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What a Difference a State Makes: California's Authority to Regulate Motor Vehicle Emissions Under the Clean Air Act and the Future of State Autonomy

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WHAT A DIFFERENCE A STATE MAKES: CALIFORNIA'S AUTHORITY TO REGULATE MOTOR VEHICLE EMISSIONS UNDER THE CLEAN AIR ACT AND THE FUTURE OF STATE AUTONOMY

Chiara Pappalardo*

Air pollutants from motor vehicles constitute one of the leading sources of local and global air degradation with serious consequences for human health and the overall stability of Earth's climate. Under the Clean Air Act ("CAA"), for over fifty years, the state of California has served as a national "laboratory" for the testing of technological solutions and regulatory approaches to improve air quality. On September 19, 2019, the Trump Administration revoked California's authority to set more stringent pollution emission standards. The revocation of California's authority frustrates ambitious initiatives undertaken in California and in other states to reduce local air pollution and mitigate the effects of climate change from mobile sources. This Article argues that the reasons offered by the Administration to justify its rollback of California's authority are not persuasive. They do not find support in the history and longstanding interpretation of the CAA, in the Environmental Protection Agency's implementation practice, or in the regulated industry, and, coupled with halting the rise in federal fuel economy standards, constitute unsound policy at a crucial moment for greenhouse gas emissions mitigation. In addition, this Article advances the idea that instead of aiming to suppress California's experimentation with zero emissions vehicles, current and future Administrations should embrace new ways to cooperate with California and a growing number of states that have begun thinking creatively about reforming the transportation sector. By building on a flexible and multilevel model of governance, grounded on forms of cooperative federalism that leverage state innovation and regulatory expertise, the federal government together with the states will ensure a more competitive future for America.

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I. BACK TO THE FUTURE WITH ELECTRIC VEHICLES

In 1905, in a rapidly modernizing and prosperous America, everyone wanted an electric car.¹ A status symbol of the upper class during the early years of the Automotive Age, electric cars were particularly popular in cities, especially among women who disliked the smell, noise, and vibration of their steam and gasoline-powered competitors.² Electric cars were easier to start and drive and, with the concurrent expansion of urban electrification, charging stations quickly emerged

1. Megan Barber, *Before Tesla: Why Everyone Wanted an Electric Car in 1905*, CURBED (Sept. 22, 2017, 3:36 PM), <https://www.curbed.com/2017/9/22/16346892/electric-car-history-fritchle> [<https://perma.cc/DGY6-3T5D>].

2. *Id.* The turn of the twentieth century marked the passage from the horse, as primary mode of transportation, to the newly invented motor vehicle available in steam, electric, and gasoline versions. Steam vehicles required long startup times, sometimes reaching up to forty-five minutes in the cold, and were refilled with water limiting their range. Gasoline cars also presented challenges as they had to be started and operated manually, making them a less attractive option than their electric alternative. *The History of the Electric Car*, DEP’T OF ENERGY, (Sept. 15, 2014), <https://www.energy.gov/articles/history-electric-car> [<https://perma.cc/Z3G2-XSJR>].

in homes and car-repair shops.³ Debuting in the 1890s, by 1900, electric cars accounted for about one third of all vehicles on the roads in the country, but by 1935 they were gone.⁴

Like many new inventions, the rise and fall of the early twentieth century electric vehicle was due to a combination of multiple but changing factors. Initially, electric cars did not have any of the problematic issues associated with steam or gasoline cars, and they could travel the same number of miles without charging, a perfect solution for short rides.⁵ By the same token, however, their subsequent fall from favor was the result of a series of technological advancements and political developments that turned gasoline-powered cars into the preferred individual transportation solution for Americans. Henry Ford's mass-production of the Model T in 1908 made gasoline cars widely available and affordable to the average consumer and, by 1912, the electric starter had replaced the hand crank to start internal combustion engines.⁶ Road building and abundant, cheap Texas crude oil outpaced rural electrification in the early 1920s, eliminating the advantages of the electric vehicle.⁷ With gasoline refill stations suddenly readily available and charging stations absent, rural voters lobbied for paved roads with the slogan: "Get the farmers out of the mud!" and the Federal-Aid Road Act of 1916 created the Federal-Aid Highway Program that funded state highway agencies to improve the roads.⁸ A once top-dollar, luxurious, sought-after commodity, the electric vehicle gave way to the convenience of long distance travel and a desire for adventure and exploration among Americans that the gasoline-powered car could provide for a fraction of the price.⁹

3. Barber, *supra* note 1.

4. *Id.* To the delight of many contemporary urban mobility administrators concerned with air pollution and carbon dioxide emissions in particular, New York City had a fleet of more than sixty electric taxis. DEP'T OF ENERGY, *supra* note 2.

5. DEP'T OF ENERGY, *supra* note 2. The poor road conditions outside cities meant that few cars of any type could venture farther. *Id.*

6. *Id.* This was a revolutionary change given that early hand-cranks were *difficult* to turn and could result in serious injury, in some cases even death. Matt Wolfe, *Yanking the Crank*, AUTOMOTIVE HALL OF FAME (Apr. 20, 2017), <https://www.automotivehalloffame.org/yanking-the-crank/> [<https://perma.cc/R5GQ-QZXT>].

7. DEP'T OF ENERGY, *supra* note 2; see also Mary Bellis, *History of Roads in America and First Federal Highway*, THOUGHTCO. (July 3, 2019), <https://www.thoughtco.com/history-of-american-roads-4077442> [<https://perma.cc/35T3-92ZX>].

8. Bellis, *supra* note 7. Very few Americans outside cities had electricity at that time. DEP'T OF ENERGY, *supra* note 2.

9. Barber, *supra* note 1. "By 1912, the gasoline car cost only \$650, while an electric roadster sold for \$1,750." DEP'T OF ENERGY, *supra* note 2.

But 1935 didn't mark the end of the electric car saga.¹⁰ Starting in the late 1960s and throughout the 1970s, periodic concerns about pollution associated with exhaust emissions from internal combustion engines and dependency on foreign imported oil kept the idea of—and experimentation with—electric cars alive.¹¹ In 1966, Congress introduced the earliest bills recommending the use of electric vehicles as a means of reducing air pollution.¹² It also established the U.S. Department of Transportation (“DOT”) in part to study how interstate highways affected the environment, city development, and the ability to provide public mass transit.¹³ Consumers and car producers, progressively more tuned in to the health and environmental consequences of traffic congestion—in part thanks to a nascent environmental movement—showed a renewed interest in electric vehicles.¹⁴ Unable to meet ever-rising demand for oil with internal production, the United States had become subject to the vagaries of the international oil market and the whims of the Organization of Petroleum Exporting Countries (“OPEC”) members, which began dictating prices to the rest of the world.¹⁵ As a result, the term “energy independence” made its debut in Washington’s policy circles and debates, and in 1976, Congress passed the Electric Vehicle and Hybrid Research, Development, and Demonstration Act, intended to spur the development of new technologies, including improved batteries, motors, and other hybrid electric components.¹⁶ Despite these and other similar efforts in the 1990s and early 2000s by the government and car manufacturers, electric vehicles never gained sufficient traction,¹⁷ and the country’s massive transportation sector remained dependent on fossil fuels.¹⁸

10. *Timeline: History of Electric Cars*, PBS, <http://www.pbs.org/now/shows/223/electric-car-timeline.html> (on file with author); *History of Electric Cars*, IDAHO NAT'L LAB., <https://avt.inl.gov/sites/default/files/pdf/fsev/HistoryOfElectricCars.pdf> [<https://perma.cc/V5KJ-7HUE>].

11. IDAHO NAT'L LAB., *supra* note 10, at 2.

12. PBS, *supra* note 10.

13. Bellis, *supra* note 7.

14. PBS, *supra* note 10.

15. DEP'T OF ENERGY, *supra* note 2.

16. PBS, *supra* note 10.

17. DEP'T OF ENERGY, *supra* note 2. Electric vehicles during this time had limited performance—usually topping at speeds of 45 miles per hour—and their typical range was limited to 40 miles before needing to be recharged. Significant technological improvements only began in the 1990s. When General Motors came out with its EV1 model, for example, it had a range of 80 miles and the ability to accelerate from 0 to 50 miles per hour in just seven seconds. Production costs were high, however, so it never became commercially viable. DEP'T OF ENERGY, *supra* note 2.

18. After World War II, with the rise of the personal automobile and government subsidies for highways, many cities removed trolley tracks and expanded roads to accommodate cars and parking lots. The urban sprawl that followed locked in the country's transportation patterns and consumed valuable farmland. Robert Polack et al., *An Analysis of Fossil-Fuel Dependence in the United States with Implications for Community Social Work*, 11 CRITICAL SOC. WORK 140, 141 (2010). This type of land use not only rendered

Today, the automotive sector is a global industry undergoing major transformations.¹⁹ Some manufacturers, with Tesla at the helm, are betting on an electric vehicle renaissance.²⁰ Other companies are researching and investing in the feasibility of hydrogen batteries and fuel cell technology.²¹ Well-established firms have begun selling hybrids, which are conquering noticeable market shares in Europe, United States, and Asia.²² With artificial intelligence technology rapidly improving, the automobile industry is moving towards the concept of self-driving zero emissions vehicle as the car of the future.²³ Under this vision, electric vehicles and their batteries are designed to support the greater expansion of wind, solar, and other intermittent renewable sources of energy.²⁴ This work in tandem between electric vehicles and the electric grid—increasingly powered by non-fossil fuels—could gradually move countries towards a low-carbon future.²⁵

Americans particularly dependent on automobiles and oil, but it also made extensive mass transit systems in metropolitan regions logistically difficult and costly. Jonathan English, *Why Public Transportation Works Better Outside the U.S.*, BLOOMBERG CITYLAB (Oct. 10, 2018), <https://www.bloomberg.com/news/articles/2018-10-10/why-public-transportation-works-better-outside-the-u-s> [<https://perma.cc/WSH4-4KGG>]. As a result, the U.S. is the only industrialized economy today not investing in high-speed trains, which can reduce travel times by half and cut carbon emissions, and lacking access to rapid intercity rail in most of its cities. Natasha Frost, *A Decade Ago, the US was Promised High-Speed Rail—So Where Is It?*, QUARTZ (Dec. 27, 2019), <https://qz.com/1761495/this-is-why-the-us-still-doesnt-have-high-speed-trains/> [<https://perma.cc/WQZ2-XUJQ>]; LINCOLN L. DAVIES ET AL., *ENERGY LAW AND POLICY* 513–514 (2d ed. 2018).

19. Patrick Koller, *Transformation in the Automotive Industry*, LONDON BUS. SCH. (Mar. 18, 2019), <https://www.london.edu/think/transformation-in-the-automotive-industry> [<https://perma.cc/2RHG-K8N3>].

20. See Shannon Baker-Branstetter et al., *Electric Vehicle Sales Hit New Peak in 2018*, CONSUMER REPS. (Jan. 15, 2019), <https://advocacy.consumerreports.org/research/electric-vehicle-sales-hit-new-peak-in-2018-but-a-lot-of-room-for-continued-growth/> [<https://perma.cc/8QLM-B5YG>].

21. Joe D'Allegro, *Elon Musk Says the Tech is 'Mind-Bogglingly Stupid,' but Hydrogen Cars May Yet Threaten Tesla*, CNBC (Feb. 24, 2019, 9:00 AM), <https://www.cnbc.com/2019/02/21/musk-calls-hydrogen-fuel-cells-stupid-but-tech-may-threaten-tesla.html> [<https://perma.cc/YLC5-JX78>]; Nathaniel Gronewold, *Australia Muscles into the Global Hydrogen Market*, CLIMATEWIRE (Dec. 2, 2019), <https://www.eenews.net/climatewire/2019/12/02/stories/1061700315> [<https://perma.cc/7KE5-F88Y>].

22. *Global Hybrid Vehicle Industry*, PR NEWSWIRE (Oct. 10, 2019, 8:45 AM), <https://www.prnewswire.com/news-releases/global-hybrid-vehicle-industry-300936314.html> [<https://perma.cc/6J2J-Z4UG>].

23. John Fialka, *How Sunshine and Robots Can Move People Out of Gas Cars*, CLIMATEWIRE (Dec. 20, 2019), <https://www.eenews.net/climatewire/2019/12/20/stories/1061855365> [<https://perma.cc/M4Q9-A3RA>].

24. See *Electric Vehicles*, INT'L RENEWABLE ENERGY AGENCY (“IRENA”), <https://www.irena.org/transport/Electric-Vehicles> [<https://perma.cc/85SX-FVN5>].

25. IRENA, *INNOVATION OUTLOOK: SMART CHARGING FOR ELECTRIC VEHICLES 1* (2019).

Yet conventional cars continue to represent the vast majority of motor vehicles on the road and in showrooms in the United States and elsewhere.²⁶ Neither automakers nor most consumers are ready to let go of mature and well-proved conventional technology.²⁷ The fracking boom that began in the United States in 2009—allowing the country to be a net exporter for the first time since the late 1950s²⁸—has contributed to this state of affairs, as have the powerful interests of the oil industry.²⁹ Nevertheless, deteriorating air quality continues to be a health issue in congested urban areas around the world.³⁰ This is even truer in emerging economies such as China and India, like in large parts of the developing world, where sales of conventional cars are booming but environmental regulations are lax and little enforced if existent at all.³¹ With carbon dioxide (“CO₂”) emissions from transportation growing faster than power generation and agriculture as the leading source of anthropogenic greenhouse gas (“GHG”) emissions³², countries are beginning to confront the downside of conventional twentieth century transportation models, technology, and regulation, in favor of more innovative and differently incentivized innovations across the board.

In the United States, problems associated with air pollution from both stationary and mobile sources have prompted extensive government intervention

26. Maxine Joselow, *74% of Auto Dealers Aren't Selling EVs*, GREENWIRE (Nov. 13, 2019), <https://www.eenews.net/greenwire/stories/1061539899> [<https://perma.cc/NVQ9-XGUP>].

27. Derek Pankratz et al., *Framing the Future of Mobility*, 20 DELOITTE REV. 94, 104 (2017).

28. *U.S. Energy Facts Explained*, U.S. ENERGY INFO. ADMIN. (“EIA”), <https://www.eia.gov/energyexplained/us-energy-facts/imports-and-exports.php> [<https://perma.cc/26UE-S6EG>].

29. See, e.g., Hiroko Tabuchi, *The Oil's Industry Covert Campaign to Rewrite American Car Emissions Rules*, N.Y. TIMES (Dec. 13, 2018), <https://www.nytimes.com/2018/12/13/climate/cape-emissions-rollback-oil-industry.html> [<https://perma.cc/NE66-5RD9>].

30. *Air Pollution*, WHO, https://www.who.int/health-topics/air-pollution#tab=tab_1 [<https://perma.cc/Z3S8-VFEF>].

31. *Id.*; see also *WHO Global Urban Ambient Air Pollution Database (Update 2016)*, WHO, https://www.who.int/phe/health_topics/outdoorair/databases/cities/en/ [<https://perma.cc/9UFK-RBES>]; *India's Emission Regulations Stands Exposed: CSE*, ECON. TIMES (Nov. 16, 2015, 11:03 PM), <https://economictimes.indiatimes.com/news/politics-and-nation/indias-emission-regulations-stands-exposed-cse/articleshow/49807982.cms> [<https://perma.cc/R57J-JCB6>]; *China Pollution: Survey Finds 70% of Firms Break Regulations*, BBC NEWS (June 11, 2017), <https://www.bbc.com/news/world-asia-china-40239693> [<https://perma.cc/4QTM-EVZB>].

32. Shiyang Wang & Mengpin Ge, *Everything You Need to Know About the Fastest Growing Source of Global Emissions: Transport*, WORLD RES. INST. (Oct. 16, 2019), <https://www.wri.org/blog/2019/10/everything-you-need-know-about-fastest-growing-source-global-emissions-transport> [<https://perma.cc/ALA2-5UGN>]; U.S. ENV'T PROT. AGENCY, *FAST FACTS: U.S. TRANSPORTATION SECTOR GREENHOUSE GAS EMISSIONS 1990–2017 1* (2019), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100WUHR.pdf> [<https://perma.cc/KP48-KRFU>].

over the past fifty years.³³ In general, federal air quality standards are conceived of as “a floor” to prevent states from engaging in a “race to the bottom” and harming each other with trans-boundary air pollution.³⁴ This is particularly true for stationary sources, and states are free under the law to set more aggressive regulations if they so choose.³⁵ For mobile sources, however, particularly for cars, trucks, and buses, states are prevented from setting their own standards, with California being the only exception.³⁶ Complicating matters, other states have been granted the right to follow *either* the California or the federal standard, thus creating two available sets of standards for the regulation of motor vehicle emissions.³⁷ Recently, the Trump Administration has questioned this California-led, double standard approach. The Administration argues that it would be in the country’s best interest to have one national standard and has ordered the Environmental Protection Agency (“EPA”) to revoke California’s authority to set its own rules.³⁸ In addition, the Administration has made clear that under the Energy Policy Conservation Act (“EPCA”), only the federal government may set fuel economy standards, and state and local governments may not establish their own separate fuel economy standards.³⁹ In the words of Secretary of Transportation Elaine Chao:

Today’s actions meet President Trump’s commitment to establish uniform fuel economy standards for vehicles across the United States, ensuring that no State has the authority to opt out of the Nation’s rules, and no State has the right to impose its policies on the rest of the country.”⁴⁰

33. *See generally* Clean Air Act (“CAA”), 42 U.S.C. §§ 7401–7671q. Congress was motivated to enact the CAA in part because of “the growth in the amount and complexity of air pollution brought about by urbanization, industrial development, and the increasing use of motor vehicles, has resulted in mounting dangers to the public health and welfare.” 42 U.S.C. § 7401(a)(2). “The term ‘stationary source’ means generally any source of an air pollutant except those emissions resulting directly from an internal combustion engine for transportation purposes or from a nonroad engine or nonroad vehicle as defined in section 7550 of this title.” 42 U.S.C. § 7602(z).

34. Kirsten H. Engel, *State Environmental Standard-Setting: Is There a Race and Is It to the Bottom?*, 48 HASTINGS L. J. 271, 274 (1997); *see generally* 42 U.S.C. § 7416.

35. 42 U.S.C. § 7416.

36. 42 U.S.C. §§ 7543(a)–(b), (e)(2). Aircraft emissions also are preempted under 42 U.S.C. § 7573.

37. *See* 42 U.S.C. § 7507.

38. News Release, EPA, Trump Administration Announces One National Program Rule on Federal Preemption of State Fuel Economy Standards (Sept. 19, 2019), <https://www.epa.gov/newsreleases/trump-administration-announces-one-national-program-rule-federal-preemption-state-fuel> [<https://perma.cc/TRC9-Y5R7>].

39. *Id.*

40. *Id.*

In America, states' rights and national policy consistency rarely co-exist. This is particularly the case in the energy sector, where marked differences in natural resources availability, local economies, population size, cultural mindset, geographical extension, climatic conditions, and infrastructure translate into varying state and regional energy policy choices.⁴¹ Considerations involving interstate externalities, economies of scale and information, race-to-the-bottom behavior, centralized versus decentralized decision-making, and public choice rationales have long animated the academic and policy debate on environmental federalism with advocates on both sides.⁴² With the issue of climate change gaining more prominence and urgency, these considerations have now extended to comprise matters of energy law and policy, commonly referred to as "climate policy" or "climate federalism" problems.⁴³ Not surprisingly, the question of the revocation of the California CAA preemption waiver has become part of the debate over federal regulation.⁴⁴ From a normative standpoint, California's authority to set more stringent motor vehicle emissions standards than other states creates tensions between the need, on one hand, to guarantee a sufficient degree of regulatory uniformity, predictability, equitable distribution of costs, and efficiency, and on the other, to leverage and further incentivize the sort of market innovations and competition that are occurring at the local, state, and regional levels.⁴⁵

This Article argues that EPA's rationale for revoking California's prerogative to set different motor vehicle emissions standards than those of the federal government is not persuasive and should not survive judicial review.⁴⁶ Coupled with halting the rise in fuel economy standards set by the Obama Administration,⁴⁷ the rollback constitutes an unsound policy decision at a crucial

41. See generally Joseph P. Tomain, *The Dominant Model of United States Energy Policy*, 61 U. Col. L. Rev. 355, 361 (1990); Davies et al., *supra* note 18, at 966–967; CTR. FOR CLIMATE & ENERGY SOLS., CLEAN ENERGY STANDARDS: STATE & FEDERAL POLICY OPTIONS AND CONSIDERATIONS 1, 9 (2019), <https://www.c2es.org/site/assets/uploads/2019/11/clean-energy-standards-state-and-federal-policy-options-and-considerations.pdf> [<https://perma.cc/3TAF-A5YG>].

42. ROBERT GLICKSMAN ET AL., ENVIRONMENTAL PROTECTION LAW AND POLICY 85–91 (8th ed. 2019); Engel, *supra* note 34, at 274–88.

43. GLICKSMAN ET AL., *supra* note 42, at 1091–1093; Jonathan H. Adler, *Hothouse Flowers: The Vices and Virtues of Climate Federalism*, 17 TEMP. POL. & CIV. RTS. L. REV. 443, 446–47 (2008).

44. See, e.g., Amelia Raether, Note, *Commandeering, Preemption, and Vehicle Emissions Regulation Post-Murphy v. NCAA*, 114 NW. L. REV. 1015, 1015–20 (2020) (discussing the recent Supreme Court's expansion of the anti-commandeering doctrine and its limited impact in complex cooperative federalism regimes like the CAA).

45. GLICKSMAN ET AL., *supra* note 42, at 1089–1090; Raether, *supra* note 44, at 1039, 1057.

46. See *infra* Part II.C.

47. Under these standards, the fuel efficiency of passenger cars and light trucks would have risen to nearly fifty miles per gallon by the year 2025. See *infra* Part II.C.

moment for greenhouse gas emissions mitigation.⁴⁸ Scholars have argued that EPA lacks authority to revoke California's Preemption Waiver under Section 209 of the Clean Air Act ("CAA").⁴⁹ In their view, such authority finds no support in the statutory language nor can be propped up by stray reference in the legislative history of Section 209.⁵⁰ Moreover, reliance interests and federalism principles weigh heavily against it.⁵¹ Without revisiting the question of whether the Trump Administration's unprecedented actions are legal, this author seeks to highlight at least three important reasons why the Trump Administration's reasoning is fundamentally flawed and why, as a matter of energy policy, state autonomy should be preserved instead. Part II offers an overview of the jurisprudential and administrative interpretation of the federal statutory framework concerned with air emissions from transportation. Part III grounds California's authority to regulate motor vehicle emissions in the legislative history of the CAA and offers a critique of the Trump Administration's rationale for revoking it. Part IV takes a broader look at governance models for regulating emissions from transportation and highlights the advantages of letting states experiment with energy policies. Part V concludes that it is necessary to preserve state autonomy.

II. REGULATION OF MOTOR VEHICLE EMISSIONS IN THE UNITED STATES

A. Early Statutory Steps

Federal regulation of motor vehicle emissions began in the mid-1960s, after a decade of relatively ineffectual efforts on the part of states and municipalities to combat air pollution.⁵² In 1955, a modest program of research and technical assistance created by Congress to study the causes and effects of air pollution linked smog in Los Angeles to automobile emissions.⁵³ As a result of these findings, motor vehicles

48. See generally U.S. GLOBAL CHANGE RSCH. PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT (2018).

49. See, e.g., DENISE A. GRAB ET AL., INST. FOR POLICY INTEGRITY, NO TURNING BACK (2018).

50. *Id.* at 5–9.

51. *Id.* at 9–12; Raether, *supra* note 44, at 1053–1056.

52. GLICKSMAN ET AL., *supra* note 42, at 400–401; Arnold W. Jr. Reitze, *A Century of Air Pollution Control Law: What's Worked; What's Failed; What Might Work*, 21 ENV'T L. 1549, 1575–81 (1991).

53. Congress passed the Air Pollution Control Act of 1955, Pub. L. No. 84-159, 69 Stat. 322, to better understand the causes and effects of air pollution, which had not been established. GLICKSMAN ET AL., *supra* note 42, at 401.

became the focus of air pollution legislation.⁵⁴ Congress began testing new regulatory approaches and techniques that would later form the backbone of the modern CAA, the major piece of federal legislation addressing air pollution from both stationary and mobile sources.⁵⁵

Congress turned its attention to motor vehicle energy use in the mid-1970s in the wake of the first oil embargo. The 1973–74 embargo imposed by Arab members of OPEC and the subsequent tripling in the price of crude oil brought the fuel economy of automobiles into sharp focus.⁵⁶ In an effort to reduce dependence on imported oil, Congress passed the 1975 Energy Policy and Conservation Act (“EPCA”) and established Corporate Average Fuel Economy (“CAFE”) standards for passenger cars beginning in model year 1978 and for light trucks in model year 1979.⁵⁷ The standards required each auto manufacturer to meet a target for the sales-weighted fuel economy for its entire fleet of vehicles sold in the United States in each model year.⁵⁸ They rose steadily through the late 1970s and early 1980s.⁵⁹

The end of a second oil embargo in the mid-1980s saw a return to relative stability in the oil markets, and Congress did not revise the legislated CAFE standards for passenger cars, which remained at 27.5 mpg, until 2011.⁶⁰ The light truck standards were increased to 20.7 mpg in 1996, where they remained until 2005, when the National Highway Traffic Safety Administration (“NHTSA”) within the Department of Transportation (“DOT”) promulgated two sets of standards for model years 2005–2007 and 2008–2011, increasing light truck standards to 24.0

54. With the Motor Vehicle Act of 1960, Pub. L. No. 86-493, 74 Stat. 162, Congress created the first research and technical assistance program directed at motor vehicles. GLICKSMAN ET AL., *supra* note 42, at 401.

55. In 1963, Congress created the Department of Health, Education, and Welfare (“HEW”), now called Department of Health and Human Services, to provide the states with scientific information on the effects of various air pollutants. In 1965, it authorized HEW to establish emission standards for new motor vehicles and engines based on “technological feasibility and economic costs” and ordered the designation of geographic air quality control regions. States had to adopt ambient air quality standards for each major pollutant subject to HEW approval and implement a plan, also subject to HEW approval, specifying emissions limitations for individual sources to meet the maximum levels of pollution necessary to maintain health and welfare that HEW had established for the region. GLICKSMAN ET AL., *supra* note 42, at 401; *A Common Thread of Service. A History of the Department of Health, Education, and Welfare*, U.S. DEP’T OF HEALTH & HUMAN SERVS. (July 1, 1972), <https://aspe.hhs.gov/report/common-thread-service/history-department-health-education-and-welfare> [<https://perma.cc/623K-METY>].

56. CONG. RSCH. SERV., R45204, VEHICLE FUEL ECONOMY AND GREENHOUSE GAS STANDARDS: FREQUENTLY ASKED QUESTIONS 1 (2019).

57. *Id.*

58. Fuel economy—expressed in miles per gallon (mpg)—was defined as the average mileage traveled by a vehicle per gallon of gasoline or equivalent amount of other fuel. *Id.*

59. *Id.*

60. *Id.*

mpg.⁶¹ The auto-industry bailout in the aftermath of the 2008 financial crisis provided “incentives” for the industry to accept ambitious changes to the CAFE standards envisioned by the Obama Administration.⁶²

With the Motor Vehicle Air Pollution Control and the Air Quality Acts, in the mid-1960s states began gaining considerable experience using technology-based standards, but progress to lower air pollution remained slow.⁶³ Significantly, the regulated industries successfully lobbied administrators to delay compliance.⁶⁴ Congress, responsive to a growing number of stakeholders and regional interests, would continue to wrestle with these issues up to the present day.⁶⁵ In 1990, it established new deadlines for compliance with the national ambient quality standards and prescribed means by which the states had to achieve compliance, including limits on vehicle use.⁶⁶ However, both states and business interests managed to have some of the most environmentally progressive measures eliminated, like mandatory automobile inspections and employer vanpooling.⁶⁷

States have traditionally relied on technology-forcing standards rather than adopting traffic control measures when implementing National Ambient Quality Standards (“NAAQS”) for federally designated pollutants.⁶⁸ “Technology-forcing”

61. *Id.* See also *infra* Part II.C.

62. See Robinson Meyer, *How the Carmakers Trumped Themselves*, *THE ATLANTIC* (June 20, 2018), <https://www.theatlantic.com/science/archive/2018/06/how-the-carmakers-trumped-themselves/562400/> [<https://perma.cc/53VU-S688>].

63. GLICKSMAN ET AL., *supra* note 42, at 401, 402–403; David P. Currie, *Motor Vehicle Air Pollution: State Authority and Federal Pre-emption*, 68 MICH. L. REV. 1083, 1092 (1970).

64. GLICKSMAN ET AL., *supra* note 42, at 404. Regulated entities included car manufacturers, concessionaries of coal-fired power plants, and other industries. *Id.* at 403.

65. GLICKSMAN ET AL., *supra* note 42, at 403; Reitze, *supra* note 52, at 1645.

66. GLICKSMAN ET AL., *supra* note 42, at 404; Reitze, *supra* note 52, at 1605. Measures like dispersing traffic, incentivizing people to use mass transit and not drive, requiring car inspections and maintenance programs, and setting standards for older vehicles, were often perceived by the driving public as too intrusive or restrictive. See, e.g., Howard Latin, *Regulatory Failure, Administrative Incentives, and the New Clean Air Act*, 21 ENV'T L. 1647, 1686, 1693, 1702–03 (1991); see also *EPA v. Brown*, 431 U.S. 99, 101–02 (1977) (noting how states and cities balked at implementing secondary controls to achieve ambient air quality standards like “Transportation Control Plans,” which EPA ultimately withdrew rendering the case moot).

67. GLICKSMAN ET AL., *supra* note 42, at 404. Leanne Cusumano, *Analysis of the 1990 Clean Air Act's Employee Commute Options Program: A Trip Down the Right Road*, 18 WM. & MARY J. ENV'T L. 175, 208–09 (1993).

68. Under the CAA, EPA sets National Ambient Quality Standards (“NAAQS”), i.e., maximum acceptable concentration levels for air pollutants that are deemed harmful to public health and the environment. 42 U.S.C. § 7409. The six conventional pollutants, known as “criteria pollutants,” are: Carbon Monoxide (CO); Nitrogen Dioxide (NO₂); Ozone (O₃); Lead (Pb); Particle Pollution (PM); Sulfur Dioxide (SO₂). GLICKSMAN ET AL., *supra* note 42, at 405. For an updated table of NAAQS, see

or “technology-based” standards—ones that require a particular type of technology—are designed to correct a market problem and foster innovation.⁶⁹ They are often based on a determination by Congress or a federal agency that a technology not yet commercially widespread is still technically feasible.⁷⁰ By requiring car manufacturers to produce more efficient and less polluting cars rather than imposing behavioral changes on the driving public, state and local authorities have generally considered these measures more “politically acceptable” to bring improvements in personal transportation.⁷¹

B. Regulating New Pollutants

In the beginning, neither the CAA nor the EPCA were passed to regulate CO₂ emissions to mitigate the effects of global warming. The stated goals of the CAA and EPCA were, respectively, to address sources of air pollution proven to endanger the public’s health and welfare and to reduce the consumption of oil and petroleum products including the use of gasoline to make the U.S. economy more resilient to oil shocks.⁷² By the late 1990s, however, it became clear that the global rise in temperatures compared to pre-industrial levels coincided with higher concentrations of CO₂ in the atmosphere and that such concentrations were the result of the burning of great quantities of fossil fuels to sustain human activities.⁷³ At the time, CO₂ derived from human activities (especially fossil-fuel driven transportation) was found to be the most important input to the warming problem.⁷⁴ Despite mounting scientific evidence, in 2003 the EPA declined a petition for

NAAQS Table, EPA, <https://www.epa.gov/criteria-air-pollutants/naaqs-table> [<https://perma.cc/6LUF-F6MG>].

69. DAVIES ET AL., *supra* note 18, at 56; *Technology-Based Emission and Effluent Standards and the Achievement of Environmental Objectives*, 91 YALE L.J. 792, 800 (1982).

70. DAVIES ET AL., *supra* note 18, at 56; David M. Driesen, *Distributing the Costs of Environmental, Health, and Safety Protection: The Feasibility Principle, Cost-Benefit Analysis, and Regulatory Reform*, 32 BOSTON C. ENV’T AFF. L. REV. 1, 2–3 (2005).

71. *See supra* text accompanying note 66.

72. 42 U.S.C. § 7401; Energy Policy and Conservation Act (“EPCA”), 42 U.S.C. § 6201; CONG. RSCH. SERV., *supra* note 56, at 21.

73. TRANSP. RSCH. BD., CLIMATE CHANGE AND TRANSPORTATION: SUMMARY OF KEY INFORMATION 1–2 (2012).

74. *Carbon Pollution from Transportation*, EPA, <https://www.epa.gov/transportation-air-pollution-and-climate-change/carbon-pollution-transportation> [<https://perma.cc/A59K-5UPX>].

rulemaking brought by nineteen private organizations, asking the agency to use its authority under the CAA to regulate CO₂ emissions from motor vehicles.⁷⁵

The EPA put forward two lines of arguments to explain its refusal. First, it argued that the CAA did not authorize the EPA to promulgate mandatory regulations to address global climate change.⁷⁶ Second, the EPA argued that even if it had the authority to regulate GHG emissions, it would have been unwise to do so because of scientific uncertainty.⁷⁷ With respect to the first argument, the EPA relied heavily on the history of the CAA and on Congress's more recent approach to dealing with man-made atmospheric pollution causing global warming: it reasoned that because the CAA was directed at local air pollutants and Congress in 1990 decided to "leave out" anthropogenic GHG emissions from the Act's amendments, it followed that the CAA did not give authority to the EPA to regulate GHGs.⁷⁸ With respect to the second argument, EPA noted that scientific uncertainty as to the existence of an "unequivocal" causal link between GHG emissions and the rise in temperatures justified the agency's decision not to act.⁷⁹ Further, the agency stated that regulating GHG emissions from motor vehicles alone represented a "piecemeal" approach not in line with the President's desire to address the issue more comprehensively through technological innovation, voluntary programs, and further research on climate change.⁸⁰

Ultimately, the case resulting from EPA's denial of the petition, *Massachusetts v. EPA*, made its way to the Supreme Court of the United States, which in 2007 ruled in favor of the petitioners, opening a regulatory path to tackle climate change under existing legislation.⁸¹ In fact, it was the Supreme Court in this case that first established that the EPA had authority to regulate GHGs under the CAA. The Court based its decision on the "capacious" and "unambiguous" language of the statute, which commands the agency to "by regulation prescribe . . . standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in [the Administrator's] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger

75. *Massachusetts v. EPA*, 549 U.S. 497, 510 (2007) (noting how plaintiffs sought petitions for rulemaking and collateral relief seeking the regulation of greenhouse gas emissions from new motor vehicles under Section 202 of the CAA).

76. *Id.* at 511–12.

77. *Id.* at 513.

78. *Id.* at 508; *see generally* Control of Emissions from New Highway Vehicles and Engines, 68 Fed. Reg. 52,922, 52,925 (Sept. 8, 2003).

79. *Massachusetts*, 549 U.S. at 508.

80. *Id.*

81. *Id.* at 534–35.

public health or welfare”⁸² The Act defines an air pollutant as “any air pollution agent or combination of such agents, including any physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air”⁸³ In the Court’s view, there is no doubt that “the definition embraces all airborne compounds of whatever stripe,” and underscores that intent through the repeated use of the word “any.”⁸⁴ “Carbon dioxide, methane, nitrous oxide, and hydro-fluorocarbons are without a doubt *physical* [and] *chemical* . . . substance[s] which [are] emitted into . . . the ambient air”⁸⁵ In exercising its judgment, the EPA had to follow the statutory language, which is clear and unambiguous in granting the agency authority to regulate GHGs.⁸⁶ In accordance with its decision, the Court ordered the EPA to make a determination as to whether such gases effectively endanger human health and welfare.⁸⁷

In 2009, the EPA conducted an extensive review of decades of scientific research and peer-reviewed assessment reports synthesizing thousands of individual climate science studies and concluded that the build-up of heat-trapping GHGs in the atmosphere does endanger public health and welfare.⁸⁸ The 2009 rulemaking, referred to as “Endangerment Finding,” also included the “Cause or Contribute” determination that GHG emissions from motor vehicles contribute to the dangerous atmospheric build-up of climate pollution.⁸⁹ The two findings together provided the legal foundation for the EPA to issue GHG emissions standards for vehicles in 2010 under Section 202 of the CAA.⁹⁰

82. *Id.* at 532 (quoting 42 U.S.C. § 7521(a)(1)).

83. 42 U.S.C. § 7602(g).

84. *Massachusetts*, 549 U.S. at 529.

85. *Id.* at 529 (internal quotation marks omitted).

86. *Id.* at 532–33.

87. *Id.* at 534–35.

88. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,496 (Dec. 15, 2009); NAT. RES. DEF. COUNCIL (“NRDC”), EPA’S ENDANGERMENT FINDING: THE LEGAL AND SCIENTIFIC FOUNDATION FOR CLIMATE ACTION 1 (2017), <https://www.nrdc.org/sites/default/files/epa-endangerment-finding-fs.pdf> [<https://perma.cc/XK9Y-HDVF>].

89. Endangerment and Cause or Contribute Findings, 74 Fed. Reg. at 66,496; NRDC, *supra* note 88, at 2.

90. NRDC, *supra* note 88, at 2.

C. Current Standards

For decades, EPA and NHTSA established performance standards for motor vehicles.⁹¹ These included primarily tailpipe emissions and fuel economy standards, under the respective authority of the CAA and EPCA, without any inter-agency coordination.⁹² As a result, the standards were not particularly harmonized despite their practical interrelationship.⁹³ Motor vehicle energy use and emissions are a function of miles traveled, the number of vehicles on the road, fuel efficiency, and the type of fuel.⁹⁴ These factors combined determine the amount of pollution from each different category of motor vehicles (passenger vehicles, light trucks, heavy trucks, motorcycles, etc.). For example, a type of motor vehicle that uses less fuel per mile traveled will produce less pollution at the end of its useful life provided that the total miles traveled remain equal.⁹⁵

A possible curtailment of EPA's authority was raised by NHTSA for the first time when the EPA began considering tailpipe emissions standards for a different kind of air pollutants—GHGs and, in particular, CO₂—the amount and effects of which could be reduced by increasing motor vehicles efficiency.⁹⁶ In its 2007 decision, however, the Supreme Court clarified that EPA's statutory obligation to protect the public's health and welfare is "wholly independent of [Department of Transportation] DOT's mandate to promote energy efficiency."⁹⁷ The Court reasoned that, while in practice reducing GHG emissions from motor vehicles may overlap with DOT's authority to set mileage standards, such circumstance "in no way

91. DAVIES ET AL., *supra* note 18, at 535–36; Jody Freeman, *The Obama Administration's National Auto Policy: Lessons From the "Car Deal,"* 35 HARV. ENV'T L. REV. 343, 346–50 (2011).

92. DAVIES ET AL., *supra* note 18, at 535–36; Freeman, *supra* note 91, at 349–50.

93. DAVIES ET AL., *supra* note 18, at 535–36; Freeman, *supra* note 91, at 353.

94. DAVIES ET AL., *supra* note 18, at 534; NAT'L RSCH. COUNCIL, ASSESSMENT OF FUEL ECONOMY TECHNOLOGIES FOR LIGHT-DUTY VEHICLES 12–15 (2011); EPA, GREENHOUSE GAS EMISSIONS FROM A TYPICAL PASSENGER VEHICLE 2 (2018).

95. It is often said that the energy savings from policies promoting more efficient vehicles are partially offset by the "rebound effect," with people driving more miles as they spend less on fuel. DAVIES ET AL., *supra* note 18, at 498; *Federal Vehicle Standards*, CTR. FOR CLIMATE & ENERGY SOLS., <https://www.c2es.org/content/regulating-transportation-sector-carbon-emissions/> [https://perma.cc/9N DT-AMMA]. However, "according to the Department of Energy's 2018 Transportation Energy Data Book, starting in 1978, passenger vehicle fuel use dropped from around 80 billion gallons of gasoline to just above 69 billion in 1982. Conversely, the number of registered vehicles increased from 116 million to 123 million during the same time period. While the number of registered passenger vehicles increased, the number of miles driven per vehicle stayed relatively flat (around 9,000 miles per vehicle) throughout the time period." CONG. RSCH. SERV., R45493, THE WORLD OIL MARKET AND U.S. POLICY: BACKGROUND AND SELECT ISSUES FOR CONGRESS 22 (2019).

96. DAVIES ET AL., *supra* note 18, at 548.

97. *Massachusetts v. EPA*, 549 U.S. 497, 531–32 (2007).

licenses EPA to shirk its environmental responsibilities” and that “there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency.”⁹⁸

In light of the Supreme Court’s recommendations and the issuance of the Endangerment and Cause-or-Contribute Findings in December 2009, the Obama Administration took a new joint-rulemaking approach. First, the Administration brokered an agreement between major stakeholders in the automotive and truck industries, the states, and other interested parties to develop and implement vehicle GHG emission standards.⁹⁹ Second, because CO₂ from vehicle fuel combustion is a major source of GHG emissions, the White House directed EPA to work with NHTSA to align the GHG standards with the CAFE standards.¹⁰⁰ EPCA and CAA generally preempt states from adopting their own fuel economy and emissions standards for new motor vehicles.¹⁰¹ However, under CAA Section 209(a), California enjoys the unique authority to issue motor vehicle emissions standards, provided that they are at least as stringent as federal standards and are necessary to meet “compelling and extraordinary conditions.”¹⁰² California had already promulgated GHG emissions standards prior to 2009, for which it had requested an EPA waiver.¹⁰³ EPA granted California a waiver in June 2009, and President Obama directed EPA and NHTSA to harmonize the federal GHG and fuel efficiency standards with those developed by California.¹⁰⁴

On May 7, 2010, EPA and NHTSA finalized a groundbreaking joint rulemaking process, the Phase One standards, which affected model years (“MYs”) 2012–2016 light-duty motor vehicles (passenger cars, SUVs, crossovers, minivans and most pick-ups).¹⁰⁵ Under these regulations, emissions are designed to average 250 grams/mile of CO₂ combined with a fuel economy of 34.1 mpg in MY 2016.¹⁰⁶

98. *Id.* at 532.

99. CONG. RSCH. SERV., *supra* note 56, at 3; Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 74 Fed. Reg. 49,454-01 (Sept. 28, 2009).

100. CONG. RSCH. SERV., *supra* note 56, at 3.

101. 42 U.S.C. § 7543; 49 U.S.C. § 32919; CONG. RSCH. SERV., *supra* note 56, at 1.

102. 42 U.S.C. § 7543(b)(1)(B).

103. CONG. RSCH. SERV., R40506, CARS, TRUCKS, AIRCRAFT, AND EPA CLIMATE REGULATIONS 1 (2017).

104. *Id.*

105. Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 Fed. Reg. 25,324 (May 7, 2010). The Obama Administration referred to the coordinated effort as the “National Program.” CONG. RSCH. SERV., *supra* note 56, at 1.

106. Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 Fed. Reg. at 25,330.

According to EPA's estimates, these standards would achieve a twenty-one percent reduction in fleet-wide emissions by 2030 compared to the level that would occur in the absence of the regulations.¹⁰⁷ EPA and NHTSA promulgated the Phase Two CAFE and GHG emission standards for light-duty motor vehicle MYs 2017-2025 on October 15, 2012.¹⁰⁸ Under these new regulations, CO₂ emissions would be reduced to about 160 grams per mile by 2025, with fleet-wide fuel economy rising to nearly fifty miles per gallon, and achieve a fleet-wide reduction of fifty percent of GHG emissions by 2025, much higher than the goal of the 2010 Phase One standards.¹⁰⁹

D. Reasons for Harmonization

With the door now open to regulate GHGs from automobiles, the initially uncoordinated labor of EPA and NHTSA to set tailpipe emission limits for conventional pollutants and fuel economy standards did not seem appropriate anymore. The statutory goals of energy security and climate mitigation began to look less distant from each other, especially after the passage of the 2007 Energy Independence and Security Act ("EISA"), which emphasized the need to bring together energy and environmental policy.¹¹⁰ As stated in the joint EPA/NHTSA final rule of 2010, reducing both fuel consumption and CO₂ were "twin problems" which could be addressed through one national program.¹¹¹ The Obama Administration gave at least two reasons why CAFE and GHG standards required coordination and were aligned with the ones adopted in California. First, joint

107. CONG. RSCH. SERV., *supra* note 103, at 6.

108. 2017 and Later Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62,624-01 (Oct. 15, 2012). As with the Phase 1 rulemaking, the Phase 2 standards were preceded by a multiparty agreement, brokered by the Obama Administration, including the State of California, thirteen auto manufacturers, and the United Auto Workers union. CONG. RSCH. SERV., *supra* note 56, at 6.

109. 2017 and Later Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. at 62,627; *see* CONG. RSCH. SERV., *supra* note 56, at 7 tbl.1.

110. Energy Independence and Security Act of 2007 ("EISA"), 42 U.S.C. §§ 17001-17386. EISA, among other things, "required NHTSA to increase combined passenger car and light truck fuel economy standards to at least 35 mpg by 2020, up from a combined 26.6 mpg in 2007." CONG. RSCH. SERV., *supra* note 56, at 2.

111. "The National Program is both needed and possible because the relationship between improving fuel economy and reducing CO₂ tailpipe emissions is a very direct and close one. The amount of those CO₂ emissions is essentially constant per gallon combusted of a given type of fuel. Thus, the more fuel-efficient a vehicle is, the less fuel it burns to travel a given distance. The less fuel it burns, the less CO₂ it emits in traveling that distance." Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 75 Fed. Reg. 25,324, 25,327 (May 7, 2010) (citing PANEL ON POLICY IMPLICATIONS OF GREENHOUSE WARMING, NAT'L ACADEMY PRESS, POLICY IMPLICATIONS OF GREENHOUSE WARMING: MITIGATION, ADAPTATION, AND THE SCIENCE BASE (1992)).

rulemaking between EPA and NHTSA would deliver “administrative efficiencies on a nationwide basis that would likely not be available under a less coordinated approach.”¹¹² In this case, EPA and NHTSA developed common technical underpinnings, elements of program design, definitions of cars and truck, and flexibility mechanisms for compliance in supports of their standards.¹¹³ Having this level of harmonized rules favors uniformity and clarity to the industry’s advantage.

Second, the EPA/NHTSA joint rule was a prime example of achieving “regulatory convergence by making it possible for the standards of two different Federal agencies and the standards of California and other states to act in a unified fashion.”¹¹⁴ As highlighted by the Administration, this “will allow automakers to meet both the NHTSA and EPA requirements with a single national fleet, greatly simplifying the industry’s technology, investment and compliance strategies.”¹¹⁵ In other words, harmonized federal and state standards would not only deliver multiple benefits to the public but also allow the industry to plan with reasonable certainty.

The Trump Administration reopened the midterm evaluation process conducted under the prior Administration and concluded that the MY 2022-2025 standards are “not appropriate and, therefore, should be revised” in a new rulemaking.¹¹⁶ On August 24, 2018, EPA and NHTSA proposed amendments to the existing CAFE and GHG emission standards.¹¹⁷ The Safer Affordable Fuel-Efficient (“SAFE”) Vehicles Rule for MY 2021-2026 Passenger Cars and Light Trucks offered eight alternatives.¹¹⁸ The agencies’ preferred alternative was to retain the existing standards through MY 2020 and then to freeze the standards at this level for both programs through MY 2026.¹¹⁹ The preferred alternative also removed CO₂ equivalent air conditioning, refrigerant leakage, nitrous oxide, and methane requirements after MY 2020.¹²⁰

After receiving public comments, on September 19, 2019, EPA and NHTSA released a final rule, the Safer Affordable Fuel-Efficient (“SAFE”) Vehicles

112. *Id.* at 25,326.

113. *Id.* at 25,328.

114. *Id.* at 25,326.

115. *Id.* at 25,329.

116. Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-Duty Vehicles, 83 Fed. Reg. 16077-01, 16078 (Apr. 13, 2018).

117. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 83 Fed. Reg. 42,986-01 (Aug. 24, 2018).

118. *Id.* at 42,990.

119. *Id.* at 42,990; CONG. RSCH. SERV., *supra* note 56, at 17.

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

Rule Part One: One National Program.¹²¹ In the final rule, NHTSA contends that EPCA preempts California's standards because the statute preempts state laws related to federal fuel economy standards.¹²² In conjunction with NHTSA's determination, EPA withdrew California's CAA preemption waiver for its vehicle GHG standards applicable to MYs 2021-2025.¹²³ On March 31, 2020, EPA and NHTSA released the second part of the rulemaking, the Safer Affordable Fuel-Efficient ("SAFE") Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks.¹²⁴ This final rule contains the revised GHG and CAFE standards, which increase in stringency only 1.5% each year through MY 2026 compared with the standards issued in 2012, which would have required about a 5% annual increase.¹²⁵

The question of preemption centrally implicates California's authority under the CAA. The next section looks at the history of California's air pollution control, first under its own laws then under the federal statute. It explains the reasons behind the state's unique and longstanding role as a national "laboratory" for regulatory and technical experimentation. It then proceeds to analyze the more recent and unprecedented challenges to California's authority and concludes with a critique of the reasons offered by the Administration for its revocation.

III. CALIFORNIA'S AUTHORITY TO REGULATE MOTOR VEHICLE EMISSIONS UNDER THE CLEAN AIR ACT

A. History of California's Air Pollution Regulation

Before air pollution became a matter of federal legislation, municipalities, followed by the states, took the first steps to prevent the worst effects of black smoke and other emissions resulting from industrial development and urbanization.¹²⁶ Despite the increasing number of air pollution regulatory laws and ordinances passed in the late 1800s and early 1900s, localities lacked adequate organization, personnel,

121. *Id.* at 51,362-363.

122. *Id.*

123. *Id.*

124. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 85 Fed. Reg. 24,174, 25,278 (Apr. 30, 2020).

125. *Id.* at 24,175; News Release, EPA, U.S. DOT and EPA Put Safety and American Family First with Final Rule on Fuel Economy Standards (Mar. 31, 2020), <https://www.epa.gov/newsreleases/us-dot-and-epa-put-safety-and-american-families-first-final-rule-fuel-economy-standards> [<https://perma.cc/RW9N-JJL8>].

126. Arthur Stern, *History of Air Pollution Legislation in the United States*, 32 J. AIR POLLUTION CONTROL ASS'N 44, 44-47 (1982).

and fiscal means to appropriately enforce them.¹²⁷ The earliest state legislation regulating air pollution came out of Ohio in 1897, but the first state law to tackle air pollution other than black smoke was the California law of 1947, which authorized counties to regulate air pollution.¹²⁸

By the early 1940s, smog in the city of Los Angeles had become an issue of great concern.¹²⁹ This prompted the city, and later the state, to act.¹³⁰ The first recognized episodes of serious L.A. smog occurred in the summer of 1943.¹³¹ Visibility was only three blocks. People suffered from burning eyes and lungs, and nausea.¹³² The phenomenon was termed a "gas attack" and blamed on a nearby butadiene plant.¹³³ But when the plant was shut down, the smog did not abate.¹³⁴ In 1947, the Los Angeles County Air Pollution Control District—the first such body in the nation—was formed.¹³⁵ The district regulated obvious culprits, like smoke-belching power plants and oil refineries, but still the smog persisted.¹³⁶ It was not until the early 1950s, when Dr. Arie Haagen-Smit, a bioorganic chemistry professor on a one-year leave of absence from Caltech, figured out the nature and causes of photochemical smog, which made it clear that the automobile was the main culprit.¹³⁷

127. *Id.* at 44. In Stern's opinion, the biggest progress in air pollution prevention was made with the passage of the Clean Air Act of 1963, when federal grants were made available to the states to fund research, training programs, and technical assistance. *Id.* at 47–48. Lack of opposition to powerful economic interests by local officials was another major cause of local failure to adequately regulate air pollution. The episode of Donora, in the state of Pennsylvania, mentioned in Stern's article, well illustrates this trend. *Id.*; see also Lorraine Boissoneault, *The Deadly Donora Smog of 1948 Spurred Environmental Protection—But Have We Forgotten the Lesson?* SMITHSONIAN MAG. (Oct. 26, 2018), <https://www.smithsonianmag.com/history/deadly-donora-smog-1948-spurred-environmental-protection-have-we-forgotten-lesson-180970533/> [<https://perma.cc/ST2F-KL3N>].

128. Ohio state law required "that every steam boiler in any city of the first grade of the first class (most likely meaning Cleveland and Cincinnati) shall be constructed or altered to prevent the production and emission of smoke so far as the same is possible and that these furnaces be so operated "on pain of fine by the operator." Stern, *supra* note 126, at 47 (internal quotes omitted). The first state law to provide statewide authority to a state air pollution control agency was passed in Oregon in 1951; in 1957, California followed suit but only with respect to motor vehicles. *Id.*

129. *Id.* at 48.

130. *Id.*

131. *History*, CAL. AIR RES. BD. ("CARB"), <https://ww2.arb.ca.gov/about/history> [<https://perma.cc/ZPH8-ZBLS>].

132. *Id.*

133. *Id.*

134. *Id.*

135. *Id.*

136. *Id.*

137. *Id.*

Working in a specially equipped Los Angeles air district laboratory, he determined that two chief constituents of automobile exhaust—airborne hydrocarbons from gasoline, and oxides of nitrogen (“NO_x”) produced by internal combustion engines—were to blame for smog.¹³⁸ His research, highlighting the reaction of sunlight with automobile exhaust and industrial air pollution, became the foundation upon which today’s air pollution regulations are based.¹³⁹

As a result of these scientific findings, California took action by forming a Bureau of Air Sanitation within the California Department of Public Health and requiring that the department establish air quality standards and set necessary controls on motor vehicle emissions of air pollutants.¹⁴⁰ In 1966, California established the first tailpipe emissions standards in the nation.¹⁴¹ A year later, the California Air Resources Board (“CARB”) was established.¹⁴² Three years later, the federal Clean Air Act, expanding on the 1967 Air Quality Act, recognized California’s earlier efforts, and authorized the state to set its own separate and stricter-than-federal vehicle emissions regulations to address the extraordinary circumstances of population, climate, and topography that generated the worst air in the nation.¹⁴³ Under that authority, in 1971, CARB adopted the nation’s first NO_x emissions standards for motor vehicles and led the way to the development of the catalytic converter, which would revolutionize the ability to reduce smog-forming emissions from cars.¹⁴⁴

Because of its more severe air pollution problems and its pioneering role in establishing motor vehicle emission control requirements in the 1960s, California has

138. *Id.*

139. *Id.*

140. *Id.*

141. *Id.* With the Motor Vehicle Pollution Control Act of 1960, the California Legislature created the Motor Vehicle Pollution Control Board (“MVPCB”) within the Department of Public Health which duties included establishing criteria for approving automotive pollution control devices, testing, and certifying the devices and making reports and recommendations to the Legislature, while the Bureau of Air Sanitation retained its duties but concentrated on stationary sources. MVPCB established the nation’s first vehicle emission control requirements for gaseous emissions. However, because it lacked the power to coordinate state and local activities to control air pollution, MVPCB recommended its own dissolution in favor of a more powerful agency. Thomas C. Austin et al., *The California Vehicle Emission Control Program—Past, Present and Future*, 90 SAE INT’L 3824, 3826–27 (1981).

142. CARB, *supra* note 131. In 1967, the California Legislature combined the staff of the Department of Health’s Bureau Air Sanitation with the staff of the MVPCB and formed the California Air Resources Board (“CARB”). Its duties included dividing the state into air basins, monitoring air quality, adopting ambient air quality standards, promulgating motor vehicle emissions regulations, performing research, investigating special problems, assisting the local districts, and overseeing their activities. Austin et al., *supra* note 142, at 3827.

143. CARB, *supra* note 131.

144. *Id.*

historically been allowed to adopt motor vehicle pollution control standards more stringent than the federal requirements.¹⁴⁵ Moreover, in adopting purposeful technology-forcing regulations, EPA has generally followed the lead of California given its experience and leadership tackling air pollution.¹⁴⁶

B. California's Waiver Under the Clean Air Act

Title II of the CAA titled "Emission Standards for Moving Sources" generally preempts states from adopting their own emission standards for new motor vehicles or engines. CAA Section 209(a) declares:

No State or political subdivision thereof shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part. No State shall require certification, inspection, or any other approval relating to the control of emissions from any new motor vehicles or new motor vehicle engine as condition precedent to the initial sale, titling (if any), or registration of such motor vehicle, motor engine or equipment.¹⁴⁷

As Congress observed in the legislative history of the CAA in 1970, the main objective of the federal preemption was to avoid "the multiplicity of state standards for emissions control systems on new motor vehicles."¹⁴⁸ On the one hand, Congress was cognizant that different states would face different conditions and would require the adoption of more stringent standards to comply with ambient quality standards within their region, and, on the other hand, that allowing each state to set its own emission standards for new vehicles would create the impractical and costly result that the automotive industry would have to comply with fifty different sets of rules.¹⁴⁹ Federal preemption was therefore necessary and represented a compromise between achieving the greatest level of health and welfare protection while regulating motor vehicles emissions in a way that would be feasible and reasonable for automakers.¹⁵⁰

145. CONG. RSCH. SERV., *supra* note 103, at 5.

146. *Id.*; see also *Motor & Equip. Mfrs. Ass'n v. EPA*, 627 F.2d 1095, 1110-11 (D.C. Cir. 1979).

147. 42 U.S.C. § 7543(a).

148. S. REP. NO. 91-1196, at 32 (1970).

149. *See id.*

150. GLICKSMAN ET AL., *supra* note 42, at 494-95; see also Jeremy S. Scholtes, *When the Darkness Consumes the Light*, 27 TEMP. J. SCI. TECH. & ENV'T L. 177, 204 (2008).

Nevertheless, CAA Section 209(b) provides an exception to federal preemption of state vehicle emission standards:

The [EPA] Administrator shall, after notice and opportunity for public hearing, waive application of this section [the preemption of State emission standards] to any State which has adopted standards (other than crankcase emission standards) for the control of emissions from new motor vehicles or new motor vehicle engines prior to March 30, 1966, if the State determines that the State standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards.¹⁵¹

Only California qualifies for such a preemption waiver because it is the only state that adopted motor vehicle emission standards *prior* to March 30, 1966.¹⁵² In granting California the right to set different and more stringent standards, Congress sought to benefit not only the citizens of California but also the entire nation. It touted California as a “testing area” for innovative and ambitious air pollution control strategies that, if successful, could be rolled out on a national scale.¹⁵³ Congress continued to explicitly recognize and endorse California’s leadership role in developing high-quality air emission standards, despite strenuous opposition of the automotive industry and warnings about a fragmented national market.¹⁵⁴ Ten years later, with the 1977 Amendments to the CAA, it decided to substantially revise the waiver provision in an effort to further expand the deference accorded to California, and removed the original requirement that each California standard be more stringent than a comparable federal standard.¹⁵⁵ Furthermore, Congress adopted a

151. 2 U.S.C. § 7543(b)(1).

152. CONG. RSCH. SERV., *supra* note 56, at 4. California adopted crankcase ventilation (PCV) requirements for cars in 1963 and exhaust emissions standards for domestically manufactured new passenger cars with MY 1966. Austin et al., *supra* note 141, at 3827.

153. GRAB ET AL., *supra* note 49, at 1; *see also* Motor & Equip. Mfrs. Ass’n v. EPA, 627 F.2d 1095, 1110–11 (D.C. Cir. 1979) (“The history of congressional consideration of the California waiver provision, from its original enactment up through 1977, indicates that Congress intended the State to continue and expand its pioneering efforts at adopting and enforcing motor vehicle emission standards different from and in large measure more advanced than the corresponding federal program; in short, to act as a kind of laboratory for innovation. Had Congress wanted to limit California’s role to forbid its adoption of any program comparable to the federal scheme in section 207, it could have easily done so. It did not. For a court to do so despite the absence of such an indication would only frustrate the congressional intent.”)

154. *See e.g.*, Ford Motor Co. v. EPA, 604 F.2d 685, 685–86 (D.C. Cir. 1979) (holding that the EPA’s determination that methane is nonreactive and does not contribute to air pollution did not limit the agency’s authority to regulate methane).

155. In 1977, Congress amended the condition that California had to meet to be granted the waiver from “more stringent standards” to standards that “in the aggregate” are as protective as the federal ones.

“piggy-pack” provision allowing other states to adopt California’s standards instead of national standards.¹⁵⁶

The CAA places three conditions on the grant of the waiver to California:

No such waiver shall be granted if the [EPA] Administrator finds that:

- (A) the determination of the State [that its standards will be, in the aggregate, at least as protective of the public health and welfare as federal standards] is arbitrary and capricious;
- (B) such State does not need such [separate] State standards to meet compelling and extraordinary conditions, or
- (C) such State standards and accompanying enforcement procedures are not consistent with [section 202(a)] section 7521(a) of this title [which governs the promulgation and enforcement of federal vehicle emission standards].¹⁵⁷

Several factors support the idea that EPA has limited discretion in reviewing California waiver requests. First, as clearly stated by Congress when it passed the 1977 Amendments, it was Congress’ intention to limit EPA’s authority to deny a waiver: in a House Report regarding the waiver provision Congress affirmed that:

In general, the Environmental Protection Agency has liberally construed the waiver provision so as to allow California to proceed with its own regulatory program . . . The Committee Amendment is intended to ratify and strengthen the California waiver provision and to affirm the underlying intent of that provision, i.e., to afford California the broadest possible discretion in selecting the best means to protect the health of its citizens and the public welfare.¹⁵⁸

An Act to amend the Clean Air Act, Pub. L. No. 95-95, 91 Stat. 685 (1977) (codified as amended at 42 U.S.C. § 7543(b)(1)).

156. *Id.* (codified as Clean Air Act, 42 U.S.C. § 7507).

157. 42 U.S.C. § 7543(b)(1)(A)–(C).

158. H.R. REP. NO. 95-294, at 301–02 (1977).

Congress' objective was to prevent the EPA Administrator from "overturn[ing] California's judgment lightly" or "substitut[ing] his judgment for that of the State," and it restricted the grounds on which the EPA Administrator could refuse a waiver.¹⁵⁹ Congress said that in order to find that California acted arbitrarily and capriciously in determining that its standards were at least as protective as the federal standards, an EPA Administrator needed "clear and compelling evidence that the State acted unreasonably in evaluating the relative risks caused by various pollutants in light of the air quality, topography, photochemistry, and climate in that State."¹⁶⁰

The resulting statutory language from the 1977 Amendments effectuates the congressional intent in two ways: first, it makes it easier for California to comply with the requisite that its standards be more stringent than federal standards by lowering their threshold. Under the new waiver provision, California only needs to demonstrate that its standards will be *in the aggregate* as protective as the federal standards.¹⁶¹ Second, it expressly vests California state officials with the authority to determine, in the first instance, whether California's standards are sufficiently protective of public health and welfare.¹⁶² In fact, Congress shifted the determination regarding the protectiveness of the California standards from the EPA Administrator to the State, leaving the Administrator only with the power to review the State findings.¹⁶³ This creates a strong presumption in favor of California's determination, which can be overcome only by clear and compelling evidence to the contrary.¹⁶⁴

Another factor weighing in favor of California's broad discretion in selecting its standards of protection is EPA's own record. First, with respect to the third condition that California needs to meet to be granted the waiver, EPA has traditionally adopted a narrow interpretation:

[T]he determination [as to whether California's standards and enforcement procedures conflict with the promulgation and enforcement of the federal requirements] is limited to whether

159. *Id.* at 302.

160. *Id.*

161. 42 U.S.C. § 7543(b)(1). Under the original language of the CAA waiver provision in 1967, each standard had to be more stringent than the federal standards to obtain the waiver. Air Quality Act of 1967, Pub. L. No. 90-148, 81 Stat. 485, 501 (1967) (current version at 42 U.S.C. § 7543).

162. *Id.*

163. *Id.* Under the waiver provision of 1967, it was the Secretary of Health, Education and Welfare who had to make the determination whether the applicant state (i.e., California) required more stringent standards than the federal standards to meet extraordinary and compelling conditions, and grant or deny the waiver. The Secretary's duties with respect to air pollution control were subsequently transferred to the EPA Administrator, once the agency was created in 1970. GRAB ET AL., *supra* note 49, at 7–8.

164. H.R. REP. NO. 95-294, at 302 (1977).

those opposed to the waiver have met the burden of establishing that California's standards are technologically unfeasible, or that California's test procedures impose requirements inconsistent with the Federal Test procedure.¹⁶⁵

Courts have agreed with this narrow interpretation.¹⁶⁶ Finally, EPA's historical record in granting California waivers speaks for itself. Over the past fifty years, EPA has granted to California over fifty waivers and fully denied only one, a decision that was subsequently reversed by the agency.¹⁶⁷

C. Challenges to California's Authority

Since the adoption of federal legislation in 1967, California's authority to set different standards to regulate air emissions from mobile sources was never fundamentally questioned.¹⁶⁸ Past administrations have, at times, granted only partial waivers when they had found that some aspects of the waiver request did not meet the statutory criteria,¹⁶⁹ but otherwise California has created its own rules and programs for traditional air pollutants linked to motor vehicle emissions under the CAA.¹⁷⁰ At the core of EPA's practice was the fact that there were "certain general circumstances unique to California" responsible for causing its air pollution problems—namely its local geography, wind patterns, and other climatic conditions,

165. GRAB ET AL., *supra* note 49, at 2 n.21 (quoting Notice of Waiver of Clean Air Act Preemption for California's 2009 Greenhouse Gas Emission Standards for New Motor Vehicle, 74 Fed. Reg. 32,744, 32,767 (July 8, 2009)).

166. *See, e.g.*, *Motor & Equip. Mfrs. Ass'n v. Nichols*, 142 F.3d 449, 463 (D.C. Cir. 1998) ("The 'technological feasibility' component of section 202(a) obligates California to allow sufficient lead time to permit manufacturers to develop and apply the necessary technology . . . The federal certification component ensures that the Federal and California test procedures do not 'impose inconsistent certification requirements' . . . Neither the court nor the agency has ever interpreted compliance with section 202(a) to require more.") (internal citations omitted).

167. *See* U.S. GOV'T ACCOUNTABILITY OFF. ("GAO"), GAO-09-249R, CLEAN AIR ACT: HISTORICAL INFORMATION ON EPA'S PROCESS FOR REVIEWING CALIFORNIA WAIVER REQUESTS AND MAKING WAIVER DETERMINATIONS 4 (2009).

168. *See id.*; *see also* *Vehicle Emissions California Waivers and Authorizations*, EPA, <https://www.epa.gov/state-and-local-transportation/vehicle-emissions-california-waivers-and-authorizations> [<https://perma.cc/EZ33-5MEN>].

169. GAO, *supra* note 167.

170. *See* CARB, *supra* note 131 ("In the 1980s and '90s, CARB, which had already eliminated lead in gasoline, adopted standards for cleaner-burning gasoline, as well as initial standards for cleaner diesel fuel for trucks and buses.").

like thermal inversions—that, coupled with the presence and growth of its vehicle population, contributed to its serious air pollution problems.¹⁷¹

The federal government’s hands-off approach began to change in 2005 when California decided to request a waiver to regulate GHG emissions—a new and different kind of “air pollutant”—from automobiles.¹⁷² Initially, the Bush EPA decided not to act on the waiver request pending the Supreme Court’s decision in *Massachusetts v. EPA*.¹⁷³ After the Supreme Court’s ruling found that EPA had authority under the CAA to regulate GHGs, the agency commenced a hearing and public comment period on the waiver request.¹⁷⁴ When EPA denied California a waiver for the first time in March 2008, it argued that the state didn’t need its GHG emissions standards to meet “compelling and extraordinary conditions.”¹⁷⁵ It pointed to two factors: first, the atmospheric concentration of GHGs is uniform across the globe; once emitted into the atmosphere, GHGs don’t stay localized or stationary as other air pollutants do; therefore, emissions of GHGs from motor vehicles in California do not affect California’s air in any different way than emissions of these same GHGs from other sources elsewhere.¹⁷⁶ Second, EPA argued that the impacts of climate change resulting from these concentrations do not affect California in any particular and more detrimental way than other parts of the country.¹⁷⁷ Thus, EPA found that the requirement for “compelling and extraordinary conditions” to justify

171. California State Motor Vehicle Pollution Control Standards; Notice of Decision Denying a Waiver of Clean Air Act Preemption for California’s 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles, 73 Fed. Reg. 12,156, 12,160 (Mar. 6, 2008).

172. See Letter from Catherine Witherspoon, Exec. Officer, Cal. Air Res. Bd., to Stephen L. Johnson, Adm’r, EPA, (Dec. 21, 2005), <https://www.regulations.gov/document?D=EPA-HQ-OAR-2006-0173-0017> (on file with author).

173. Letter from William L. Wehrum, Acting Assistant Adm’r, EPA, to Catherine Witherspoon, Exec. Officer, Cal. Air Res. Bd., (Feb. 21, 2007), <https://www.regulations.gov/document?D=EPA-HQ-OAR-2006-0173-0002> (on file with author).

174. California State Request for Waiver of Federal Preemption; Opportunity for Public Hearing, 72 Fed. Reg. 21,260 (April 30, 2007); California State Request for Waiver of Federal Preemption; Opportunity for Public Hearing, 72 Fed. Reg. 26,626 (May 10, 2007); see generally *Massachusetts v. EPA*, 549 U.S. 497 (2007).

175. Notice of Decision Denying a Waiver of Clean Air Act Preemption for California’s 2009 Greenhouse Gas Emission Standards for New Motor Vehicles, 73 Fed. Reg. at 12,159–68; see also Letter from Stephen L. Johnson, Adm’r, EPA, to Arnold Schwarzenegger, Governor, State of Cal., (Dec. 19, 2007), <https://www.epa.gov/sites/production/files/2016-10/documents/20071219-slj.pdf> [<https://perma.cc/T7WB-BF88>].

176. Notice of Decision Denying a Waiver of Clean Air Act Preemption for California’s 2009 Greenhouse Gas Emission Standards for New Motor Vehicles, 73 Fed. Reg. at 12,160–61.

177. *Id.* at 12,162–68.

a preemption waiver was not met, and given the statutory relationship with the other two criteria, one finding was sufficient to deny the waiver.¹⁷⁸

A little after a year later, the Obama EPA reversed its position.¹⁷⁹ It granted California a waiver to set its own GHG emissions standards for MY 2009-2016 on the basis that the prior Administration erred in reviewing California's GHGs standards "in isolation" and "separately from" the remainder of its motor vehicle emission control program.¹⁸⁰ Instead, it found that these standards were necessary to address the state's overall pollution problems.¹⁸¹ The EPA Administrator reasoned that "[n]either the statutory language nor the legislative history of the CAA indicate that Congress intended to limit California's broad discretion to a certain kind of pollution problem or to take away all discretion with respect to global air pollution problems."¹⁸² Not only have the conditions that justify California's need for a separate emission control program not changed, they will be exacerbated by climate change.¹⁸³

In its waiver request, California submitted scientific evidence showing how warming temperatures alone worsen summertime surface ozone pollution in polluted regions.¹⁸⁴ This proved to be especially the case in urban areas and during pollution episodes (such as smog).¹⁸⁵ Given California's already high ozone levels, it was particularly vulnerable to climate change caused by GHGs.¹⁸⁶ The Administrator noted that to obtain a waiver, California did not have to demonstrate that its program would achieve any substantial reduction in GHGs; rather, the existence of a "logical link" between the local pollution problems and California's desire to reduce GHGs from motor vehicles was one way to address the impacts that climate change has on

178. *Id.* Section 209(b) of the CAA uses the term "or" not "and." 42 U.S.C. § 7543(b)(1). Therefore, the Administrator must deny a waiver if she finds that either one of the three conditions are not met.

179. California challenged the Bush EPA waiver denial in the U.S. District Court of Appeals of the D.C. Circuit. *See* California v. EPA, Nos. 08-1178, 08-1179 and 08-1180 (D.C. Cir. Dismissed Sept. 3, 2009)). However, EPA's voluntarily reconsideration of its own decision under new leadership rendered the case moot. *Id.*

180. Notice of Waiver of Clean Air Act Preemption for California's 2009 Greenhouse Gas Emission Standards for New Motor Vehicle, 74 Fed. Reg. 32,744, 32,759-60 (July 8, 2009).

181. *Id.* at 32,762-63.

182. *Id.* at 32,761.

183. *Id.* at 32,763.

184. *Id.* at 32,763 n.112.

185. *Id.*

186. *Id.* at 32,765. In addition, California presented evidence of many other unique and arguably more severe vulnerabilities to climate change like wildfires, loss in snowpack, and coasts systems impacts. *Id.*

its local air conditions.¹⁸⁷ Provided that the program was not in conflict with federal standards and procedures, and was technically feasible, in the Administrator's view, California was entitled to broad discretion as to what measures to put in place to achieve its legitimate policy goals.¹⁸⁸

In January 2013, EPA granted a second waiver to California for its Advanced Clean Cars ("ACC") program for MY 2015-2025, observing that the different regulations making up the ACC were "complementary in the way they address interrelated ambient quality needs and climate change," and were "necessary to achieve the coordinated goals."¹⁸⁹ Moreover, these standards were almost identical in stringency and structure as the federal light-duty vehicle emissions standards for MY 2015-2025 finalized by EPA in January 2013 and passed both state and federal mid-term reviews evaluating their feasibility.¹⁹⁰ The ACC is a coordinated package of regulations that includes: emission standards for smog-causing pollutants; emission standards for GHGs; and a Zero Emission Vehicle ("ZEV") program designed to commercialize battery-electric, plug-in hybrid, and fuel cell technologies, reaching about fifteen percent of new vehicle sales in California by the 2025 time frame.¹⁹¹

In response to the Trump Administration's decision to re-open the standard-setting process, California initiated legal proceedings and later declared that it would only accept cars that meet Obama-era rules.¹⁹² The standoff between California and the Administration was "resolved" when EPA decided in September 2019 to revoke California's 2013 waiver.¹⁹³ This withdrawal has no precedent in Administration practice since the passage of the CAA in 1967, and many scholars believe EPA has no statutory authority to revoke it.¹⁹⁴ In its proposal, EPA has

187. *Id.* at 32,763.

188. *Id.* at 32,745.

189. Notice of Waiver of Clean Air Act Preemption for California's Advanced Clean Car Program and a Within the Scope Confirmation for California's Zero Emission Vehicle Amendments for 2017 and Earlier Model Years, 78 Fed. Reg. 2112, 2131 (Jan. 9, 2013).

190. *Id.*; see also CONG. RSCH. SERV., *supra* note 56, at 5-6.

191. Notice of Waiver of Clean Air Act Preemption for California's Advanced Clean Car Program and Within the Scope Confirmation for California's Zero Emissions Vehicle Amendments for 2017 and Earlier Model Years; Notice, 78 Fed. Reg. at 2112-14, 2136.

192. *Corporate Average Fuel Economy Standards / Greenhouse Gas Standards*, HARV. ENV'T & ENERGY L. PROGRAM, <https://eelp.law.harvard.edu/2017/09/corporate-average-fuel-economy-standards-greenhouse-gas-standards/> [<https://perma.cc/JQV9-R8LK>]; CONG. RSCH. SERV., *supra* note 56, at Summary.

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

194. See e.g., GRAB ET AL., *supra* note 49, at 4-5 (collecting cases). Some of the arguments that have been put forward to question the legality of the Trump EPA unprecedented action to withdraw a (granted) waiver are grounded in the plain language of the waiver provision as well as its legislative and

resuscitated the argument used by the Bush Administration back in 2008 to deny California its waiver: climate change caused by CO₂ emissions is not a local air pollution problem.¹⁹⁵ More specifically, the Administration argued that:

Attempting to solve climate change, even in part, through the Section 209 waiver provision is fundamentally different from that section's original purpose of addressing smog-related air quality problems. When California was merely trying to solve its air quality issues, there was a relatively straightforward technology solution to the problems, implementation of which did not affect how consumers lived and drove . . . Trying to reduce carbon emissions from motor vehicles in any significant way involves changes to the entire vehicle, not simply the addition of a single or a handful of control technologies. The greater the emissions reductions are sought, the greater the likelihood that the characteristics and capabilities of the vehicle currently sought by most American consumers will have to change significantly . . . Parts of California have real and significant local air pollution problems, but CO₂ is not part of that local problem.¹⁹⁶

On September 2019, NHTSA and EPA released a joint final rulemaking in which the agencies made the following determinations: pursuant to the EPCA, only the federal government can set fuel economy standards, and state and local governments may not establish their own.¹⁹⁷ State laws that substantially affect fuel economy standards also are preempted. These include tailpipe emissions standards and ZEV mandates.¹⁹⁸ In addition, the 2013 waiver is withdrawn only to the effect that it allows GHGs standards (which are considered fuel economy standards) and ZEV mandates.¹⁹⁹ California remains able to enforce its Low Emission Vehicle ("LEV") program and other clean air standards to address harmful smog-forming

regulatory history; others in relevant case law on statutory interpretation; and others on the conditions under which delegations of regulatory authority can be revoked under other provisions of the CAA and other federal statutory statutes. *Id.*

195. *See supra* Part II.B.

196. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 83 Fed. Reg. 42,986-01, 42,999 (Aug. 24, 2018).

197. EPA, *supra* note 38.

198. *Id.*

199. *Id.*

vehicle emissions.²⁰⁰ The rule became effective on November 26, 2019.²⁰¹ As a result of the move, California sued NHTSA on September 20, 2019, in the U.S. District Court for the District of Columbia for its determination that California's GHG standards and ZEV program are preempted by EPCA, leading a coalition of twenty-three states, the District of Columbia, and two cities.²⁰² On November 15, 2019, California filed a second lawsuit, this time against EPA for revocation of the 2013 waiver under the CAA, leading a coalition of twenty-two states, two cities, and the District of Columbia.²⁰³

D. EPA's Rationale for Revocation of California's Authority is not Persuasive

EPA's rationale for revoking California's authority is not persuasive for at least three reasons: first, under the current statutory language and design, California must prove that its program "as a whole" is necessary to address its more severe air pollution problems, not that the pollutant(s) that California is trying to address need to be "local" in nature. Second, the Trump Administration has not offered any clear and compelling evidence to counter California's showing that GHGs emissions have a degrading effect on its air quality (since the burden of proof lies with the opponents of the waiver, one can logically argue that the same burden applies in the case of a waiver that has already been granted by a prior Administration). Third, the Administration suggests that the type of vehicles that incorporate new technologies to comply with the California standards are not ones that Americans would like to drive, or would feel safe driving, but such statements do not find adequate factual support.

Under the current language of the statute, California has to evaluate the relative risks of the various pollutants in the light of its air quality, topography, photochemistry, and climate, and come to a determination as to what standards would adequately protect the health and welfare of its citizens.²⁰⁴ In reaching its determination, California is afforded great discretion.²⁰⁵ As interpreted by the EPA in its decision to grant the 2013 waiver, EPA's role is not and should not be to

200. *Id.*

201. The Safer Affordable Fuel-Efficient (SAFE) Vehicle Rule Part One: One National Program, 84 Fed. Reg. 51,310, 51,310 (Sept. 27, 2019).

202. *See* Complaint, California v. Chao, No. 1:19-cv-02826-KB (D.D.C. filed Sept. 20, 2019).

203. *See* Petition for Review, California v. Wheeler, No. 19-1239 (D.C. Cir. filed Nov. 15, 2019). Several regional California air districts and environmental groups file similar challenges against EPA in the D.C. Court of Appeals. *See* Petition for Review, S. Coast Air Quality Manage v. EPA, No. 19-1241 (D.C. Cir. filed Nov. 15, 2019); Petition for Review, Union of Concerned Scientists v. NHTSA, No. 19-1230 (D.C. Cir. filed Nov. 15, 2019).

204. *See* discussion *supra* Part III.B.

205. *See* discussion *supra* Part III.C.

“second-guess California’s judgment” but instead is to limit its review of the State’s determination to the three criteria spelled in the statute.²⁰⁶ EPA’s job is, therefore, to evaluate whether California’s standards taken as a whole are logically and functionally linked to its regulatory objective, and are as protective as and not in conflict with federal standards.²⁰⁷ In its notice of proposed rulemaking, however, the Trump EPA’s main arguments for finding California’s determination arbitrary and capricious are that CO₂ emissions are a global air pollution problem, not a local one, and that California should limit its regulations to address local smog-related air pollutants.²⁰⁸

The first problem with the Trump Administration’s argument is that, in violation of the Congressional mandate, the Administration is not evaluating the ACC as a whole but only two of its components (GHGs and ZEVs standards).²⁰⁹ In other words, it is cherry picking already well-tested standards and conventional technologies that pose no fundamental risk to American auto manufacturers, nor challenge the primacy of oil and gas interests, while setting aside those that threaten the comfort of doing business as usual and represent—in the myopic view of the Administration—a dangerous, perhaps even unnecessary, leap towards an uncertain future. However, stripping away California’s authority to implement and enforce its ACC program also means taking away the right of California (and other thirteen states) to regulate those traditional air pollutants that the Administration eventually recognizes as a legitimate policy and regulatory objective through the adoption and dissemination of new and more advanced technologies. In fact, it is hard to see how a gradual substitution of conventional cars with vehicles that can reduce and even eliminate the need for gasoline fuel altogether, like electric ones—especially when accompanied by policies aimed at greening the electric grid—would not result in substantial reductions of *all* the waste gases that are produced by the combustion of gasoline in the first place.

The second problem with the Administration’s reasoning is that it treats CO₂ emissions as if they have no effect locally. While GHGs in general may have a global reach, this doesn’t mean that they cannot affect California’s climate in some unique way. In this respect, and in support of its request for a waiver, California has produced scientific evidence showing how GHGs and in particular CO₂ are aggravating its air pollution by interacting with other motor vehicle pollutants in a

206. Notice of a Waiver of Clean Air Act Preemption for California’s Advanced Clean Car Program and a Within the Scope Confirmation for California’s Zero Emission Vehicle Amendments for 2017 and Earlier Model Years, 78 Fed. Reg. at 2115.

207. *Id.* at 2126.

208. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 83 Fed. Reg. 42,986-01, 42,999 (Aug. 24, 2018).

209. *Id.*

detrimental way.²¹⁰ It is a well-established interpretation of the waiver provision—and EPA’s longstanding practice—that the burden of proof rests on the opponents of the waiver to demonstrate that California should not be granted the right to set its own separate standards.²¹¹ This should be—logically—even truer in the case of a revocation of a waiver that has already been granted.²¹²

Yet, the Administration hasn’t shown any clear and compelling evidence that GHGs are not affecting the local climate in California, thus contributing to aggravate the state’s already very severe air pollution problems.²¹³ The record shows quite the opposite: there is a solid body of scientific evidence suggesting that the interaction between “smog-causing” pollutants and warming temperatures will cause deterioration in local air quality.²¹⁴ Mutually reinforcing negative effects create special challenges in California, where higher-than-average concentrations of ozone and particulate matter are known to generate “the worst air quality in the nation.”²¹⁵ Moreover, in response to the Administration’s argument that GHGs behave differently than local air pollutants, a study showed how before they reach and mix

210. Notice of Waiver of Clean Air Act Preemption for California’s 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicle, 74 Fed. Reg. 32,744, 32,759–63. (July 8, 2009).

211. *Id.* at 32,749.

212. In Section 209, Congress contemplated only two possible actions for EPA to either *grant* or *deny* a waiver but not to withdraw a waiver that has already been granted. Contrary to other permitting programs in the CAA, there is not substantive or procedural guidance for revoking a waiver. GRAB ET AL., *supra* note 49, at 6. Moreover, one stray reference in the legislative history of Section 209 cannot support a finding of revocation authority without it being firmly anchored in the statutory language. GRAB ET AL., *supra* note 49, at 7–9.

213. *See generally* The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, 84 Fed. Reg. 51,310, 51,310 (Sept. 27, 2019); *see also* Motor & Equip. Mfrs. Ass’n v. EPA, 627 F.2d 1095, 1110 (citing H.R. Rep. No. 294, 95 Cong., 1st Sess. 301-02 (1977)). Under the current statutory scheme, EPA must show that California’s determination is arbitrary and capricious. H.R. REP. NO. 95-294, at 302 (1977). However, nowhere in the proposed or new regulations EPA has demonstrated that climate change isn’t exacerbating California’s pollutions problems and, therefore, that California’s regulations as a whole are arbitrary and capricious to achieve its air quality goals.

214. *See Climate Science: Climate Basics: Short-Lived Climate Pollutants, CTR. FOR CLIMATE AND ENERGY SOLS.*, <https://www.c2es.org/content/short-lived-climate-pollutants/> [<https://perma.cc/36FA-X7DL>]; CARB, *supra* note 131; *supra* Section III.A.

215. Ariel Wittenberg, *Democrats Slam Wheeler for “Weaponizing” Agency*, GREENWIRE (Oct. 8, 2019), <https://www.eenews.net/stories/1061224579/> [<https://perma.cc/GG48-CEFM>]; Jeff Brady, *Trump Administration Escalates Battle Over Environmental Regulations With California*, NPR (Sept. 24, 2019, 2:53 PM) <https://www.npr.org/2019/09/24/763876070/trump-administration-escalates-battle-over-environmental-regulations-with-califo> [<https://perma.cc/ZG8T-5BVT>] (noting how the Trump-era EPA acknowledges California’s grave air pollution issues and its unique situation).

in the upper atmosphere, local decreases in GHGs can have a direct effect in reducing ozone and particulate matter levels.²¹⁶

The third problem the Administration sees is a technological one. Rather than addressing California's determination as required by the statute, and whether in the Administration's reasoned opinion the ACC requirements are technologically feasible and achievable within the deadlines and not in conflict with federal standards, the Administration prefers to offer an odd (and unproven) series of observations regarding the evolution of historical advancements in motor vehicle emission control technologies. The Administration first affirms that in the inception of motor vehicle emissions regulation by California, there was a "relatively straightforward technology" to address its air quality problems that did not require changes in the way the public drove or in the kind of cars that consumers were buying.²¹⁷ Moreover, the Administration advances the hypothesis that the type of vehicles that incorporate new technologies to comply with the California standards will significantly affect the way Americans live and drive,²¹⁸ an argument that in its logic reminds some of the early arguments favoring the horse and buggy when confronted with early automobiles.

The Administration argumentation is inaccurate at best and does not reflect the evolution and current transformations that are taking place in the automotive sector. First, the technology that California pioneered in the 1960s and 1970s was not straightforward at all: it was the result of discoveries and testing, like for the catalytic converter, cleaner fuels, and numerous other advancements which were later incorporated in all new motor vehicles models sold nationally.²¹⁹ Moreover, that California has already conducted a comprehensive review of its 2012 Clean Cars program²²⁰ further demonstrates that developing these technologies is far from "straightforward," for if it was, California would have by now resolved its air pollution problems. Today, new inventions are replacing the combustion engine at an increasing scale and pace, as in the case of plug-in hybrids, which have become very popular among consumers because—contrary to what the Administration asserts—they offer similar characteristics and driving performances compared to

216. Notice of Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicle, 74 Fed. Reg. at 32,766, n.128.

217. See The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 83 Fed. Reg. at 42,999.

218. *Id.*

219. JAMES E. MCCARTHY & ROBERT MELTZ, CONG. RSCH. SERV., RL34099, CALIFORNIA'S WAIVER REQUEST TO CONTROL GREENHOUSE GASES UNDER THE CLEAN AIR ACT 2 (2008).

220. See *Advanced Clean Cars Program*, CARB, <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/about> [<https://perma.cc/6Z97-BX33>].

regular cars.²²¹ They are conveniently refueled at regular gas stations and are driven in the same way.²²² With respect to Zero Emissions Vehicles,²²³ which present greater challenges because of the need for special recharging stations, their growing popularity among the American public cannot be overstated.²²⁴ Congress enacted the CAA with the goal of designing a statutory framework based on technology-forcing regulations that would transform the automotive industry and bring about otherwise-unlikely change and innovation.²²⁵ In doing so, Congress recognized and maintained California's leadership role during the series of amendments to the CAA.²²⁶ The Administration's statements ignore this history and openly conflict with the statute's stated intent.

Finally, revoking the 2013 waiver does not find unanimous support among car manufacturers themselves, who are the subjects of the technology-forcing provisions and who might be expected to oppose them, as they have historically done.²²⁷ But times have changed, and so have consumers' choices and expectations—especially among millennials.²²⁸ While three major companies—General Motors Co., Toyota Motor Corp. and Fiat Chrysler Automobiles NV—have sided with the Trump Administration in the legal fight over California's vehicle emissions standards by publicly supporting the Administration's efforts to block California from setting

221. See *3 Reasons Why Hybrid Cars are More Popular Than Ever*, HYUNDAI (Apr. 23, 2018), <https://www.hyundai.news/eu/stories/3-reasons-why-hybrid-cars-are-more-popular-than-ever/> [<https://perma.cc/BCT7-M4UN>].

222. *Id.*

223. VIRGINIA MCCONNELL ET AL., CALIFORNIA'S EVOLVING ZERO EMISSION VEHICLE PROGRAM: PULLING NEW TECHNOLOGY INTO THE MARKET, RES. FOR THE FUTURE, Working Paper 19-22, at 1 (2019) ("A zero emission vehicle is a passenger car, light-duty truck, and medium-duty vehicle that produce zero exhaust emissions of any criteria pollutant under any and all possible operational modes and conditions. Only all electric and fuel cell vehicle meet this standard. Even though the production of electricity or hydrogen to power these vehicles may generate emissions, complementary state policies are designed to reduce power plant emissions.").

224. *E.g., Musk Touts 146,000 Orders for Tesla's Pickup Truck*, ENERGYWIRE (Nov. 25, 2019), <https://www.eenews.net/energywire/2019/11/25/stories/1061639067> [<https://perma.cc/ZE66-EXD6>].

225. David M. Driesen et al., *Half a Century of Supreme Court Clean Air Act Interpretation: Purposivism, Textualism, Dynamism, and Activism*, 75 WASH. & LEE L. REV., 1781 1792 (2018) ("Thus the CAA reflects a technology-forcing philosophy--a view that given sufficiently strict standards, polluters would figure out how to operate without damaging public health and accomplish feats that appeared infeasible.").

226. See *supra* Part III.B.

227. Steven Cohen, *The "Can't Do" Approach of the American Auto Industry*, EARTH INST. (Mar. 27, 2017), <https://blogs.ei.columbia.edu/2017/03/27/the-cant-do-approach-of-the-american-auto-industry/> [<https://perma.cc/G23E-ZEXT>].

228. Maxine Joselow, *5 Things to Know About the Split Between Automakers*, CLIMATEWIRE (Oct. 31, 2019), <https://www.eenews.net/climatewire/2019/10/31/stories/1061419443> [<https://perma.cc/JX57-D7UA>].

vehicle emissions limits that are more stringent than those established by the federal government, four other automakers—Ford Motor Co., Honda Motor Co., Volkswagen AG and BMW of North America—are siding with California.²²⁹ Honda, in particular, voiced complaints about the Administration’s decision to open the door to “lengthy and costly litigation on this issue, which will result in a great deal of regulatory uncertainty,” something that Honda and other companies wanted to avoid.²³⁰

Some automakers believe that their bottom line would be better served by improving cars than litigating in the courts. They feel confident enough in their ability to comply with California’s regulations.²³¹ In fact, they have entered into a voluntary agreement with the State to implement tougher standards than those likely to be soon finalized by the Trump Administration.²³² Their agreement also incorporates credits for building electric, plug-in hybrid, and hydrogen fuel vehicles as well as other incentives generally more favorable to automakers.²³³ In the automakers’ view, the value of the deal lies in a compromise designed to help them “meet both federal and state requirements with a single national fleet . . . to ensure meaningful GHG emissions reductions.”²³⁴ This is a view that is widely shared by a growing number of governors (some in purple states) as well as public electric utilities.²³⁵

229. *Id.*

230. *Id.* So much so that in July 2019, Honda, Ford Motor Company, Volkswagen of America, and BMW decided to enter into negotiations with the state of California and agree on standards stricter than those being sought by the White House, infuriating the President who demanded that the Department of Justice investigate the matter. Timothy Puko & Ben Foldy, *Justice Department Launches Antitrust Probe Into Four Automaker*, WALL ST. J. (Sept. 6, 2019, 5:55 PM), <https://www.wsj.com/articles/justice-department-launches-antitrust-probe-into-four-auto-makers-11567778958> [<https://perma.cc/CMZ9-NMYN>].

231. *E.g.*, Maxine Joselow, *Audi Exec Brushes off Trump’s Rollback*, GREENWIRE (Dec. 4, 2019) <https://www.eenews.net/greenwire/2019/12/04/stories/1061723071> [<https://perma.cc/VB9K-TU2E>] (noting how Audi’s recent statements oppose the Trump Administration move to deregulate).

232. But these standards are lower than envisioned under the Obama Administration. *See* David Shepardson & Ben Klayman, *California, Four Automakers Defy Trump, Agree to Tighten Emission Rules*, REUTERS (Jul. 25, 2019), <https://www.reuters.com/article/us-autos-emissions/four-automakers-california-strike-compromise-on-vehicle-emissions-idUSKCN1UK1OD> [<https://perma.cc/VGK5-5JHY>].

233. *Id.* The deal represents a compromise that has been criticized by some environmental groups like Safe Climate Campaign but, in the face of a potentially devastating rollback, also praised by others such as Sierra Club. *Id.*

234. *Id.*

235. Jennifer Hijazi, *Utilities Defend Calif. in Legal Fight Against Trump*, CLIMATEWIRE (Dec. 5, 2019) <https://www.eenews.net/climatewire/2019/12/05/stories/1061727197> [<https://perma.cc/6Y36-BKZT>]; Maxine Joselow, *Nev. Steers Tougher Tailpipe Emission Rules*, E&E NEWS PM, (Nov. 22, 2019), <https://www.eenews.net/eenewspm/2019/11/22/stories/1061619891> [<https://perma.cc/46Z5-4538>]. In July 2019, twenty-four Alliance governors issued the Nation’s Clean Car Promise, reemphasizing their commitment to one strong, national clean car standard and preserving state authority. U.S. CLIMATE ALL., THE NATION’S CLEAN CAR PROMISE (2019), <https://static1.squarespace.com/static/5a4cfbfe18b2>

IV. GOVERNANCE MODELS FOR MITIGATING EMISSIONS FROM TRANSPORTATION

A. Governance Models

The previous three sections have explored the federal statutory framework for the regulation of motor vehicle emissions in the United States, California's unique authority to regulate motor vehicle emissions under the CAA, and the Trump Administration's hostility towards a national program that aligns with California standards. As a result, what have emerged are two fundamentally different models of governance currently battling for acceptance in court.²³⁶

One is the comprehensive yet flexible CAA approach, implemented under the Obama Administration, which supports California's prominent role in leading innovation towards a future of zero emissions cars, while at the same time harmonizing as much as possible federal and states standards in order to facilitate automakers' compliance.²³⁷ Under this approach, thirteen states have adopted California's motor vehicle emissions standards under section 177 of the CAA.²³⁸ Section 177 requires that their standards be identical to California's. As a result, approximately thirty-five percent of domestic automotive sales comply with the California program.²³⁹

As part of the agreement to grant the 2013 waiver, California consented to the federal government's request that it treat vehicles complying with federal GHGs standards as meeting California standards.²⁴⁰ These standards are structurally different than the original CAFE program in that they substitute the grouping of passenger cars, imported passenger cars, and light trucks into three different categories with the concept of "vehicle footprint" in order to set different targets for

7d4da21c9361/t/5d24ad4393429e0001badc20/1562684740094/Nations+Clean+Car+Promise+Statement.pdf [https://perma.cc/GFH4-SFXF].

236. See HARV. ENV'T & ENERGY L. PROGRAM, *supra* note 192.

237. Jennifer Hijazi, *Unprecedented Move by EPA Puts 13 States in 'Strange Place'*, CLIMATEWIRE (Sept. 20, 2019), <https://www.eenews.net/stories/1061140315> [https://perma.cc/6VER-QVA9]. The downside of this approach is that, in a country with over fifty states, it grants a privileged position to only one state. Other states can claim smog conditions similar to those of California and may want to adopt their own regulatory programs tailored to their specific needs. In fact, at least thirteen states don't approve of California's privilege to set its own tailpipe emissions standards and have sided with the Trump Administration on the legal fight concerning the preemption waiver. See Jennifer Hijazi, *Trump Gains Allies in His Fight Against Calif.*, CLIMATEWIRE (Nov. 27, 2019), <https://www.eenews.net/climatewire/2019/11/27/stories/1061655673> [https://perma.cc/6VYA-ULWZ].

238. New York, Massachusetts, Vermont, Maine, Pennsylvania, Connecticut, Rhode Island, Washington, Maryland, Oregon, New Jersey, Delaware and Colorado. Hijazi, *supra* note 237.

239. 42 U.S.C. § 7505; CONG. RSCH. SERV., *supra* note 56, at 6.

240. CONG. RSCH. SERV., *supra* note 56, at 6.

different size vehicles.²⁴¹ The larger the vehicle footprint (in square feet) the lower the corresponding vehicle fuel economy target and the higher the CO₂-equivalent emissions target.²⁴² To comply with both CAFE and GHGs emissions, therefore, manufacturers can produce a wide range of vehicle sizes rather than just focusing on lightweight models in order to meet the targets.²⁴³ Moreover, car manufacturers have access to other flexible mechanisms such as buying credits from other companies to help them bring their vehicles into compliance.²⁴⁴

The Trump Administration has adopted instead one uniform federal standard that decreases the fuel economy standards set under the Obama EPA and pushes de-carbonization goals for transportation backward.²⁴⁵ Among the reasons justifying this rollback, the Administration has alleged that moving forward with the prior targets would make cars more costly and less safe.²⁴⁶ Based on several considerations, such as changes in the focus of the overall analysis and modeling assumptions, observers have had difficulty comparing the costs and benefits reported under the proposed SAFE Vehicle rule.²⁴⁷ Some have argued that the modeling used by the Administration in its Preliminary Regulatory Impact Analysis is deficient.²⁴⁸ Even using simple common sense, the rationale appears to be weak at best. Another major critique of the Trump Administration's rulemaking is that revoking California's CAA preemption waiver and substantially halting the rise in fuel economy standards can potentially lead to a bifurcation between federal and California standards if the courts support California.²⁴⁹

241. *Id.* at 5–6.

242. *Id.* at 7.

243. *Id.*

244. *Id.* at 10, 13, 20–23.

245. *Id.* at 9, fig.1 “CAFE Standards and Achieved Fuel Economy, MYs 1978–2026.”

246. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 83 Fed. Reg. at 42,993–96.

247. See CONG. RSCH. SERV., *supra* note 103, at 2.

248. See, e.g., Benjamin Leaf & Virginia McConnell, *Credit Trading Accelerates as Passenger Vehicle Fuel Economy and Greenhouse Gas Standards Tighten*, COMMON RES. (Dec. 9, 2019), <https://www.resourcemag.org/common-resources/credit-trading-accelerates-passenger-vehicle-fuel-economy-and-greenhouse-gas-standards-tighten/> [<https://perma.cc/67N3-6U5R>] (discussing how incorporating credit trading—a major compliance tool used by automakers to meet the standards since 2012—into a cost-benefit analysis could dramatically shift results, perhaps even making a rollback of standards costly on the net rather than beneficial); see also Antonio M. Bento et al., *Flawed Analyses of U.S. Auto Fuel Economy Standards*, 362 SCI. 1119, 1119–21 (2018).

249. Julia Stein, *Revoking California's Clean Air Act Waiver Is Bad Policy and Legally Indefensible*, AM. CONST. SOC'Y BLOGS (Sept. 18, 2019), <https://www.acslaw.org/expertforum/revoking-californias-clean-air-act-waiver-is-bad-policy-and-legally-indefensible/> [<https://perma.cc/Y6FU-TS9W>].

One of the advantages of the California waiver approach implemented under President Obama is that it harmonizes both CAFE and GHGs federal standards with those of California, effectively creating a predictable regulatory environment where automakers have to meet only one set of standards.²⁵⁰ Decreasing the stringency of federal standards while (potentially) leaving California standards in place would only generate regulatory incoherence without achieving any of the Trump Administration's declared goals, namely having one national standard in place.²⁵¹

The Trump Administration's actions set up questions of definition, priorities, and states' rights, all with potentially far-reaching consequences. The next three sub-sections focus on the issue of federal preemption of California's authority, introduce the Transportation and Climate Initiative as an additional example of state's regulatory expertise, innovation, and leadership, and argue in favor of state autonomy more generally.

B. Federal Preemption

Governance schemes in the United States can hardly be divorced from federalism issues. Since the adoption of the U.S. Constitution with its Bill of Rights, the balancing between state and federal powers has proven a delicate and evolving jurisprudential exercise.²⁵² The Tenth Amendment reminds the federal government: "[t]he powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the People."²⁵³ At the same time, the Supremacy Clause establishes that federal law takes precedence over state laws and even state constitutions.²⁵⁴ More specifically, preemption derives from the Supremacy Clause: preemption prohibits states from interfering with the federal government's exercise of its constitutional powers and from assuming any functions that are exclusively entrusted to the federal government.²⁵⁵ The Supreme

250. Some harmonization challenges between CAFE and GHGs standards remain, which have prompted automakers to suggest ways in which the Obama-Era programs could be further and better aligned to facilitate compliance both with one fleet. CONG. RSCH. SERV., *supra* note 56, at 20–24.

251. *Id.* at 39.

252. *See, e.g.*, Jared Bayer, *Re-Balancing State and Federal Power: Towards a Political Principle of Subsidiarity in the United States*, 53 AM. U. L. REV. 1421, 1422–25 (2004).

253. U.S. CONST. amend. X.

254. U.S. CONST. art. VI, cl. 2; *see, e.g.*, *Armstrong v. Exceptional Child Ctr, Inc.*, 575 U.S. 320, 324 (2015) (noting that the Supremacy Clause does not give effect to state and local laws that conflict with federal laws).

255. *See, e.g.*, *Arizona v. United States*, 567 U.S. 387, 399 (2012) (stating that under the Supremacy Clause, "states are precluded from regulating conduct in a field that Congress, acting within its proper authority, has determined must be regulated by its exclusive governance" and "state laws are preempted when they conflict with federal law"). Preemption applies to all types of laws from statutes to common

Court has traditionally recognized three ways in which federal law preempts state law: explicitly, when a federal law contains a provision that withdraws certain authority from states; implicitly, where the federal scheme of regulation is so pervasive as to make reasonable the inference that Congress left no room for the states to supplement it (“field preemption”); and finally, where compliance with both federal and state regulations is a physical impossibility or where state law stands as an obstacle to the accomplishment and execution of the full purpose of the statute as a whole (“conflict preemption”).²⁵⁶ A federal agency acting within the scope of its congressionally delegated authority may preempt state regulation.²⁵⁷

In this vein, the Trump Administration has launched a dual attack on the power of California and its followers to regulate motor vehicle emissions. On one hand, NHTSA is asserting that under the broad and clear EPCA preemption provision, states are forbidden to adopt laws or regulations “related to fuel economy standards or average fuel economy standards.”²⁵⁸ In NHTSA’s view, this includes California’s ACC program—specifically its GHGs standards and ZEVs mandates—because these regulations are directly related to fuel economy.²⁵⁹ Moreover, contrary to the CAA, the EPCA contemplates no preemption waiver for California or any other state.²⁶⁰ Simultaneously, EPA has revoked California’s authority to regulate motor vehicle emissions under the CAA, as discussed above.²⁶¹

Two federal district courts have already examined the issue of motor vehicle GHG emission standards adopted by the states of California and Vermont, and both

law to regulations. *See, e.g.*, *Cipollone v. Liggett Grp., Inc.* 505 U.S. 504, 522 (1992) (noting that “state law” includes common law as well as statutes and regulations).

256. *See, e.g.*, *Murphy v. NCAA*, 138 S. Ct. 1461, 1480 (2018); Caleb Nelson, *Preemption*, 86 VA. L. REV. 225, 262 (2000) (recognizing the unhelpful distinction between the different kinds of preemption); *Gade v. Nat’l Solid Waste Mgmt. Ass’n*, 505 U.S. 88, 98 (1992) (“Our ultimate task in any preemption analysis is to determine whether state regulation is consistent with the structure and purpose of the statute as a whole.”).

257. *La. Pub. Serv. Comm’n v. FCC*, 476 U.S. 355, 368–69 (1986). For a discussion on agency preemption, see also *Federal Jurisdiction and Procedure*, 123 HARV. L. REV. 252, 262–72 (2009) (discussing preemption of state common law claims).

258. 49 U.S.C. § 32919(a).

259. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 83 Fed. Reg. at 43,233–34. The Administration’s reasoning is CO₂ is a “necessary and inevitable” by-product of gasoline combustion, therefore, there is a “mathematical link” between GHG emissions, in particular CO₂ emissions, and fuel economy standards. *Id.* at 42,234. Given that the combustion of gasoline produces CO₂ in amounts that can be readily calculated in terms of gallons burned or miles traveled, and the main technology (among one limited pool of technologies) currently available to reduce such emissions is fuel efficiency, one is forced to conclude that fuel economy and tailpipe emissions standards are “inextricably” linked. However, the Administration concedes that carbon intensity of the fuel is not preempted. *Id.* at 43,234 n.507.

260. *Id.* at 42,325.

261. *See supra* Part III.C.

found against preemption.²⁶² The Supreme Court itself made clear in *Massachusetts v. EPA* that EPA and NHTSA implement different statutory mandates and that NHTSA and EPA (or California) standards can co-exist because they serve different purposes. In the Court's words: "EPA has been charged with protecting the public's 'health' and 'welfare,' . . . a statutory obligation wholly independent of DOT's mandate to promote energy efficiency . . . The two obligations may overlap, but there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency."²⁶³ EPA and NHTSA had been carrying forward their regulatory responsibilities separately for decades, with one setting limits on harmful pollutants from automobile exhaust, the other establishing miles-per-gallon performance standards for different categories of vehicles. The Obama Administration, seizing a unique political moment, brought together EPA, California, and American auto-manufacturers (then on the brink of bankruptcy and in need of federal money) to establish the first GHG emission standards for automobiles and align those with progressively more stringent mileage standards set by NHTSA.²⁶⁴ The Obama Administration did not see why, while pursuing their autonomous statutory obligations, NHTSA and EPA couldn't work together with California as co-regulators and in cooperation with the private sector towards achieving some overarching goals: making America more competitive by encouraging innovation and investment in advanced technologies and the creation of jobs; more resilient by reducing its energy consumption, improving on air quality and reducing the cost of driving for average consumers to benefit the health and wellbeing of all its citizens; and finally more relevant in the international arena by leading the charge against climate change.²⁶⁵

At the very least, the revamped question of preemption of state laws or regulations under EPCA hinges on unconvincing arguments.²⁶⁶ First, NHTSA's history of rulemaking and in particular its prior assertions that EPCA's preemption operates only when a state issues a "regulation that relates to fuel economy and which

262. *Cent. Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151, 1179 (E.D. Cal. 2007), *as corrected* (Mar. 26, 2008); *Green Mountain Chrysler v. Crombie*, 508 F. Supp. 2d 295, 303 (D. Vt. 2007).

263. *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007).

264. Meyer, *supra* note 62.

265. Press Release, Off. of the Press Sec'y, The White House, Obama Finalizes Historic 54.5 MPG Fuel Efficiency Standards (Aug. 28, 2012), <https://obamawhitehouse.archives.gov/the-press-office/2012/08/28/obama-administration-finalizes-historic-545-MPG-fuel-efficiency-standard> [<https://perma.cc/X4HN-3ERE>].

266. For a complete legal analysis of the question of preemption under the EPCA, see *CAFE Standards and the California Preemption Plan*, HARV. ENV'T & ENERGY L. PROGRAM (Aug. 24, 2018), <https://eelp.law.harvard.edu/2018/08/cape-standards-and-the-california-preemption-plan/> [<https://perma.cc/J75R-QNZG>].

addresses the *same public policy concern* as the CAFE statute²⁶⁷ undercuts the Administration's argument that NHTSA fuel economy standards preempt EPA/California GHG standards, precisely because fuel economy and GHG emissions standards do not address the same statutory concerns.²⁶⁸ Rather, they address different concerns that may in practice and to an extent overlap, as the Supreme Court explained, calling for enhanced agency cooperation and standards harmonization to the maximum extent possible, not the obliteration of one congressional statutory scheme (the CAA preemption waiver) on the basis of the other (EPCA's preemption provision). Second, the "mathematical link" between GHG and fuel economy standards described by the Trump Administration in its regulatory proposal is insufficient to overturn a state law or regulation addressing GHG emissions through having "a connection with or reference to" the CAFE standards for preemption purposes.²⁶⁹ While reducing gasoline consumption by making conventional cars more fuel-efficient certainly contributes to reducing their air polluting emissions including CO₂, there are a host of different means and technologies that can achieve the same result without having to use mileage standards.²⁷⁰

To complicate matters even further, in May 2018, the Supreme Court revisited the longstanding division between preemption and commandeering doctrines in *Murphy v. National Collegiate Athletic Association*.²⁷¹ The issue in *Murphy* was whether New Jersey violated the federal Professional and Amateur Sport Protection Act ("PASPA") by partially repealing the state's prohibitions on sports gambling.²⁷² PASPA made it unlawful for a state "to sponsor, operate, advertise, promote, license, or authorize by law or compact . . . a lottery, sweepstakes, or other

267. See *id.* (citing to National Highway Traffic Safety Administration, Light Truck Average Fuel Economy Standards Model Years 2005-07, 67 Fed. Reg. 77,015, 77,025 (Dec. 16, 2002)).

268. See *id.*

269. *Id.* (describing how California GHG standard do have a connection with or reference to the CAFE standards).

270. These different means and technologies include improving refrigerants and AC systems in conventional cars, switching to hybrids, hydrogen-cell, or EV vehicles, incentivizing public transit, walking, or biking, building high speed trains, etc. Contrary to what the Administration asserts there is not "one single pool of technologies" to reduce carbon emissions from motor vehicles. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, 83 Fed. Reg. at 43,234.

271. 138 S. Ct. 1461 (2018). Raether, *supra* note 44, at 1020, 1022-25 (illustrating the Court's long held view that the Tenth Amendment prohibits the federal government from commanding affirmative action by state legislatures or executives).

272. When Congress passed PASPA in 1992, few jurisdictions allowed some form of sports gambling, which were grandfathered into the statute, but New Jersey was not one of them. *Murphy*, 138 S. Ct. at 1471-72.

betting, gambling, or wagering scheme based . . . on competitive sporting events.²⁷³ In parallel, it made it unlawful for “a person to sponsor, operate, advertise, or promote” those same gambling schemes—but only if this was done pursuant to the law or compact of a governmental entity.²⁷⁴ The Court reasoned that in partially repealing its old laws banning sports gambling, New Jersey effectively “authorize[d]” such activity in violation of PASPA.²⁷⁵ Nevertheless, it found that the provisions in PASPA were an impermissible form of commandeering under the U.S. Constitution.²⁷⁶ In the novel reading of the Court, the basic principle—that Congress cannot issue direct orders to state legislatures to regulate the state’s citizens—applies not only when Congress actively compels state action (in the form of “to do orders” as traditionally interpreted by the Court) but also when it requires states to refrain from enacting certain laws (“not to do orders”).²⁷⁷

The decision is relevant in the context of the California CAA preemption waiver because, as one commentator observed, the Court in *Murphy* failed to provide a straightforward answer on a matter at the core of the Tenth Amendment: how to effectively manage complex cooperative federalism regimes that bring federal and state governments together to control private conduct.²⁷⁸ The more expansive reading of the anti-commandeering doctrine in *Murphy* doesn’t protect California against the revocation of its preemption waiver.²⁷⁹ This is because preemption has consistently been recognized by the Supreme Court as an alternative way for Congress to regulate interstate activities while avoiding the anti-commandeering problem.²⁸⁰ As long as Congress validly preempts, states are stripped of their regulatory discretion.²⁸¹ In *Murphy*, the Court left Congress’ broad preemption powers largely untouched.²⁸² Therefore, to validly preempt, it is sufficient for Congress to act within its Constitutional authority and regulate private activities affecting interstate commerce.²⁸³

273. *Id.* at 1470.

274. *Id.*

275. *Id.* at 1475.

276. *Id.* at 1479.

277. *Id.* at 1485.

278. Raether, *supra* note 44, at 1049–51 (highlighting how the CAA provisions are directed, respectively, at vehicle manufacturers with the goal of addressing air pollution and states legislatures with the goal of avoiding a fifty-state approach to motor vehicle emissions regulation).

279. *Id.* at 1032–1035.

280. *Id.* at 1035–36.

281. *Id.*

282. *Id.*

283. U.S. CONST. art. I, § 8, cl. 3 (giving Congress authority to regulate interstate commerce).

Even with a Supreme Court less sympathetic to the climate cause, the Trump Administration's preemption argument will still face substantial interpretation challenges.²⁸⁴ While a federal command that states forbear from regulating certain activities would now be considered a prohibited form of commandeering, *Murphy* preemption analysis rests on whether a federal law is “best read” to apply to states or private actors; that is, whether a federal law “*more directly*” regulates states or private actors.²⁸⁵ If one were to apply *Murphy* to the issue of preemption under the EPCA, by prescribing federal mileage standards to automakers, NHTSA might escape its more expansive reading of the anti-commandeering doctrine.²⁸⁶ However, in mixed regimes like the California CAA preemption waiver scheme, where Congress speaks both to states legislatures with the goal of avoiding a fifty-state approach to motor vehicle emissions regulation, and vehicle manufacturers with the goal of addressing air pollution, the outcome is less clear.²⁸⁷ A third possibility would be for the Supreme Court to recognize this limit in the *Murphy* pronouncement and offer jurisprudential answers that acknowledge the view that whenever possible, state sovereignty and political choice should be respected.²⁸⁸

Where the regulatory framework stands now promises to force states to choose between two options: either the federal “one standard fits all” approach proposed by the Trump Administration;²⁸⁹ or the longstanding California approach, the latter of which the states will not be able to modify by scaling up or scaling down targets and timetables nor proposing different kind of tools and methodologies altogether, as in the past.²⁹⁰ This situation is not ideal, since a state may want to claim

284. Raether, *supra* note 44, at 1046 (“Rather than providing clarity or guiding principles for the bounds of federal control of state policy, the Court swapped one formalist distinction in favor of another: from an action versus inaction division to a test hinging on whether the party most directly regulated is the state or private actors”).

285. *Id.* at 1050 (emphasis added).

286. Even though the preemption provision of the statute explicitly mentions states, 42 U.S.C. § 7543(a), this provision simply ensures that states do not tread on the broader regulatory scheme in the ECPA rather than commandeering states as key actors in the implementation of the ECPA.

287. Raether, *supra* note 44, at 1046–49.

288. GLICKSMAN ET AL., *supra* note 42 at 1092–93; cf. Vikram David Amar, “Clarifying” *Murphy*’s Law: Did Something Go Wrong In Reconciling Commandeering and Conditional Preemption Doctrines?, 2018 SUP. CT. REV. 299, 300 (2018) (“[I]t would be revolutionary to suggest Congress cannot cabin states’ sovereign actions when states affirmatively regulate private actors—through new state-law restrictions or partial repeal of old ones—in a domain located within Congress’s enumerated powers.”).

289. Without the waiver, California and the other thirteen states that have opted in the California regulatory scheme won’t be able to impose nor enforce stricter motor vehicle emissions standards than those the Administration has currently finalized. See *supra* Part II.B.

290. Before Congress preempted the field with the passage of the CAA in 1967, primary responsibility to regulate air pollution rested on the states. See *supra* Part II.A.

some room to experiment, just like California. But, given the number of states that have chosen to follow California, one can view such result as a testament of the state's competence in establishing itself as co-regulator with the federal government. This position was reinforced by CARB's chief expert's role in unveiling the Volkswagen emissions cheating scandal of 2015 that led to a record settlement between Volkswagen AG, five other auto companies owned by the Volkswagen group, EPA, and CARB, and one of the largest vehicle emission recall cases in U.S. history.²⁹¹

To date, the California waiver approach has represented the best compromise possible based on California's historical but also well-deserved advantage as first mover. But nothing prevents one from imagining other, even more ambitious approaches, in which states are in competition with each other to lower emissions and proposals are integrated at a regional level to benefits from higher scale levels of decision-making and greater integration of local economies.²⁹²

C. *The Transportation and Climate Initiative*

Complementary to the CAA Preemption Waiver and Section 177, another emerging innovative approach for regulating emissions from transportation is the Transportation and Climate Initiative ("TCI"). Created in 2010, TCI is a regional collaboration of twelve Northeast and Mid-Atlantic States and the District of Columbia that seeks to improve transportation, develop the clean energy economy, and reduce carbon emissions from the transportation sector.²⁹³ There is only partial overlap between TCI and CAA Section 177 in that not all states that are part of TCI have adopted California's motor vehicle emissions standards, and some Section 177 states are not participating in TCI.²⁹⁴ Linking TCI states together is a Declaration

291. See *VW says its top U.S. executive is stepping down immediately*, ST. LOUIS POST-DISPATCH (Mar. 9, 2016), https://www.stltoday.com/business/local/vw-says-its-top-u-s-executive-is-stepping-down/article_2b1d94cc-27a2-5099-af25-3c1a4eccc266.amp.html [<https://perma.cc/3NP4-AV6S>]; see also Bill Chappell, 'It Was Installed for This Purpose,' *VW's U.S. CEO Tells Congress About Defeat Device*, NPR, (Oct. 8, 2015, 10:17 AM), <https://www.npr.org/sections/thetwo-way/2015/10/08/446861855/volkswagen-u-s-ceo-faces-questions-on-capitol-hill> [<https://perma.cc/AF2V-AAVN>].

292. Cf. *Conn. governor aims to work with neighbor states on climate*, GREENWIRE (Dec. 12, 2019) <https://www.eenews.net/greenwire/2019/12/12/stories/1061792051> [<https://perma.cc/SKE6-GFXD>]; see generally *infra* Part IV.C.

293. The participating states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia. *About Us*, TRANSP. & CLIMATE INITIATIVE, <https://www.transportationandclimate.org/content/about-us> [<https://perma.cc/BT6L-XCQB>].

294. Two TCI participating states, Virginia and New Hampshire, are not Section 177 States. Three Section 177 States, Washington, Colorado, and Oregon, on the other hand are not part of TCI. *States that Have Adopted California's Vehicle Standards under Section 177 of the Federal Clean Air Act*, CARB (August 19, 2019), <https://ww2.arb.ca.gov/sites/default/files/2019-03/177-states.pdf> [<https://perma.cc/XE5V-K5S5>]. The District of Columbia not qualifying as "State" presumably means it cannot apply to Section 177 of the CAA.

of Intent by which they have agreed to “launch a plan to explore and develop policies and programs that can result in greater efficiency of regional transportation systems and yield reductions of regional greenhouse gas emissions in the transportation sector.”²⁹⁵ Their efforts are facilitated and coordinated by Georgetown Climate Center staff and funded by various donors.²⁹⁶

Among TCI’s main programs are the Cap-and-Invest program (“CAI”) and the Northeast Electric Vehicle Network (“NEVN”). The CAI program is essentially a cap-and-trade regulatory scheme modeled after the Regional Greenhouse Gas Initiative (“RGGI”)²⁹⁷ through which the states agree to adopt a declining “cap” on carbon pollution from burning of fossil fuels in the transportation sector to reduce emissions from transportation.²⁹⁸ Under CAI, states would require large gasoline and diesel suppliers to hold allowances for the pollution that results from the combustion of these fuels that they sell to consumers.²⁹⁹ The proceeds resulting from the auctioning of allowances and trading of allowances among suppliers will be used to fund programs that increase and improve public transit, that make public transit cleaner and better, that encourage people to buy electric vehicles, bike or walk, and build electrification and other low-carbon transportation options with an eye on the needs of low-income communities, communities underserved by transportation, or disproportionately impacted by pollution.³⁰⁰ The NEVN, on the other hand, was launched in 2011 with a one million dollar Electric Vehicle readiness grant from the Department of Energy, and consists in TCI-participating states coordinating their electric vehicle infrastructure planning and deployment through the Northeast and mid-Atlantic region, which includes partnerships and connections necessary to transition to a cleaner and more efficient electric transportation network.³⁰¹ At its

295. THE TRANSP. & CLIMATE INITIATIVE, AN AGENDA FOR PROGRESS: DECLARATION OF INTENT 1 (2010), <https://www.transportationandclimate.org/sites/default/files/TCI-declaration.pdf> [<https://perma.cc/YC6R-ULE6>].

296. TRANSP. & CLIMATE INITIATIVE, *supra* note 293.

297. THE REG’L GREENHOUSE GAS INITIATIVE, <https://www.rggi.org/> [<https://perma.cc/93Q5-25BU>].

298. *Fact Sheet: Cap-and-Invest as a Tool to Reduce Pollution*, TRANSP. & CLIMATE INITIATIVE, <https://www.transportationandclimate.org/fact-sheet-cap-and-invest-tool-reduce-pollution> [<https://perma.cc/VLB5-AP4M>]; *see generally* Georgetown Climate Ctr., *TCI Video: Cap and Invest 101*, VIMEO (Apr. 17, 2019, 4:40 PM EST), <https://vimeo.com/331091117/331091117> [<https://perma.cc/RT8Y-PX47>].

299. TRANSP. & CLIMATE INITIATIVE, *SUPRA* NOTE 298.

300. *Id.*

301. *The Northeast Electric Vehicle Network*, TRANSP. & CLIMATE INITIATIVE, <https://www.transportationandclimate.org/content/northeast-electric-vehicle-network> [<https://perma.cc/LDK8-2VKT>] [hereinafter TRANSP. & CLIMATE INITIATIVE, NEVN]. For a complete list of partnering organizations, *see Electric Vehicle Supporters*, TRANSP. & CLIMATE INITIATIVE, <https://www.transportationandclimate.org/content/electric-vehicle-supporters> [<https://perma.cc/Y4SV-AL6B>].

core, NEVN is designed to make sure that EV charging stations are built in locations that maximize both local and regional travel, that installation permits for home and public stations be streamlined, and barriers to the widespread use of EVs be removed.³⁰²

The kind of regulatory regime a state (or group of states in coordination) chooses to adopt to reduce transportation GHG emissions will affect whether the CAA preempts it. As outlined in Part II of this Article, states cannot regulate tailpipe emissions from vehicles except through the California's program. However, the CAI as currently proposed would be a regulation on *fuel content*, with the point of regulation being the gasoline and diesel fuel providers.³⁰³ Since it wouldn't be a "standard" applied to vehicles or emissions at the point of combustion, it should not fall under the purview of the CAA preemption.³⁰⁴ With respect to NEVN, collaboration on EVs infrastructure doesn't pose a preemption question because the program consists of a series of measures focused on facilitating the use of EVs and aimed at lowering emissions indirectly by putting more EVs on the road. Measures under NEVN are not the sort of "standard" or "regulation" that fit the language of the CAA.

TCI shows how states can carefully design and implement policies that can deliver cleaner and better transportation systems without falling in the CAA "preemption trap." The program is an additional regional laboratory and example of how state autonomy and experimentation can serve to lead the charge against climate change. At a time where constituencies are increasingly demanding action to address climate change,³⁰⁵ it is all the more important to make sure that states and local governments have enough regulatory space to innovate and meet the needs of their communities. As the TCI model demonstrates, state agencies have first-hand knowledge of their local realities and often are their communities' best stewards, able to leverage critical resources to advance new ideas and attract venture capital.³⁰⁶

302. TRANSP. & CLIMATE INITIATIVE, NEVN, *supra* note 301.

303. Email from Kathryn Zyla, Program Director, Northeast Policy, Energy Foundation, to author (Dec. 13, 2019, 11:28 AM) (on file with author). *See also* DREW VEYSEY ET AL., GEORGETOWN CLIMATE CTR., REDUCING TRANSPORTATION EMISSIONS IN THE NORTHEAST AND MID-ATLANTIC: FUEL SYSTEMS CONSIDERATIONS 8–16 (2018).

304. *See generally* Karen Glitman, CTR. FOR SUSTAINABLE ENERGY, CAP-AND-INVEST: A REVIEW OF POLICY, DESIGN, AND MODELS AND THEIR APPLICABILITY IN VERMONT 30 (2019), https://energycenter.org/sites/default/files/docs/nav/resources/2019-04_Cap-and-Invest-A-Review_Report.pdf. [<https://perma.cc/Y6CM-DAZF>].

305. *See, e.g.*, Alec Tyson & Brian Kennedy, *Two-Thirds of Americans Think Government Should Do More on Climate*, PEW RSCH. CTR. (June 23, 2020), <https://www.pewresearch.org/science/2020/06/23/two-thirds-of-americans-think-government-should-do-more-on-climate/> [<https://perma.cc/3CW8-TDJ4>].

306. *See* Derrick Hall et al., *The Power of Local Leadership*, N.Y. TIMES, <https://nytimesineducation.com/spotlight/the-power-of-local-leadership/> [<https://perma.cc/K983-BU75>]; *see generally* Parris N. Glendening, *We Need Better Transportation Options, Not More Roads and Lanes*, WASH. POST (Feb. 21, 2020, 7:00 AM), <https://www.washingtonpost.com/opinions/local-opinions/we-need-better-transportatio>

D. The Case for State Autonomy

On the one hand, environmental scholars argue that allowing for state autonomy and state “experimentalism” to address GHG emissions is a desirable regulatory framework and should be preserved because it drives policy and technology innovation “moving the ball forward.”³⁰⁷ On the other hand, some economists disagree, stressing that attempting to regulate GHGs emissions—a global problem—at the state or even regional level is costly and inefficient.³⁰⁸ They argue that local rules in particular are not suitable for dealing with diffuse problems like global climate change because they create market distortions and are ineffective.³⁰⁹ However, in making those arguments, economists assume that even small progressive steps towards de-carbonization don’t matter. For example, they argue that CAFE rules are ineffective because automakers will sell fewer fuel-efficient cars in states that don’t adopt more stringent standards.³¹⁰ But the argument fails to take into account the CO₂ reductions that will be achieved by forcing manufactures to build an overall cleaner fleet for each model year. Although leakage problems may very well exist and higher emitting cars will be sold elsewhere, *on average* such emissions will still be less than without those CAFE rules in place.

Moreover, the larger issue remains substantially the same as in the early 1900s: will America incentivize the horse and buggy or the Model T—should it try to stop the next technological revolution in transportation or guide it? With the revocation of California’s CAA preemption waiver, the Trump Administration has signaled its intent to favor the first option. But this decision presents two profound ramifications: first, it means that by neither supporting nor incentivizing the transition towards alternative fuels and less polluting forms of transportation, American manufacturers risk falling behind in a global and highly competitive

n-options-not-more-roads-and-more-lanes/2020/02/20/4f33c066-529f-11ea-b119-4faabac6674f_story.html [https://perma.cc/5CG4-2T5W].

307. See Michael Burger, *Empowering Local Autonomy and Encouraging Experimentation in Climate Change Governance: The Case for a Layered Regime*, 39 ENV’T L. REP. NEWS & POL’Y 11161, 11167 (2009); Hari M. Osofsky & Janet Levit, *The Scale of Networks?: Local Climate Change Coalitions*, 8 CHI. J. INT’L L. 409, 428–29 (2008). For a recent contribution, see Sharmila L. Murthy, *States and Cities as “Norm Sustainers”: A Role for Subnational Actors in the Paris Agreement on Climate Change*, 37 VA. ENV’T L.J. 1, 4–5 (2019).

308. See, e.g., Jonathan B. Wiener, *Think Globally, Act Globally: The Limits of Local Climate Policies*, 155 U. PA. L. REV. 1961, 1962–63 (2007); Peter Van Doren, *Greenhouse Gas Emissions and the California Waiver*, CATO AT LIBERTY (Oct. 4, 2019, 4:20 PM), <https://www.cato.org/blog/greenhouse-gas-emissions-california-waiver> [https://perma.cc/8R4L-H5X8].

309. E.g., Wiener, *supra* note 308, at 1966–73; Peter Van Doren, *CAFE Standards*, CATO AT LIBERTY (Aug. 7, 2018, 3:15 PM), <https://www.cato.org/blog/cale-standards> [https://perma.cc/RMK2-KG2K].

310. Lawrence H. Goulder et al., *Unintended Consequences from Nested State and Federal Regulations: The Case of the Pavley Greenhouse-Gas-Per-Mile Limits* 63 J. ENV’T ECON. & MGMT. 187, 188 (2012).

industry that is rapidly evolving.³¹¹ It is a well-known phenomenon that technological breakthroughs in an area can have spillover effects in other manufacturing or industrial applications. As a result, the economic consequences of America's retreat could be far more reaching than just the automotive sector. Secondly, the country is bound to lose face with the rest of the world for not keeping its word and doing its part in reducing dangerous anthropogenic GHG emissions at a critical juncture for the stabilization of Earth's climate.³¹²

Another argument put forward by economists is that local (state) regulations place a special burden on the auto industry and on consumers while achieving limited (or no results) in reducing global GHG emissions. They claim that the (eventual) benefits of such actions accrue globally but the costs are borne locally.³¹³ It is safe to assume that, at least initially, demanding more efficient vehicles will drive their production costs and final prices up. By the same logic, it is also safe to assume that more efficient vehicles will deliver savings to consumers that—over time—offset higher upfront costs and could even bring the cost of driving down. And this is without calculating the non-transportation health and safety costs associated with air pollution and the lack of safer and cleaner mass transportation alternatives, especially with respect to inner city and intercity transport. Moreover, it is hard to see how under a regulatory scheme where federal and California standards are harmonized, the cost burden would fall exclusively on Californians. In general, the point of a regulation is not to be zero-cost but rather to produce the greatest achievable benefits at the lowest possible costs.³¹⁴ An incremental reduction in CO₂ emissions from one country represent progress for all, something all countries have pledged to aim for under the Paris Climate Agreement with the goal of progressively decarbonizing their economies.³¹⁵

Most economists insist that the best solution to tackle the carbon problem is a national carbon tax (and ideally a global and uniform price on carbon) because such a measure applies across the board to all industries involved and can, therefore, achieve the greatest GHG reductions without producing market distortions.³¹⁶ But

311. See *supra* Part I; see Cohen, *supra* note 227.

312. See, e.g., U.S. GLOBAL CHANGE RSCH. PROGRAM, *supra* note 48.

313. See, e.g., Van Doren, *supra* note 308.

314. For a critique on the use of cost-benefit analysis as a tool for weighing public policy options in environmental regulation and the systematic discounting of health benefits, see FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: OF KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING (2004).

315. See Paris Agreement to the United Nations Framework Convention on Climate Change art. 4, Dec. 12, 2015, T.I.A.S. No. 16-1104, UN Doc. No. 54113.

316. E.g., Ian Parry, *Choosing Among Mitigation Instruments: How Strong is the Case for a U.S. Carbon Tax?*, in IMPLEMENTING A CARBON TAX: CHALLENGES AND DEBATES 18–35 (Ian Parry et al. eds.,

adoption remains politically challenging worldwide and especially in developing countries where economies are more fragile and less diversified.³¹⁷ In the meantime, and in the absence of federal legislation passing a carbon tax or even an increase in the gasoline tax, which economists consider a superior tool to fuel efficiency standards,³¹⁸ other less optimal but politically more viable alternatives will have to do. In this respect, state autonomy to experiment and innovate has proven crucial to fill the lack of national consensus on this issue.³¹⁹

This becomes apparent when looking at the potential consequences of the Trump Administration's approach. According to a study by the Rhodium Group, the rollback of the fuel economy standards and the revocation California's waiver will produce two significant results: first, ZEVs sales will decline by seven to eight percent in 2035 (depending on oil prices), which translates into about 12 to 14 million fewer ZEVs on the road by that year; second, from 2020 to 2035, emissions are projected to increase by 1,055 to 1,317 million metric tons cumulatively relative to Obama rules.³²⁰ Under a scenario where California and Section 177 states are instead allowed to maintain Obama GHG standards and keep their ZEV mandates in place, emissions rise by less than half as much over the same time frame.³²¹ For comparison, total U.S. GHG emissions from transportation were roughly 1,900 million metric tons in 2018.³²² Therefore, the California waiver plays a sizeable role in contributing to meet global temperature targets under the Paris Climate Agreement, unsurprising

2015). Ideally, to create a level playing field, countries should move towards the adoption of a global price on carbon.

317. *E.g.*, Michael Jeffery & Ying Shen, *The Likelihood of a Carbon Tax in China: Wishful Thinking or a Real Possibility?*, 25 TEMP. ENV'T L.J. 419, 430 (2012); David Leonhardt, *The Problem with Putting a Price on the End of the World*, N.Y. TIMES MAG. (Apr. 9, 2019), <https://www.nytimes.com/interactive/2019/04/09/magazine/climate-change-politics-economics.html> [<https://perma.cc/7F7U-23JW>].

318. *E.g.*, Lucas W. Davis & Christopher R. Knittel, *Are Fuel Economy Standards Regressive?*, NAT'L BUREAU OF ECON. RSCH. Working Paper 22925, 25 (Dec. 2016) (noting how economists prefer a carbon tax over fuel economy standards). Even a tax on gasoline, economists argue, would be more efficient than fuel economy standards because it provides a direct incentive to reduce the use of gasoline while the efficiency standards "must squeeze the reduction out of new vehicle only." Moreover, a gasoline tax would have the added advantage of raising revenue that the government could spend in the best way it chooses, for example, in fixing crumbling highways while at the same time helping offset the impact on low-income families. *See e.g.*, Valerie Karplus, *The Case for a Higher Gasoline Tax*, N.Y. TIMES (Feb. 22, 2013), <https://www.nytimes.com/2013/02/22/opinion/the-case-for-a-higher-gasoline-tax.html> [<https://perma.cc/H6DK-L9R3>].

319. *See, e.g.*, Vicky Arroyo, *From Paris to Pittsburgh: U.S. State and Local Leadership in an Era of Trump*, 31 GEO. ENV'T L. REV. 433, 434 (2019).

320. Emily Wimberger & Hannah Pit, *Come and Take it: Revoking the California Waiver*, RHODIUM GROUP (Oct. 28, 2019), <https://rhg.com/research/come-and-take-it-revoking-the-california-waiver/> [<https://perma.cc/47ZP-REL8>].

321. *Id.*

322. *Id.*

given that it is the world's fifth largest economy.³²³ Moreover, if the U.S. were to reach a plateau in ZEV sales now, the consequences would reach far into the future.³²⁴

While fuel economy standards and ZEVs state programs combined might represent an imperfect solution to the carbon issue from the standpoint of pure economic theory, state leadership is nevertheless ensuring that the country is moving forward with research, development, and investment in low-carbon transportation solutions: an area where other industrialized countries, particularly China, are intent on moving forward.³²⁵ The kind of technological advancements that California is promoting are not just critical to meeting the challenges of climate change but also to ensuring the country's technological vibrancy and relevance in an increasingly competitive global economy in which early market dominance matters. The risk of slowing down the pace of innovation for the U.S. is falling behind and losing ground in a global and highly competitive market.³²⁶

More broadly, research increasingly finds that the electrification of transportation (together with buildings and factories) is an essential component of cutting GHG emissions and addressing climate change.³²⁷ For example, the American Council for an Energy-Efficient Economy estimates that electrification accounted for thirty-five percent of the emissions reductions that would come from halving U.S. energy use with energy efficiency measures, but transportation delivered the lion's share of electrification's emissions cuts, a whopping seventy-two percent.³²⁸ Therefore, the risk of delayed action also means setting back—rather than

323. Kieran Corcoran, *California's Economy is Now the 5th-Biggest in the World*, BUSINESS INSIDER (May 5, 2018 7:09 AM), <https://www.businessinsider.com/california-economy-ranks-5th-in-the-world-beating-the-uk-2018-5> [<https://perma.cc/BT6R-BCSU>]; cf. Maxine Joselow, *Yanking Calif. Waiver Would Cause Emissions to Spike*, CLIMATEWIRE (Oct. 21, 2019) <https://www.eenews.net/climatewire/2019/10/21/stories/1061333471> [<https://perma.cc/H9YY-MEFJ>].

324. Joselow, *supra* note 323. Considering that the life expectancy of ZEVs is about 12 years, fewer ZEVs on the road today means losing the opportunity to generate "avoided GHGs" emissions to mitigate warming temperatures with consequences in the future. In other words, it delays and lowers the starting point of achieving meaningful reductions. *Id.*

325. See *China's Electric Vehicle Market: A Storm of Competition Is Coming*, KNOWLEDGE@WHARTON (May 9, 2019), <https://knowledge.wharton.upenn.edu/article/chinas-ev-market/> [<https://perma.cc/JKV6-5588>].

326. See *id.*

327. STEVEN NADEL & LOWELL UNGAR, AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON., *HALFWAY THERE: ENERGY EFFICIENCY CAN CUT ENERGY USE AND GREENHOUSE GAS EMISSIONS IN HALF BY 2050*, iv (2019); Steven Nadel, *Where Can Electrification do Most to Cut Emissions?* *Transportation*, AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON. (Oct. 8, 2019, 9:37 AM), <https://aceee.org/blog/2019/10/where-can-electrification-do-most-cut> [<https://perma.cc/3G79-NB2U>] [hereinafter Nadel, *Transportation*].

328. NADEL & UNGAR, *supra* note 327, at 30. Other studies have also estimated the electrification opportunity in major sectors of the economy, identifying transportation as having the largest potential.

building on—the progress made so far in decarbonizing the country’s electric grid and other important sectors of the U.S. economy.³²⁹

E. Way Forward

Although the Trump Administration did not make climate change a priority, the problem is not going away and future Administrations will have to confront it.

Were national leadership more forward-looking, a regulatory regime capable of garnering broad national support could be one in which state initiatives are “nested” into the federal standards, following the approach proposed by the Obama EPA and NHTSA, where a group of states is allowed to move ahead while others remain bound by a federal “floor.”³³⁰ Alternatively, the federal government could take the lead and adopt a *stronger* set of standards than California that would apply across the board in all states, while letting states decide how they would make progress toward meeting the standards, depending on the current state of their transportation infrastructure, economic interests and options for compliance. A well-defined “permit” system could also help advance acceptance of a national goal more organically achieved. Instead of imposing a set of ambitious standards too fast and at greater social and economic cost in some states, a flexible regulatory approach would allow the nation to make progress by having some more progressive states leading the technological transformation while bringing others to the same level in time. A national regime that is flexible enough to allow the states to reach the federal targets with different strategies and timeframes would allow gradual change without major shocks to local economies.

A better way to assess complex regulatory schemes grounded on cooperative forms of federalism consists not in asking whether Congress can validly exercise its preemption powers but rather whether it should do so.³³¹ When is preemption desirable? What is the best model to achieve a given outcome? Is the California preemption waiver a good model to foster innovation and competition while at the same time promoting public health and welfare?

National consensus has long held that states are generally best positioned to tackle air pollution problems since these are the result of particularized local circumstances that vary from city to city, state to state, and region to region. Municipalities, counties, and states are all exposed to such problems daily and,

This consensus finding underscores the need to emphasize transportation, notably electric vehicles, in electrification efforts. Nadel, *Transportation*, *supra* note 327.

329. *Sources of Greenhouse Gas Emissions, Emissions & Trends*, EPA, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> [<https://perma.cc/P7HM-UE4E>].

330. *See supra* Parts II, III.

331. *See supra* Part IV.B; GLICKSMAN ET AL., *supra* note 42, at 83.

therefore, have the best knowledge and opportunity to identify air pollution issues. Special local circumstances are exemplified in the case of California, but apply to all states, and are explicitly recognized in the CAA. In fact, the statute gives primary responsibility to the states to formulate and implement state implementation plans to meet NAAQS.³³² Letting the states choose which measures are the most adequate and effective to combat air pollution has been the main approach under the CAA for over fifty years.³³³ At the same time, especially with respect to mobile sources, the statutory design has represented a necessary compromise between the need to give the states enough flexibility to address their individualized pollution problems and provide the industry with enough regulatory uniformity both for manufacturing and compliance purposes.

In a federation of fifty states, which is of continental size and has developed into at least five regional economies and eleven cultures,³³⁴ one must account for the fact that different states may have different needs, capacity, and political appetite to regulate in certain areas. This demands a sufficiently reasonable degree of flexibility when bringing change through regulation. With the CAA preemption waiver, Congress took an innovative approach grounded on federal-state cooperation cognizant of the fact that forcing technology using federal standards may not be practical, or even feasible, and could involve higher risks and costs: what if the regulated industry is not ready? What if the mandated standards are too ambitious or change is forced too fast? What are the redistributive social and economic consequences? Are these equally distributed?

Letting one state experiment with a particular set of standards and technologies allows for promising solutions to be rolled out at the national level once they have been sufficiently tested, whereas a “one standard fits all” federal approach limits the discovery and adoption of more ambitious strategies by leveling out all fifty states. Far from a state or group of states imposing their policies on the rest of the nation, as the Trump Administration recently characterized it,³³⁵ the CAA preemption waiver scheme sets a democratic process in motion for growing innovation that is observant of states’ rights, needs, and differences. By establishing a federal floor while leaving some room for regulating differently, the federal government can “pilot and showcase” the benefits of a particular regulatory approach

332. 42 U.S.C. § 7407(a).

333. Joseph E. Aldy et al., *Looking Back at Fifty Years of the Clean Air Act*, Working Paper, RES. FOR THE FUTURE 38 (Jan. 2020).

334. Joel Kotkin, *Five Regions that are Key to the US Economy*, FORBES.COM (Jan. 8, 2012, 12:08 PM), http://www.nbcnews.com/id/45893531/ns/business-forbes_com/t/five-regions-are-key-us-economy/-XvpZC6V7m2w [<https://perma.cc/BY7W-HWGZ>]; Andy Kiersz & Marguerite Ward, *This Map Shows How the US Really Has 11 Separate ‘Nations’ with Entirely Different Cultures*, BUSINESS INSIDER (July 4, 2020, 10:08 AM), <https://www.businessinsider.com/the-11-nations-of-the-united-states-2015-7> [<https://perma.cc/HB2L-M3UQ>].

335. EPA, *supra* note 38.

while allowing states to decide whether to opt in or not. At the same time, it is containing the risks of moving too fast or taking too big steps at the national level.

In a globalized and increasingly tertiary economy, traditional race-to-the-bottom concerns arguing in favor of a uniform standards and federal decision-making in environmental regulation are mitigated by increased competition among states to build and invest in twenty-first century technologies to attract capital and high-paying jobs. This is particularly true in the motor vehicle context, where automobile markets outside the U.S. look much more like California than the rest of the country,³³⁶ and this is confirmed by the fact that the Trump Administration's attempts to rein in states' regulatory powers are destined to have little, if any, practical effect in the longer term—at least judging by the voluntary cooperation between state and local authorities and the private sector, exemplified by the pact reached last summer between four automakers and California to adopt stricter standards than the ones finalized by the federal government³³⁷ or the Mid-Atlantic TCI initiative discussed above.³³⁸ Moreover, these attacks on state regulatory authority are unsound not only because they are shortsighted, but also because they contribute to further distance and isolate the federal government from the states and their constituencies at a moment when cooperation is essential at all levels of governance to deal with issues that countries alone can only inadequately address precisely because they are global in scope and require coordinated actions at the global level.

V. CONCLUSION

This Article concludes that air pollution and climate change are better addressed through a multilevel approach coordinated between federal and state authorities. California's history with air pollution control and the revocation of its CAA preemption waiver both make clear the importance of state particularity and autonomy in drawing down GHG emissions. Such autonomy is even more crucial today, given the need for significant and steady transformations in the energy sector. This is particularly the case with mobile sources, the sources of most GHG emissions. Regulators had made little progress in this area until the Obama Administration decided to take a comprehensive approach and harmonize both fuel economy and greenhouse gas emissions standards. While such success may not be easily replicable

336. See Tom DiChristopher, *Trump Administration Rollback Plans to Raise Fuel Economy Standards*, CNBC (Aug. 2, 2018 9:11 AM), <https://www.cnbc.com/2018/08/02/trump-administration-rolls-back-plans-to-raise-fuel-economy-standards.html> [<https://perma.cc/LD9Q-NM3K>] (discussing how the global market is pushing for policies to improve fuel economy standards).

337. For an overview of voluntary state and local climate initiatives in the United States, see Edith Brown-Weiss & Vicky Arroyo, *Addressing Climate Change from the Bottom-Up in a Kaleidoscopic World*, 18 LA REVUE DES JURISTES DE SCIENCE PO 17, (2020).

338. See *supra* Part IV.C.

given the special circumstances that prompted cooperation between the automakers and the federal government, preventing California and other states from taking more ambitious steps without filling the leadership gap on climate won't achieve any useful result for the auto industry, consumers, or America's global technological leadership.

