

No. 24-7

IN THE
Supreme Court of the United States

— x —
DIAMOND ALTERNATIVE ENERGY, LLC
et al.,

Petitioners,

v.

ENVIRONMENTAL PROTECTION AGENCY
et al.,

Respondents.

— x —
On Writ of Certiorari to the
United States Court of Appeals for the
District of Columbia Circuit
— x —

**BRIEF OF AMICI INTERNATIONAL COUNCIL ON
CLEAN TRANSPORTATION AND THE
UNIVERSITY OF CALIFORNIA, DAVIS INSTITUTE
OF TRANSPORTATION STUDIES
IN SUPPORT OF RESPONDENTS**

— x —
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INTERESTS OF AMICI CURIAE¹

Amici are the International Council on Clean Transportation (“ICCT”) and the University of California, Davis Institute of Transportation Studies (“ITS-Davis”).

ICCT is an independent nonprofit organization that provides internationally recognized technical research and analysis to policymakers. ICCT staff members have authored or co-authored more than 68 reports and studies analyzing existing conditions, technological feasibility, and policy updates related to the development of greenhouse gas standards and other transportation-sector standards in the United States.

ITS-Davis is one of the world’s leading academic research centers focused on sustainable transportation and energy. It employs some of the foremost experts on the integration of electric vehicles into the U.S. electricity system, and its Electric Vehicle Research Center has conducted extensive empirical studies on electric vehicle deployment. ITS-Davis is uniquely positioned to aid the Court in evaluating the impacts of the challenged regulation and understanding the current state of zero-emission vehicle technology in California.

This amicus brief is intended to assist the Court by discussing the challenged regulation, its impact on the California automobile sector, and the state of

¹ Pursuant to Supreme Court Rule 37.6, no counsel for a party authored this brief in whole or part, and no party or their counsel made a monetary contribution intended to fund the preparation or submission of this brief. No person other than amici, their members, or their counsel made a monetary contribution intended to fund this brief’s preparation or submission.

zero-emission vehicle technology during the period covered by the regulation. The brief will also demonstrate that Petitioners' arguments rest on mistaken assumptions about the state of the market and the impact, or lack thereof, of the regulation in 2022.

SUMMARY OF ARGUMENT

In some cases, it may be that a regulated entity's response to the end of regulation is a "predictable" increase in the previously proscribed or limited conduct. In those cases, that response may well be "common sense" or "obvious," as Petitioners insist.

But this is not such a case. Here, through a combination of California's early efforts to encourage development of electric vehicles, a remarkable efflorescence of innovation by the automobile industry, and a surge in consumer demand for those vehicles, California's zero-emission-vehicle regulation had ceased to play a meaningful role in the automobile market by the time Petitioners filed suit in 2022.

The question presented focuses solely on "the coercive and predictable effects of regulation on third parties." As Amici will show, when Petitioners filed suit—ten years after California adopted its regulations—those regulations no longer had a coercive effect on the automobile industry. Accordingly, even if in an appropriate case "a party *may* establish the redressability component of Article III standing by relying on" such coercive, third-party effects, Petitioners could not have done so here even if they had tried.

California may have given the industry a push in 2012, and one might have called its regulation coercive at the time. But the industry reacted in ways

wholly unforeseen by regulators. Private-sector innovation over the subsequent ten years, particularly in increasing the range of electric vehicles, meant that, by 2022, industry was selling *far more* zero-emission vehicles, and those vehicles were traveling *much farther* on a charge, than California required. Given the industry's voluntary and dramatic overcompliance, it is "obvious" and "common sense" to conclude that any court order invalidating the Clean Air Act preemption waiver on which California's program depends would have no effect on the manufacturers' production of zero-emission vehicles or the liquid-fuel vehicles that Petitioners prefer. Petitioners therefore lack standing to press their claims under these unusual circumstances.

ARGUMENT

I. The challenged regulation in fact did not have the effect that Petitioners claim was "predictable" or "obvious."

*It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so.*²

Petitioners insist that the court of appeals improperly demanded evidence of the effects of EPA's preemption waiver on automakers' behavior when those effects were "predictable," and that "commonsense inferences" should have sufficed. Pet. Br. 30. But while common sense may be sufficient in some cases to show the impacts of regulation on regulated

² Often attributed, probably incorrectly, to Mark Twain. *It Ain't What You Don't Know That Gets You Into Trouble. It's What You Know for Sure That Just Ain't So*, Quote Investigator (Nov. 18, 2018), <https://quoteinvestigator.com/2018/11/18/know-trouble/>.

third parties, the unique facts of this case make such impacts far from predictable.

As with each element of Article III standing, a plaintiff must establish redressability “as of the time [plaintiff] brought th[e] lawsuit”—here, 2022. *Murthy v. Missouri*, 603 U.S. 43, 58 (2024); Pet. App. 15a. Where redressability “hinge[s] on the response” of regulated third parties not before the court, “it becomes the burden of the plaintiff to adduce facts showing that those choices . . . will be made in such manner as to produce causation and permit redressability of injury.” *Lujan v. Defs. of Wildlife*, 504 U.S. 555, 562 (1992). Here, as the court below correctly concluded, a favorable order could mitigate Petitioners’ alleged injury only if, as of 2022, it would have caused manufacturers to sell more vehicles powered with liquid fuel instead of electric vehicles. Pet. App. 22a.

That the automobile manufacturers would respond in this way, Petitioners repeatedly insist, is “obvious,” “predictable,” and “common sense,” a matter of “basic economics.” *E.g.*, Pet. Br. 30, 34, 36. If EPA’s waiver were vacated in 2022 and California’s regulation could no longer compel manufacturers to produce more electric vehicles, Petitioners contend, the manufacturers would produce and sell more vehicles that run on liquid fuel. This, Petitioners claim, is “Economics 101.” Pet. Br. 35.

Freshman-year economic theory does not resolve the standing issue here. To be sure, in some cases, regulated third parties may predictably modify their behavior when no longer subject to regulation. But this case is far from typical. As the following sections demonstrate, rescinding EPA’s waiver—and the California regulations that depend on it—would not

redress Petitioners' injuries because California's regulations are not to blame for the injury they assert: the "depression of demand" for their products. Pet. Br. 20-21. Petitioners' actual quarrel is not with California regulators or EPA, but with the automobile market itself.

In the years since California first introduced the regulations, electric vehicle technology has far outpaced regulators' expectations. As the court of appeals observed, for several years, manufacturers have been selling more zero-emission vehicles ("ZEVs") than the regulations require. Pet. App. 28a. By 2022, the industry had so out-performed California's requirements that the regulations had no effect on manufacturers' sale of ZEVs.

That reducing sales of liquid-fuel-powered vehicles was the regulation's "raison d'être," Pet. Br. 24, is irrelevant. As economist Milton Friedman once observed, "[o]ne of the great mistakes is to judge policies and programs by their intentions rather than their results."³ In 2012, California regulators aspired to push the development and sales of ZEVs, but market forces quickly and entirely overtook what turned out to be modest regulatory goals.

Petitioners could not create a record that shows a favorable decision would benefit them because market conditions show exactly the opposite. In the parlance of the question presented, the effect of the challenged regulation here may have been predictable, but it was not what Petitioners predicted, and it

³ *Notable and Quotable: Milton Friedman*, The Wall Street Journal (Oct. 6, 2015) <https://www.wsj.com/articles/notable-quotable-milton-friedman-1444169267>.

was not coercive. Petitioners therefore cannot show redressability on the unusual facts of this case.

A. California’s Advanced Clean Cars program supported early electric vehicle development and deployment, but manufacturers quickly over-complied.

In 2012, California adopted the Advanced Clean Cars (“ACC”) program that was the subject of the Clean Air Act preemption waiver challenged here. Aimed at accelerating innovation, curbing tailpipe emissions, and improving public health, ACC includes ZEV regulations, low-emission-vehicle standards, and greenhouse-gas-emission standards for light-duty vehicles in model years 2017 through 2025. The industry thus had five years of lead time before the first year of regulatory requirements and more for later model years.⁴

ACC’s ZEV program establishes a credit-and-trading system, a market-based regulatory approach that allows covered manufacturers to earn credits for each qualifying vehicle sold and bank or trade those credits with other manufacturers.⁵ Manufacturers earn cred-

⁴ California Air Resources Board, *Staff Report: Initial Statement of Reasons: Advanced Clean Cars – 2012 Proposed Amendments to the California Zero Emission Vehicle Program Regulations* (2011), <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2012/zev2012/zevisor.pdf>.

⁵ Market-based regulatory tools—including cap-and-trade systems, credit trading, and pollution taxes—harness economic incentives to allow regulated entities to find their own cost-effective compliance pathways. Their adoption began with the sulfur dioxide emissions trading program in the 1990 Clean Air Act

its based on the electric-driving range of the vehicles they sell. From model year 2018 onward, they earn one ZEV credit for every 50 miles of all-electric range, up to a maximum of four credits per vehicle.⁶ The program required manufacturers to collectively hold 89,316 credits in 2018, rising to 287,609 credits by 2023.⁷

Vehicles with greater electric ranges earn higher credits. For example, the 2022 Mazda MX-30, with an electric range of 92 miles in combined city and highway driving, qualified for 2.01 credits per vehicle sold. In contrast, models that offered significantly greater all-electric ranges, such as Teslas, received the maximum of four credits per vehicle.⁸

Amendments signed by President George H.W. Bush. That program showed that market-based approaches could often achieve environmental objectives at lower cost than conventional regulation. See Robert N. Stavins, *What Can We Learn from the Grand Policy Experiment? Lessons from SO₂ Allowance Trading*, 12 J. Econ. Perspectives 69, 69-71 (1998), <https://pubs.aea-web.org/doi/pdfplus/10.1257/jep.12.3.69> (finding that the SO₂ trading program “resulted in cost savings of up to \$1 billion annually” compared to command-and-control alternatives).

⁶ Cal. Code Regs. tit. 13, § 1962.2 (2023); California Air Resources Board, *Annual ZEV Credits Disclosure Dashboard*, <https://ww2.arb.ca.gov/applications/annual-zev-credits-disclosure-dashboard> (last visited Mar. 13, 2025) [hereinafter ZEV Dashboard]; California Air Resources Board, *Low Carbon Fuel Standard* (Feb. 2025), <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard>.

⁷ ZEV Dashboard, *supra* note 6; Sydney Vergis & Vishal K. Mehta, *Technology Innovation and Policy: A Case Study of the California ZEV Mandate*, in PAVING THE ROAD TO SUSTAINABLE TRANSPORT 136-58 (2012); Cal. Code Regs. tit. 13, § 1962.2 (2023).

⁸ ZEV Dashboard, *supra* note 6.

Manufacturers may meet their compliance obligations in a given year in various ways. Beyond selling vehicles that generate credits, they can use banked surplus credits from prior years or purchase credits from other manufacturers that have generated surplus credits. Companies with strong ZEV portfolios can thus profit from overcompliance.⁹

In the first few years after ACC's 2012 adoption, the regulations prompted automakers to make significant investments in research and pilot programs for ZEVs.¹⁰ But even at that time, ACC was not the sole driver of ZEV development. Other local, national, and global policies and market developments worked in tandem with ACC to create a strong ZEV market. At the same time, uncertainty in petroleum markets and pressure on manufacturers to emerge as market leaders further pushed companies to produce more electric vehicles.¹¹

As a result, numerous automakers set ambitious electric vehicle sales targets and accelerated development of low-emission technologies, collectively transforming the electric vehicle market.¹² By 2014—three years before the program's requirements became effective—automakers were already slightly over-complying with the regulations.¹³ That trend would increase dramatically in 2021 and beyond.

⁹ Cal. Code Regs. tit. 13, § 1962.1 (2023).

¹⁰ Daniel Sperling & Anthony Eggert, *California's Climate and Energy Policy for Transportation*, 5 Energy Strategy Reviews, 88-94 (Dec. 2014), <https://www.sciencedirect.com/science/article/pii/S2211467X14000418>.

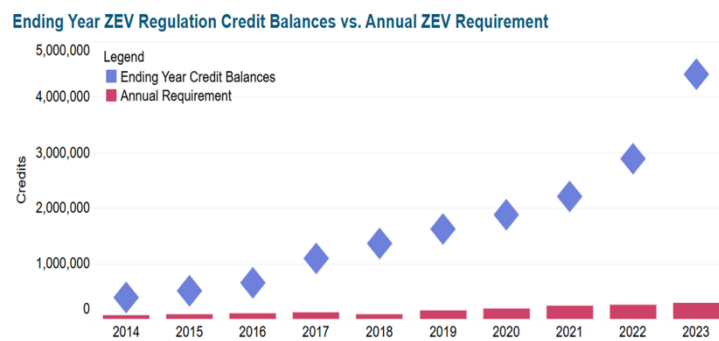
¹¹ ZEV Dashboard, *supra* note 6.

¹² *Id.*

¹³ *Id.*

B. By 2022, manufacturers were producing and selling far more electric vehicles than ACC required.

By 2022, automakers had *far* outpaced both ACC’s requirements and the regulators’ expectations.¹⁴ Even after EPA temporarily withdrew the waiver in 2019,¹⁵ electric vehicle sales continued to grow.



*Figure 1: Annual ZEV Credits 2014-2023*¹⁶

Figure 1 illustrates the rapidly increasing gap between ACC’s ZEV credit requirements and the credits automakers received for selling vehicles. In 2014, automakers slightly exceeded ACC’s requirements, ending the year with a 386,907-credit surplus. By 2022, automakers had exceeded the ZEV credit requirements by 2,888,594 credits. In other words, automakers produced and sold vastly more electric

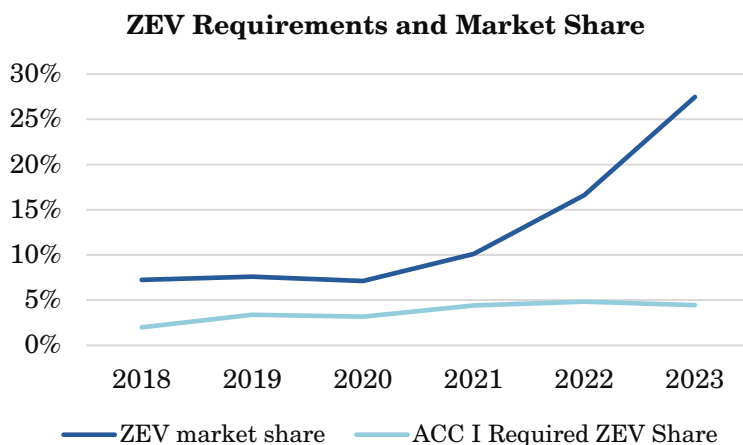
¹⁴ *Id.*

¹⁵ See Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, 84 Fed. Reg. 51,310 (Sep. 27, 2019).

¹⁶ *Id.*

vehicles than ACC required. This gap has only continued to expand since 2022.¹⁷

Using the California Air Resources Board’s annual sales and annual credit reports, Amici estimated the gap between the regulators’ estimated total market share of electric vehicles required by ACC and actual market shares. The divergence between the two is shown here in Figure 2. While the estimated required market share increased gradually from two percent in 2018 to just under five percent in 2023, actual sales grew dramatically faster.



*Figure 2: Actual vs. Estimated Required Market Share of Electric Vehicles*¹⁸

¹⁷ *Id.*

¹⁸ Amici’s estimates are based on actual ZEV sales, not forecasts, and thus differ from earlier estimates, such as a 2013 projection that electric vehicles would need to comprise 15 percent of the market by 2025 to comply with ACC. *See State Resp. Br. 19.* Amici’s estimates consider the credits required each year divided by the actual sales in that same year to estimate the required market share under ACC. For example, in 2021, ACC required

By 2021, electric vehicle sales had already surpassed ten percent of the California market and reached about 16 percent of the market in 2022, significantly outpacing the regulatory targets.¹⁹ And most of those electric vehicles sold were each generating the maximum of four ZEV credits under ACC. In 2022, 77 percent of new electric vehicle sales in California earned maximum credits. Excluding plug-in hybrids, that number rises to 92 percent of ZEV sales.²⁰

In short, by 2022, California's electric vehicle market had left ACC's requirements far behind. At that point, the regulation was not pushing manufacturers to produce electric vehicles in lieu of liquid-fuel-powered vehicles.

C. Private-sector innovation—not the requirements of ACC—was primarily responsible for California's robust electric vehicle market in 2022.

ACC played a key role in creating the certainty necessary to encourage development of the electric vehicle market. But after the initial impetus of ACC in its early years, it was market forces, not regulation, that drove the rapid advancements in electric vehicle sales in California. Automakers made unexpected

242,585 credits, translating to a requirement of 75,403 total electric vehicle sales. Divided by the number of actual vehicle sales in 2021—1,710,555—this results in a required market share of 4.41 percent. Actual electric vehicle sales in 2021, however, reached 172,905, equivalent to a market share of 10.11 percent.

¹⁹ By 2023, electric vehicles had exceeded 20 percent of the California market. *Id.*

²⁰ *Id.*

technological strides, resulting in plummeting battery costs. These factors, interacting with the structure of the ZEV regulation and surging consumer demand, led to the industry's massive overcompliance.²¹

Electric-vehicle and battery technologies have improved much faster than California regulators could possibly have anticipated. From 2013 to 2020, global volume-weighted average prices for lithium-ion battery packs plummeted from \$780/kWh to \$160/kWh and then decreased further to \$139/kWh by 2023.²²

Greater production volumes, a greater range of models available to consumers, and technological improvements in battery-energy density led to lower costs, reduced prices, and longer-range electric vehicles than regulators expected. Indeed, in its 2017 Midterm Review, the California Air Resources Board acknowledged that, compared to its expectations in 2012, technology had developed much more rapidly and much more capable electric vehicles had become available.²³ The International Energy Agency identified approximately 590 electric vehicle models being produced globally in 2023 and found that the global sales-weighted average range of battery-electric cars

²¹ California Air Resources Board, *California's Advanced Clean Cars Midterm Review, Appendix A: Analysis of Zero Emission Vehicle Regulation Compliance Scenario* (2017), https://ww2.arb.ca.gov/sites/default/files/2020-01/appendix_a_minimum_zev_regulation_compliance_scenarios_formatted_ac.pdf [hereinafter 2017 Midterm Review].

²² *Lithium-Ion Battery Pack Prices Hit Record Low of \$139/kWh*, Bloomberg New Energy Finance (Nov. 26, 2023), <https://about.bnef.com/blog/lithium-ion-battery-pack-prices-hit-record-low-of-139-kwh/>.

²³ 2017 Midterm Review, *supra* note 21

had increased by 75 percent from 2015 to 2023, commensurate with a sharply narrowing price gap between electric and liquid-fuel-powered vehicles.²⁴

As noted above, the ACC ZEV regulation allocates credits to manufacturers based on the all-electric range of vehicles sold—a direct function of battery capacity. Enormous innovation in battery technology and manufacturing between the adoption of ACC in 2012 and the first regulated model year of 2017 meant that ZEVs were generating far more credits than regulators anticipated when they adopted the program. That innovation caused the dramatic overcompliance depicted above—overcompliance that has only accelerated with time. *See* Fig. 1, *supra*.

Consumer demand had also skyrocketed by 2022, motivated in large part by a combination of California’s policies, industry innovation, and technological advancements in electric vehicle performance, range, and model availability.²⁵ By early 2022, surging global demand for electric vehicles had exceeded supply. Media reports highlighted instances of dealership markups and bidding wars among buyers eager to secure an electric vehicle.²⁶

California has had numerous fiscal, non-fiscal, and charging infrastructure policies unrelated to ACC

²⁴ International Energy Agency, *Global EV Outlook 2024. Trends in Electric Cars* (2024), <https://www.iea.org/reports/global-ev-outlook-2024/trends-in-electric-cars>.

²⁵ Demand for electric vehicles also arises from their inherent benefits, such as reduced emissions and lower operating costs.

²⁶ Anne C. Mulkern, *EV Buyers Face Long Waits, Price Hikes Above Sticker Costs*, E&E News by Politico (Mar. 4, 2022), <https://www.eenews.net/articles/ev-buyers-face-long-waits-price-hikes-above-sticker-cost/>.

that have also encouraged electric vehicle sales.²⁷ For instance, California provides rebates for new electric-vehicle purchases, carpool lane access and parking benefits for electric vehicles, funding and direct deployment of charging infrastructure, utility rebates for charging infrastructure, and lower electricity rates for electric vehicle charging.²⁸ California has issued over 590,000 rebates totaling approximately \$1.5 billion for purchases of new electric vehicles.²⁹ A 2021 study found that California cities tended to have 34 to 44 different electric vehicle promotion policies across state, city, and utility programs, and that these policies led to increased electric vehicles sales. California cities also tended to have the most public and workplace electric vehicle charging infrastructure deployed of all U.S. states.³⁰

This increase in electric vehicle sales and adoption has not been unique to California, further demonstrating that ACC could not be responsible for the industry's expansion of electric-vehicle production. Domestic trends outside California also show a rapidly growing electric-vehicle market. In the United States, 930,000 new electric vehicles were sold in 2022, representing around 6.8 percent of new light-

²⁷ Anh Bui et al., *Evaluating Electric Vehicle Market Growth Across U.S. Cities* 15 (2021), https://theicct.org/wp-content/uploads/2021/12/ev-us-market-growth-cities-sept21_0.pdf.

²⁸ *Id.*

²⁹ California Clean Vehicle Rebate Project, *Rebate Dashboards: Rebate Statistics*, <https://cleanvehiclerebate.org/en/rebate-statistics> (last visited Mar. 17, 2025).

³⁰ Bui, *supra* note 27, at 4-7, 11-12.

duty vehicle sales and an increase of about 46 percent from 2021 sales.³¹

Robust electric-vehicle sales in states without ACC confirm that ACC was not the catalyst for such sales by 2022. In that year, sales of electric vehicles as a share of total vehicle sales exceeded the 4.8 percent share estimated to be required by ACC in 12 states without ACC: Washington, Nevada, Colorado, Hawaii, Virginia, Utah, Arizona, Illinois, Florida, Delaware, Georgia, and North Carolina.³² See Section I.B & Fig. 2, *supra*.

That the markets in states without ACC have also seen electric-vehicle sales that exceed ACC's requirements confirms that California's strong electric-vehicle market in 2022 cannot be attributed to the ZEV regulation, but rather was part of a broader trend driven by market forces.

Finally, global trends confirm that, by 2022, the explosive growth of the electric-vehicle market was not attributable to ACC. More than 10.5 million new electric vehicles were sold globally in 2022—an increase of approximately 55 percent from 2021 sales—bringing the total number of electric vehicles in oper-

³¹ Argonne National Laboratory, *Light Duty Electric Drive Vehicles Monthly Sales Updates – Historical Data* (2025), <https://www.anl.gov/esia/reference/light-duty-electric-drive-vehicles-monthly-sales-updates-historical-data>.

³² Alliance for Automotive Innovation, *Get Connected: Electric Vehicle Quarterly Report – Fourth Quarter* (2022), <https://www.autosinnovate.org/posts/papers-reports/Get%20Connected%202022%20Q4%20Electric%20Vehicle%20Report.pdf>; see also California Air Resources Board, *States that Have Adopted California's Vehicle Regulations* (Jun. 2024) <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/states-have-adopted-californias-vehicle-regulations>.

ation to around 27 million.³³ In 2022, industry players also announced increasing electric vehicle investments, model availability, and sales targets. In October 2022, global automakers reported planned investments of nearly \$1.2 trillion through 2030 in electric vehicles and batteries—nearly double the level of investment reported in 2021.³⁴

A 2018 analysis by Amicus ICCT found that automaker projections for electric vehicle sales through 2024 exceeded electric vehicle sales required by government regulations by about 50 percent.³⁵ Since then, automakers have announced an increasing number of electric vehicle production plans. By 2022, global automakers had collectively forecast plans to manufacture 54 million battery-electric vehicles annually by 2030.³⁶ Separately, a 2023 ICCT report rating the electric-vehicle progress by global automakers through 2022 identified more than a dozen automakers that had 100 percent electric-vehicle sales targets by 2035 or earlier, either globally or in leading markets.³⁷ An additional dozen companies

³³ Roland Irle, *Global EV Sales for 2022*, EV-Volumes (Feb. 6, 2023), <https://ev-volumes.com/news/ev/global-ev-sales-for-2022/>.

³⁴ Paul Lienert, *Exclusive: Automakers to Double Spending on EVs, Batteries to \$1.2 trillion by 2030*, Reuters (Oct. 25, 2022), <https://www.reuters.com/technology/exclusive-automakers-double-spending-evs-batteries-12-trillion-by-2030-2022-10-21/>.

³⁵ Nic Lutsey, ICCT, *Modernizing Vehicle Regulations for Electrification* (Oct. 21, 2018), <https://theicct.org/publication/modernizing-vehicle-regulations-for-electrification/>.

³⁶ Lienert, *supra* note 34.

³⁷ This included General Motors, Ford, Stellantis, Mercedes-Benz, Audi, Bentley, Volvo, Jaguar, Land Rover, and Mini. *See*

had electric-vehicle sales targets ranging from 25 percent to 80 percent of their total sales by 2035 or earlier.³⁸

* * *

California regulators in 2012 undoubtedly intended ACC to increase the pace of electric vehicle sales and development in California. And it may have been effective in doing so, by initially pushing the industry to invest in ZEV technology. But the market quickly outgrew the regulations. The unprecedented scale of private sector innovation in ZEV technology since 2012 has led automobile manufacturers to dramatically over-comply with the regulation. Far from exerting a coercive effect on manufacturers, ACC has lagged behind them. By 2022, the industry had so outperformed California's requirements that ACC had virtually no effect on the market.

CONCLUSION

The judgment of the court of appeals should be affirmed.

Chang Shen et al., *The Global Automaker Rating 2022: Who is Leading the Transition to Electric Vehicles?* (2023), https://theicct.org/wp-content/uploads/2023/05/The-Global-Automaker-Rating-2022_final.pdf.

³⁸ See Tom Taylor et al., *Tracking the State of U.S. EV Manufacturing* (2025), <https://atlaspolicy.com/wp-content/uploads/2025/01/Tracking-the-State-of-U.S.-EV-Manufacturing.pdf>.

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