126	Approval and Implementation of Recall Plan	*April 1, 2022*
2127	Notification of Owners	*April 1, 2022*
2128	Repair Label	*April 1, 2022*
2129	Proof of Correction Certificate	*April 1, 2022*
2130	Capture Rates and Alternative Measures	*April 1, 2022*
2131	Preliminary Tests	*April 1, 2022*
2132	Communication with Repair Personnel	*January 26, 1995*
2133	Recordkeeping and Reporting Requirements	*April 1, 2022*
2134	Penalties	*January 26, 1995*
2135	Extension of Time	*January 26, 1995*
Article 2.3. In-Use Vehicle Enforcement Test Procedures		
2137	Vehicle, Engine, and Trailer Selection	*April 1, 2022*
2139	Testing	*November 30, 2022*
2140	Notification and Use of Test Results	*November 30, 2022*
Article 2.4. Procedures for Reporting Failure of Emission-Related Components		
2141	General Provisions	*April 1, 2022*

Section	Title	Section Amended Date
2142	Alternative Procedures	*April 1, 2022*
2143	Failure Levels Triggering Recall	*April 1, 2022*
2144	Emission Warranty Information Report	*April 1, 2022*
2145	Field Information Report	*April 1, 2022*
2146	Emissions Information Report	*April 1, 2022*
2147	Demonstration of Compliance with Emission Standards	*November 30, 2022*
2148	Evaluation of Need for Recall	*April 1, 2022*
2149	Notification of Subsequent Action	*April 1, 2022*
Article 5. Procedures for Reporting Failures of Emission-Related Equipment and Required Corrective Action		
2166	General Provisions	*April 1, 2022*
2166.1	Definitions	*April 1, 2022*
2167	Required Recall and Corrective Action for Failures of Exhaust After-Treatment Devices, On-Board Computers or Systems, Urea Dosers, Hydrocarbon Injectors, Exhaust Gas Recirculation Valves, Exhaust Gas Recirculation Coolers, Turbochargers, Fuel Injectors	*April 1, 2022*
2168	Required Corrective Action and Recall for Emission-Related Component Failures	*April 1, 2022*
2169	Required Recall or Corrective Action Plan	*April 1, 2022*
2169.1	Approval and Implementation of Corrective Action Plan	*April 1, 2022*
2169.2	Notification of Owners	*April 1, 2022*
2169.3	Repair Label	*April 1, 2022*
2169.4	Proof of Correction Certificate	*April 1, 2022*
2169.5	Preliminary Tests	*April 1, 2022*
2169.6	Communication with Repair Personnel	*April 1, 2022*
2169.7	Recordkeeping and Reporting Requirements	*April 1, 2022*
2169.8	Extension of Time	*April 1, 2022*

This regulation does not include any later amendments or editions of the regulations incorporated by reference. The incorporated regulations are available online at:

https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I789FF3B05A1E11EC8227000D3A7C4BC3&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)

Copies of the incorporated regulations are also available for a reasonable charge from:

Barclays Official California Code of Regulations
50 California Street Second Floor
San Francisco, CA 94111

Section 242.104 Prohibition

Subject to an applicable exemption, starting with the 2028 model year and for each model year thereafter, it is unlawful for any person to sell or register, offer for sale or lease, deliver, import, purchase, or lease a new motor vehicle unless that new motor vehicle has been certified to California emission standards and meets all other applicable requirements of California Code of Regulations, Title 13, Sections 1956.8, 1961.3, 1961.4, 1962.3 to 1962.8, 1963 to 1963.5, 1965, 1968.2, 1969, 1971.1, 1976, 1978, and 2065.

Section 242.105 Exemptions

This Part does not apply to the following vehicles:

a) A used motor vehicle;

b) A new motor vehicle sold to be wrecked or dismantled;

c) A new motor vehicle sold for registration out-of-state;

d) A new motor vehicle sold exclusively for off-highway use;

e) A new motor vehicle acquired by a resident of this State for the purpose of replacing a vehicle registered to such resident which was damaged or became inoperative beyond reasonable repair or was stolen while out of this State; provided that such replacement vehicle is acquired out of state at the time the previously owned vehicle was either damaged or became inoperative or was stolen;

f) A new motor vehicle transferred by inheritance;

g) A new motor vehicle transferred by court decree;

h) A new motor vehicle sold after the effective date of this regulation if the vehicle was registered in this State before such effective date;

i) A new motor vehicle having a certificate of conformity issued pursuant to the federal Clean Air Act (42 USC Section 7401 et seq.) and originally registered in another state by a resident of that state who subsequently establishes residence in this State and who upon registration of the vehicle in this State provides satisfactory evidence to the Illinois Secretary of State or its assigned designee of the previous residence and registration;

j) A new motor vehicle certified to standards adopted under authority granted by the federal Clean Air Act (42 USC Section 7521) and in possession of a rental agency in Illinois and that is next rented with a destination outside of the state;

k) A new diesel-fueled transit bus sold to a transit agency; however, nothing in this Section 242.105(k) or Part 242 shall be construed as an exemption to the requirements of 70 ILCS 3615/2.10a;

l) An authorized emergency vehicle;

m) A military tactical vehicle.

Section 242.106 Enforcement

a) A person who violates any provision of this Part shall be subject to civil penalties in accordance with Section 42 of the Environmental Protection Act (415 ILCS 5/42).

b) Failure to submit any of the required reports, test data, inspection data, or other information required in this Part shall be considered a violation of this Part.

c) Each instance or day of violation of any provision of this Part shall be considered a separate violation.

Section 242.107 Severability

Each provision of this Part shall be deemed severable, and if any provision of this Part is held to be invalid, the remainder of this regulation shall continue in full force and effect.

Section 242.108 Effective Date

This Part becomes effective when filed. Once effective, the emission standards adopted under this Part are enforceable consistent with Section 177 of the federal Clean Air Act (42 USC 7507), provided that a waiver has been issued by the U.S. Environmental Protection Agency to the State of California for such standards.

SUBPART B: LOW EMISSION VEHICLE REGULATION

Section 242.110 Requirement

Starting with the 2028 model year, all new passenger cars, light-duty trucks, medium-duty passenger vehicles, and medium-duty vehicles or engines produced and delivered for sale or lease in Illinois shall be certified to the applicable standards set forth in California Code of Regulations, Title 13, Sections 1961.4 (LEV IV criteria emission standards), 1961.3 (GHG emission standards), 1956.8(h) (carbon dioxide emission standards for medium-duty vehicles), and meet all other applicable requirements of California Code of Regulations, Title 13, Sections 1900, 1965, 1968.2, 1969, 1976, 1978, 2035, 2037 to 2041, 2046, 2062, 2109, 2111 to 2121, 2122 to 2135, 2139, and 2141 to 2149.

Section 242.111 Fleet Average Emissions

a) For 2028 and subsequent model years, manufacturers of passenger cars, light-duty trucks, and medium-duty passenger vehicles produced and delivered for sale in Illinois shall not exceed the fleet average greenhouse gas exhaust emission levels set forth in California Code of Regulations, Title 13, Section 1961.3. For 2028 and subsequent model years, manufacturers of medium-duty vehicles produced and delivered for sale or lease in Illinois shall not exceed the carbon dioxide emission standards set forth in California Code of Regulations, Title 13, Section 1956.8 (h)(6). Credits and debits may be accrued and utilized based upon each manufacturer's sales of vehicles in Illinois, pursuant to the provisions set forth in California Code of Regulations, Title 13, Section 1961.3.

b) For 2028 and subsequent model years, manufacturers of passenger cars, light-duty trucks, and medium-duty vehicles produced and delivered for sale in Illinois shall not exceed the fleet average non-methane organic gas plus oxides of nitrogen emission values as set forth in California Code of Regulations, Title 13, Section 1961.4. Credits and debits may be accrued and utilized based upon each manufacturer's sales of vehicles subject to this regulation in Illinois, pursuant to the provisions set forth in California Code of Regulations, Title 13, Section 1961.4(d).

Section 242.112 Certification Testing

d) Assembly-line quality audit emission testing and reporting shall be performed for 2028 and subsequent model year motor vehicles subject to this Subpart B.

e) All manufacturers of new vehicles subject to this Subpart B shall comply with all applicable California Assembly Line and In-Use Requirements.

f) The Agency shall accept the results of quality audit testing and inspection testing determinations and findings made by CARB to demonstrate compliance.

g) Remedial action plans for model year 2028 and subsequent model years are required. If the State of California requires a remedial action plan based upon full calendar or partial calendar quarter testing pursuant to California Code of Regulations, Title 13, Section 2109, such plan will apply to all vehicles certified to the California standards and intended for sale in Illinois. Such plan will not apply to vehicles that have previously been sold to ultimate purchasers in Illinois.

Section 242.113 Reporting Requirements

a) *Certification Reporting*—For the purposes of determining compliance with this regulation, the Agency may require any vehicle manufacturer subject to this Subpart B to submit any documentation the Agency deems necessary to the effective administration and enforcement of this regulation including but not limited to all certification materials submitted to CARB.

b) *Fleet Average Reporting*—For 2028 and subsequent model years, each manufacturer must report to the Agency, using the same format used to report the information to CARB, the fleet average non-methane organic gas plus oxides of nitrogen emissions and fleet average greenhouse gas emissions of its vehicles delivered for sale in Illinois. Non-methane organic gas plus oxides of nitrogen reports must be submitted to the Agency by March 1 of the calendar year after the end of the model year. GHG reports must be submitted to the Agency by May 1 of the calendar year after the end of the model year.

c) *Assembly Line Testing Reporting*—Upon request by the Agency, for 2028 and subsequent model years, a manufacturer shall provide reports on all assembly-line emission testing and functional test results collected during compliance with this Subpart B and California Code of Regulations, Title 13, Section 2062.

d) *Warranty Reporting*—Upon request by the Agency, for 2028 and subsequent model years, a manufacturer shall submit warranty claim reports submitted to CARB to the Agency as required by California Code of Regulations, Title 13, Sections 2141 to 2149.

e) *Recall Reporting*—Upon request by the Agency, for 2028 and subsequent model years, a manufacturer shall submit recall plans and progress reports submitted to CARB to the Agency, using the same format and information as required by California Code of Regulations, Title 13, Sections 2119 and 2133.

Section 242.114 Inspection and Access to Records

a) The Agency, or the Illinois Secretary of State, or an authorized representative of either agency, may conduct inspections and surveillance of 2028 and subsequent model year motor vehicles for the purposes of determining compliance with and enforcing this Subpart B.

b) Inspections and vehicle testing may be conducted on any premises owned, operated, used, leased, or rented by any new or used car dealer.

c) Any person subject to this Subpart B must, upon oral or written request by a duly authorized official, employee, or designee of the Agency, furnish or permit access to all records relating to those vehicles subject to regulation.

d) Any person subject to this Subpart B must retain all relevant records for at least three years from the creation of such records.

e) Nothing in this Section 242.114 or in this Part 242 shall limit the Agency's authority to investigate pursuant to 415 ILCS § 5/30.

Section 242.115 Fleet Average Enforcement

If the report issued by a manufacturer under Section 242.113(b) of this Subpart B demonstrates noncompliance with the fleet average under Section 242.111 for a model year, the manufacturer must, within 60 days, file a report with the Director to document the noncompliance. The report must identify all motor vehicle models delivered for sale or lease in the state, the models' corresponding certification standards, and the percentage of each model delivered for sale in this State and California in relation to total fleet sales in the respective state.

Section 242.116 Warranty Requirements

For all motor vehicles subject to this part, the manufacturer must provide warranty defect coverage that complies with California Code of Regulations, Title 13, Sections 2035, 2037 to 2041, and 2046.

Section 242.117 Recall Requirements

For all motor vehicles subject to this Subpart B and subject to recall in California, the manufacturer must undertake recall campaigns in Illinois pursuant to California Code of Regulations, Title 13, Sections 2111 to 2121 and 2122 to 2135, unless the manufacturer demonstrates to the Agency that such recall is not applicable to vehicles registered in Illinois.

Section 242.118 Environmental Performance Labels

Starting with the 2028 model year, all motor vehicles subject to this Subpart B must be affixed with emission control labels and environmental performance labels according to California Code of Regulations, Title 13, Section 1965.

SUBPART C: ZERO EMISSION VEHICLE REGULATION

Section 242.120 Applicability

a) Starting with the 2028 model year, each manufacturer's sales fleet of passenger cars and light-duty trucks in the State of Illinois are subject to the zero-emission vehicle (ZEV) credit percentage requirements set forth in California Code of Regulations, Title 13, Section 1962.4.

b) Starting with the 2028 model year, this Subpart C applies to zero emission medium-duty vehicles produced and delivered for sale in Illinois that the manufacturer optionally chooses to certify to the provisions of this Subpart C; and to neighborhood electric vehicles (NEVs) produced and delivered for sale in Illinois.

Section 242.121 ZEV Standard

Certification for ZEV Emission Standards of new 2028 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles delivered for sale in Illinois shall be made pursuant to California Code of Regulations, Title 13, Sections 1969, 1962.4, 1962.5, 1692.6, 1962.7 and 1962.8. Zero-emission medium-duty vehicles delivered for sale in Illinois shall be required to meet the ZEV requirements in either this Subpart C or Subpart E.

Section 242.122 Annual ZEV Requirements

Starting with the 2028 model year, each manufacturer's sales fleet of passenger cars and light-duty trucks produced and delivered for sale in Illinois shall contain at least the same percentage of ZEVs subject to the same requirements set forth in the California Code of Regulations, Title 13, Section 1962.4 (c)(1)(B) using Illinois specific vehicle production volumes calculated per California Code of Regulations, Title 13, Section 1962.4 (c)(1)(C).

Section 242.123 ZEV Credit Generation

a) ZEV and plug-in hybrid electric vehicle (PHEV) values can be earned per vehicle delivered for sale in Illinois pursuant to California Code of Regulations, Title 13, Sections 1962.4(d) and (e).

b) Environmental Justice Vehicle Values can be earned per vehicle delivered for sale in Illinois and will be subject to the limitations and allowance pursuant to California Code of Regulations, Title 13, Section 1962.4.

    1) New ZEVs and PHEVs Provided for Use in Community-Based Clean Mobility Programs—New 2026 through 2031 model year ZEVs and PHEVs provided for use in community-based clean mobility programs in Illinois will earn additional vehicle values that can be used to meet a portion of the manufacturer's Annual ZEV Requirement pursuant to California Code of Regulations, Title 13, Section 1962.4(e)(2)(A).

    2) Vehicles in Illinois Sold at the End of Lease to Participating Dealerships—ZEVs or PHEVs initially leased in Illinois and sold at the end of lease to an Illinois dealership participating in a financial assistance program will earn additional vehicle values that can be used to meet a portion of the manufacturer's Annual ZEV Requirement pursuant to California Code of Regulations, Title 13, Section 1962.4(e)(2)(B).

3) New ZEVs and PHEVs below MSRP Threshold—An additional vehicle value will be earned by a manufacturer for each 2026 through 2028 model year ZEV or PHEV delivered for sale in Illinois with an MSRP less than or equal to $20,275 for passenger cars and less than or equal to $26,670 for light-duty trucks. For purposes of this Subpart C, the MSRP values shall be adjusted annually, beginning in 2026 model year, per California Code of Regulations, Title 13, Section 1962.4(e)(2)(F).

c) Early Compliance Vehicle Values—Manufacturers may fulfill a portion of their total Annual ZEV Requirement with early compliance vehicle values earned according to California Code of Regulations, Title 13, Section 1962.4(e)(3). The Early Compliance Vehicle Values can be earned for model years 2026 and 2027 in Illinois. The early compliance vehicle values earned in model years 2026 and 2027 can be used to meet manufacturers' Annual ZEV Requirement in model year 2028 through 2029 in Illinois.

Section 242.124 ZEV Credit Bank

a) Beginning no later than model year 2028, each manufacturer subject to this Part must open an account in the California ZEV Credit System for banking credits earned in Illinois.

b) *Calculating ZEV Requirement Performance for the Model Year*—Each manufacturer shall calculate its ZEV requirement performance at the end of each model year in accordance with California Code of Regulations, Title 13, Section 1962.4(f).

c) *Limitations on Fulfilling a ZEV Requirement Shortfall*—A manufacturer who has a shortfall in a given model year, calculated according to California Code of Regulations, Title 13, Section 1962.4(f)(2), may use any combination of excess ZEV, PHEV, or environmental justice vehicle values, early compliance vehicle values, converted ZEV and PHEV values, pooled ZEV and PHEV values, or proportional FCEV values, to fulfill its shortfall, subject to the limitations on usage per California Code of Regulations, Title 13, Section 1962.4(g).

d) *Pooled ZEV and PHEV Values*—Manufacturers may transfer excess 2028 through 2030 model year ZEV and PHEV values earned in Illinois, California or a Section 177 ZEV state to satisfy shortfalls or deficits in 2028 through 2030 model years earned in Illinois, California or a Section 177 ZEV state. A manufacturer may not transfer more excess ZEV or PHEV values than are necessary to fulfill a shortfall within a given year or a deficit carried forward from a previous model year.

e) Calculation of Proportional FCEV Allowance and Earning of Proportional FCEV Values shall be earned and used according to California Code of Regulations, Title 13, Section 1962.4(g)(4).

f) Excess vehicle values may be banked and carried over for use in future model years according to California Code of Regulations, Title 13, Section 1962.4(f)(3).

g) A manufacturer may only trade excess ZEV, excess PHEV, excess environmental justice, early compliance, or converted ZEV and PHEV vehicle values and only if the conditions in California Code of Regulations, Title 13, Section 1962.4(f)(4) are met.

Section 242.125 ZEV Reporting Requirements

a) In order to verify the status of each manufacturer's compliance with the Annual ZEV Requirements for 2028 and subsequent model years, each manufacturer shall submit a report to the Director at least annually, prior to May 1 of the calendar year following the close of the model year, that identifies the necessary delivery and placement data of all vehicles generating ZEV vehicle values or deficits, and all transfers and acquisitions of ZEV values pursuant to California Code of Regulations, Title 13, Section 1962.4.

b) *Projected Sales of ZEVs and PHEVs for Future Model Years*—Each manufacturer subject to the Annual ZEV Requirements of the California Code of Regulations, Title 13, Section 1962.4(c) shall submit a projected ZEV and PHEV sales report by April 1 of each calendar year beginning with the 2028 calendar year. The report shall include the manufacturer's projected number of ZEVs and PHEVs to be produced and delivered for sale in Illinois for the next model year not yet currently being produced and delivered for sale in Illinois, plus each of the subsequent four model years pursuant to California Code of Regulations, Title 13, Section 1962.4(j).

c) The reports submitted to the Director by each manufacturer shall be in the same format as the reports submitted to CARB.

Section 242.126 Requirement to Make Up a ZEV Deficit

a) *Demonstrating Compliance*—Each manufacturer must report in accordance with California Code of Regulations, Title 13, Section 1962.4(j), its ZEV requirement performance for the model year under California Code of Regulations, Title 13, Section 1962.4(f) and the resulting surplus or shortfall in values for the model year after applying any values according to California Code of Regulations, Title 13, Section 1962.4(g).

b) *Incur and Carry Forward a ZEV Deficit*—If a shortfall in meeting the Annual ZEV Requirement remains after determining compliance under California Code of Regulations, Title 13, Section 1962.4(h)(1), the manufacturer shall incur a deficit for the model year. A manufacturer must make up the deficit within three model years following the model year in which the deficit was earned by submitting a commensurate amount, within applicable allowances for fulfilling a ZEV requirement shortfall, under California Code of Regulations, Title 13, Section 1962.4(g)(1) for the model year in which the deficit was earned, of excess ZEV, PHEV, or environmental justice vehicle values, early compliance vehicle values, or pooled ZEV or PHEV values to the Director. For example, a manufacturer must resolve a 2028 model year deficit by the conclusion of the 2031 model year.

c) *Penalty*—Any manufacturer that fails to submit an appropriate number of credits and does not make up ZEV deficits within the time specified in California Code of Regulations, Title 13, Section 1962.4 is subject to civil penalties pursuant to 415 ILCS § 5/42.

SUBPART D: HEAVY-DUTY LOW NO_x REGULATION

Section 242.130 Requirement

a) Starting with the 2028 engine and vehicle model year, any manufacturer that certifies new heavy-duty diesel-cycle and Otto-cycle engines used in heavy-duty vehicles with a gross vehicle weight rating (GVWR) over 14,000 pounds for sale in Illinois must comply with the emission standards and associated requirements set forth in California Code of Regulations, Title 13, Sections 1956.8, 1971.1, 2036, 2121, 2137, 2139, 2140, 2166, 2166.1, 2167, 2168, 2169, 2169.1, 2169.2, 2169.3, 2196.4, 2169.5, 2169.6, 2167.7, 2169.8 and in this Subpart D.

Section 242.131 Recalls

a) For all 2028 and subsequent model year heavy-duty engines and vehicles subject to recall in California, each manufacturer shall undertake recall campaigns in Illinois pursuant to California Code of Regulations, Title 13, Sections 2109 to 2135, unless the manufacturer demonstrates to the Agency that such recall is not applicable to vehicles registered in Illinois.

b) Any voluntary or influenced emission-related recall campaign initiated by any manufacturer under California Code of Regulations, Title 13, Sections 2113 to 2121 for vehicles subject to the requirements incorporated herein by reference, must extend to all applicable vehicles registered in Illinois. If the manufacturer can demonstrate to the Director’s satisfaction that said campaign is not applicable to vehicles registered in Illinois, then the campaign will not apply in Illinois.

c) For vehicles subject to an order of enforcement action under Section 242.133(a) of this rule, each manufacturer must send owners of vehicles registered in the State of Illinois a notice that complies with the requirements in California Code of Regulations, Title 13, Sections 2118 or 2127. The manufacturer must provide a telephone number that Illinois consumers can use to learn information about any recall that affects Illinois vehicles.

Section 242.132 Inspections and Information Requests

a) The Agency may inspect new and used motor vehicles and related records for the purposes of determining compliance with the requirements of this Subpart D. The Agency may perform inspections, as necessary, during regular business hours on public property or on any premises owned, operated, or used by any truck dealer or truck rental agency for the purposes of determining compliance with the requirements of this Subpart D.

b) For the purposes of determining compliance with this Subpart D, the Agency may require any truck dealer or truck rental agency to submit to the Agency any documentation that the Agency deems necessary to the effective administration and enforcement of this Subpart D. This provision does not require the creation of new records.

SUBPART E: ADVANCED CLEAN TRUCKS REGULATION

Section 242.140 Requirement

Starting with the 2028 model year, any manufacturer that certifies new on-road vehicles with a gross vehicle weight rating (GVWR) over 8,500 pounds for sale in Illinois must comply with the ZEV sales requirement and associated provisions set forth in California Code of Regulations, Title 13, Sections 1963, 1963.1, 1963.2, 1963.3, 1963.4 and 1963.5, using Illinois specific vehicle numbers.

Section 242.141 Deficit Generation

Starting with the 2028 model year, any manufacturer that certifies new on-road vehicles over 8,500 pounds GVWR shall annually incur deficits based on the manufacturer's annual sales volume of on-road vehicles produced and delivered for sale in Illinois pursuant to California Code of Regulations, Title 13, Section 1963.1. Deficits are incurred when the on-road vehicle is sold to the ultimate purchaser in Illinois.

Section 242.142 Credit Generation, Banking, and Trading

Starting with the 2025 model year, any manufacturer that certifies on-road vehicles over 8,500 pounds GVWR for sale in Illinois may generate, bank, and trade ZEV and NZEV credits for such vehicles pursuant to California Code of Regulations, Title 13, Section 1963.2.

Section 242.143 Compliance Determinations

Annual compliance determinations, including requirements to make up a deficit and credit retirement ordering, shall be determined pursuant to California Code of Regulations, Title 13, Section 1963.3.

Section 242.144 Reporting and Recordkeeping

Starting with the 2025 model year, and no later than 90 days following the end of each model year, any manufacturer that certifies on-road vehicles over 8,500 pounds GVWR for sale in Illinois must report the sales, credit transfer, and credit declaration information specified in California Code of Regulations, Title 13, Section 1963.4 to the Agency. Manufacturers must also comply with the recordkeeping provisions set forth in California Code of Regulations, Title 13, Section 1963.4.

Section 242.145 Enforcement

a) Any manufacturer that certifies on-road vehicles over 8,500 pounds GVWR for sale in Illinois is subject, by Illinois, to the enforcement provisions set forth California Code of Regulations, Title 13, Section 1963.5.

b) Penalty for Failure to Meet Credit and Deficit Requirements—any manufacturer that fails to retire an appropriate amount of ZEV or NZEV credits as specified in Section 1963.3(c) and does not make up deficits within the specified time allowed by Section 1963.3(b) shall be subject to civil penalties contemplated by Illinois statutes and regulations applicable to a manufacturer who does not comply with emission standards or the test procedures adopted by the Illinois Pollution Control Board such as those in this Part 242. The cause of action shall be deemed to accrue when the deficit is not balanced by the end of the specified time allowed by Section 1963.3(b). For the purposes of 415 ILCS § 5/42, the number of noncompliant, violating vehicles shall be equal to one half of the manufacturer's outstanding deficit.

MATERIAL TO BE INCORPORATED BY REFERENCE
(35 Ill. Admin. Code § 102.202(d))

Pursuant to 35 Ill. Adm. Code 102.202(d), Rule Proponents identify the following material to be incorporated by reference in the Proposed Rule: California Code of Regulations, Title 13, Sections 1900, 1956.8, 1961.3, 1961.4, 1962.3 to 1962.8, 1963 to 1963.5, 1965, 1968.2, 1969, 1971.1, 1976, 1978, 2035 to 2041, 2046, 2062, 2065, 2109, 2111 to 2135, 2137, 2139 to 2149, 2166, 2166.1, and 2167 to 2169.8.

These code sections are also identified in Section 242.103 of the Proposed Rule and are being provided in full as part of this regulatory proposal. Due to file size limitations, the materials have been submitted as a separate document.

CERTIFICATION OF ORIGINATION
(35 Ill. Admin. Code § 102.202(i))

Pursuant to 35 Ill. Adm. Code 102.202(i), I hereby certify that the foregoing Proposed Rule amends the most recent version of the applicable provisions of the Illinois Administrative Code, as published on the Board's website.

Dated: June 27, 2024

/s/

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Environmental Advocacy Center
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Chicago, IL 60611
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ELECTRONIC VERSION OF PROPOSED RULE
(35 Ill. Admin. Code § 102.202(j))

Pursuant to 35 Ill. Admin. Code § 102.202(j), an electronic version of the proposed rule language will be provided to the Pollution Control Board, using Microsoft Word for Windows version 6.0 or greater.

The electronic version will be provided to the following email address on file for the Clerk: Don.brown@illinois.gov

PETITION AND SIGNATURES IN SUPPORT OF PROPOSED RULE
(35 Ill. Admin. Code § 102.202(g))

Pursuant to 35 Ill. Admin. Code § 102.202(g), Rule Proponents submit the following Petition and signatures in support of the proposed rules. The petition language below was signed by more than 1,000 Illinois residents who support the state's adoption of the proposed Clean Vehicle Rules and signed the petition. Signers' names, town of residence, and signature date are included as an Exhibit.

Illinois Clean Vehicle Standards Petition

I support the regulatory proposal submitted by the Sierra Club and other organizations to initiate an Illinois Pollution Control Board rulemaking proceeding to adopt the following three motor vehicle emissions regulations to reduce pollution from light-, medium- and heavy-duty vehicles in Illinois: the Advanced Clean Cars II regulation, the Advanced Clean Trucks regulation, and the Heavy-Duty Low-NOx Omnibus ("Low NOx") regulation.

Together, these rules would establish stronger, more health-protective standards for vehicle emissions than those set by federal standards, and would dramatically reduce local air pollution and greenhouse gas emissions from vehicles in Illinois.

13 states and the District of Columbia have adopted the ACC II regulation; 11 states have adopted the ACT rule; and 10 states have adopted the Low NOx rule. I understand that:

The ACC II regulation would set strong pollution standards for new internal combustion engine vehicles and require vehicle manufacturers to deliver an increasing number of new zero-emission light-duty vehicles for sale in Illinois, culminating in a 100% zero-emission vehicle sales requirement for new vehicles in 2035.

The ACT regulation would require vehicle manufacturers to deliver an increasing number of new zero-emission medium- and heavy-duty vehicles for sale in Illinois, with sales requirements varying based on the vehicle weight and classification.

The Low NOx regulation would establish health-protective emission limits for certain harmful air pollutants, including nitrogen oxides ("NOx") and particulate matter, emitted by heavy-duty trucks.

For all these reasons, I support adoption of the ACC II, ACT, and Low-NOx regulations as presented in this regulatory proposal.

Signed:

Name:	**Town:**	**Date:**

Under the Illinois Uniform Electronic Transactions Act, my electronic signature on this petition has the same legal effect as a handwritten signature.

#	First Name	Last Name	Town	Date	Organization
1	Lenice	Abbott	Glen Ellyn	5/17/2024	Sierra Club
2	Jose	Abonce	Chicago	6/18/2024	NETZ
3	Dorelle	Ackermann	Mokena	5/29/2024	Sierra Club
4	Jose	Acosta	Berwyn	6/18/2024	NETZ
5	Phyllis	Adams	Deerfield	6/21/2024	UCS
6	Shaylene	Ader-Steinhause	Bourbonnais	5/24/2024	Sierra Club
7	Katie	Africk	Wilmette	6/18/2024	RHA
8	Sarah	Africk	Chicago	6/18/2024	RHA
9	Jared	Africk	Wilmette	6/18/2024	RHA
10	Joel	Africk	Wilmette	6/18/2024	RHA
11	Danielle	Agriopoulos	Berwyn	6/20/2024	EDF
12	James	Aguirre	Willowbrook	5/17/2024	Sierra Club
13	Anna	Akers-Pecht	Chicago	5/17/2024	Sierra Club
14	Dawn	Albanese	Elk Grove	6/10/2024	EDF
15	Blair	Alexander	Carpentersville	5/20/2024	Sierra Club
16	Margaret	Ali	Lombard	5/17/2024	Sierra Club
17	catherine	Allegretti	Arlington Height	6/11/2024	EDF
18	Scott	Allen	Bloomington	5/21/2024	Sierra Club
19	Dominic	Amato	Chicago	5/17/2024	Sierra Club
20	Keith	Ammann	Chicago	6/20/2024	UCS
21	Cara	Ammon	Chicago	6/11/2024	EDF
22	Connor	Amundsen-Kues	Savoy	6/6/2024	Sierra Club
23	Robert	Anderson	Chicago	6/20/2024	UCS
24	Ellyn	Annoreno	Bartlett	6/11/2024	EDF
25	Nicholas	Anthony	Chicago	5/21/2024	Sierra Club
26	Ethan	Appelgren	Chicago	6/1/2024	Sierra Club
27	Morris	Applebaum	Berwyn	6/6/2024	Sierra Club
28	Phyllis	Arist	Evanston	6/20/2024	UCS
29	William	Arnold	Oak Park	6/5/2024	Sierra Club
30	Helen	Arnolds	Evanston	6/6/2024	Sierra Club
31	John	Atwood	Chicago	5/18/2024	Sierra Club
32	Jesse	Auerbach	Chicago	6/6/2024	Sierra Club
33	Allison	Augustine	Chicago	5/16/2024	Sierra Club
34	Megan	Augustiny	Chicago	5/17/2024	Sierra Club
35	Susan	Avila	Chicago	6/20/2024	UCS
36	Ellen	Ayalin	Chicago	6/10/2024	EDF
37	Peter	Ayres	Naperville	6/20/2024	UCS
38	Alfred	Babbitt	Carbondale	6/2/2024	Sierra Club
39	James	Babcock	Oak Park	6/5/2024	Sierra Club
40	Pam	Babler	Chicago	5/19/2024	Sierra Club
41	Elianne	Bahena	Chicago	5/30/2024	RHA
42	Joni	Bailey	Murphysboro	6/2/2024	Sierra Club
43	Kat	Bainbridge	Chicago	5/17/2024	Sierra Club
44	Paul	Baits	Rockford	6/6/2024	Sierra Club
45	Jane	Bannor	Chicago	6/20/2024	UCS
46	Judith	Baran	McHenry	6/18/2024	Sierra Club
47	Mary	Barbezat	Elgin	5/18/2024	Sierra Club
48	Robert	Barbieri	Winfield	6/12/2024	Sierra Club
49	Mary	Barker	Rantoul	6/6/2024	Sierra Club
50	John	Barkley	Troy	6/20/2024	UCS
51	Terri	Barnard	Arlington Height	6/6/2024	Sierra Club
52	Brent	Barnes	Chicago	5/17/2024	Sierra Club
53	Adrianna	Barnett	Chicago	5/20/2024	Sierra Club
54	Michael	Barrett	Buffalo Grove	6/20/2024	UCS
55	Donna	Barrett	Buffalo Grove	6/7/2024	Sierra Club
56	Laura S	Basanta	Murphysboro	6/2/2024	Sierra Club
57	Eugene	Basanta	Murphysboro	6/2/2024	Sierra Club
58	Rebecca	Bauter	Morton	6/22/2024	UCS
59	William G	Bauza	Park Ridge	6/20/2024	UCS
60	Samuel	Beard	Chicago	5/29/2024	Sierra Club
61	A	Beato	Berwyn	6/20/2024	UCS
62	Melissa	Beaudet	Lakewood	6/10/2024	EDF
63	John A	Beavers	Chicago	6/20/2024	UCS
64	Kimberly	Beck	Schiller Park	6/20/2024	UCS
65	Kevin	Beese	Glen Ellyn	6/14/2024	Sierra Club
66	Paul	Beiersdorf	Peoria	6/18/2024	Sierra Club
67	Ciara	Belfiore	Elmhurst	5/22/2024	Sierra Club
68	Madalynn	Benavides	Chicago	6/6/2024	NETZ
69	Eric	Benson	Champaign	6/6/2024	Sierra Club
70	Julie	Berberi	Saint Charles	6/10/2024	EDF
71	Beth	Berendsen	Brookfield	6/5/2024	Sierra Club
72	Drew	Bergstrom	Peoria	6/10/2024	EDF
73	Gail	Bergstrom	Rolling Meadow	5/18/2024	Sierra Club
74	Ela	Berkmen	Chicago	6/14/2024	RHA
75	Chris	Berli	Urbana	6/6/2024	Sierra Club
76	Elena	Bettis	Chicago	6/5/2024	Sierra Club
77	Karen	Bireta	Evanston	6/6/2024	Sierra Club
78	David	Birr	Barrington	6/10/2024	EDF
79	Jeffery	Biss	Elgin	6/6/2024	Sierra Club
80	Jennifer	Bissell	Chicago	5/18/2024	Sierra Club
81	Jamie	Blair	Chicago	5/31/2024	RHA
82	Daniel	Blight	Metamora	6/20/2024	UCS
83	V David	Block	Pekin	6/18/2024	Sierra Club
84	Hinda	Blum	Oak Park	6/5/2024	Sierra Club
85	Joyce	Blumenshine	Peoria	6/6/2024	Sierra Club
86	Stephanie	Blumenthal	Chicago	5/30/2024	RHA
87	Alex A.	Bobroff	Chicago	6/20/2024	UCS
88	Marcin	Bogacz	Riverside	5/19/2024	Sierra Club
89	Virginia	Bortoluzzo	Chicago	5/20/2024	Sierra Club
90	Lauren	Bowgren	Elburn	6/14/2024	Sierra Club
91	Lee	Bowman	Morton Grove	6/20/2024	UCS
92	Paula	Bozzetti	New Lenox	5/17/2024	Sierra Club
93	Fallon	Braddy	Chicago	6/6/2024	Sierra Club
94	Pavitra	Brahmbhatt	Chicago	5/20/2024	Sierra Club
95	John	Bramlet	Joliet	6/10/2024	EDF
96	Beth	Braun	Chicago	6/9/2024	Sierra Club
97	Jocelyn	Bravo	Chicago	6/7/2024	NETZ
98	Karen	Bravo	Park Ridge	6/7/2024	Sierra Club
99	Evelyn	Bray	Chicago	6/15/2024	Sierra Club
100	David	Brayfield	Champaign	6/20/2024	UCS
101	Samantha	Bretz	New Lenox	6/10/2024	Sierra Club
102	Eileen	Bretz	New Lenox	6/14/2024	Sierra Club
103	Kevin	Brewner	St Charles	6/20/2024	UCS
104	Nicholas	Bridge	Oak Park	6/5/2024	Sierra Club
105	Nicholas	Bridgett	Champaign	6/17/2024	Sierra Club
106	Devin	Brizendine	Springfield	6/10/2024	EDF
107	BettyAnn	Brody Bucksbau	Glenview	6/7/2024	Sierra Club
108	Mark	Brooker	Chicago	6/10/2024	EDF
109	Nancy	Brown	Evanston	6/10/2024	EDF
110	Jim	Brown	Skokie	6/10/2024	EDF
111	Frederick	Brown	Chicago	6/20/2024	UCS
112	Gabriella	Brown	Evanston	6/20/2024	UCS
113	Rebecca	Brown	Westchester	6/20/2024	UCS
114	David	Brown	Westchester	6/20/2024	UCS
115	Jason D	Brown	Elgin	6/21/2024	UCS
116	Nancy	Brown	Evanston	6/6/2024	Sierra Club
117	Gabriella	Brown	Chicago	5/17/2024	Sierra Club
118	Taylor	Brown	Chicago	6/18/2024	Sierra Club
119	Deborah	Brown-Ridley	Aurora	6/20/2024	UCS
120	Jeff	Brueggen	Hanover	6/24/2024	UCS
121	Angi	Bruja	Chicago	6/6/2024	Sierra Club
122	Cheryl	Brumbaugh-Cay	Elgin	6/10/2024	EDF
123	Scott	Bryson	Chicago	6/14/2024	Sierra Club
124	Susan	Buchanan	Oak Park	6/7/2024	Sierra Club
125	Pamela	Buckardt	South Elgin	6/6/2024	Sierra Club
126	Russell	Buckardt	South Elgin	6/6/2024	Sierra Club
127	Tommy	Buckert	Hamilton	6/6/2024	Sierra Club
128	Laurence	Buckingham	Park Ridge	6/20/2024	UCS
129	Daniel	Buckler	Chicago	5/17/2024	Sierra Club
130	Sara	Buehler	Oak Park	5/18/2024	Sierra Club
131	Christina	Bullio	La Grange	6/6/2024	Sierra Club
132	Mark	Bumgarner	Homer Glen	6/20/2024	UCS
133	Joy	Bunton	Chicago	5/29/2024	Sierra Club
134	Rev. Max	Burg	Chicago	6/20/2024	UCS
135	Sally	Burgess	Edwardsville	5/21/2024	Sierra Club
136	Jeff	Burhop	Saint Charles	6/18/2024	Sierra Club
137	Dana	Burke	Frankfort	6/7/2024	Sierra Club
138	Greg	Burnet	Chicago	6/10/2024	EDF
139	Austin	Busch	Chicago	6/7/2024	Sierra Club
140	Cindy	Bush	Oak Park	6/18/2024	Sierra Club
141	Patty	Buttliere	Chicago	6/10/2024	EDF
142	Karen	Byers	Waukegan	6/20/2024	UCS
143	Carly	Caldwell	Hartford	6/11/2024	EDF
144	Diane	Calhoun	Oak Forest	6/20/2024	UCS
145	Kristin	Camp	Collison	6/19/2024	Sierra Club
146	Mary	Campbell	Carbondale	6/3/2024	Sierra Club
147	Victoria	Cancino	Naperville	6/14/2024	Sierra Club
148	Rick	Canning	Aurora	6/20/2024	UCS
149	Tommy	Carden	Chicago	5/30/2024	RHA
150	Heidi	Cardenas	Mundelein	6/20/2024	UCS
151	Peter	Carey	Chicago	5/18/2024	Sierra Club
152	Andre	Castaneda	Chicago	5/30/2024	RHA
153	K	Castelluccio	West Chicago	6/22/2024	UCS
154	Marcos	Ceniceros	Melrose Park	5/30/2024	RHA
155	Victoria L	Cerinich	Lemont	6/24/2024	UCS
156	Emilee	Chaclas	Chicago	5/16/2024	Sierra Club
157	John	Chamness	Morton Grove	5/18/2024	Sierra Club
158	Esau	Chavez	Chicago	6/6/2024	Sierra Club
159	Patricia	Chelmecki	Elburn	6/20/2024	UCS
160	Lacey	Chester	Chicago	6/14/2024	RHA
161	Debbie	Chizewer	Chicago	6/8/2024	Sierra Club
162	Neetu	Chopra	Chicago	6/20/2024	UCS
163	Deb	Christensen	Manteno	6/6/2024	Sierra Club
164	Lauren	Christianson	Burbank	6/14/2024	Sierra Club
165	Todd	Cisna	Effingham	6/10/2024	EDF
166	Robert	Clapper	Mahomet	6/20/2024	UCS
167	Jim	Clark	Chicago	5/20/2024	Sierra Club
168	Paul	Clinch	Oak Brook	6/20/2024	UCS
169	Donna	Cochran	Champaign	5/18/2024	Sierra Club
170	Patrick	Coffey	Matteson	6/4/2024	Sierra Club
171	Jane	Cogie	Carbondale	5/30/2024	Sierra Club

172	Gail	Cohen	Des Plaines	6/10/2024	EDF
173	Lincoln	Cohen	Chicago	6/6/2024	Sierra Club
174	Phyllis	Cole	Chicago	6/20/2024	UCS
175	Thomas	Coleman	Naperville	5/29/2024	Sierra Club
176	Ann	Colletti	Lake Forest	6/6/2024	Sierra Club
177	Lawrence	Comes	La Grange Park	6/20/2024	UCS
178	Janel	Compton	Frankfort	6/6/2024	Sierra Club
179	Erin	Connolly	Crest Hill	5/24/2024	Sierra Club
180	Beverly Ann	Conroy	Oak Park	6/21/2024	UCS
181	RIck	Cook	Chanahon	6/10/2024	EDF
182	Heather	Cook	Charleston	6/6/2024	Sierra Club
183	Teresa	Cordova	Chicago	6/18/2024	NETZ
184	Michael	Corn	Grayslake	6/20/2024	UCS
185	Stacy	Cornelius	Elmwood Park	5/18/2024	Sierra Club
186	Mardene	Costa	Gurnee	6/20/2024	UCS
187	Elmer	Costabile	Roselle	6/10/2024	Sierra Club
188	Mary	Cotey	Lake Barrington	6/20/2024	UCS
189	Sandra	Couch	Naperville	6/10/2024	EDF
190	Scott	Cowan	Plainfield	6/20/2024	UCS
191	Nancy	Cowger	Wheeling	6/6/2024	Sierra Club
192	Kameron	Crawford	Chicago	5/22/2024	Sierra Club
193	Catherine	Critz	Metamora	6/20/2024	UCS
194	George	Crouse	Rock Island	5/17/2024	Sierra Club
195	Sandra	Crow	Peoria	6/21/2024	Sierra Club
196	Susan	Crowley	Villa Park	6/11/2024	EDF
197	Leuise	Crumble	Chicago	6/20/2024	UCS
198	Sonya	Curry	Highland	6/11/2024	EDF
199	Sydney	Curtis	Bethalto	6/10/2024	EDF
200	Kim	Curtis	Champaign	6/18/2024	Sierra Club
201	Steven	Cypher	Chicago	6/20/2024	UCS
202	Jeff	Czach	Hoffman Estates	6/20/2024	UCS
203	Andrea	Czart	Bolingbrook	6/10/2024	EDF
204	Andy	Daglas	Chicago	5/21/2024	Sierra Club
205	Brigitte	Dalmolin	Effingham	5/19/2024	Sierra Club
206	Donna L	Davis	Rolling Meadows	6/6/2024	Sierra Club
207	Laura	Davis	Inverness	6/6/2024	Sierra Club
208	Maria	de la Rosa-Youn	Evanston	6/21/2024	UCS
209	Brian	Deason	Collinsville	6/20/2024	UCS
210	Angela	DeBolt	Oswego	6/20/2024	UCS
211	Meg	Dedolph	Naperville	5/24/2024	Sierra Club
212	Dorothy	Deer	Warrenville	6/12/2024	Sierra Club
213	Lisa	Delabre	Antioch	6/6/2024	Sierra Club
214	Donna	Delin	Lombard	6/17/2024	EDF
215	Fred	Delmastro	Oak Park	6/7/2024	Sierra Club
216	Sara	Demari	Bloomingdale	6/11/2024	EDF
217	Peter	Dempsey	Ingleside	6/18/2024	Sierra Club
218	Arthur	Dennis	Chicago	5/22/2024	Sierra Club
219	Haven	Denson	Chicago	6/1/2024	Sierra Club
220	Bridget Mahoney	DePriest	Springfield	6/20/2024	UCS
221	Laura	Derks	Oak Park	6/5/2024	Sierra Club
222	Barbara	DeThorne	Hawthorn Woods	6/14/2024	Sierra Club
223	Carol	Devoss	Saint Charles	6/10/2024	EDF
224	Neda	Deylami	Chicago	6/21/2024	Sierra Club
225	William	Diamond	Naperville	5/17/2024	Sierra Club
226	Jenny	Diaz	Chicago	6/14/2024	RHA
227	Flor	Diaz	Elm wood Park	5/30/2024	RHA
228	Jeanine	Dichristofano	Palos Hills	6/20/2024	UCS
229	Benji	Dick	Oakland	6/22/2024	Sierra Club
230	Paul	Dickerson	Oak Park	5/18/2024	Sierra Club
231	Tarneka	Diggs	Chicago	6/18/2024	RHA
232	Dan	DiMeo	Chicago	5/22/2024	Sierra Club
233	Thomas	Dimond	Warrenville	6/10/2024	EDF
234	John	Dively	Carbondale	5/30/2024	Sierra Club
235	Daphne	Dixon	Markham	6/11/2024	EDF
236	Nick	Dodson	Springfield	5/30/2024	Sierra Club
237	Ellen	Domke	Chicago	6/10/2024	EDF
238	Marilyn	Domke	Skokie	5/17/2024	Sierra Club
239	Gayle	Donohue	Wilmette	6/6/2024	Sierra Club
240	Vrati	Doshi	Chicago	6/17/2024	RHA
241	Patricia	Dostalek	Springfield	6/6/2024	Sierra Club
242	Michele	Doyle	Elburn	6/18/2024	Sierra Club
243	Tracy	Drake	Chicago	6/10/2024	EDF
244	Dan	Drennan	Highland Park	6/20/2024	UCS
245	Taylor	Drew	Forest Park	6/22/2024	UCS
246	Sherrilyn	Drew	Des Plaines	6/15/2024	Sierra Club
247	Dan	Duckels	Comer	6/10/2024	EDF
248	Janice	Dugan	Darien	6/6/2024	Sierra Club
249	Janice	Duplex	Naperville	6/6/2024	Sierra Club
250	Aaron	Durnbaugh	Chicago	6/1/2024	Sierra Club
251	Robert	Duy	Columbia	6/6/2024	Sierra Club
252	Angela	E Peters	Arlington Heights	6/6/2024	Sierra Club
253	Steve	Eberhart	Murphysboro	5/31/2024	Sierra Club
254	Derek	Eder	Oak Park	6/5/2024	Sierra Club
255	David	Edsey	Park Ridge	6/11/2024	EDF
256	Ellen	Edwards	Oak Park	6/5/2024	Sierra Club
257	Sarah	Edwards	Waterman	6/6/2024	Sierra Club
258	Eric	Edwards	West Chicago	6/18/2024	Sierra Club
259	Lora	Edwards Simmo	Rockford	6/17/2024	Sierra Club
260	Michael	Edwards Simmo	Rockford	6/17/2024	Sierra Club
261	Amanda	Ehrenford	Chicago	6/22/2024	Sierra Club
262	Vivien	Eisenberg	Evanston	6/18/2024	Sierra Club
263	Katie	El Koraichi	Chicago	6/11/2024	EDF
264	Tricia	England	Chicago	6/17/2024	Sierra Club
265	Andrew	Englebrecht	Lockport	6/6/2024	Sierra Club
266	Philip	Englert	Chicago	6/10/2024	EDF
267	Paula	Enstrom	Charlesron	5/18/2024	Sierra Club
268	Dianne	Entwhistle	Elmhurst	6/20/2024	UCS
269	Heather	Ervin	Chicago	6/22/2024	UCS
270	Melissa	Espinosa	Joliet	6/14/2024	RHA
271	Larry	Evans	Glen Carbon	6/1/2024	Sierra Club
272	Todd	Everett	Beach Park	6/6/2024	Sierra Club
273	Renee	Ewing	Gurnee	5/19/2024	Sierra Club
274	Cori	Farnsworth	Elgin	6/10/2024	EDF
275	Molly	Feeney	Chicago	5/17/2024	Sierra Club
276	Deborah	Fenner	Chicago	6/6/2024	Sierra Club
277	Robert	Finn	Riverside	6/6/2024	Sierra Club
278	Julie	Finnell	Springfield	6/18/2024	Sierra Club
279	Anne	Firestone	White Heath	6/20/2024	UCS
280	Phil	Fischer	Glencoe	6/10/2024	EDF
281	Tessa	Fischer	Deerfied	6/7/2024	Sierra Club
282	Kathleen	Fischer	Lisle	6/14/2024	Sierra Club
283	Avis	Fisher	McHenry	6/20/2024	UCS
284	Jeff	Fisher	McHenry	6/20/2024	UCS
285	Andrew	Fisher	Evanston	5/29/2024	Sierra Club
286	Marianne	Flanagan	Des Plaines	6/11/2024	EDF
287	Celeste	Flores	Gurnee	6/21/2024	Sierra Club
288	Kevin	Flynn	Kildeer	6/6/2024	Sierra Club
289	Pat	Fojtik	Palos Hills	6/20/2024	UCS
290	Denise	Font-Morton	Chicago	6/19/2024	Sierra Club
291	Mary	Ford	Springfield	5/20/2024	Sierra Club
292	Ann	Foster	Evanston	5/17/2024	Sierra Club
293	Charles	Fowler	Chicago	6/20/2024	UCS
294	Barbara	Fox	Chicago	6/6/2024	Sierra Club
295	Allison	Fradkin	Northbrook	6/20/2024	UCS
296	Susan	Francis	Lisle	6/20/2024	UCS
297	Catherine	Franczyk	Naperville	6/12/2024	Sierra Club
298	Charles	Frank	Highland Park	6/4/2024	Sierra Club
299	Janice	Frankel	Chicago	6/20/2024	UCS
300	Sarah	Frederick	Chicago	6/20/2024	UCS
301	Rachel	Fredericks	Chicago	5/29/2024	Sierra Club
302	Jane	Friedman	Chicago	6/10/2024	EDF
303	Wendy	Friedman	Chicago	6/20/2024	UCS
304	Larry	Friedrichs	Hawthorn Woods	6/14/2024	Sierra Club
305	Michael	Friend	Evanston	6/7/2024	Sierra Club
306	Les	Frierson	Chicago	5/30/2024	RHA
307	Tom	Frost	Quincy	6/10/2024	EDF
308	Peter	Fruehan	Mundelein	6/4/2024	Sierra Club
309	Emmett	Fruin	Chicago	5/20/2024	Sierra Club
310	Barbara	Fry	Alton	5/17/2024	Sierra Club
311	Victoria	Fuller	Chicago	6/10/2024	EDF
312	Jean	Furlan	Arlington Heights	6/14/2024	Sierra Club
313	Jay	Futterman	Highland Park	6/3/2024	Sierra Club
314	Jeffrey	Gahris	Wheaton	5/21/2024	Sierra Club
315	Irving	Galicia	Chicago	5/30/2024	RHA
316	Karen	Gallagher	Glenview	5/18/2024	Sierra Club
317	Portia	Gallegos	Plainfield	6/4/2024	Sierra Club
318	Justin	Gandia	Chicago	6/20/2024	UCS
319	Robert	Garcia	DeKalb	6/6/2024	Sierra Club
320	Jenifer	Garlitz	Joliet	6/20/2024	UCS
321	Linda	Gaska	Sugar Grove	5/18/2024	Sierra Club
322	Mike	Gatton	Breese	6/20/2024	UCS
323	Bob	Gendron	Chicago	6/10/2024	EDF
324	Marianne	Gentile	Plainfield	5/19/2024	Sierra Club
325	James	Geocaris	Chicago	6/22/2024	Sierra Club
326	Meredith	George	Chicago	5/18/2024	Sierra Club
327	Ira	Gerard	South Elgin	6/20/2024	UCS
328	Benjamin	Gerhold	Chicago	5/29/2024	Sierra Club
329	Joseph	Getty	Collinsville	6/20/2024	UCS
330	James	Gibbs	Evanston	6/12/2024	EDF
331	Linda	Gilbert	West Chicago	5/18/2024	Sierra Club
332	Diane	Gioe	Bartlett	6/20/2024	UCS
333	Don	Gladfelter	Milan	6/18/2024	Sierra Club
334	Jacqueline	Glass	Belleville	6/21/2024	UCS
335	Vanessa	Glavinskas	Oak Brook	6/10/2024	EDF
336	Janet	Glidden	Saint Anne	6/18/2024	Sierra Club
337	Stephen	Gliva	Evanston	6/20/2024	UCS
338	Carol	Gloor	Savanna	6/20/2024	UCS
339	Kelly	Golding	Glenview	6/19/2024	Sierra Club
340	Stacy	Goldschen	Gurnee	6/12/2024	EDF
341	Derrick	Golon	Chicago	6/18/2024	Sierra Club
342	Gus	Gonzalez	Chicago	6/12/2024	EDF
343	Kendall	Granberry	Chicago	6/20/2024	UCS

344	Kenji	Granberry	Chicago	5/18/2024	Sierra Club
345	William	Grant	William	5/17/2024	Sierra Club
346	Charles	Grantham	Chicago	6/10/2024	EDF
347	Jeffery	Green	Frankfort	6/20/2024	UCS
348	Wendy	Greenhouse	Oak Park	6/5/2024	Sierra Club
349	Geoffrey	Greer	Oak Park	6/18/2024	Sierra Club
350	Julie	Griffith	St. Charles	6/18/2024	Sierra Club
351	Krista	Grimm	La Grange Park	6/17/2024	Sierra Club
352	Clare	Groch	Illinois	5/20/2024	Sierra Club
353	Cynthia	Gronkiewicz	River Forest	6/20/2024	RHA
354	Mark	Grotzke	Palos Heights	6/20/2024	UCS
355	Christine	Grushas	La Grange	5/29/2024	Sierra Club
356	JF	Guider	Naperville	6/12/2024	Sierra Club
357	Triona	Guidry	Lakewood	6/10/2024	EDF
358	David	Gustafson	Moline	6/20/2024	UCS
359	Julia	Hage	Chicago	6/11/2024	Sierra Club
360	Bob	Hagele	Chicago	5/17/2024	Sierra Club
361	Deborah	Halpern	Chicago	5/29/2024	Sierra Club
362	Mark	Hamilton	Chicago	6/6/2024	Sierra Club
363	Julia	Hammer	Polo	5/18/2024	Sierra Club
364	Brad	Hanahan	Libertyville	5/17/2024	Sierra Club
365	Robert	Handelsman	Evanston	6/6/2024	Sierra Club
366	Brenda	Hansen	Ottawa	6/20/2024	UCS
367	Joyce	Harant	Peoria	6/21/2024	Sierra Club
368	Doug	Harder	Glen Ellyn	6/20/2024	UCS
369	Kate	Harder	Glen Ellyn	6/20/2024	UCS
370	Lowell	Harp	Oregon	6/6/2024	Sierra Club
371	Debra	Harris	Skokie	6/10/2024	EDF
372	Hayden	Harris	Chicago	6/14/2024	Sierra Club
373	Clarence	Harris III	Lansing	6/7/2024	Sierra Club
374	Nancy	Harris Kranberg	Hawthorn Woods	6/14/2024	Sierra Club
375	Kimberly	Harrod	Wheaton	5/18/2024	Sierra Club
376	Ann	Hartdegen	Chicago	6/20/2024	UCS
377	Amy	Hasfjord	Chillicothe	5/18/2024	Sierra Club
378	Cynthia	Hautzinger	Lincolnshire	5/18/2024	Sierra Club
379	Gary	Hawk	Aurora	5/18/2024	Sierra Club
380	Kathy	Hays	South Elgin	6/7/2024	Sierra Club
381	Joseph	Heger	Geneva	5/18/2024	Sierra Club
382	Chris	Hein	Chicago	6/20/2024	UCS
383	James	Heller	Chicago	6/20/2024	UCS
384	Andrew	Hellinger	Chicago	6/20/2024	UCS
385	Henry	Henderson	Trenton	5/18/2024	Sierra Club
386	Scotty	Hendricks	Chicago	5/21/2024	Sierra Club
387	Jen	Hensley	Chicago	6/6/2024	Sierra Club
388	Ashley	Herd	Carbondale	6/2/2024	Sierra Club
389	Eva	Hernandez-Thon	Wester Springs	5/31/2024	RHA
390	June	Hershey	Naperville	5/18/2024	Sierra Club
391	heather	Hess	Big Rock	6/20/2024	UCS
392	MeLena	Hessel	Chicago	6/5/2024	Sierra Club
393	Mike	Hewitt	Chicago	6/20/2024	UCS
394	Kyra	Heyl	Chicago	6/14/2024	RHA
395	Tarek	Hijaz	Chicago	6/21/2024	UCS
396	Barbara	Hill	Palatine	5/17/2024	Sierra Club
397	Donna	Hippensteel	Chicago	5/21/2024	Sierra Club
398	Tharran	Hobson	Murphysboro	5/29/2024	Sierra Club
399	Leslie	Hodes	Oak Park	6/20/2024	UCS
400	Andrew	Hoffman	Morton Grove	6/20/2024	UCS
401	Heather	Hoffman	Carbondale	6/2/2024	Sierra Club
402	Henry	Hofmann	Naperville	6/20/2024	UCS
403	Richard	Holland	Sandoval	6/6/2024	Sierra Club
404	Susan	Hollander	Bourbonnais	6/17/2024	Sierra Club
405	Amy	Hollands	Hinsdale	6/6/2024	Sierra Club
406	Judyth	Hollub	Northbrook	6/6/2024	Sierra Club
407	Carolyn	Holmes	Chicago	6/20/2024	UCS
408	Barbara	Holowczak	Elmwood Park	6/8/2024	Sierra Club
409	Randi	Holt	Palatine	6/21/2024	UCS
410	Paula	Homan	Edwardsville	5/20/2024	Sierra Club
411	Laura	Honig	Elgin	6/6/2024	Sierra Club
412	Anna	Hope	Chicago	6/23/2024	Sierra Club
413	Ron	Hopkins	Joliet	6/14/2024	Sierra Club
414	Linda	Horn	Belleville	5/18/2024	Sierra Club
415	Christopher	Hornbacker	Springfield	6/20/2024	UCS
416	Jill	Hornick	Crete	6/20/2024	UCS
417	Jerome	Hossli	Oak Park	6/6/2024	Sierra Club
418	Erlene	Howard	Evanston	6/1/2024	Sierra Club
419	Cynthia	Hoyle	Urbana	6/18/2024	Sierra Club
420	Scott	Hubbard	Maryville	6/7/2024	Sierra Club
421	Lindsey	Hudak	Red Bud	6/20/2024	UCS
422	Vania	Hudson Perry	Country Club Hil	6/18/2024	RHA
423	David	Hudzinski	Chicago	6/20/2024	UCS
424	Melodie	Huffman	Danville	6/21/2024	UCS
425	Ruth	Humphrey	Metamora	6/21/2024	Sierra Club
426	Sharif	Husseini	Chicago	6/11/2024	Sierra Club
427	James	Iberg	Evanston	6/20/2024	UCS
428	Giulia	Isetti	Berwyn	6/15/2024	Sierra Club
429	Kim	Jacobs	Springfield	6/6/2024	Sierra Club
430	Paul	Jacobson	Oak Park	6/20/2024	UCS
431	Dale	Janssen	Homer Glen	6/11/2024	EDF
432	Kathleen	Janssen	Lakemoor	6/20/2024	UCS
433	Amanda	Jenkins	Oak Park	5/29/2024	Sierra Club
434	Maynard	Jerome	Channahon	6/20/2024	UCS
435	Charles	Jesse	Chicago	6/17/2024	Sierra Club
436	Carol	Johnson	North Auora	6/10/2024	EDF
437	Cheryl	Johnson	Chicago	6/6/2024	NETZ
438	Broderick	Johnson	Chicago	6/20/2024	UCS
439	Amy	Johnson	Chicago	5/20/2024	Sierra Club
440	Christopher	Johnson	Highland Park	5/29/2024	Sierra Club
441	Linda	Johnston	Mount Prospect	6/22/2024	UCS
442	Kenneth	Jones	Evanston	6/20/2024	UCS
443	Pamela	Jones	Chicago	6/5/2024	Sierra Club
444	Charlotte	Jones	Elmhurst	6/18/2024	Sierra Club
445	Bob	Jorgensen	East Peoria	6/20/2024	UCS
446	Marguerite	Juliusson	Chicago	6/10/2024	EDF
447	Stephen	Julstrom	Chicago	6/20/2024	UCS
448	Kathryn	K	Northbrook	6/22/2024	UCS
449	Kristin	Kalamatas	Schaumburg	6/6/2024	Sierra Club
450	Dagmara	Kalnins	Chicago	6/10/2024	EDF
451	Jeffrey	Karzen	Vernon Hills	6/15/2024	Sierra Club
452	T.	Katz	Deerfield	6/18/2024	Sierra Club
453	Don	Kauffold	Arlington Heights	6/20/2024	UCS
454	Lisa	Kay	Evanston	5/18/2024	Sierra Club
455	Laura	Kearney	Antioch	6/7/2024	Sierra Club
456	Jillian	Kegley	Chicago	6/20/2024	UCS
457	Kathy	Kelly	Chicago	6/20/2024	UCS
458	James	Kempner	Chicago	6/6/2024	Sierra Club
459	Lee	Kendall	Chicago	5/17/2024	Sierra Club
460	Robert	Kennedy	Chicago	6/20/2024	UCS
461	Patrick	Kenny	Chicago	6/9/2024	Sierra Club
462	Debra	Kern	Cary	6/20/2024	UCS
463	Roberta	Kessler	Crest Hill	6/20/2024	UCS
464	Nancy	Kiec	Chicago	6/20/2024	UCS
465	Danny	Kiec	Chicago	6/20/2024	UCS
466	Bob	Killelea	Orland Park	6/18/2024	RHA
467	Linda	King	Lindenhurst	5/17/2024	Sierra Club
468	Todd	Kinney	Urbana	6/20/2024	UCS
469	Linda	Kitchen	Oak Park	6/20/2024	UCS
470	Elaine	Kittredge	Elgin	6/20/2024	UCS
471	Carl	Klein	Evanston	6/6/2024	Sierra Club
472	Cynthia	Klein-Banai	Oak Park	6/6/2024	Sierra Club
473	William	Kline	Carbondale	6/2/2024	Sierra Club
474	Joanna	Kling	Urbana	6/6/2024	Sierra Club
475	Joseph	Klingelhoffer	Chicago	5/17/2024	Sierra Club
476	Brian	Klubek	Murphysboro	6/20/2024	UCS
477	Glenn	Knoblock	Joliet	6/10/2024	EDF
478	Ron	Kochman	Kenilworth	5/17/2024	Sierra Club
479	William	Koehl	Geneva	5/21/2024	Sierra Club
480	Patricia	Koehler	New Berlin	6/20/2024	UCS
481	Josef	Koeppl	Zion	6/20/2024	UCS
482	James	kohler	Chicago	6/7/2024	Sierra Club
483	Rebecca	Kolar	Makanda	6/20/2024	UCS
484	Maureen	Koneval	Chicago	6/20/2024	UCS
485	Lillian	Korous	Jacksonville	6/20/2024	UCS
486	Jean	Korte	Highland	6/7/2024	Sierra Club
487	James	Kovac	Streamwood	6/20/2024	UCS
488	Adam	Kovac	Chicago	6/20/2024	UCS
489	Cherie	Kraft	West Chicago	6/17/2024	Sierra Club
490	J.	Kramer	Woodridge	6/10/2024	EDF
491	Darlene	Kramer	Belleville	6/10/2024	EDF
492	Dennis	Kreiner	Carpentersville	6/18/2024	Sierra Club
493	Matt	Kroner	Quincy	6/20/2024	UCS
494	Jessica	Kronika	Elk Grove Village	6/5/2024	Sierra Club
495	Chris	Krusa	Glen Carbon	5/29/2024	Sierra Club
496	Clarence	Krygsheld	Bolingbrook	5/18/2024	Sierra Club
497	Mary	Kuffner	Chicago	6/19/2024	Sierra Club
498	Kathleen	Kuper	Mokena	6/5/2024	Sierra Club
499	Roger	Kushla	Evanston	6/10/2024	EDF
500	Frederic	Kuzel	Riverside	6/17/2024	Sierra Club
501	Alison	La Barge	Carol Stream	6/20/2024	UCS
502	Deborah	Labb	Riverside	6/21/2024	UCS
503	Diane	LaMagdeleine	La Grange Highl	6/20/2024	UCS
504	Robert	Lamb	Hoffman Estates	6/21/2024	UCS
505	Laura	Landmeier	Arlington Heights	6/7/2024	Sierra Club
506	Jennifer	Landolfi	Chicago	6/20/2024	UCS
507	Bill	Lange	Evanston	6/20/2024	UCS
508	Eric	Langer	Palatine	6/7/2024	Sierra Club
509	Richard	Langworthy	Chicago	6/11/2024	EDF
510	Susan	Lantow	Plainfield	6/20/2024	UCS
511	Alena	Laube	Highland Park	5/20/2024	Sierra Club
512	Lois	Lauer	Palos Heights	6/5/2024	Sierra Club
513	Edmund	Leahy	Spring Valley	6/21/2024	UCS
514	Susan	Leaver	Elgin	6/7/2024	Sierra Club
515	Jacqueline	Leavy	Oak Park	6/20/2024	UCS

516	Deborah	Lee	Chicago	6/10/2024	EDF
517	Christopher	Lee	Chicago	6/21/2024	UCS
518	Martha	Lehman	Grayslake	6/14/2024	Sierra Club
519	Doris	Lein	Yorkville	6/20/2024	UCS
520	Nancy	Leiting	Lemont	6/6/2024	Sierra Club
521	Erdmut	Lerner	Evanston	6/20/2024	UCS
522	Eleanor	Lesh	La Grange Park	6/11/2024	EDF
523	Barry	Levenstam	Winnetka	6/14/2024	RHA
524	Grant W.	Levitan	Naperville	5/20/2024	Sierra Club
525	R	Levy	Naperville	6/20/2024	UCS
526	James	Lewis	Joliet	5/30/2024	RHA
527	Georgia	Libbares	Chicago	6/10/2024	EDF
528	Joel	Libman	Chicago	6/20/2024	UCS
529	Paul	Licata	Chicago	6/14/2024	Sierra Club
530	Bob	Lichtenbert	Chicago	6/20/2024	UCS
531	Susan	Link	Belleville	5/31/2024	Sierra Club
532	Miriam	Link-Mullison	Carbondale	6/2/2024	Sierra Club
533	Kristine	Linquist	Worth	6/18/2024	Sierra Club
534	Linda	Linsin	Marion	6/2/2024	Sierra Club
535	Cynthia	Linton	Chicago	5/30/2024	Sierra Club
536	Jennifer	Linton	Chicago	5/30/2024	Sierra Club
537	Clare	Lipinski	Chicago	6/20/2024	UCS
538	Barbara	Liszeo	Homewood	6/18/2024	Sierra Club
539	BobbyKat	LittleCub	Bradley	6/20/2024	UCS
540	Joel	Liveris	Park Ridge	6/22/2024	UCS
541	Kristin	Logerquist	Oak Park	6/20/2024	UCS
542	Dan	Lombardi	Lombard	5/20/2024	Sierra Club
543	Francisco	Lopez Zavala	Chicago	6/21/2024	Sierra Club
544	Douglas	Lubash	Park Ridge	6/18/2024	Sierra Club
545	Mary	Lubertozzi	Olympia Fields	6/7/2024	Sierra Club
546	Greg	Luna	Rockford	5/18/2024	Sierra Club
547	Mark	Lundholm	Palatine	6/10/2024	EDF
548	Chris	M	Chicago	6/20/2024	UCS
549	Megan	M	Woodridge	6/8/2024	Sierra Club
550	Carolina	Macias	Cicero	6/5/2024	NETZ
551	John	MacKey	Chicago	6/6/2024	Sierra Club
552	Annie	Magdziarz	Chicago	5/22/2024	Sierra Club
553	Leo	Magnifico	Long Grove	6/7/2024	Sierra Club
554	Thomas	Maillard	Waukegan	6/6/2024	Sierra Club
555	Stephanie	Malench	Edwardsville	5/31/2024	Sierra Club
556	James	Malone	Bridgeview	6/6/2024	Sierra Club
557	Renee	Mann	Chicago	6/20/2024	UCS
558	Daniel	Manobianco	Chicago	6/7/2024	Sierra Club
559	John	Mansfield	Elmhurst	6/20/2024	UCS
560	Anthony	Marinelli	Glenview	6/15/2024	RHA
561	Peter	Mark	Woodstock	6/10/2024	EDF
562	Carole	Mark	Evanston	6/20/2024	UCS
563	R A	Markowicz	Chicago	6/20/2024	UCS
564	John	Marro	Chicago	6/20/2024	UCS
565	Carolyn	Marsalek	Chicago	6/7/2024	Sierra Club
566	Gary	Marshall	Chicago	6/1/2024	Sierra Club
567	Laurie	Marston	Highland Park	6/20/2024	UCS
568	Joan	Martellotto	Wheaton	6/20/2024	UCS
569	Helen	Martin	Peoria	6/20/2024	UCS
570	Jennifer	Martin	Chicago Heights	6/14/2024	Sierra Club
571	Patricia	Martinez	Lake in the Hills	6/6/2024	Sierra Club
572	Gina	Marzano	New Lenox	6/12/2024	Sierra Club
573	Linda	Masloske	Hawthorn Woods	6/14/2024	Sierra Club
574	Joyce	Mast	Champaign	6/6/2024	Sierra Club
575	Mary	Mathews	Lake Forest	6/6/2024	Sierra Club
576	Michele	Mathiesen	Chicago	6/14/2024	Sierra Club
577	Dolores	Mauloff	Chicago	6/6/2024	Sierra Club
578	Susan	Maurer	Skokie	6/20/2024	UCS
579	Lana	May	Mt Prospect	6/20/2024	UCS
580	Vicki	May	Forest Park	6/20/2024	UCS
581	Rosemary	Maziarz	Saint Charles	5/18/2024	Sierra Club
582	Gary	Mazzotti	Cantrall	6/20/2024	UCS
583	Elizabeth	McAuliffe	Springfield	6/6/2024	Sierra Club
584	Ann	McCabe	Chicago	6/10/2024	EDF
585	Pamela	McCann	Chicago	6/20/2024	UCS
586	Gerald	McConoughey	Moline	5/18/2024	Sierra Club
587	Emily	McCormick	Chicago	6/20/2024	UCS
588	Shar	McCoy	Oak Park	6/18/2024	Sierra Club
589	Ryan	McCray	Chicago	5/21/2024	Sierra Club
590	Elizabeth	McCreless	Chicago	5/21/2024	Sierra Club
591	Jean	McCullough	Chicago	5/31/2024	RHA
592	Brian	McCullough	Batavia	6/10/2024	Sierra Club
593	Janet	McDonnell	Arlington Heights	6/7/2024	Sierra Club
594	Tracey	McFadden	Elburn	5/29/2024	Sierra Club
595	Dennis	McGee	Chicago	5/17/2024	Sierra Club
596	Marla	McGinnis	Oak Park	6/10/2024	EDF
597	Ryan	McIntyre	Chicago	5/18/2024	Sierra Club
598	Barbara	McKasson	Carbondale	5/31/2024	Sierra Club
599	Kevin	McKee	Troy	5/31/2024	Sierra Club
600	Lori	McKiernan	Springfield	5/29/2024	Sierra Club
601	Rebecca	McLane	Oak Park	6/18/2024	Sierra Club
602	Rosalie	McMenamin	Chicago	6/21/2024	UCS
603	Marion	Mcnamara	Barrington	6/20/2024	UCS
604	Rosemarie	McPeake	Sugar Grove	6/20/2024	UCS
605	Susan	McTigue	Countryside	6/16/2024	Sierra Club
606	Joy	Meade	Geneva	5/21/2024	Sierra Club
607	Kathy	Meier	Okawville	6/20/2024	UCS
608	Marlene	Meisels	Chicago	6/23/2024	UCS
609	Patricia	Menges	River Forest	6/20/2024	UCS
610	Karl	Mennecke	Glen Ellyn	6/10/2024	EDF
611	David	Menz	Leaf River	6/20/2024	UCS
612	Robyn	Mericle	Chicago	6/20/2024	UCS
613	Lawrence	Merrill	Roselle	5/18/2024	Sierra Club
614	Frank	Merritt	Glen Ellyn	5/18/2024	Sierra Club
615	Savanna	Messier	Belleville	6/14/2024	Sierra Club
616	Sarah	Meyer Hughes	Chicago	6/18/2024	RHA
617	Robert	Michaelson	Evanston	6/20/2024	UCS
618	Kathy	Michaelson	Rockton	6/20/2024	UCS
619	Mary Anne	Michelet	Peoria	6/18/2024	Sierra Club
620	Celia	Michener	Evanston	6/20/2024	UCS
621	George	Milkowski	Chicago	6/10/2024	EDF
622	John	Miller	Carol Stream	6/20/2024	UCS
623	Mike	Miller	Medinah	5/17/2024	Sierra Club
624	Krista	Miller	Chicago	6/6/2024	Sierra Club
625	Steve	Miller	Hawthorne Woo	6/14/2024	Sierra Club
626	Melanie	Minuche	Chicago	5/30/2024	RHA
627	Rohan	Mitra	Northbrook	5/21/2024	Sierra Club
628	Alicia	Mlsna	Naperville	5/17/2024	Sierra Club
629	Julie	Moller	Chicago	5/29/2024	Sierra Club
630	Valerie	Mollet	Glen Carbon	5/31/2024	Sierra Club
631	Barbara	Monier	Evanston	6/20/2024	UCS
632	Thomas	Moore	Shorewood	6/20/2024	UCS
633	Diane	Morgan	Chicago	5/18/2024	Sierra Club
634	Glenn T	Morgan Sr	Naperville	6/11/2024	EDF
635	Rachael	Morkunas	Chicago	5/31/2024	RHA
636	Liz	Morris	Evanston	6/11/2024	EDF
637	Halle	Morrison	Chicago	5/22/2024	Sierra Club
638	Paul	Moscato	Crestwood	6/10/2024	EDF
639	K	Mozingo	Yorkville	6/17/2024	Sierra Club
640	Mark	Mroch	Brookfield	6/6/2024	Sierra Club
641	Janet	Mroczek	Chicago	6/6/2024	Sierra Club
642	Mark	Muehlhausen	Schaumburg	5/22/2024	Sierra Club
643	Brian	Muhr	Charleston	6/7/2024	Sierra Club
644	Kathleen	Murphy	Park Forest	6/20/2024	UCS
645	Sarah	Myslis	Lake Villa	6/5/2024	Sierra Club
646	Michael	Naccache	Chicago	5/29/2024	Sierra Club
647	Gary	Naglich	Worden	6/22/2024	UCS
648	Adrienne	Naumann	Skokie	6/10/2024	EDF
649	Robert	Needleman	Chicago	6/5/2024	Sierra Club
650	Linda	Negele	Naperville	6/6/2024	Sierra Club
651	William	Neill	Chicago	6/6/2024	Sierra Club
652	Richard	Nelson	Richton Park	6/6/2024	Sierra Club
653	Sarah	Neurauter	Chicago	6/7/2024	Sierra Club
654	Bert	Newsom	Joliet	6/20/2024	UCS
655	Vien	Nguyen	Evanston	6/11/2024	Sierra Club
656	Kelly	Nichols	Chicago	6/17/2024	RHA
657	Kaitlyn	Nicholson	Mount Prospect	6/7/2024	Sierra Club
658	Mike	Nielsen	Lisle	6/6/2024	Sierra Club
659	Letitia	Noel	Chicago	5/18/2024	Sierra Club
660	Elizabeth	Nolan	Decatur	6/20/2024	UCS
661	Julie	Nold	Glenview	5/19/2024	Sierra Club
662	Ron	Nosek	Elmhurst	6/21/2024	UCS
663	Elisabeth	Noty	Chicago	6/11/2024	EDF
664	June	Novalich	Berwyn	6/18/2024	Sierra Club
665	Lois	Nowak	Chicago	6/7/2024	Sierra Club
666	Tim	Noworyta	Chicago	5/17/2024	Sierra Club
667	Elizabeth	Nungaray	Chicago	5/30/2024	RHA
668	Midge	O'Brien	Savoy	6/20/2024	UCS
669	Joanna	O'Brien	Hawthorn Woods	6/15/2024	Sierra Club
670	Chris	O'Connell	Schaumburg	6/10/2024	EDF
671	Joe	O'Toole	Chicago	6/10/2024	EDF
672	Ilka	Oberst	Chicago	6/1/2024	Sierra Club
673	Feliciano	Ocegueda	Chicago	6/5/2024	NETZ
674	Linda	Oestry Richards	Glen Carbon	6/7/2024	Sierra Club
675	Lance	Ofenloch	Chicago	6/20/2024	UCS
676	Ben	Ogren	Crystal Lake	5/17/2024	Sierra Club
677	Thomas	Olmsted	Chicago	6/20/2024	UCS
678	David	Olson	Cambridge	5/17/2024	Sierra Club
679	Katie	Olsson	Bloomington	6/7/2024	Sierra Club
680	Michael	Ondek	Roselle	6/6/2024	Sierra Club
681	Toni	Oplt	Edwardsville	6/2/2024	Sierra Club
682	Mitchell	Orman	Chicago	6/20/2024	UCS
683	Maryjo	Osowski	La Grange Park	6/9/2024	Sierra Club
684	Gregory	Ott	Lansing	5/29/2024	Sierra Club
685	Jean	Owen	Joliet	6/20/2024	UCS
686	Douglas	Ower	Zion	6/3/2024	Sierra Club
687	Diane	Ower	Zion	6/4/2024	Sierra Club

688	Rene M	Paccha	Chicago	6/5/2024	Sierra Club
689	Jen	Packheiser	Oak Park	6/6/2024	Sierra Club
690	Amanda	Pankau	Monticello	5/21/2024	Sierra Club
691	Stacy	Papangelis	Chicago	5/18/2024	Sierra Club
692	Patty	Pape	Chicago	6/10/2024	EDF
693	Jim	Parks	Elmhurst	5/18/2024	Sierra Club
694	Cindy	Parrone	Murphysboro	6/20/2024	UCS
695	Rhonda	Parsons	Rockford	6/6/2024	Sierra Club
696	Michael	Pasteris	Monee	6/6/2024	Sierra Club
697	Susan	Pastin	Chicago	6/20/2024	UCS
698	Sharon	Pastirik	Chicago	5/20/2024	Sierra Club
699	Muhammed	Patel	Chicago	6/5/2024	Sierra Club
700	Karen	Patterson	Homewood	6/20/2024	UCS
701	Sam	Payne	Forest Park	6/14/2024	Sierra Club
702	Suzanne	Pearson	Bloomington	6/12/2024	EDF
703	Steven	Pedlow	Orland Park	5/18/2024	Sierra Club
704	Barbara	Peloquin	Evanston	6/20/2024	UCS
705	Aneika	Perez	Chicago	6/6/2024	NETZ
706	Pamela	Perkins	Glenwood	5/30/2024	RHA
707	David	Pesqueira	Chicago	5/30/2024	RHA
708	Kim	Peterson	Arlington Height	6/20/2024	UCS
709	Karen	Peterson	Northbrook	6/20/2024	UCS
710	Richard	Peterson	Northbrook	6/20/2024	UCS
711	Eleanor	Peterson	Evanston	6/14/2024	Sierra Club
712	Carolyn	Petrakis	Chicago	6/10/2024	EDF
713	Christian	Petriak	Crystal Lake	6/20/2024	UCS
714	Frank	Pettis	Waukegan	6/5/2024	Sierra Club
715	Sara	Philipp	Chicago	6/6/2024	Sierra Club
716	Jeff	Philips	La Grange	6/17/2024	RHA
717	Gloria	Picchetti	Chicago	6/6/2024	Sierra Club
718	Leonard	Piersialla	Willow Springs	6/6/2024	Sierra Club
719	Anna	Pieta	Hawthorn Woods	6/14/2024	Sierra Club
720	Julie	Pietryla	Indian Head Par	6/6/2024	Sierra Club
721	Dolores	Pino	Chicago	6/10/2024	EDF
722	Robin	Pinsof	Highland Park	6/7/2024	Sierra Club
723	Ellen	Pitstick	Lisle	6/20/2024	UCS
724	Patricia	Podboy	Carpentersville	6/20/2024	UCS
725	Kathryn	Podgorski	Lansing	6/6/2024	Sierra Club
726	John	Poelking	Arlington Height	5/18/2024	Sierra Club
727	Laurie	Poelking	Arlington Height	5/21/2024	Sierra Club
728	Daniel	Polley	Chicago	6/10/2024	EDF
729	Zhenya	Polozova	Chicago	6/6/2024	Sierra Club
730	Carole	Pooler	Chicago	6/11/2024	EDF
731	Jacquelyn	Pope	Oak Park	5/17/2024	Sierra Club
732	Benieta	Powell	Makanda	6/2/2024	Sierra Club
733	Pat	Powers	Alton	6/4/2024	Sierra Club
734	William	Prendki	Steward	6/15/2024	Sierra Club
735	Jane	Primack	Long Grove	6/14/2024	Sierra Club
736	Lynda	Prttusha	Burr Ridge	6/18/2024	Sierra Club
737	Patricia	Pruitt	Oak Park	6/18/2024	Sierra Club
738	J	Pszanka	Lombard	6/18/2024	Sierra Club
739	Jason	Pyrz	Lombard	6/14/2024	RHA
740	Elizabeth	Quigg	Wheaton	6/6/2024	Sierra Club
741	Annette	Raatz	Chicago	6/6/2024	Sierra Club
742	Cynthia	Ralls	Plano	6/7/2024	Sierra Club
743	Carlos	Ramos	Kansas City	5/30/2024	RHA
744	Nathaniel	Randall	Springfield	6/17/2024	Sierra Club
745	Addie	Randecker	Des Plaines	6/6/2024	Sierra Club
746	Tyler	Ranieri	Villa Park	6/14/2024	Sierra Club
747	Gayathri	Rao	Chicago	6/18/2024	RHA
748	Jonathan	Ratner	Mount Prospect	6/21/2024	UCS
749	Monica	Rauch	Chicago	6/14/2024	RHA
750	Bob	Rayburn	Chicago	6/20/2024	UCS
751	Sandi	Redman	Skokie	6/20/2024	UCS
752	Liz	Reed	Lake Villa	6/10/2024	EDF
753	Le	Reeves	Mokena	6/20/2024	UCS
754	Monica	Regan	Homewood	5/18/2024	Sierra Club
755	Michael	Reich	Glendale Height	5/17/2024	Sierra Club
756	Dan	Rekowski	Chicago	6/14/2024	RHA
757	James	Renshaw	Carbondale	6/7/2024	Sierra Club
758	Cynthia	Reynolds	Evanston	5/18/2024	Sierra Club
759	Julie	Rice	Evanston	6/11/2024	EDF
760	Mary	Rice	Roselle	5/29/2024	Sierra Club
761	Bonnie	Richardson	Chicago	6/6/2024	Sierra Club
762	Jesse	Richardville	Chicago	6/20/2024	UCS
763	Pamela	Richart	Champaign	6/22/2024	Sierra Club
764	Christie	Ricketts	Peoria	5/18/2024	Sierra Club
765	Kimberly	Rigger	Chicago	6/6/2024	Sierra Club
766	Linda	Roberts	Burr Ridge	6/11/2024	EDF
767	Michael	Robles	Westchester	6/20/2024	UCS
768	Alex	Rodriguez	Chicago	6/14/2024	RHA
769	Susan	Rook	Plainfield	6/10/2024	EDF
770	Jane	Roseen	Lansing	5/18/2024	Sierra Club
771	Holly	Rosencranz	Urbana	6/22/2024	Sierra Club
772	Gavin	Rosengarten	Chicago	6/1/2024	Sierra Club
773	John	Rosing	Cary	6/20/2024	UCS
774	John	Rospenda	Deerfield	6/15/2024	Sierra Club
775	Jeremy	Rossman	Chicago	6/20/2024	UCS
776	Shannon	Rule	Peoria	6/21/2024	Sierra Club
777	Matthew	Rundquist	Chicago	6/8/2024	NETZ
778	Brian	Runft	Chicago	6/20/2024	UCS
779	Ronald	Rutzky	Homewood	6/20/2024	UCS
780	Jennifer	Ryan	Roselle	5/31/2024	RHA
781	Amy	Rynell	Oak Park	5/31/2024	Sierra Club
782	Michael	Rynes	Naperville	6/10/2024	EDF
783	Dawn	Sachs	Chicago	6/20/2024	UCS
784	Paul	Safyan	Des Plaines	6/4/2024	Sierra Club
785	Erica	Salem	Chicago	6/14/2024	RHA
786	Myrna	Salgado	Chicago	6/4/2024	NETZ
787	Philip	Sallee	Pleasant Plains	6/20/2024	UCS
788	Ethan	Saltzberg	Chicago	5/20/2024	Sierra Club
789	Erick	Salvatierra	Chicago	5/22/2024	Sierra Club
790	Beatriz	Sanchez	Chicago	6/19/2024	Sierra Club
791	Janice	Saneas	Libertyviille	6/18/2024	Sierra Club
792	Janice	Sanes	Libertyville	5/20/2024	Sierra Club
793	Ellen	Sansone	Northbrook	6/20/2024	UCS
794	William	Sasso	Carbondale	6/2/2024	Sierra Club
795	Nicole	Saulsberry	Springfield	5/21/2024	Sierra Club
796	Terri	Saurs	Decatur	5/18/2024	Sierra Club
797	Michael	Savanelli	Brookfield	6/14/2024	RHA
798	Rebecca	Sawle	Libertyville	6/6/2024	Sierra Club
799	Colleen	Scheitrum	Chicago	5/18/2024	Sierra Club
800	Peter	Schellhorn	Glenview	6/11/2024	EDF
801	Craig	Scheunemann	Chicago	6/20/2024	UCS
802	Joshua	Schleman	Chicago	5/17/2024	Sierra Club
803	Nancy	Schmidt	Schaumburg	6/11/2024	EDF
804	Connie	Schmidt	Warrenville	5/29/2024	Sierra Club
805	Ulrich	Schmidt	Carbondale	6/6/2024	Sierra Club
806	Christine	Schmidt	Schaumburg	6/15/2024	Sierra Club
807	Kathy	Schnur	Mount Prospect	6/6/2024	Sierra Club
808	Frances	Schoonhoven	Forreston	6/20/2024	UCS
809	Eva	Schuchardt	Lombard	6/6/2024	Sierra Club
810	Steve	Schueth	Chicago	6/20/2024	UCS
811	Michael	Schuette	Wilmette	6/20/2024	UCS
812	Carey	Schug	Des Plaines	6/6/2024	Sierra Club
813	Catharine	Schutzius	Chicago	5/21/2024	Sierra Club
814	James	Schwarz	Evanston	6/20/2024	UCS
815	Carol	Scotton	Galesburg	6/20/2024	UCS
816	Richard	Scovill	Aurora	6/20/2024	UCS
817	Cecilia	Seabrook	Crest Hill	6/10/2024	EDF
818	Alice	Sedy	Chicago	6/20/2024	UCS
819	Jerome	Seidenfeld	Chicago	5/22/2024	Sierra Club
820	Mark	Servis	Lisle	6/20/2024	UCS
821	Kathryn	Setlak	Palos Heights	6/6/2024	Sierra Club
822	Tarik	Shahzad	Chicago	6/24/2024	Sierra Club
823	Steven	Shamrock	Naperville	5/29/2024	Sierra Club
824	Eileen	Shanley-Roberts	Highland Park	6/22/2024	Sierra Club
825	Ellene	Shapiro	Highland Park	6/6/2024	Sierra Club
826	Mary	Shaw	Bissell	6/10/2024	EDF
827	Clara	Sheffer	Lincolnwood	6/21/2024	UCS
828	Julia	Shelton	Champaign	5/19/2024	Sierra Club
829	Norman	Shepard	Girard	5/18/2024	Sierra Club
830	Mary	Shesgreen	Elgin	6/20/2024	UCS
831	Tanya	Sheth	Chicago	5/22/2024	Sierra Club
832	Pamela	Shimizu	Chicago	5/17/2024	Sierra Club
833	Jeanette	Shutay	Homer Glen	6/20/2024	UCS
834	John	Siegle	Chicago	6/20/2024	UCS
835	Yeniffer	Silfa	Skokie	6/6/2024	Sierra Club
836	Eva	Silverman	Chicago	6/7/2024	Sierra Club
837	Barbara	Silverman	Buffalo Grove	6/7/2024	Sierra Club
838	Iyana	Simba	Chicago	5/30/2024	RHA
839	Inga	Simitz	Oak Park	6/10/2024	EDF
840	Rick	Simkin	Chicago	5/17/2024	Sierra Club
841	Michael	Simmons	Rockford	6/6/2024	Sierra Club
842	Deb	Singleton	Deerfield	6/11/2024	EDF
843	Sean	Sivils	Chicago	6/20/2024	UCS
844	Linda	Sizemore	Highland Park	6/17/2024	Sierra Club
845	Judi	Slate	Elmhurst	6/20/2024	UCS
846	Andrew	Sloan	Chicago	5/29/2024	Sierra Club
847	David	Slobodkin	David	5/18/2024	Sierra Club
848	John A	Slosar, Jr	Glen Carbon	6/4/2024	Sierra Club
849	William	Slowinski	Oak Lawn	6/20/2024	UCS
850	Steven	Smigielski	Freeport	6/10/2024	EDF
851	Cameron	Smith	Normal	6/10/2024	EDF
852	Michael	Smith	Harrisburg	6/20/2024	UCS
853	Carol	Smith	Lockport	6/21/2024	UCS
854	Jennifer	Smith	Chicago	6/21/2024	UCS
855	Lora	Smith	Carmi	6/6/2024	Sierra Club
856	Fran	Smith	Chicago	6/6/2024	Sierra Club
857	Jenny	Smith	Hawthorn Wood	6/15/2024	Sierra Club
858	Curt	Smith	Chicago	6/7/2024	Sierra Club
859	Mark	Snawadzki	Chicago	5/23/2024	Sierra Club

860	Ana	Solano	Chicago	6/10/2024	NETZ
861	Steven	Sondheim	Chicago	5/29/2024	Sierra Club
862	Connor	Sparks	Chicago	5/22/2024	Sierra Club
863	Barbara	Spietz	Woodstock	6/11/2024	EDF
864	Katie	Stabb	Oak Park	5/19/2024	Sierra Club
865	Karen	Stacey	Chicago	6/20/2024	UCS
866	Mary	Stanton	Oak Park	6/20/2024	UCS
867	Sharon	Starr	Libertyville	6/20/2024	UCS
868	Francis	Staskon	Indian Head Par	6/20/2024	UCS
869	Greg	Stawinoga	South Holland	6/20/2024	UCS
870	Becky	StClair	Chicago	6/6/2024	Sierra Club
871	Jessie	Steckling	Chicago	5/20/2024	Sierra Club
872	Rick	Steger	Carbondale	5/31/2024	Sierra Club
873	Mary-Helen	Steindler	Chicago	6/10/2024	EDF
874	Sarah	Stelzer	Urbana	6/6/2024	Sierra Club
875	Janet	Stephens	Forest Park	6/20/2024	UCS
876	Allison	Stern	Chicago	6/1/2024	Sierra Club
877	Linda	Stevens	Downers Grove	6/20/2024	UCS
878	Jeanette	Stewart	Grayville	6/20/2024	UCS
879	John	Stillwell	Chicago	5/17/2024	Sierra Club
880	Sharon	Stolz	Chicago	6/19/2024	Sierra Club
881	Maryann	Stork	Fairbury	6/20/2024	UCS
882	Barbara-Jean	Stout	Blue Island	6/6/2024	Sierra Club
883	Julie	Strauss	Evanston	6/11/2024	EDF
884	MJ	Strimbu	Homewood	6/20/2024	UCS
885	Laura	Strong	Crystal Lake	6/6/2024	Sierra Club
886	Douglas	Stuart	Glenview	6/21/2024	UCS
887	David	Stuart	Chicago	6/6/2024	Sierra Club
888	Bill	Studzinski	Petersburg	6/20/2024	UCS
889	James	Stuhlmacher	Wheaton	5/18/2024	Sierra Club
890	Angelo	Sturino	Harwood Height	5/18/2024	Sierra Club
891	Michael	Stutzman	Mt Prospect	6/20/2024	UCS
892	Chris	Stwora	Berwyn	6/7/2024	Sierra Club
893	Florence	Sullivan	Chicago	6/6/2024	Sierra Club
894	Eric	Sullivan	Chicago	6/6/2024	Sierra Club
895	Linda	Sullivan	Lombard	6/12/2024	Sierra Club
896	Kyle	Sussman	Chicago	5/16/2024	Sierra Club
897	Eric Paul	Swanson	Chicago	6/10/2024	EDF
898	Julie	Swanson	Chicago	6/20/2024	UCS
899	Serena	Swanson	Chicago	6/1/2024	Sierra Club
900	Jerry	Swanson	Rockford	6/6/2024	Sierra Club
901	Jerry	Swarzman	Chicago	6/6/2024	Sierra Club
902	Mikie	Swier	Streamwood	6/6/2024	Sierra Club
903	Vicki	Szech	Libertyville	6/4/2024	Sierra Club
904	Thomas	Szot	Downers Grove	6/17/2024	Sierra Club
905	Ra	Szumal	Skokie	5/29/2024	Sierra Club
906	Marcus	Tabb	South Holland	5/21/2024	Sierra Club
907	Carol	Tafel	Mount Prospect	6/6/2024	Sierra Club
908	Barbara	Tait	Shorewood	6/10/2024	EDF
909	Pam	Tate	Oak Park	5/31/2024	Sierra Club
910	Carla	Taylor	Minooka	6/6/2024	Sierra Club
911	Jeremy	Taylor	Montrose	6/9/2024	Sierra Club
912	Bob	Teeghman	Arlington Height	5/22/2024	Sierra Club
913	William	Thake	Northlake	6/20/2024	UCS
914	Reynold	Tharp	Urbana	6/20/2024	UCS
915	Frances	Thomas	Chicago	6/20/2024	UCS
916	Ruthann	Thoresen	Hampshire	5/24/2024	Sierra Club
917	Linda	Tilton	Libertyville	6/4/2024	Sierra Club
918	Zemriah	Todd	Bolingbrook	5/18/2024	Sierra Club
919	Lawrence	Todruk	Grayslake	6/22/2024	Sierra Club
920	Jizelle	Torres	Urbana	5/21/2024	Sierra Club
921	Edith	Tovar	Chicago	6/5/2024	NETZ
922	Laurie	Towne	Chicago	6/20/2024	UCS
923	Patricia	Trakselis	Riverside	6/20/2024	UCS
924	Claudia	Trapp	Westmont	6/6/2024	Sierra Club
925	Carolyn	Trimble	Urbana	6/6/2024	Sierra Club
926	John	Trost	Palatine	6/20/2024	UCS
927	Arleigh	Truesdale	Chicago	5/22/2024	Sierra Club
928	Citlalli	Trujillo	Chicago	6/6/2024	NETZ
929	John	Tunca	Deerfield	6/20/2024	UCS
930	Aaron	Turkewitz	Chicago	6/6/2024	Sierra Club
931	Dianna	Uchida	Chicago	6/6/2024	Sierra Club
932	Brian	Urbaszewski	Chicago	5/22/2024	RHA
933	John	Urbonas	Plainfield	6/10/2024	EDF
934	Neal	Urteaga	Crest Hill	6/15/2024	Sierra Club
935	Paulina	Vaca	Chicago	6/11/2024	Sierra Club
936	Carole	Valencia	Granite City	6/18/2024	Sierra Club
937	Tom	Valente	Chicago	6/20/2024	UCS
938	Margaret	Van Dyke	Brookfield	6/11/2024	EDF
939	Erin	Van Ness	Chicago	6/22/2024	UCS
940	Mary	VanderMey	Mundelein	6/15/2024	Sierra Club
941	Diane	Vandiver	Bolingbrook	5/18/2024	Sierra Club
942	David	Vayo	Bloomington	6/6/2024	Sierra Club
943	Eberhard	Veit	Lakewood	6/10/2024	EDF
944	Doris	Verkamp	Charleston	6/10/2024	EDF
945	Wendy	Vernon	Carol Stream	5/27/2024	Sierra Club
946	Jenny	Vernon	Carol Stream	6/13/2024	Sierra Club
947	Donald	Viecelli	Arlington Height	6/11/2024	EDF
948	Linda	Vilimek	Palos Hills	6/6/2024	Sierra Club
949	Edgar	Villa	Berwyn	6/18/2024	NETZ
950	Dakar	Villa	Goodyear	6/18/2024	NETZ
951	Joseph	Vitti	Downers Grove	6/20/2024	UCS
952	Sativa	Volbrecht	Chicago	5/20/2024	Sierra Club
953	Katrina	Volbrecht	Steeamwood	5/20/2024	Sierra Club
954	Brad	Walker	Poplar Grove	6/20/2024	UCS
955	Laurie	Walter	Flossmoor	6/18/2024	Sierra Club
956	Patrica	Ward	Peoria	6/14/2024	Sierra Club
957	Tedd	Ward Jr.	Petersburg	6/21/2024	UCS
958	Mary	Warren	Wheaton	6/6/2024	Sierra Club
959	Sharon	Warsaski	Morton Grove	6/11/2024	EDF
960	John	Wasik	Grayslake	6/20/2024	UCS
961	Randall	Webb	Chicago	6/20/2024	UCS
962	Cassie	Weddle	Naperville	6/20/2024	UCS
963	Linda	Wegrzyn	Belleville	6/6/2024	Sierra Club
964	Xiao	Wei	Woodridge	5/29/2024	Sierra Club
965	Mark	Weinert	Elgin	5/17/2024	Sierra Club
966	David	Weiss	Chicago	6/10/2024	EDF
967	Robin	Weller	Grayslake	5/29/2024	Sierra Club
968	Michele	Whisenhunt	Sycamore	6/23/2024	Sierra Club
969	Jesse	Whisler	Brookfield	6/22/2024	Sierra Club
970	Yvonne	White	Kinmundy	6/20/2024	UCS
971	Sharon	White	New Lenox	6/5/2024	Sierra Club
972	David	Wilcox	Chicago	6/12/2024	EDF
973	Jalia	Wilkins	Chicago	6/18/2024	RHA
974	Marc	Willensky	Naperville	6/6/2024	Sierra Club
975	Janet	Williams	Chicago	6/14/2024	RHA
976	Dorothy	Williams	South Holland	5/31/2024	RHA
977	David	Williams	Grayslake	6/20/2024	UCS
978	Christine	Williamson	Chicago	5/21/2024	Sierra Club
979	Lauren	Williamson	Chicago	6/6/2024	Sierra Club
980	Ryan	Wilmington	Elgin	6/21/2024	Sierra Club
981	Jessica	Wimbley	Naperville	5/30/2024	RHA
982	Julie	Winsberg	Evanston	6/20/2024	UCS
983	Marie	Wiorski	Chicago	6/20/2024	UCS
984	Ann	Wiseman	Mansfield	6/10/2024	EDF
985	Martha	Witwer	Wilmette	6/20/2024	UCS
986	Amanda	Wojan	Chicago	6/14/2024	RHA
987	Debborah	Wolen	Evanston	6/19/2024	Sierra Club
988	Ben	Wolfenstein	Chicago	5/16/2024	Sierra Club
989	Carla	Womack	Pomona	5/30/2024	Sierra Club
990	Margaret	Wood	Naperville	6/10/2024	EDF
991	Hannah	Woodford	Chicago	6/6/2024	Sierra Club
992	Laura	Woods	Chicago	5/31/2024	RHA
993	Chris	Woods	Lake Villa	6/7/2024	Sierra Club
994	Caroline	Wooten	Chicago	5/16/2024	Sierra Club
995	David	Workman	Chicago	6/6/2024	Sierra Club
996	Kimball	Wright	Chicago	6/20/2024	UCS
997	Noah	Wright	Chicago	5/16/2024	Sierra Club
998	Robert	Yancey	Sorento	6/6/2024	Sierra Club
999	Janet	Yarboi	Chicago	5/22/2024	Sierra Club
1000	Sara	Yen	Evanston	5/21/2024	Sierra Club
1001	Natasha	Yergin	Villa Park	6/20/2024	UCS
1002	Lisa	Yondorf	Chicago	6/20/2024	UCS
1003	Janet	Yoshida-Gordon	Chicago	6/20/2024	UCS
1004	James	Yuvan	Plano	6/20/2024	UCS
1005	Zishan	Zahid	Bartlett	6/18/2024	RHA
1006	Cortney	Zaret	Chicago	6/20/2024	UCS
1007	Scott	Zeh	Antioch	6/23/2024	UCS
1008	Russ	Ziegler	Downers Grove	6/20/2024	UCS
1009	Sara	Zimmerman	Chicago	6/1/2024	Sierra Club
1010	Madison	Zimmerman	Rolling Meadow	6/18/2024	Sierra Club
1011	Susan	Zimny	Chicago	5/29/2024	Sierra Club
1012	Susan	Zingle	Wadsworth	6/3/2024	Sierra Club
1013	Vicki	Zoch	Woodstock	6/10/2024	EDF

INAPPLICABLE PROVISIONS (35 Ill. Admin. Code § 102.202(k))

Pursuant to 35 Ill. Admin. Code § 102.202(k), Rule Proponents state that 35 Ill. Admin. Code § 102.202(h) is inapplicable because it only applies when "the Agency proposes a rule it believes is federally required." This proposal is put forward by Rule Proponents rather than the Agency.

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
PROPOSED CLEAN CAR AND TRUCK STANDARDS	)	R 24 -
	)	(Rulemaking – Air)

APPEARANCE

I hereby filed my appearance in this proceeding on behalf of Rule Proponents Respiratory Health Association and Chicago Environmental Justice Network.

Date: June 27, 2024

/s/

Robert A. Weinstock
ARDC # 6311441
Northwestern Pritzker School of Law
Environmental Advocacy Center
357 E. Chicago Ave.
Chicago, IL 60611
(312) 503-1457
robert.weinstock@law.northwestern.edu

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
PROPOSED CLEAN CAR AND TRUCK STANDARDS	)	R 24 -
	)	(Rulemaking – Air)

APPEARANCE

I hereby filed my appearance in this proceeding on behalf of Rule Proponent Sierra Club.

Dated: June 27, 2024

/s/

Albert Ettinger
ARDC # 3125045
7100 N. Greenview
Chicago, Illinois 60626
(773) 818-4825
Ettinger.Albert@gmail.com

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
PROPOSED CLEAN CAR AND TRUCK STANDARDS	)	R 24 -
	)	(Rulemaking – Air)

APPEARANCE

I hereby filed my appearance in this proceeding on behalf of Rule Proponents Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, and Center for Neighborhood Technology.

Dated: June 27, 2024

/s/

Nathaniel Shoaff
Sierra Club Environmental Law Program
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 977-5610
Nathaniel.shoaff@sierraclub.org

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
PROPOSED CLEAN CAR AND TRUCK STANDARDS	)	R 24 -
	)	(Rulemaking – Air)

VERIFIED STATEMENT OF NATHANIEL SHOAFF

I, Nathaniel Shoaff, submit this Verified Statement pursuant to Illinois Supreme Court Rule 707.

1. My full name is Nathaniel T. Shoaff, my date of birth is November 30, 1979. The address of offices from which I practice law and related email address and telephone numbers are as follows:

Sierra Club Environmental Law Program
2101 Webster Street, Suite 1300
Oakland, CA 94612
415-977-5610
nathaniel.shoaff@sierraclub.org

2. I represent the Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, and Center for Neighborhood Technology before the Illinois Commerce Commission, case caption: *In the Matter of Proposed Clean Car and Truck Standards*.

3(a). I have not filed any other appearance pursuant to this rule during this calendar year.

4(a). I list each jurisdiction of admission, including any state, territory, or commonwealth of the United States, the District of Columbia, or in a foreign country, and my full admission name and license number.

California, Nathaniel Thomas Shoaff, State Bar Number 256641.

4(b). I attach a letter or certificate of good standing for each of the jurisdictions listed in paragraph 4(a) above.

5. I have no office or other presence in Illinois for the practice of law.

6. I submit to the disciplinary authority of the Supreme Court of Illinois;

7. I have undertaken to become familiar with and to comply, as if admitted to practice in Illinois, with the rules of the Supreme Court of Illinois, including the Illinois Rules of Professional Conduct and the Supreme Court Rules on Admission and Discipline of Attorneys, and other Illinois law and practices that pertain to the proceeding;

(8) The full name, business address and ARDC number of the Illinois attorney with whom I have associated in the matter is:

Albert Ettinger
ARDC 3125045
7100 N. Greenview
Chicago, Illinois 60626
(773) 818-4825
Ettinger.Albert@gmail.com

9. As indicated in the certificate of service, I certify that I have served this Statement upon the Illinois Pollution Control Board, the Attorney Registration and Disciplinary Commission of the Supreme Court of Illinois, and the Service List for the case and that these parties are all entitled to service under this rule.

Service by email: ARDC: rule707@iardc.org; Pollution Control Board: don.brown@illinois.gov; Office of the Attorney General: enviro@atg.state.il.us, Illinois EPA: epa.dlc@illinois.gov.

By U.S.P.S., postage pre-paid:
Office of Legal Services
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271

Verification

I verify the accuracy and completeness of each of the above statements.

Dated: June 27, 2024

/s/
Nathaniel Shoaff

THE STATE BAR OF CALIFORNIA
CERTIFICATE OF STANDING

May 8, 2024

TO WHOM IT MAY CONCERN:

This is to certify that according to the records of the State Bar, NATHANIEL THOMAS SHOAFF, #256641 was admitted to the practice of law in this state by the Supreme Court of California on June 9, 2008 and has been since that date, and is at date hereof, an ACTIVE licensee of the State Bar of California; and that no recommendation for discipline for professional or other misconduct has ever been made by the Board of Trustees or a Disciplinary Board to the Supreme Court of the State of California.

THE STATE BAR OF CALIFORNIA

Alex Calderon
Custodian of Records

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R 24 -
PROPOSED CLEAN CAR AND TRUCK STANDARDS	)	(Rulemaking – Air)

APPEARANCE

I hereby filed my appearance in this proceeding on behalf of Rule Proponents Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, and Center for Neighborhood Technology.

Dated: June 27, 2024

/s/

Joe Halso
Sierra Club Environmental Law Program
1536 Wynkoop Street, Suite 200
Denver, Colorado 80202
(303) 454-3365
joe.halso@sierraclub.org

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
PROPOSED CLEAN CAR AND TRUCK STANDARDS	)	R 24 -
	)	(Rulemaking – Air)

VERIFIED STATEMENT OF JOSEPH HALSO

I, Joseph Halso, submit this Verified Statement pursuant to Illinois Supreme Court Rule 707.

1. My full name is Joseph John Halso, and my date of birth is May 15, 1988. The address of offices from which I practice law and related email address and telephone numbers are as follows:

Sierra Club Environmental Law Program
1536 Wynkoop Street, Suite 200
Denver, Colorado 80202
303-454-3365
joe.halso@sierraclub.org

2. I represent the Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, and Center for Neighborhood Technology before the Illinois Commerce Commission, case caption: *In the Matter of Proposed Clean Car and Truck Standards*.

3(a). I have not filed any other appearance pursuant to this rule during this calendar year.

3(b). I have not received a registration number from the ARDC.

4(a). I list each jurisdiction of admission, including any state, territory, or commonwealth of the United States, the District of Columbia, or in a foreign country, and my full admission name and license number.

Colorado, Joseph John Halso, #48666

4(b). I attach a letter or certificate of good standing for each of the jurisdictions listed in paragraph 4(a) above.

5. I have no office or other presence in Illinois for the practice of law.

6. I submit to the disciplinary authority of the Supreme Court of Illinois.

7. I have undertaken to become familiar with and to comply, as if admitted to practice in Illinois, with the rules of the Supreme Court of Illinois, including the Illinois Rules of Professional Conduct and the Supreme Court Rules on Admission and Discipline of Attorneys, and other Illinois law and practices that pertain to the proceeding.

(8) The full name, business address and ARDC number of the Illinois attorney with whom I have associated in the matter is:

Albert Ettinger
ARDC 3125045
7100 N. Greenview
Chicago, Illinois 60626
(773) 818-4825
Ettinger.Albert@gmail.com

9. I certify that I have served this Statement upon the Illinois Pollution Control Board, the Attorney Registration and Disciplinary Commission of the Supreme Court of Illinois, and the Service List for the case and that these parties are all entitled to service under this rule.

Service by email: ARDC: rule707@iardc.org; Pollution Control Board: don.brown@illinois.gov; Office of the Attorney General: enviro@atg.state.il.us, Illinois EPA: epa.dlc@illinois.gov.

By U.S.P.S., postage pre-paid:
Office of Legal Services
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271

Verification

I verify the accuracy and completeness of each of the above statements.

Dated: June 27, 2024

/s/
Joe Halso

SUPREME COURT

State of Colorado,

STATE OF COLORADO, ss:

I, ***Cheryl Stevens*** *, Clerk of the Supreme Court of the State of Colorado, do hereby certify that*

Joseph J. Halso

has been duly licensed and admitted to practice as an

ATTORNEY AND COUNSELOR AT LAW

within this State; and that his/her name appears upon the Roll of Attorneys and Counselors at Law in my office of date the ***13th*** *day of* ***October*** *A.D.* ***2015*** *and that at the date hereof the said* ***Joseph J. Halso*** *is in good standing at this Bar.*

IN WITNESS WHEREOF, *I have hereunto subscribed my name and affixed the Seal of said Supreme Court, at Denver, in said State, this* ***15th*** *day of* ***February*** *A.D.* ***2024***

Cheryl Stevens

Clerk

By _____

Deputy Clerk

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
PROPOSED CLEAN CAR AND TRUCK STANDARDS	)	R 24 -
	)	(Rulemaking – Air)

APPEARANCE

I hereby filed my appearance in this proceeding on behalf of Rule Proponents Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, and Center for Neighborhood Technology.

Dated: June 27, 2024

/s/
Jim Dennison

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
PROPOSED CLEAN CAR AND TRUCK STANDARDS	)	R 24 -
	)	(Rulemaking – Air)

VERIFIED STATEMENT OF JAMES ARLO DENNISON

I, James Arlo Dennison, submit this Verified Statement pursuant to Illinois Supreme Court Rule 707.

1. My full name is James Arlo Dennison, my date of birth is 11/25/1990. The address of offices from which I practice law and related email address and telephone numbers are as follows:

Sierra Club Environmental Law Program
1536 Wynkoop Street, Suite 200
Denver, Colorado 80202
(435) 232-5784
jim.dennison@sierraclub.org

2. I represent the Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, and Center for Neighborhood Technology before the Illinois Commerce Commission, case caption: *In the Matter of Proposed Clean Car and Truck Standards*.

3(a). I have not filed any other appearance pursuant to this rule during this calendar year.

3(b). I have not received a registration number from the ARDC.

4(a). I list each jurisdiction of admission, including any state, territory, or commonwealth of the United States, the District of Columbia, or in a foreign country, and my full admission name and license number.

Colorado: James Arlo Dennison, No. 52843

4(b). I attach a letter or certificate of good standing for each of the jurisdictions listed in paragraph 4(a) above.

5. I have no office or other presence in Illinois for the practice of law.

6. I submit to the disciplinary authority of the Supreme Court of Illinois;

7. I have undertaken to become familiar with and to comply, as if admitted to practice in Illinois, with the rules of the Supreme Court of Illinois, including the Illinois Rules of Professional Conduct and the Supreme Court Rules on Admission and Discipline of Attorneys, and other Illinois law and practices that pertain to the proceeding;

(8) The full name, business address and ARDC number of the Illinois attorney with whom I have associated in the matter is:

Albert Ettinger
ARDC 3125045
7100 N. Greenview
Chicago, Illinois 60626
(773) 818-4825
Ettinger.Albert@gmail.com

9. I certify that I have served this Statement upon the Illinois Pollution Control Board, the Attorney Registration and Disciplinary Commission of the Supreme Court of Illinois, and the Service List for the case and that these parties are all entitled to service under this rule.

Service by email: ARDC: rule707@iardc.org; Pollution Control Board: don.brown@illinois.gov; Office of the Attorney General: enviro@atg.state.il.us, Illinois EPA: epa.dlc@illinois.gov.

By U.S.P.S., postage pre-paid:
Office of Legal Services
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271

Verification

I verify the accuracy and completeness of each of the above statements.

Date: June 27, 2024 /s/
Jim Dennison

SUPREME COURT

State of Colorado.

STATE OF COLORADO, ss:

I, ***Cheryl Stevens*** *, Clerk of the Supreme Court of the State of Colorado, do hereby certify that*

James Arlo Dennison

has been duly licensed and admitted to practice as an

ATTORNEY AND COUNSELOR AT LAW

within this State; and that this name appears upon the Roll of Attorneys and Counselors at Law in my office of date the ***20th*** *day of* ***November*** *A.D.* ***2018*** *and that at the date hereof the said* ***James Arlo Dennison*** *is in good standing at this Bar.*

IN WITNESS WHEREOF, *I have hereunto subscribed my name and affixed the Seal of said Supreme Court, at Denver, in said State, this* ***2nd*** *day of* ***April*** *A.D.* ***2024***

Cheryl Stevens

Clerk

By Myra Sanchez

Deputy Clerk

CERTIFICATE OF SERVICE (35 Ill. Admin. Code § 102.202(f))

Pursuant to 35 Ill. Admin. Code §§ 101.304(d), 102.202(f), I certify that I have served the attached Notice of Filing; Appearances and related documents; Statement of Reasons, along with related exhibits; and Proposed Amendments adding new code section, 35 Ill. Admin. Code 242; description of published studies and reports used; synopsis of testimony to be presented; petition and signatures in support of the proposed rules; language of the proposed amendments; material to be incorporated by reference; certificate of origination, and certificate of service upon the following persons by mailing them via Federal Express (FedEx) mail, return-receipt requested, from my office mail drop at 375 E. Chicago Ave., Chicago IL 60611 and will drop it in the mail at or before 4pm CT, with proper postage or delivery charge prepaid.

Don Brown, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 W. Randolph St., Suite 11-500
Chicago, IL 60601
don.brown@illinois.gov

Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
epa.dlc@illinois.gov

Division Chief of Environmental Enforcement
Office of the Attorney General
100 W. Randolph Street, Suite 1200
Chicago, IL 60601
enviro@atg.state.il.us

Office of Legal Services
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271

Date: June 27, 2024

/s/ *Robert Weinstock*

Robert A. Weinstock
ARDC # 6311441
Northwestern Pritzker School of Law
Environmental Advocacy Center
357 E. Chicago Ave.
Chicago, IL 60611
(312) 503-1457
Robert.weinstock@law.northwestern.edu