

## CARS, CARBON, AND CLIMATE CHANGE

*Raymond B. Ludwiszewski, Esq.\* & Charles H. Haake, Esq.\*\**

### INTRODUCTION

Since the advent of major environmental regulatory programs in the 1970s, federal regulation has been justified on the grounds that the federal government must forestall a “race to the bottom”: the tendency of states to lower environmental standards in order to attract economic growth while passing off the costs of those lower environmental standards onto other jurisdictions.<sup>1</sup> Under this traditional justification for federal regulation, environmentalists argue that absent minimum federal standards, states would engage in a bidding war for polluting industries, enticing them with lax monitoring and sweetheart environmental laws.

In recent years this traditional race-to-the-bottom justification has been challenged. Law and economics scholars have theorized that states actually may engage in either a “race to the top,” in which jurisdictions tighten environmental regulations as a way of reaping the benefits of stricter standards for their citizens while pushing the economic costs of such regulation onto other jurisdictions,<sup>2</sup> or what could be called a “race to desirability,” in which competition among jurisdictions seeking to balance economic well-

---

\* Raymond B. Ludwiszewski is a partner in the Washington, D.C. office of Gibson, Dunn & Crutcher, LLP, and is a member of the firm’s Environmental and Natural Resources Practice Group. Mr. Ludwiszewski represents various segments of the automobile industry in litigation concerning greenhouse gas emissions and global warming issues, including *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie* and *Central Valley Chrysler-Jeep v. Goldstene*.

\*\* Charles H. Haake is an of counsel in the Washington, D.C. office of Gibson, Dunn & Crutcher, LLP, and is a member of the firm’s Environmental and Natural Resources Practice Group. Mr. Haake also represents various segments of the automobile industry in litigation concerning greenhouse gas emissions and global warming issues, including *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie* and *Central Valley Chrysler-Jeep v. Goldstene*. The authors would like to thank Stacie B. Fletcher and Justin A. Torres for their able research and drafting assistance.

<sup>1</sup> See John P. Dwyer, *The Practice of Federalism Under the Clean Air Act*, 54 MD. L. REV. 1183, 1195 & n.60 (1995) (attributing the passage of the Clean Air Act to Congress’s attempt to forestall a race to the bottom in environmental standards). See generally Matthew Potoski & Neal D. Woods, *Differences of State Environmental Policies: Air Pollution Regulation in the United States*, 30 POL’Y STUDIES J. 208 (2002).

<sup>2</sup> See DAVID VOGEL, *TRADING UP: CONSUMER AND ENVIRONMENTAL REGULATION IN A GLOBAL ECONOMY* (1995).

being with the appropriate level of environmental regulation leads to socially optimal results.<sup>3</sup>

California's history of regulating mobile source emissions of smog-forming pollutants has been cited as a classic example of the "race to the top." Generally, motor vehicle emissions are regulated exclusively by the federal government, and states are expressly preempted from enacting their own emissions standards.<sup>4</sup> The state of California, however, may obtain a waiver from this preemption under a special provision in the Clean Air Act (provided certain preconditions are met),<sup>5</sup> and pursuant to this provision has long taken the lead in reducing motor vehicle emissions of pollutants that cause smog and unhealthful air such as carbon monoxide, hydrocarbons, and oxides of nitrogen. Recently, the state has expanded on this body of mobile source regulation and attempted to regulate greenhouse gas emissions from automobiles, principally carbon dioxide (CO<sub>2</sub>), which do not cause localized smog or unhealthful air, but rather are attributed to global climate change. Another eleven states have taken advantage of a provision of the Clean Air Act that allows them to adopt California emissions standards that have received a Clean Air Act waiver<sup>6</sup> and have adopted California's greenhouse gas emissions requirements for new automobiles.<sup>7</sup>

On February 29, 2008, the EPA denied California's request for a Clean Air Act waiver for its greenhouse gas regulations.<sup>8</sup> This decision was based in part on the finding that because of the global nature of the climate change issue, the state regulations are not tailored "to meet compelling and extraordinary conditions" of California under the Clean Air Act's waiver provi-

---

<sup>3</sup> Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210, 1211–12 (1992) ("[C]ontrary to prevailing assumptions, competition among states for industry should not be expected to lead to a race that decreases social welfare; indeed, as in other areas, such competition can be expected to produce an efficient allocation of industrial activity among the states. . . . [F]ederal regulation aimed at dealing with the asserted race to the bottom, far from correcting evils of interstate competition, is likely to produce results that are undesirable."). Although Dean Revesz does not use the term "race to desirability," this concept is offered to capture the competing form of the "race" he posits.

<sup>4</sup> 42 U.S.C. § 7543(a) (2000).

<sup>5</sup> *Id.* § 7543(b).

<sup>6</sup> *Id.* § 7507.

<sup>7</sup> These other states include Connecticut, CONN. AGENCIES REGS. § 22a-174-36(b) (2007); Maine, 06-096-127 ME. CODE R. § 2 (Weil 2006); Maryland, MD. CODE REGS. 26.11.34 (2007); Massachusetts, 310 MASS. CODE REGS. 7.40 (2005); New Jersey, N.J. ADMIN. CODE § 7:27-14.1 to -14.11 (2007); New York, N.Y. COMP. CODES R. & REGS. tit. 6, § 218 (2006); Oregon, OR. ADMIN. R. 340-257-0010 to -0160 (2007); Pennsylvania, 25 PA. CODE §§ 126.401, 126.411-413 (2007); Rhode Island, 12-031-037 R.I. CODE R. § 37 (Weil 2007); Vermont, 12-031-001 VT. CODE R. §§ 5-1101 to -1108 (2007); and Washington, WASH. ADMIN. CODE 173-423-030 to -150 (2007).

<sup>8</sup> See 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 (Mar. 6, 2008) [hereinafter GHG Waiver Decision].

sion.<sup>9</sup> Rather, the EPA concluded that effectively addressing global climate change requires a coordinated approach at the national level.<sup>10</sup>

Indeed, reducing CO<sub>2</sub> emissions from motor vehicles implicates the twin national goals of addressing climate change and pursuing a sound energy policy, as the emission of CO<sub>2</sub> is a direct function of the amount of carbon-containing fuel that is burned to produce energy. In a motor vehicle, the amount of CO<sub>2</sub> emitted depends only on the quantity and type of fuel burned, and because there is no exhaust after-treatment device that can capture or reduce CO<sub>2</sub> emissions from motor vehicles, the only way to reduce CO<sub>2</sub> emissions from gasoline-powered motor vehicles is to improve fuel economy. Energy policy requires a coordinated national approach and traditionally has been the exclusive province of the federal government pursuant to the Energy Policy and Conservation Act of 1975 (EPCA).<sup>11</sup> California's regulation of motor vehicle greenhouse gas emissions, therefore, conflicts with the express preemption clause of the EPCA, which prohibits states from adopting a regulation that is "related to fuel economy standards or average fuel economy standards."<sup>12</sup>

This Article argues that even if California and other states can be seen as engaging in a "race to the top" with respect to greenhouse gases, this does not necessarily mean that those states are striking the optimal regulatory balance. Rather, this Article argues that, because global warming is an issue of national and international concern rather than a local concern about air quality, and because the regulation of greenhouse gas emissions from motor vehicles is in reality the regulation of fuel economy, the matter is more properly addressed by centralized federal regulation. Part I sets forth the competing public choice models for environmental regulation, such as the "race to the bottom," the "race to the top," and the "race to desirability," and explains the theoretical justifications for these models. Part II discusses California's authority under the Clean Air Act to establish its own motor vehicle emissions program and the state's use of that program to improve its ambient air quality by regulating traditional smog-forming pollution. Part III outlines California's recent attempt to regulate greenhouse gas emissions from mobile sources and describes the requirements of its regulatory program. Part IV argues that an individual state, such as California, is a suboptimal regulator of greenhouse gas emissions, particularly because the state does not internalize the costs of its regulation and inures no tangible benefits for its citizens. Finally, Part V explains why regulations that place limits on CO<sub>2</sub> emissions from motor vehicles amount to de facto fuel economy regulations. This Part also details the federal government's current approach to fuel economy regulation and argues that California's regu-

---

<sup>9</sup> *Id.*; see also 42 U.S.C. § 7543(b)(1)(B).

<sup>10</sup> See GHG Waiver Decision, *supra* note 8.

<sup>11</sup> 49 U.S.C. §§ 32,901–32,919.

<sup>12</sup> *Id.* § 32,919(a).

lations are preempted by the EPCA and are not saved from preemption by the waiver provision of the Clean Air Act.

## I. COMPETING PUBLIC CHOICE THEORIES IN ENVIRONMENTAL REGULATION

This Part outlines competing public choice theories underlying environmental regulation, including the traditional account of jurisdictional competition as a “race to the bottom,” Richard Revesz’s “race to desirability,” David Vogel’s “race to the top,” and Jonathan Adler’s “jurisdictional match.”<sup>13</sup>

### A. *The Traditional Account: The Race to the Bottom*

Traditionally, proponents of uniform federal regulation—environmental or otherwise—have justified their approach by positing a “race to the bottom,” wherein jurisdictions compete for investment by lowering regulatory barriers and externalize the harm of such weaker regulations onto neighboring jurisdictions. Justice Brandeis introduced this approach in the early part of the twentieth century in *Liggett Co. v. Lee*: “Companies were early formed to provide charters for corporations in states where the cost was lowest and the laws least restrictive. The states joined in advertising their wares. The race was one not of diligence but of laxity.”<sup>14</sup> William Cary expanded upon this view forty years later when he argued that regulatory competition pushed states to adopt rules that favored managers over shareholders.<sup>15</sup> Richard Stewart further extended the race-to-the-bottom theory to environmental regulation in two influential articles that same decade.<sup>16</sup>

---

<sup>13</sup> Jonathan H. Adler, *Jurisdictional Mismatch in Environmental Federalism*, 14 N.Y.U. ENVTL. L.J. 130 (2005).

<sup>14</sup> 288 U.S. 517, 558–59 (1933) (Brandeis, J., dissenting) (footnote omitted); *see also* United States v. Darby, 312 U.S. 100, 115 (1941).

<sup>15</sup> See William L. Cary, *Federalism and Corporate Law: Reflections upon Delaware*, 83 YALE L.J. 663, 665–66 (1974). Cary’s article was the genesis of the shorthand phrase “the Delaware effect” to describe a race to the bottom, which Vogel discusses in positing a “California effect” in environmental regulation. See *infra* note 39.

<sup>16</sup> Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196, 1212 (1977) (“Given the mobility of industry and commerce, any individual state or community may rationally decline unilaterally to adopt high environmental standards that entail substantial costs for industry and obstacles to economic development for fear that the resulting environmental gains will be more than offset by movement of capital to other areas with lower standards.”); Richard B. Stewart, *The Development of Administrative and Quasi-Constitutional Law in Judicial Review of Environmental Decisionmaking: Lessons from the Clean Air Act*, 62 IOWA L. REV. 713, 747 (1977) (“In the absence of a nondegradation requirement, ‘clean’ states might compete with one another for new development, leading to a ‘commons’ dilemma in which each state permits more degradation than it would prefer or allow if transaction costs did not preclude agreement with competing states.”).

The race to the bottom can be explained as a version of the “prisoner’s dilemma,” a thought experiment originating in game theory.<sup>17</sup> In the prisoner’s dilemma, two prisoners are separately brought in for questioning. Both are told that the first of the prisoners to confess will receive a six-month sentence, while the holdout will receive ten years. If both confess, both will receive five years, and if neither confesses, the prosecutor will be able to bring only minor misdemeanor charges. Under these instructions, each prisoner quickly confesses, either to “beat” his fellow prisoner or to at least minimize his sentence.<sup>18</sup> This is a suboptimal outcome, however, since both would have been better off by holding out.

The applicability of the prisoner’s dilemma to environmental regulation is apparent. Imagine an island with two states within one federal system. Under traditional race-to-the-bottom theory, these two states will conduct a cost-benefit analysis to determine whether to set lax or stringent standards. As Revesz explains, “[i]n the presence of a race to the bottom, if one jurisdiction sets the optimally stringent standard, the other will set the lax standard and will benefit from industrial migration; in contrast, if one jurisdiction sets a suboptimally lax standard, the other will do so as well to avoid the outflow of industry.”<sup>19</sup> This behavior is the result of each state taking account of the costs of more polluted air and the benefits of lax pollution control to industry and consumers. A state may find that lower environmental standards may attract factories from other states, raising local wages and tax revenues, and that these benefits outweigh the costs of worse air quality. Conversely, a state with stricter standards may lose industrial activity and the accompanying wage and tax benefits that accrue from them. If one assumes a fixed number of firms within the federal system,<sup>20</sup> then in an environmental prisoner’s dilemma, both states will have lowered their standards but the competition will have only rearranged the locations of a

---

<sup>17</sup> Revesz, *supra* note 3, at 1217.

<sup>18</sup> Merrill Flood and Melvin Dresher first developed this thought experiment in 1950, as part of the RAND Corporation’s investigations into game theory. STANFORD ENCYCLOPEDIA OF PSYCHOLOGY (2d ed. 2003), available at <http://plato.stanford.edu/entries/prisoner-dilemma/>. It is applied frequently in legal theory. See, e.g., Daniel A. Farber & Philip P. Frickey, *The Jurisprudence of Public Choice*, 65 TEX. L. REV. 873, 906–07 (1987) (applying to interest group politics); David B. Goetze & C.K. Rowland, *Explaining Hazardous Waste Regulation at the State Level*, 14 POL’Y STUD. J. 111, 117 (1985) (discussing with regard to setting state regulatory levels); Tay-Cheng Ma, *Bank-Firm Relationship as a Strategic Commitment in a Duopolistic Environment*, 3 J. COMPETITION L. & ECON. 233 (2007) (applying to firm investment in the banking sector); Michael H. Schill, *Uniformity or Diversity: Residential Real Estate Finance Law in the 1990s and the Implications of Changing Financial Markets*, 64 S. CAL. L. REV. 1261, 1290–91 (1991) (discussing in the context of state environmental regulation); Cass R. Sunstein, *Of Montreal and Kyoto: A Tale of Two Protocols*, 31 HARV. ENVTL. L. REV. 1 (2007) (discussing with regard to international climate change agreements); Note, *To Form a More Perfect Union?: Federalism and Informal Interstate Cooperation*, 102 HARV. L. REV. 842, 844–46 (1989) (discussing in the context of interstate cooperation).

<sup>19</sup> Revesz, *supra* note 3, at 1218.

<sup>20</sup> *Id.* at 1214.

static number of factories. Pollution is higher, wages and taxes remain the same, and overall social welfare is reduced.<sup>21</sup>

### B. *Revesz and the Race to the Desirability*

In recent years, a group of econometrics-minded scholars have attacked the race-to-the-bottom theory, especially in the environmental regulatory context. Most influential has been Richard Revesz, who has argued that the externalities created by regulatory competition are overstated and that such competition actually creates a “race to desirability”<sup>22</sup> resulting in a socially optimal mix of benefits and costs.

Revesz first posits an “island” jurisdiction, surrounded by water and having no effect on any other jurisdiction.<sup>23</sup> Absent regulation or monitoring, firms will engage in the level of pollution-causing activities that maximizes profits, ignoring the social costs of such pollution.<sup>24</sup> Revesz then considers an “island” federal system with two separate jurisdictions, similar to the classic prisoner’s dilemma, in which firms can relocate across state lines to maximize profits by seeking the lowest mix of taxes and regulation.<sup>25</sup> Revesz, however, rejects the traditional race-to-the-bottom model in this scenario, and posits instead that the jurisdictions will reach the optimal level of regulation. In doing so, he relies on economic models, notably a 1988 article by economists Wallace Oates and Robert Schwab,<sup>26</sup> to challenge the then-prevailing assumption that competition among jurisdictions will lead to a race that decreases social welfare, and to argue instead that competition can be expected to produce an efficient allocation of industrial activity among the states.<sup>27</sup>

In the Oates and Schwab model, a state must decide on its desired levels of environmental regulation and taxation on capital. Reducing the regulatory or tax burden attracts capital to the state, which leads to higher wages for residents.<sup>28</sup> “Oates and Schwab show that competitive jurisdictions will set the tax rate on capital at zero”<sup>29</sup> and trade environmental quality for higher wages.<sup>30</sup> Depending on how highly residents value environmental benefits, each state will reach a point of equilibrium where environmental

<sup>21</sup> *Id.* at 1216.

<sup>22</sup> *See supra* note 3.

<sup>23</sup> Revesz, *supra* note 3, at 1213.

<sup>24</sup> *Id.* at 1213–14.

<sup>25</sup> *Id.* at 1214–15.

<sup>26</sup> *Id.* at 1238–42; Wallace E. Oates & Robert Schwab, *Economic Competition Among Jurisdictions: Efficiency Enhancing or Distortion Inducing?*, 35 J. PUB. ECON. 333 (1988). As Revesz notes, Oates and Schwab (as well as Revesz himself) rely on Charles Tiebout’s famous article *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416 (1956).

<sup>27</sup> Revesz, *supra* note 3, at 1211.

<sup>28</sup> Oates & Schwab, *supra* note 26, at 335–36.

<sup>29</sup> Revesz, *supra* note 3, at 1239 (citing Oates & Schwab, *supra* note 26, at 339).

<sup>30</sup> *Id.* (citing Oates & Schwab, *supra* note 26, at 340–41).

costs offset the benefits of higher wages. Beyond that point, stricter environmental controls will make the state worse off because residents value higher wages more than a cleaner environment. Before reaching that point, residents prefer lower wages in return for a cleaner environment. Oates and Schwab conclude that it is efficient for each state to set environmental regulations at its own optimal level, balancing environmental benefits and economic costs.<sup>31</sup> Revesz quotes this conclusion and adds: “Thus, there is no race to the bottom.”<sup>32</sup>

Revesz’s conclusion seems abrupt and unsatisfactory, and indeed has prompted numerous articles taking issue with it and highlighting many of the unrealistic assumptions that it relies upon. Commentators criticize Revesz’s abstract approach—which relies upon a perfectly competitive world that does not exist in reality<sup>33</sup>—for discounting the costs of spillover effects,<sup>34</sup> underestimating the benefits of national environmental standards,<sup>35</sup> and for disregarding public choice obstacles to environmental regulation.<sup>36</sup>

---

<sup>31</sup> Oates & Schwab, *supra* note 26; Revesz, *supra* note 3, at 342.

<sup>32</sup> Revesz, *supra* note 3, at 1241.

<sup>33</sup> Kirsten H. Engel, *State Environmental Standard-Setting: Is There a “Race” and Is It “to the Bottom”?*, 48 HASTINGS L.J. 271, 311 (1997) (“[In the Oates and Schwab, and therefore Revesz model,] no single market participant can have enough market power to affect the price of a good[;] . . . the goods or services traded must be private goods, the most important requirement of which is that non-buyers must be excluded from enjoying the good; . . . consumers must have accurate and complete information about the market prices and product quality; and . . . there are no externalities . . .”).

<sup>34</sup> Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 594 (1996) (arguing that Revesz’s “excessively narrow” view of externalities discounts the interjurisdictional costs of increased regulation).

<sup>35</sup> See Joshua D. Sarnoff, *The Continuing Imperative (But Only from a National Perspective) for Federal Environmental Protection*, 7 DUKE ENVTL. L. & POL’Y F. 225, 279–82 (1997) (noting that Revesz’s theory, among others, does not account for various possible market failures and evaluative uncertainties, which “can only be resolved through national political processes”).

<sup>36</sup> Peter P. Swire, *The Race to Laxity and the Race to Undesirability: Explaining Failures in Competition Among Jurisdictions in Environmental Law*, 14 YALE L. & POL’Y REV. (SYMPOSIUM ISSUE) 67, 99–103 (1996) (“For many important environmental issues, regulations impose costs on cohesive industry groups, often led by a few firms facing large compliance costs if a rule is imposed. These industry groups would ordinarily be expected to succeed very well politically against the diffuse individuals who might benefit from environmental controls.”). Swire also criticizes David Vogel’s reworking of Revesz’s theory, *see infra* Part I.C, because:

Vogel’s prime example concerns air pollution from mobile sources, but he provides no account of how a jurisdiction can create a Race to the Top for air, water, or ground pollution from stationary sources such as factories. Nor is there any evident way that interstate competition would lead to stricter quality standards for air, water, or groundwater. The entire and important realm of natural resources protection would also fall completely outside of the California effect. If other jurisdictions destroy natural resources in the process of manufacturing for export, it is considered illegal protectionism to ban the goods for that reason. Other jurisdictions can thus kill dolphins, cut down rain forests, or destroy wetlands, without any sign of the California effect.

Swire, *supra*, at 85 (footnotes omitted). Revesz responded to these and other critics in Richard Revesz, *The Race to the Bottom and Federal Environmental Regulation: A Response to Critics*, 82 MINN. L. REV. 535 (1997).

*C. Vogel and the Race to Stringency*

Nonetheless, Revesz's theories have provoked sustained critical attention and numerous efforts to adapt and apply his theories to actual regulatory programs. One leading commentator—who does not so much criticize Revesz as refine his theory—is David Vogel, who wrote the influential book *Trading Up: Consumer and Environmental Regulation in a Global Economy*.<sup>37</sup> In this work, Vogel challenges the traditional race-to-the-bottom account by highlighting ways in which competition might lead to “the ratcheting upward of regulatory standards in competing political jurisdictions.”<sup>38</sup> But unlike Revesz, Vogel's race to the top is not a “race to desirability”—that is, a race to an optimal mix of environmental benefit and economic cost—but simply a race to increased regulatory stringency, which may or may not be optimal, depending on the value the public accords to the benefits of any specific regulation.

Vogel calls his race to the top the “California effect,” named for the state whose “relative size and wealth within the American economy has helped drive many American environmental regulations upward.”<sup>39</sup> The California effect is driven in part by the existence of a large consumer market within a larger interstate or international market, such as California within the United States. When such a market exists, that jurisdiction will raise regulatory standards, sometimes to protect domestic producers by disadvantaging foreign producers, but often to pass off the costs of those standards to producers in foreign jurisdictions while reaping locally the benefits of such regulation.<sup>40</sup> Domestic producers, once they have met the more stringent standard, will support exporting that standard elsewhere because they are already complying with it. Indeed, such standards become “a source of competitive advantage for domestic producers, in part because it is often easier for them to comply with them [than it would be for their out-of-state competitors]. Hence domestic producers often compete with firms from other political jurisdictions by raising rather than lowering their standards.”<sup>41</sup> Because foreign producers are forced to meet stricter standards in order to maintain their export markets, this, in turn, spurs the adoption of similar standards within the exporting jurisdiction because their producers are already meeting such standards in order to be able to export to the “greener” jurisdiction.<sup>42</sup>

---

<sup>37</sup> VOGEL, *supra* note 2.

<sup>38</sup> *Id.* at 259.

<sup>39</sup> *Id.* at 6. The term is in contrast to the “Delaware effect” posited by race-to-the-bottom theorists, referring to the management-friendly laws that have garnered that state more corporate charters than any other. See Cary, *supra* note 15.

<sup>40</sup> VOGEL, *supra* note 2, at 260–63.

<sup>41</sup> *Id.* at 6 (emphasis omitted).

<sup>42</sup> *Id.* As an example, Vogel points to the role luxury German automakers played in the 1980s in pushing the European Union to adopt continent-wide emissions standards comparable to U.S. emissions

#### D. Adler and “Jurisdictional Mismatch”

The debate about whether states “race to the bottom,” “race to the top,” or “race to desirability” is really a debate about whether the state governments or the federal government is best suited to enact environmental regulations that balance the various competing interests and reach the optimal level of stringency. There is not, however, a “one size fits all” answer to this question, and often slavish adherence to a “top down” or “bottom up” approach leads to the wrong jurisdiction tackling a particular environmental concern. This outcome is discussed in Jonathan Adler’s article *Jurisdictional Mismatch in Environmental Federalism*.<sup>43</sup> Adler argues that “[t]he federal government regulates in many areas where there is no clear analytical basis for federal regulation,” while “[a]t the same time, the federal government is relatively absent where a stronger federal presence could be justified.”<sup>44</sup> This problem is confounded where “state policymakers increasingly seek to satisfy their constituents’ demand for environmental protection by intervening in areas better left in the hands of the federal government.”<sup>45</sup>

In response to this phenomenon, Professor Adler argues that the regulatory body should “match” the environmental issue that is being regulated because “it is more efficient and effective to address environmental problems through institutions of equivalent scope as the problem in question.”<sup>46</sup> This matching principle is rooted in the federal structure of our government,<sup>47</sup> and its theoretical basis is the principle of “subsidiarity—the principle that problems should be addressed at the lowest level at which they can be practically addressed.”<sup>48</sup>

---

standards, the so-called “US ’83” plan. *Id.* at 261. German automakers made common cause with environmental groups for two reasons: First, their cars already met U.S. standards, and thus adopting the more stringent emissions cap cost them nothing. Additionally, the regulations disadvantaged smaller, less flexible British and Italian carmakers who would have to change their designs radically to compete. See David Vogel, Michael Toffel & Diahanna Post, *Environmental Federalism in the European Union and the United States* (Sept. 2003) (unpublished manuscript, prepared for an international conference on “Globalization and National Environmental Policy,” Veldhover, the Netherlands), available at <http://www.tilburguniversity.nl/globus/activities/conference/papers/vogel.pdf>.

Vogel, however, does not explain this phenomenon with respect to California’s LEV II program. No major automakers call California home, and all of the automakers oppose regulation. Therefore, it is difficult to argue that domestic producers are driving regulation.

<sup>43</sup> Adler, *supra* note 13.

<sup>44</sup> *Id.* at 130.

<sup>45</sup> *Id.* at 132.

<sup>46</sup> *Id.* at 133.

<sup>47</sup> *Id.* at 134.

<sup>48</sup> *Id.* at 134–35; see also George A. Bermann, *Taking Subsidiarity Seriously: Federalism in the European Community and the United States*, 94 COLUM. L. REV. 331, 338–39 (1994); James L. Huffman, *Making Environmental Regulation More Adaptive Through Decentralization: The Case for Subsidiarity*, 52 U. KAN. L. REV. 1377, 1379 (2005).

Whether regulatory action should occur at the national, state, or even local level is a function of a number of considerations. According to Adler, “[t]he strongest case for federal involvement comes in the context of interstate spillovers, such as when pollution crosses state lines and the affected states are unable to resolve the conflict on their own.”<sup>49</sup> Conversely, “[b]ecause most environmental problems are local or regional in nature, there is a strong case that most (though not all) environmental problems should be addressed at the state and local level.”<sup>50</sup>

A national approach is also superior where there are “economies of scale,” such as where scientific research will have nationwide utility and “can inform the development of environmental policy at all levels of government.”<sup>51</sup> Economies of scale also militate in favor of a national approach where regulations seek to establish standards for products sold in a national market. “Where a given product is bought and sold in national markets, and will travel throughout interstate commerce, it is less costly to design and produce the product so as to conform with a single national standard.”<sup>52</sup>

Finally, although Adler cites the “race to the bottom” as a theoretical basis for federal regulation, he agrees with Revesz and Oates that empirical evidence of such a race is lacking and points out a number of flaws in the assumptions that underlie the race-to-the-bottom model, such as its “static view of the trade-off between economic development and environmental protection,”<sup>53</sup> and its failure to account for the “Not In My Backyard” attitudes of homeowners.<sup>54</sup> Professor Adler also points out that in some contexts there is evidence of a race to the top.<sup>55</sup> Because of these inherent shortcomings in the race-to-the-bottom model, Professor Adler concludes that the “‘race-to-the-bottom’ theory is not a particularly strong basis upon which to rest the case for federal intervention.”<sup>56</sup> Although he does not directly consider whether a race to the top may lead to undesirable results that would justify federal regulation rather than state regulation, he does recognize that there are some cases in which state regulation is inappropriate, such as in the area of climate change policy.<sup>57</sup>

---

<sup>49</sup> Adler, *supra* note 13, at 140.

<sup>50</sup> *Id.* at 135.

<sup>51</sup> *Id.* at 145.

<sup>52</sup> *Id.* at 148.

<sup>53</sup> *Id.* at 151.

<sup>54</sup> *Id.* at 153.

<sup>55</sup> *Id.* at 154.

<sup>56</sup> *Id.*

<sup>57</sup> *Id.* at 175–76; *see also infra* Part IV.

## II. CALIFORNIA'S REGULATION OF MOTOR VEHICLE EMISSIONS UNDER THE CLEAN AIR ACT AND THE "RACE TO THE TOP"

California's regulation of motor vehicle emissions provides the central example of Vogel's "California effect." As explained in greater detail below, this effect stems from California's unique status under the Clean Air Act as the only state that can adopt its own emissions program for mobile sources; all other states are expressly preempted from doing so.<sup>58</sup> Other states are allowed, however, to adopt the California emissions program as their own.<sup>59</sup> California historically has adopted motor vehicle emissions standards that are more stringent than applicable federal standards. Generally, increases in the stringency of California's regulations are followed by increases in the stringency of the federal standards. In 1990, for example, Congress raised national standards for carbon monoxide, hydrocarbons, and oxides of nitrogen to the California level.<sup>60</sup> Additionally, eleven states have adopted California's emissions standards since 1994.<sup>61</sup> California thus has exported its environmental standards to other states, even as it made its own standard even more stringent: the classic regulatory "race to the top."<sup>62</sup>

The goal of the Clean Air Act, originally enacted in 1963, is to provide a national policy for addressing the problem of air pollution through cooperative federal, state, regional, and local programs.<sup>63</sup> Although the Clean Air Act vests the states with primary responsibility for addressing air pollution from stationary sources, such as factories and power plants,<sup>64</sup> Congress explicitly and deliberately chose to create uniform nationwide standards to regulate emissions from new motor vehicles.<sup>65</sup> Accordingly, Congress granted the Administrator of the EPA authority to 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 his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare."<sup>66</sup>

---

<sup>58</sup> 42 U.S.C. § 7543 (2000).

<sup>59</sup> *Id.* § 7507.

<sup>60</sup> Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399 (1990); *see also* 42 U.S.C. § 7521(b)(1)(A), (B) (requiring lower hydrocarbon, carbon monoxide, and nitrogen oxide emissions levels); *id.* § 7545(k), (m) (requiring reformulated gasoline for conventional vehicles and oxygenated fuels for use in nonattainment areas); *id.* §§ 7586, 7588–7590 (requiring clean fuel vehicles for serious nonattainment areas and federal agency fleets, providing a pilot test program in California, and allowing states to opt into clean fuel vehicle programs).

<sup>61</sup> *See supra* note 7.

<sup>62</sup> VOGEL, *supra* note 2, at 259 (noting that twelve states requested that the federal government increase national standards to those of California).

<sup>63</sup> 42 U.S.C. § 7401.

<sup>64</sup> *Id.* § 7410.

<sup>65</sup> *Id.* § 7543(a).

<sup>66</sup> *Id.* § 7521(a)(1).

As originally drafted, the Clean Air Act did not have a preemption provision. The preemption provision was added in the Air Quality Act of 1967 on the basis of a compromise between the states, who wanted to preserve their traditional role in regulating motor vehicles, and the manufacturers, who wanted to avoid the economic disruption latent in having to meet fifty-one separate sets of emissions control requirements.<sup>67</sup> Accordingly, Congress enacted section 209(a) of the Clean Air Act, which expressly preempts state standards for new motor vehicle emissions. In its current form, section 209(a) provides:

No State or any 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 [42 U.S.C. §§ 7521 *et seq.*]. No State shall require certification, inspection, or any other approval relating to the control of emissions from any new motor vehicle or new motor vehicle engine as condition precedent to the initial retail sale, titling (if any), or registration of such motor vehicle, motor vehicle engine, or equipment.<sup>68</sup>

The only exception to this broad general preemption is the grandfather clause for states that had adopted their own new motor vehicle standards “prior to March 30, 1966,”<sup>69</sup> a proviso that was deliberately drafted to apply only to California. Under that section, the EPA is to “waive” federal preemption for a California standard “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.”<sup>70</sup> The EPA, however, may not grant a waiver if it finds that:

- (A) the determination of the State is arbitrary and capricious,
- (B) such State does not need such State standards to meet compelling and extraordinary conditions, or
- (C) such State standards and accompanying enforcement procedures are not consistent with section 7521(a) of [the Clean Air Act].<sup>71</sup>

As the “compelling and extraordinary conditions” language suggests, Congress granted California this singular authority to regulate automotive air pollutants because of “the unique problems faced by California as a result of its climate and topography,”<sup>72</sup> and in particular, “[t]he acute smog problem” of southern California.<sup>73</sup> This authority was premised on the finding that “only the State of California has demonstrated compelling and extraordinary circumstances sufficiently different from the Nation as a whole

<sup>67</sup> H.R. REP. NO. 90-728, at 20–21 (1967), *reprinted in* 1967 U.S.C.C.A.N. 1938, 1956–57.

<sup>68</sup> 42 U.S.C. § 7543(a).

<sup>69</sup> *Id.* § 7543(b)(1).

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

<sup>72</sup> H.R. REP. NO. 90-728, at 22, *reprinted in* 1967 U.S.C.C.A.N. 1938, 1958.

<sup>73</sup> S. REP. NO. 89-192, at 5 (1965).

to justify standards on automobile emissions which may, from time to time, need to be more stringent than national standards.”<sup>74</sup>

California’s special status under the Clean Air Act has accrued significant tangible benefits to its citizens—particularly in the reduction of smog. For example, between 1977 and 2005, the number of days that exceeded the federal eight-hour ozone health standard in the South Coast Basin, an area of California with historic pollution problems, dropped by over sixty percent, from over 220 days per year to 83 days per year.<sup>75</sup> During this period, the peak eight-hour ozone concentration in the basin has also dropped by half from over 0.30 parts per million to just under 0.15 parts per million.<sup>76</sup>

### III. CALIFORNIA’S REGULATION OF GREENHOUSE GAS EMISSIONS FROM MOBILE SOURCES

In 2004 the state of California took on the task of addressing global warming by setting strict new limits on the emissions of greenhouse gases from new motor vehicles sold in the state. These regulations present an entirely different paradigm than the regulation of traditional pollutants such as carbon monoxide and oxides of nitrogen that cause localized smog and unhealthy ambient air. No longer is the state using its traditional police powers to maximize the level of protection from the local impacts of air pollution caused by cars and trucks—actions within the “race to the top” and “race to desirability” models of public choice theory. Rather, the state is now attempting to take the lead in addressing an international problem that requires a coordinated solution at the global level.

The California regulations were the product of Assembly Bill 1493 (A.B. 1493), which was passed by the California legislature on July 1, 2002.<sup>77</sup> That bill required the California Air Resources Board (CARB) to develop and implement regulations aimed at reducing the emissions of greenhouse gases from vehicles beginning in model year 2009.<sup>78</sup> A.B. 1493 was premised on findings by the California legislature that “control and re-

---

<sup>74</sup> H.R. REP. NO. 90-728, at 21, *reprinted in* 1967 U.S.C.C.A.N. 1938, 1956; *see also* Motor Vehicle Mfrs. Ass’n v. N.Y. State Dep’t of Env’tl. Conservation, 17 F.3d 521, 526 (2d Cir. 1994) (“Only California, because its unique Los Angeles smog problem caused it to begin regulating auto emissions ‘prior to March 30, 1966,’ enjoys a statutory exemption allowing it to promulgate its own emission standards.”).

<sup>75</sup> *See* Press Release, South Coast Air Quality Management District, Southland Smog Season on Par with Recent Years (Sept. 28, 2006), *available at* <https://www.aqmd.gov/news1/2006/smogseason2006.html>.

<sup>76</sup> *Id.*

<sup>77</sup> A.B. 1493, 2001–2002 Reg. Sess., 2002 Cal. Stat. ch. 200 (amending CAL. HEALTH & SAFETY CODE § 42823 and adding CAL. HEALTH & SAFETY CODE § 43018.5 (West 2006)), *available at* [http://www.climatechange.ca.gov/documents/ab\\_1493\\_bill\\_20020701\\_enrol.pdf](http://www.climatechange.ca.gov/documents/ab_1493_bill_20020701_enrol.pdf).

<sup>78</sup> CAL. HEALTH & SAFETY CODE § 43018.5(a) (“No later than January 1, 2005, the state board [CARB] shall develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles.”).

duction of emissions of greenhouse gases are critical to slow the effects of global warming.”<sup>79</sup>

Subsequently, as directed by A.B. 1493, CARB approved regulations limiting the amount of greenhouse gases that may be emitted from new passenger cars, minivans, SUVs, and pickup trucks sold in California in model year 2009 and beyond. Pursuant to the statutory mandate, these regulations set fleet-wide average limits on the emissions of four substances: CO<sub>2</sub>, methane, nitrous oxide, and hydrofluorocarbons from air conditioning systems.<sup>80</sup> Four classes of vehicles are covered: passenger cars (PCs), two classes of light trucks (LDT1s, i.e., light-duty trucks with a loaded vehicle weight of 0 to 3750 pounds, and LDT2s, i.e., light-duty trucks with a loaded vehicle weight of 3751 pounds to a gross vehicle weight of 8500 pounds), and medium-duty passenger vehicles with a gross vehicle weight rating of at least 8501 pounds less than 10,000 pounds (MDPVs).<sup>81</sup> Under these regulations, each manufacturer’s fleet of passenger cars is combined with its fleet of LDT1s for calculating emissions, and its fleet of LDT2s is combined with its fleet of MDPVs.<sup>82</sup>

The numerical standards adopted by CARB for carbon dioxide equivalent emissions are set forth in new section 1961.1 of Title 13 of the California Code of Regulations.<sup>83</sup> For the PC/LDT1 category of vehicles, the limit starts at 323 grams per mile in 2009 and becomes increasingly stringent each year thereafter, eventually reaching 205 grams per mile in 2016. Similarly, the standard for the LDT2/MDPV category goes from 439 grams per mile in 2009 down to 341 grams per mile in 2016.<sup>84</sup>

Although the California regulations purport to address emissions other than CO<sub>2</sub>, the contribution of those other emissions to the “carbon dioxide equivalent” is relatively insignificant. For example, CARB determined in its rulemaking that the baseline large passenger car emits 345 grams per mile of CO<sub>2</sub>, but only 0.005 grams per mile of methane, 0.006 grams per mile of nitrous oxide, and 0.007 grams per mile of hydrofluorocarbons.<sup>85</sup>

<sup>79</sup> A.B. 1493 § 1(c).

<sup>80</sup> The “greenhouse gas” emissions limit is expressed in terms of grams of a “carbon dioxide equivalent” emitted per mile traveled. The “carbon dioxide equivalent” is determined by measuring the amount of CO<sub>2</sub> emitted per mile driven and then adjusting it to account for the “global warming potential” of the emissions of other greenhouse gases. CAL. CODE REGS. tit. 13, § 1961.1(a)(1)(A) (2005). For example, the global warming potential of nitrous oxide is 296 times greater than that of carbon dioxide, and emissions of nitrous oxide are therefore multiplied by a factor of 296 in calculating a vehicle’s “carbon dioxide equivalent.” *Id.* § 1961.1(a)(1)(B)(1)(d).

<sup>81</sup> *Id.* § 1961.1(d).

<sup>82</sup> *Id.* § 1961.1(a)(1)(A).

<sup>83</sup> *Id.*

<sup>84</sup> *Id.*

<sup>85</sup> See AIR RES. BD., CAL. ENVTL. PROTECTION AGENCY, STAFF REPORT: INITIAL STATEMENT OF REASONS FOR PROPOSED RULEMAKING, PUBLIC HEARING TO CONSIDER ADOPTION OF REGULATIONS TO CONTROL GREENHOUSE GAS EMISSIONS FROM MOTOR VEHICLES 59 tbl.5.2-3, 79 tbl.5.2-14, 72 tbl.5.2-11 (2004), available at <http://www.arb.ca.gov/regact/grnhs gas/isor.pdf> [hereinafter ISOR].

Consequently, the predominant impact of the regulations as a practical matter is to require the dramatic reduction in CO<sub>2</sub> emissions.

On December 21, 2005, the State of California applied to the EPA for a waiver of Clean Air Act preemption for its greenhouse gas emissions regulations.<sup>86</sup> The EPA Administrator denied that waiver application on December 19, 2007.<sup>87</sup> In support of his decision, the Administrator cited the facts that “California’s [greenhouse gas] standards are designed to address global climate change problems that are different from the local pollution problems that California has addressed previously in its new motor vehicle program” and that climate change in California is not “sufficiently different from conditions in the nation as a whole to justify separate state standards.”<sup>88</sup> Consequently, because “global climate change has affected, and is expected to affect, the nation, indeed the world, in ways very similar to the conditions noted in California,” the EPA determined that the California regulations are not entitled to a waiver of Clean Air Act preemption.<sup>89</sup>

#### IV. THE REGULATION OF GREENHOUSE GAS EMISSIONS IS A MATTER BEST SUITED TO THE FEDERAL GOVERNMENT

In contrast to the regulation of pollutants that form smog and unhealthy ambient air, which lends itself to the “race to the top” and “race to desirability” paradigms of public choice theory, the regulation of greenhouse gases that are believed to cause global climate change is best suited to a single regulatory program that is set at the federal level. As Professor Adler’s article notes, “[g]lobal climate change policy is a prime example of increasing state activity where federal action would provide for a greater jurisdictional match.”<sup>90</sup> Although Adler does not expound on his rationale, the reasons are manifold.

First, unlike the regulation of smog-forming pollutants such as hydrocarbons and oxides of nitrogen, CO<sub>2</sub> does not stay localized and produce effects on ambient air. Rather, it disperses evenly throughout the atmosphere, such that CO<sub>2</sub> emissions in California have no greater impact on the climate in California than they do elsewhere in the United States or indeed the world.<sup>91</sup> Accordingly, CO<sub>2</sub> presents perhaps the most extreme example of the “spillover” effect that is often cited as justifying centralized regulation.<sup>92</sup>

---

<sup>86</sup> See Letter from Catherine Witherspoon, Executive Officer, California Air Resources Board, to Stephen Johnson, Administrator, U.S. EPA (Dec. 21, 2005), available at <http://www.regulations.gov/fdmspublic/ContentViewer?objectId=090000648023a45d&disposition=attachment&contentType=pdf>.

<sup>87</sup> See GHG Waiver Decision, *supra* note 8.

<sup>88</sup> *Id.* at 12,159, 12,168.

<sup>89</sup> *Id.* at 12,168.

<sup>90</sup> Adler, *supra* note 13, at 175.

<sup>91</sup> COMM. ON SCI., ENG’G, & PUB. POL’Y, NAT’L ACAD. OF SCI., POLICY IMPLICATIONS OF GREENHOUSE WARMING: MITIGATION, ADAPTION, AND THE SCIENCE BASE 5 (1992) (“[G]reenhouse gases released anywhere in the world disperse rapidly in the global atmosphere. Neither the location of

A corollary to this “spillover effect” is the fact that neither the costs nor the benefits of California’s greenhouse gas regulation will be fully internalized within the state. As discussed in Part II, California’s regulation of smog-forming pollution has provided its citizens with significant tangible benefits in the form of dramatic improvements in the quality of the air within the state. The state therefore has been able to fully internalize the benefits of its regulations and assess whether those benefits are worth the costs of the regulations to its citizens. Indeed, some scholars have noted that the California model may lead to overregulation even for smog-forming pollutants because the state internalizes all of the benefits of its emissions standards but shifts costs to out-of-state actors.<sup>93</sup> Daniel Esty, for example, argues that:

California’s adoption of auto emissions standards that exceed national requirements may reflect the fact that Californians stand to benefit greatly from lower emissions and to pay relatively little of the extra pollution control costs that will be borne largely by out-of-state automakers. In this case, there is no market mechanism to ensure that California’s action is nationally welfare-enhancing. Californians may pay part of the bill for their more stringent pollution controls through higher prices for cars, but consumers elsewhere may also be forced to pay increased prices, essentially subsidizing California’s reduced-pollution benefits. In particular, we have no guarantee that the benefits to California outweigh the sum of the costs imposed both inside and outside of California.<sup>94</sup>

As such, while California’s emissions standards are an example of the “race to the top” under Vogel’s model, they may not be a “race to desirability” under the Revesz model because the state is not balancing all of the costs of the regulations against all of the benefits to reach a Pareto optimal result for the nation as a whole. However, one also could argue that this was a choice made by Congress for the specific purpose of allowing California “more leeway to tailor its emission control program to its particular problems,”<sup>95</sup> which, as discussed above, centered around that state’s unique smog problem.

In the context of greenhouse gases, this justification for the “race to the top” disappears. In contrast to California’s regulation of smog-forming pollutants, which by themselves have achieved improvements to the state’s ambient air quality, California recognizes that the greenhouse gas regula-

---

release nor the activity resulting in a release makes much difference. A molecule of CO<sub>2</sub> from a cooking fire in Yellowstone or India is subject to the same laws of chemistry and physics in the atmosphere as a molecule from the exhaust pipe of a high-performance auto in Indiana or Europe.”)

<sup>92</sup> See, e.g., Adler, *supra* note 13, at 140–42.

<sup>93</sup> For example, to the extent that emissions regulations cause an increase in the price of vehicles, that could lead to a decrease in new vehicles sales and a resulting strain on the automobile industry, which is located primarily outside of California.

<sup>94</sup> Esty, *supra* note 34, at 594 (emphasis omitted) (footnotes omitted).

<sup>95</sup> *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1294 (D.C. Cir. 1979).

tions the State has enacted will not by themselves have any meaningful impact on ambient temperature or on the climate.<sup>96</sup> Thus, not only does California not bear the full costs of its regulation, it also does not reap any tangible results for its citizens from its regulation in the form of reduced temperatures. Rather than solve any particular local environmental problem through the enactment of these regulations, the state's actions are more aptly seen as an effort to make a political statement regarding the international problem of climate change.<sup>97</sup> But there is no reason to believe that California is any better equipped than the federal government to balance all of the costs and benefits of climate change regulation—costs and benefits that stretch well beyond the borders of that state.

Indeed, there are a number of reasons to conclude that California is not so well positioned. As discussed in Part V, reducing CO<sub>2</sub> emissions from motor vehicles is predominantly a matter of improving fuel economy, and improving fuel economy implicates a number of competing concerns such as maintaining consumer choice for vehicles, protecting the health of the U.S. automobile industry, and ensuring vehicle safety. These are issues of wide national concern and matters in which the Department of Transportation (DOT) has developed particular expertise.<sup>98</sup>

Furthermore, because automobile manufacturers operate in a single, integrated economy, a single federal standard is more efficient than fifty different state standards. “Where a given product is bought and sold in national markets, and will travel throughout interstate commerce, it is less costly to design and produce the product to conform with a single national standard. . . . that applies nationwide.”<sup>99</sup> Notably, Professor Adler continues to assert that although this argument for federal standards “has some force, it is likely that it has been oversold” in light of the increasing ability of companies to customize their products at the point of assembly.<sup>100</sup> Reducing greenhouse gas emissions from motor vehicles, however, is not a simple function of product customization. One cannot merely add a more effective catalytic converter somewhere in the production process; rather, reducing greenhouse gas emissions goes to the foundation of vehicle design and

---

<sup>96</sup> See AIR RES. BD., CAL. ENVTL. PROTECTION AGENCY, REGULATIONS TO CONTROL GREENHOUSE GAS EMISSIONS FROM MOTOR VEHICLES, FINAL STATEMENT OF REASONS 229, 231–34 (2005), available at <http://www.arb.ca.gov/regact/grnhsor.pdf> [hereinafter FSOR].

<sup>97</sup> *Id.* at 229 (“It is true that the contribution to a reduction in global warming from the actions of California alone will be small. This is true of any individual contribution. The point here is that human-induced climate change is a truly global problem—one that will eventually require actions by all countries.”).

<sup>98</sup> See *infra* Part V.A & B.

<sup>99</sup> Adler, *supra* note 13, at 148.

<sup>100</sup> *Id.* at 149.

manufacture, and requires significant modification to the engines and transmissions of motor vehicles.<sup>101</sup>

A final example of a “jurisdictional mismatch” between California’s greenhouse gas regulations and the problem that they are designed to address concerns the fleet-average approach taken by the state. Regulations that are national in scope lend themselves well to a fleet-average approach because they allow manufacturers to balance their fleets over a broad population. As discussed in greater detail below, the federal Corporate Average Fuel Economy (CAFE) program sets fleet-average fuel economy requirements for new vehicles sold in the United States. Under CAFE, an automobile manufacturer can sell any combination of vehicles it chooses without penalty so long as the average fuel economy of its nationwide fleets meets the applicable CAFE standard. This nationwide fleet-average approach was adopted for the federal CAFE program under the EPCA precisely to ensure “wide consumer choice” by leaving “maximum flexibility to the manufacturer” to produce a “diverse product mix” while meeting the applicable CAFE standards.<sup>102</sup> Thus, under CAFE a manufacturer may balance its sales of larger, more fuel intensive fleets in one part of the country with the sales of smaller, more fuel economical vehicles in another part. The ability to do so provides manufacturers with valuable flexibility and ensures that a wide choice of vehicles is available to consumers no matter where they live. California’s regulations, however, would establish separate and independent fuel economy regimes in every state that adopts them, requiring manufacturers to balance their fleets separately in each one. This problem is particularly acute in the small states that have adopted California’s greenhouse gas regulations, such as Vermont and Rhode Island. Because manufacturers do not sell large volumes of vehicles in these states, an unanticipated spike in the sale of larger, more fuel intensive vehicles will have a more dramatic impact on fleet-average fuel economy than it would in a larger state, where the manufacturer could average out that spike over a larger fleet.

A state-by-state fleet-average approach is also less effective than a national fleet average at achieving the environmental benefits sought by the

---

<sup>101</sup> For example, CARB has modeled a number of “technology packages” that will need to be incorporated into manufacturers’ vehicles in order to comply with the regulations. ISOR, *supra* note 85, at 59, 63–67. These packages include a number of automotive technologies that, when used in various combinations, lead to increased fuel economy and resulting reductions in CO<sub>2</sub> emissions. One such package, which CARB estimates would reduce CO<sub>2</sub> emissions by just under thirty percent as compared with a 2002 baseline vehicle, includes modifying the vehicle to include gasoline homogeneous compression ignition, discrete variable valve lift, an intake cam phaser, an automated manual transmission, and electric power steering. *Id.* at 63. Because these systems go to the very core of the design and manufacture of the motor vehicles, they do not lend themselves to a “build to order” model of production. Moreover, designing and manufacturing a vehicle with these attributes entails considerable sunk costs in the form of research and development, and it is therefore inefficient for manufacturers to produce such vehicles only for discrete markets.

<sup>102</sup> S. REP. NO. 94-179, at 6 (1975).

regulations. California's greenhouse gas regulations will only apply to those vehicles sold in California and in the states that adopt its standards under section 177 of the Clean Air Act. Compliance with these regulations inevitably will result in manufacturers adjusting their fleet mixes in these states so that the mixes are weighted more heavily towards smaller, more fuel efficient vehicles. There is nothing in the regulations, however, that would prevent manufacturers from simultaneously adjusting their fleet mixes in the non-section 177 states to sell more fuel intensive vehicles, as they are free to do under CAFE so long as their nationwide fleets meet the federal standards. Thus, if there is sufficient demand for larger and more fuel intensive vehicles in those states that have not enacted the California regulations, then the sales of such vehicles in those states could offset the sales of the more fuel efficient vehicles in the states with the California regulations, thereby resulting in little or no net decrease in CO<sub>2</sub> emissions nationwide.

Because reducing greenhouse gas emissions is a complex matter and imposes costs on consumers and industry throughout the country, a coordinated national approach will produce a more optimal result. Indeed, the federal government has been actively involved in this issue for many years, in terms of both national and international initiatives.

As early as 1978, Congress established a "national climate program" to improve understanding of global climate change through research, data collection, assessment, information dissemination, and international cooperation.<sup>103</sup> In 1980, Congress directed the Office of Science and Technology Policy to engage the National Academy of Sciences in a study of the "projected impact, on the level of carbon dioxide in the atmosphere, of fossil fuel combustion, coal-conversion and related synthetic fuels activities" authorized by the Energy Security Act.<sup>104</sup>

In 1987, Congress enacted the Global Climate Protection Act of 1987, which directed the Secretary of State to coordinate U.S. negotiations concerning global climate change and, with the EPA, to develop and propose to Congress a coordinated national policy on the issue.<sup>105</sup> As a result of the negotiations authorized by this Act, President George H. W. Bush signed, and the Senate ratified, the United Nations Framework Convention on Climate Change in 1992.<sup>106</sup> This Convention brought together a coalition of countries to work toward a coordinated approach to addressing the international issue of global warming.

---

<sup>103</sup> National Climate Program Act of 1978, 15 U.S.C. §§ 2901–2908 (2000).

<sup>104</sup> Energy Security Act, Pub. L. No. 96-294, tit. VII, § 711, 94 Stat. 611, 774–75 (1980) (codified at 42 U.S.C. § 8911 (2000)).

<sup>105</sup> Global Climate Protection Act of 1987, Pub. L. No. 100-204, tit. XI, §§ 1102–1103 (codified at 15 U.S.C. § 2901 (2000)).

<sup>106</sup> SEN. EXEC. DOC. NO. 102-55, at 9–16 (1992).

In 1997, this coalition of countries negotiated the Kyoto Protocol, which called for mandatory reductions in the greenhouse gas emissions of developed nations.<sup>107</sup> President Clinton signed the Kyoto Protocol, but it was never presented to the Senate for ratification and the Senate expressed formal misgivings over the potential economic burdens CO<sub>2</sub> reductions would place upon the United States. These misgivings were expressed in the Byrd-Hagel Resolution, which passed by a vote of ninety-five to zero and urged the President not to sign any agreement that would result in serious harm to the economy or that did not include provisions regarding the emissions of developing nations.<sup>108</sup> Thereafter, Congress passed a series of bills that affirmatively barred the EPA from implementing the Protocol.<sup>109</sup>

Through these past actions, the federal government has set forth a national policy for addressing climate change issues that it believes best serves the collective interests of the entire nation. Should the citizens of some of the individual states disagree with this national policy, there are legal and political avenues available to them to effectuate a change of policy, such as petitioning their elected representatives for a change in policy and voting accordingly. Indeed, proponents of stricter controls of greenhouse gas emissions won a recent victory in the Supreme Court in *Massachusetts v. EPA*.<sup>110</sup> That case held that section 202(a)(1) of the Clean Air Act authorizes the EPA to regulate greenhouse gas emissions from new motor vehicles if the Agency makes a finding that such emissions contribute to climate change and thus “may reasonably be anticipated to endanger public health or welfare.”<sup>111</sup>

Significantly, the *Massachusetts v. EPA* Court contemplated regulation of greenhouse gas emissions from motor vehicles at the federal level. An important aspect of that decision is the recognition that such regulation can and should be the product of a coordinated, federal interagency effort. In

<sup>107</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, 37 I.L.M. 22.

<sup>108</sup> S. Res. 98, 105th Cong. (1997). Specifically, the Resolution states in part:

(1) the United States should not be a signatory to any protocol to, or other agreement regarding, the United Nations Framework Convention on Climate Change of 1992, at negotiations in Kyoto in December 1997, or thereafter, which would—

(A) mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period, or

(B) would result in serious harm to the economy of the United States.

*Id.*

<sup>109</sup> See Act of Oct. 1, 1998, Pub. L. No. 105-276, 112 Stat. 2461, 2496 (1998); Act of Oct. 20, 1999, Pub. L. No. 106-74, 113 Stat. 1047, 1080 (1999); Act of Oct. 27, 2000, Pub. L. No. 106-377, 114 Stat. 1441, 1441A-41 (2000).

<sup>110</sup> 127 S. Ct. 1438 (2007) (holding that petitioners had standing to challenge the EPA’s denial of their rulemaking petition).

<sup>111</sup> *Id.* at 1459–60 (quoting 42 U.S.C. § 7521(a)(1) (2000)) (internal quotation marks omitted).

addressing the question whether the regulation of CO<sub>2</sub> emissions by the EPA may conflict with the Department of Transportation's administration of the federal fuel economy program under the EPCA, the Court observed that, although the obligations of the EPA and the DOT "may overlap," "there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency."<sup>112</sup> Accordingly, the Court noted that, in the event that the EPA makes an endangerment finding, the Agency possesses broad discretion to determine what standards it should set, including coordination with its sister agencies: "EPA no doubt has significant latitude as to the manner, timing, content, and coordination of its regulations with those of other agencies."<sup>113</sup>

In light of this recent directive, the EPA is currently considering whether CO<sub>2</sub> emissions from motor vehicles "may reasonably be anticipated to endanger public health or welfare," and determining the appropriate manner to regulate such emissions.<sup>114</sup> The executive branch's commitment to this course of action is evidenced by Executive Order 13,432.<sup>115</sup> In that Order, the Bush Administration states:

It is the policy of the United States to ensure the coordinated and effective exercise of the authorities of the President and the heads of the Department of Transportation, the Department of Energy, and the Environmental Protection Agency to protect the environment with respect to greenhouse gas emissions from motor vehicles, nonroad vehicles, and nonroad engines, in a manner consistent with sound science, analysis of benefits and costs, public safety, and economic growth.<sup>116</sup>

Accordingly, if and when standards are established at the federal level limiting greenhouse gas emissions from motor vehicles, Executive Order 13,432 would require that it be pursuant to a coordinated national approach that takes into account all of the wide-ranging societal interests at stake.

#### V. THE REGULATION OF CARBON DIOXIDE IS DIRECTLY RELATED TO FUEL ECONOMY, WHICH IS REGULATED BY THE FEDERAL GOVERNMENT

Although there are no current federal standards that place direct numeric limits on the amount of CO<sub>2</sub> that can be emitted from motor vehicles, emissions of CO<sub>2</sub> are effectively regulated by the National Highway Traffic Safety Administration (NHTSA), which administers the federal CAFE program under the EPCA. This is because reducing CO<sub>2</sub> emissions is at bottom a question of reducing fuel consumption.<sup>117</sup> California's regulation of

---

<sup>112</sup> *Id.* at 1462.

<sup>113</sup> *Id.*

<sup>114</sup> 42 U.S.C. § 7521(a).

<sup>115</sup> Exec. Order 13,432, 72 Fed. Reg. 27,717 (May 14, 2007).

<sup>116</sup> *Id.* § 1.

<sup>117</sup> *See infra* Part V.A.

CO<sub>2</sub> therefore raises issues of preemption under the EPCA. As discussed below, the question of federal preemption of state CO<sub>2</sub> regulations has been addressed by the NHTSA, and challenges to the regulations on preemption grounds are separately working their way through the courts. At the time of the writing of this Article, no clear consensus has emerged, with courts and the NHTSA reaching conflicting conclusions.<sup>118</sup> Ultimately the matter likely will require the Supreme Court to weigh in and address issues concerning the regulation of greenhouse gas emissions that were not considered in *Massachusetts v. EPA*. A finding that state regulations of CO<sub>2</sub> emissions are preempted by the EPCA would not only be consistent with the public choice models discussed above, but would also give effect to the plain language of both the Clean Air Act and the EPCA.

*A. Carbon Dioxide Emissions Are a Measure of Fuel Economy*

Carbon dioxide is a natural and unavoidable byproduct of combustion of carbon-containing fuels such as gasoline, coal, and natural gas. The relationship between fuel consumption and CO<sub>2</sub> emissions for a given fuel is fixed and depends only on the carbon composition of the fuel that is burned. A gallon of a typical commercial grade of gasoline contains approximately 5.5 pounds (2475 grams) of carbon.<sup>119</sup> When that carbon is combusted completely, the 2475 grams of carbon combines with approximately 6600 grams of oxygen from the air and becomes approximately 9075 grams of CO<sub>2</sub>.<sup>120</sup> Thus, “[b]ased on its content (carbon and hydrogen), as a matter of basic chemistry, the burning of a gallon of gasoline produces about 20 pounds [9075 grams] of CO<sub>2</sub>.”<sup>121</sup>

Perfect combustion of gasoline results in just two products from the fuel in the exhaust: CO<sub>2</sub> and water. However, combustion in internal combustion engines is incomplete, and small amounts of carbon monoxide (CO) and unburned hydrocarbons (HC) are emitted. Even so, CO<sub>2</sub> comprises the overwhelming majority of the carbon-containing compounds in the exhaust. For example, the NHTSA estimates that model year 2006 light trucks emit

---

<sup>118</sup> Compare *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295, 350 (D. Vt. 2007) (holding that principles of federal preemption do not apply to a California regulation that obtains a waiver of preemption under section 209(b) of the Clean Air Act), and *Cent. Valley Chrysler-Jeep v. Goldstene*, 529 F. Supp. 2d 1151 (E.D. Cal. 2007) (same), with *Cent. Valley Chrysler-Plymouth v. Cal. Air Res. Bd.*, No. CV-F-02-5017 REC/SMS, 2002 U.S. Dist. LEXIS 20403, at \*9 (E.D. Cal. June 11, 2002) (holding that a prior California regulation that sought to regulate carbon dioxide emissions from motor vehicles was preempted because it “will have the practical effect of regulating fuel economy”), and *Average Fuel Economy Standards For Light Trucks Model Years 2008–2011*, 71 Fed. Reg. 17,566, 17,654 (Apr. 6, 2006) (concluding that state greenhouse gas regulations are both expressly and impliedly preempted by the EPCA).

<sup>119</sup> *Average Fuel Economy Standards for Light Trucks*, 71 Fed. Reg. at 17,659 n.201.

<sup>120</sup> *Id.*

<sup>121</sup> *Id.* at 17,659.

on average 471 grams of CO<sub>2</sub> per mile driven in the city, but only 0.042 grams of HC and 0.56 grams of CO.<sup>122</sup>

Measuring the total mass of the carbon-containing compounds emitted from a motor vehicle provides the most consistent gauge of the amount of fuel consumed by the vehicle. Fuel economy, therefore, is determined pursuant to EPA guidelines<sup>123</sup> by measuring the exhaust emissions of HC, CO, and CO<sub>2</sub> per mile traveled.<sup>124</sup> After essentially “counting” the carbon atoms emitted per mile driven, the EPA uses a formula, commonly referred to as the carbon balance equation, to calculate the amount of fuel burned per mile driven.<sup>125</sup> Because CO<sub>2</sub> accounts for over ninety-nine percent of the carbon-containing emissions, “CO and HC play an increasingly and extremely minor role in the measurement of fuel economy, such that fuel economy has become virtually synonymous with CO<sub>2</sub> emission rates.”<sup>126</sup>

CO<sub>2</sub>, however, is fundamentally different from other commonly regulated automotive emissions in that there is no “bolt on” after-treatment device that can capture or chemically alter CO<sub>2</sub> emissions.<sup>127</sup> Improving fuel economy so that vehicles burn less gasoline is the only known practical way for a manufacturer of today’s gasoline-powered automobiles to reduce tail-pipe emissions of CO<sub>2</sub>.<sup>128</sup>

*B. Fuel Economy Is Regulated by the Federal Government and the EPCA Expressly Preempts State Regulations that Are “Related to Fuel Economy Standards”*

Since 1975, the regulation of motor vehicle fuel economy has been the exclusive province of the federal government pursuant to the EPCA, which established the federal CAFE program.<sup>129</sup> The text of the EPCA provides for a fleet-average fuel economy standard for passenger automobiles of 27.5 miles per gallon.<sup>130</sup> The statute further provides, however, that “the Secretary of Transportation may prescribe regulations amending the standard under subsection (b) of this section for a model year to a level that the Secretary decides is the maximum feasible average fuel economy level for

<sup>122</sup> *Id.* at 17,661.

<sup>123</sup> NHTSA’s regulations require that fuel economy be measured by way of “procedures established by the Administrator of the Environmental Protection Agency.” 49 C.F.R. §§ 531.6(a), 533.6(b) (2007).

<sup>124</sup> 40 C.F.R. § 86.144-94.

<sup>125</sup> 40 C.F.R. § 600.113-93(e).

<sup>126</sup> Average Fuel Economy Standards for Light Trucks, 71 Fed. Reg. at 17,660.

<sup>127</sup> For example, the technologies that produce reductions in HC and CO emissions—such as catalytic converters and computer-controlled air/fuel mixture controls—do so by reducing such emissions to CO<sub>2</sub> and water. *See id.*

<sup>128</sup> *Id.* at 17,656 (“[T]he only technologically feasible, practicable way for vehicle manufacturers to reduce CO<sub>2</sub> emissions is to improve fuel economy.”).

<sup>129</sup> *See* 49 U.S.C. §§ 32,901–32,919 (2000).

<sup>130</sup> *Id.* § 32,902(b).

that model year.”<sup>131</sup> The current CAFE level for passenger cars is 27.5 mpg.<sup>132</sup> Similarly, with respect to non-passenger automobiles, such as light trucks, the statute requires the Secretary of Transportation to set “the maximum feasible average fuel economy level that the Secretary decides the manufacturers can achieve in that model year.”<sup>133</sup> In December 2007, Congress enacted and the President signed the Energy Independence and Security Act of 2007,<sup>134</sup> which, beginning in the 2011 model year, increases motor vehicle fuel economy to a combined 35.5 miles per gallon by 2020.<sup>135</sup> After 2020, the fuel economy standard for each fleet of passenger and non-passenger automobiles shall be the “maximum feasible average fuel economy standard for each fleet for that year.”<sup>136</sup>

In arriving at “the maximum feasible average fuel economy level,” the EPCA directs the NHTSA to consider “technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy.”<sup>137</sup> These considerations require the NHTSA to balance a number of competing criteria in addition to improving fuel economy, such as maintaining wide consumer choice for motor vehicles, protecting the automotive industry from adverse economic consequences, avoiding a significant loss of employment in the industry, and ensuring vehicle safety.<sup>138</sup> When the NHTSA sets a fuel economy standard, the agency strives to go “as high as it can without causing significant adverse consequences for the manufacturers or consumers.”<sup>139</sup>

Because a myriad of different fuel economy standards would impose a tremendous hardship on the industry, Congress established national uniformity as an important goal of the EPCA. Accordingly, using the broadest possible language, Congress drafted the EPCA to preempt any state law or regulation “related to fuel economy standards or average fuel economy

---

<sup>131</sup> *Id.* § 32,902(c). The EPCA provides that the Secretary of Transportation is to administer the statute, and the Secretary in turn assigned this responsibility to the Administrator of the NHTSA. Delegation Under the Energy Policy and Conservation Act, 41 Fed. Reg. 25,015 (June 22, 1976).

<sup>132</sup> 49 C.F.R. § 531.5 (2007).

<sup>133</sup> 49 U.S.C. § 32,902(a).

<sup>134</sup> Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (2007).

<sup>135</sup> *Id.* § 102.

<sup>136</sup> *Id.*

<sup>137</sup> 49 U.S.C. § 32,902(f).

<sup>138</sup> Average Fuel Economy Standards for Light Trucks, 71 Fed. Reg. 17,566, 17,668 (Apr. 6, 2006).

<sup>139</sup> *Id.* For example, in 1985, the NHTSA relaxed the 1986 model year passenger car standard because a continuing decline in gasoline prices caused a shift in consumer demand away from smaller cars, and therefore the only actions available to manufacturers to improve their fuel economy levels would have involved product restrictions. Passenger Automobile Average Fuel Economy Standards Model Year 1986, 50 Fed. Reg. 40,528 (Oct. 4, 1985). This action was upheld in *Public Citizen v. National Highway Traffic Safety Administration*, 848 F.2d 256 (D.C. Cir. 1988).

standards.”<sup>140</sup> This preemption provision is without exception. The section provides:

When an average fuel economy standard prescribed under this chapter is in effect, a State or a political subdivision of a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under this chapter.<sup>141</sup>

There is no direct legislative history discussing the reasons why Congress enacted the EPCA’s preemption provision in this form. However, Congress’s rejection of more limited forms of preemption is evidence that it intended the EPCA to preempt broadly all state and local regulation in the area of fuel economy. The original Senate bill for the EPCA would have preempted state laws only if they were “inconsistent” with the federal fuel economy standards contained in the Act.<sup>142</sup> Similarly, the House bill would have preempted state laws only if they were not “identical to” a federal requirement.<sup>143</sup> Instead of adopting these more limited forms of preemption, the final version of the law expressly preempts all state laws that relate to fuel economy standards, even ones that are consistent with or identical to federal requirements.

Herein lies the potential conflict between federal law and California’s regulation of CO<sub>2</sub> from motor vehicles. Longstanding Supreme Court precedents support the breadth and inviolability of the EPCA’s express preemption provision. The Supreme Court has consistently held that preemption provisions “related to” a particular field “express a broad pre-emptive purpose”<sup>144</sup> and are “clearly expansive.”<sup>145</sup> To the extent there has been any dispute before the Court concerning the applicability of such a preemption clause to a particular state regulation, the resolution of the issue has centered on the directness of the connection between the state regulation and the preempted field. In *New York State Conference of Blue Cross & Blue Shield Plans v. Travelers Ins. Co.*,<sup>146</sup> the Supreme Court held that the phrase “related to” is not unbounded because “[i]f ‘relate to’ were taken to extend to the furthest stretch of its indeterminacy, then for all practical purposes pre-emption would never run its course, for [r]eally, universally, relations stop nowhere.”<sup>147</sup> Accordingly, the Court in *Travelers* held that “[p]re-

---

<sup>140</sup> 49 U.S.C. § 32,919(a).

<sup>141</sup> *Id.*

<sup>142</sup> S. REP. NO. 94-179, at 25 (1975).

<sup>143</sup> H.R. REP. NO. 94-340, at 274 (1975) (§ 507 as introduced, § 509 as reported).

<sup>144</sup> See *Morales v. Trans World Airlines, Inc.*, 504 U.S. 374, 383–84 (1992) (construing similar “relating to” language in the Airline Deregulation Act).

<sup>145</sup> See *Egelhoff v. Egelhoff*, 532 U.S. 141, 146–47 (2001) (construing similar language in the Employee Retirement Income Security Act of 1974).

<sup>146</sup> 514 U.S. 645 (1995).

<sup>147</sup> *Id.* at 655 (quoting HENRY JAMES, RODERICK HUDSON xli (World’s Classics 1980)).

emption does not occur . . . if the state law has only a tenuous, remote, or peripheral connection with” the preempted field.<sup>148</sup>

As discussed above, the relationship between these regulations and a fuel economy standard is not “tenuous, remote, or peripheral” by any means.<sup>149</sup> Indeed, the relationship is so direct that the California regulations can be converted mathematically from their “carbon-dioxide equivalent” metric to a corresponding miles per gallon fuel economy measurement.<sup>150</sup> The NHTSA, the expert agency responsible for administering the federal CAFE program, has concluded that as a technical matter, “CO<sub>2</sub> standards and [greenhouse gas] standards” are the “functional equivalents” of fuel economy standards<sup>151</sup>:

In mandating federal fuel economy standards under EPCA, Congress has expressly preempted any state laws or regulations relating to fuel economy standards. A State requirement limiting CO<sub>2</sub> emissions is such a law or regulation because it has the direct effect of regulating fuel consumption. CO<sub>2</sub> emissions are directly linked to fuel consumption because CO<sub>2</sub> is the ultimate end product of burning gasoline. Moreover, because there is but one pool of technologies for reducing tailpipe CO<sub>2</sub> emissions and increasing fuel economy available now and for the foreseeable future, regulation of CO<sub>2</sub> emissions and fuel consumption are inextricably linked. It is therefore NHTSA’s conclusion that such regulation is expressly preempted.<sup>152</sup>

Given the direct and inextricable link between CO<sub>2</sub> regulations and fuel economy standards, a strict application of the EPCA’s express preemption provision should lead to the conclusion that the California regulations are preempted.

---

<sup>148</sup> *Id.* at 661 (alterations in original) (quoting *Dist. of Columbia v. Greater Wash. Bd. of Trade*, 506 U.S. 125, 130 n.1 (1992)) (internal quotation marks omitted).

<sup>149</sup> *See supra* Part V.A.

<sup>150</sup> Pursuant to EPA regulations, fuel economy is calculated from the following equation:

$$\text{mpg} = \frac{2421}{((0.866 \times \text{HC}) + (0.429 \times \text{CO}) + (0.273 \times \text{CO}_2))}$$

Where: 2,421 = the amount of carbon in a gallon of the fuel (in grams)

HC = hydrocarbon emission rate (grams per mile)

CO = carbon monoxide emission rate (grams per mile)

CO<sub>2</sub> = carbon dioxide emission rate (grams per mile)

*See* 40 CFR § 600.113-78 (2007). Because the emissions of carbon monoxide and hydrocarbons have been reduced to near zero levels, these portions of the equation essentially drop out. The CO<sub>2</sub> limits can then be plugged into the equation to calculate an equivalent miles per gallon limit. Thus, for example, the 2016 standard of 205 grams of carbon dioxide equivalent per mile for the PC/LDT1 category can be mathematically translated to 43.3 miles per gallon. *See also* *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295, 342 n.49 (D. Vt. 2007) (recognizing that on account of the “mathematical relationship between fuel consumption and carbon dioxide emissions,” it is “possible to express these emissions standards as fuel economy standards in miles traveled per gallon of gasoline consumed”).

<sup>151</sup> Average Fuel Economy Standards for Light Trucks, 71 Fed. Reg. 17,566, 17,670 (Apr. 6, 2006).

<sup>152</sup> *Id.* at 17,654.

C. *The Plain Language of Both the Clean Air Act and the EPCA Supports the Conclusion that State Greenhouse Gas Standards Are Preempted*

The strict application of the EPCA's express preemption provision to the California greenhouse gas regulations, however, is complicated by two factors: California's special status under section 209(b) of the Clean Air Act, which allows it to obtain a waiver of Clean Air Act preemption for its own emissions regulations,<sup>153</sup> and the provision in the EPCA that requires NHTSA to "consider . . . the effect of other motor vehicle standards of the Government on fuel economy" in setting CAFE standards,<sup>154</sup> which has been interpreted by the NHTSA to include California emissions standards.<sup>155</sup> It has been argued that taken together, these provisions indicate that Congress did not intend California emissions regulations that receive waivers under section 209(b) of the Clean Air Act to be preempted by the EPCA.<sup>156</sup>

This argument, however, does not find support in the text of the Clean Air Act's waiver provision or in the text of the EPCA. On its face, section 209(b) only waives preemption under the Clean Air Act's express preemption provision. The relevant text of the provision reads: "[t]he Administrator shall, after notice and opportunity for public hearing, waive application of *this section* . . ." if the conditions of section 209(b) are met.<sup>157</sup> The reference to "this section" clearly refers to the express preemption provision in subsection (a) of section 209. Section 209(b) also provides that "compliance with such State standards shall be treated as compliance with applicable Federal standards *for purposes of this subchapter*."<sup>158</sup> Further textual limitation of the scope of a section 209(b) waiver can be found in section 177,<sup>159</sup> which allows other states to adopt the California regulations. That

---

<sup>153</sup> See *supra* Part II. As discussed above, the EPA has denied the waiver request for the greenhouse gas emissions regulations. Nevertheless, even if a waiver had been granted, it would not have necessarily resolved the question of preemption under the EPCA.

<sup>154</sup> 49 U.S.C. § 32,902(f) (2000).

<sup>155</sup> See, e.g., Light Truck Average Fuel Economy Standards Model Years 2005–2007, 68 Fed. Reg. 16,868, 16,895–96 (Apr. 7, 2003) (codified at 49 C.F.R. pt. 533 (2004)) (discussing the California emissions standards in section VIII.B, which is titled "Federal Motor Vehicle Emissions Standards").

<sup>156</sup> See *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295, 347 (D. Vt. 2007) ("[O]nce EPA issues a waiver for a California emissions standard, it becomes a motor vehicle standard of the government, with the same stature as a federal regulation with regard to determining maximum feasible average fuel economy under EPCA. Congress has consistently acknowledged interplay and overlap between emissions reductions regulations and fuel economy regulations, and could not have intended that an EPA-approved emissions reduction regulation did not have the force of a federal regulation."). As discussed above, however, *supra* note 118, this conclusion has not been reached by all courts that have considered the question.

<sup>157</sup> Clean Air Act § 209(b)(1), 42 U.S.C. § 7543(b)(1) (2000) (emphasis added).

<sup>158</sup> *Id.* (emphasis added).

<sup>159</sup> Clean Air Act § 177, 42 U.S.C. § 7507.

section provides that states may adopt a California emissions standard, “[n]otwithstanding section 209(a) [42 U.S.C. § 7543(a)].”<sup>160</sup>

A waiver of preemption under section 209(b) of the Clean Air Act therefore must be given the limited impact supported by the text of that statute. An EPA waiver does nothing more than waive federal preemption under the Clean Air Act, and thus allow a state to regulate in the field of motor vehicle emissions otherwise entirely occupied by the federal government.<sup>161</sup> In other words, the waiver simply resets the legal landscape to the condition that would exist in the absence of the express preemption provision in section 209(a). If states were not expressly preempted from enacting motor vehicle emissions regulations, they would still be preempted under the EPCA from enacting emissions regulations that are “related to fuel economy standards.”<sup>162</sup>

Nor does the requirement in 49 U.S.C. § 32,902(f) that the NHTSA “consider . . . the effect of other motor vehicle standards of the Government on fuel economy” in setting fuel economy standards render the state regulations immune from preemption under the EPCA.<sup>163</sup> Nothing in the text of § 32,902(f) suggests that when the NHTSA “considers” a state emission standard, that standard is immune from preemption under § 32,919(a). Similarly, there is no exception in § 32,919(a)’s preemption provision for a state emissions regulation that is waived under section 209(b) of the Clean Air Act. In fact, § 32,919 does contain two narrow exceptions, neither of which would cover the A.B. 1493 regulations.<sup>164</sup> Section 32,919(b) provides that states “may adopt or enforce a law or regulation on disclosure of fuel economy or fuel operating costs,” but only if those requirements are

<sup>160</sup> *Id.*

<sup>161</sup> See *United States v. Chrysler Corp.*, 591 F.2d 958, 961 (D.C. Cir. 1979) (“Federal preemption of state law displaces state authority. The decision [of the EPA] not to preempt [under section 209(b)] simply allows both federal and state authorities to regulate emission controls.”).

<sup>162</sup> 49 U.S.C. § 32,919(a) (2000).

<sup>163</sup> Again, this is an issue upon which there is disagreement between the NHTSA and the district courts that have considered the matter. Compare *Average Fuel Economy Standards for Light Trucks*, 71 Fed. Reg. 17,566, 17,669 (Apr. 6, 2006) (“EPCA’s decisionmaking factor provision is neither a saving clause nor a waiver provision.”), with *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295, 347 (D. Vt. 2007) (holding that “once EPA issues a waiver for a California emissions standard, it becomes a motor vehicle standard of the government, with the same stature as a federal regulation with regard to determining maximum feasible average fuel economy under EPCA,” and that Congress therefore “could not have intended that an EPA-approved emissions reduction regulation did not have the force of a federal regulation”), and *Cent. Valley Chrysler-Jeep v. Goldstene*, 529 F. Supp. 2d 1151, 1173 (E.D. Cal. 2007) (reconsidering a prior opinion to the contrary and concluding that a “California regulation or standard becomes an ‘other motor vehicle standard[] of the government’ that affects fuel economy and that the Secretary of Transportation must consider in formulating maximum feasible average fuel economy standards under EPCA” (alteration in original) (citation omitted)).

<sup>164</sup> A.B. 1493, 2001–2002 Reg. Sess., 2002 Cal. Stat. ch. 200 (amending CAL. HEALTH & SAFETY CODE § 42823 and adding CAL. HEALTH & SAFETY CODE § 43018.5 (West 2006)), available at [http://www.climatechange.ca.gov/documents/ab\\_1493\\_bill\\_20020701\\_enrol.pdf](http://www.climatechange.ca.gov/documents/ab_1493_bill_20020701_enrol.pdf).

“identical” to the federal requirements.<sup>165</sup> Section 32,919(c) allows a state to “prescribe requirements for fuel economy for automobiles obtained for its own use.”<sup>166</sup> The fact that Congress expressly preserved these narrowly limited areas of state autonomy demonstrates that there are no other unwritten exceptions to express preemption.

This reading of the impact of 42 U.S.C. § 32,902(f) is shared by the NHTSA. That agency considered the issue in its discussion of preemption set forth in the preamble to the recent standards for light trucks:

EPCA does not include any exception to its preemption provision that would cover State [greenhouse gas] and CO<sub>2</sub> standards. Nevertheless, some commenters opposing preemption suggested that Section 32902(f), which lists the factors that NHTSA must consider in determining the level at which to set fuel economy standards, prevents preemption by requiring consideration, by NHTSA, of the effect of other Government standards, including emissions standards, on fuel economy.

EPCA’s decisionmaking factor provision is neither a saving clause nor a waiver provision. Nor does NHTSA interpret it as saving state emissions standards that effectively regulate fuel economy from preemption. The agency interprets that provision only to direct NHTSA to consider those State standards that can otherwise be validly adopted and enforced under State and Federal law.<sup>167</sup>

The text and purpose of the EPCA’s express preemption provision thus confirms the desirability of national uniform fuel economy standards “[i]n order to avoid any manufacturer being required to comply with differing State and local regulations with respect to automobile or light-duty truck fuel economy.”<sup>168</sup>

#### CONCLUSION

Regardless of one’s views on global climate change and the environmental impacts of greenhouse gas emissions, it is clear that greenhouse gas regulation is an issue of broad national and international concern, touching on many facets of this country’s environmental and economic well-being—facets that extend well beyond the borders of California. Any response to these matters rightfully belongs at the federal level so that the government can coordinate a national approach to the issue of climate change that takes into account all of the relevant considerations—such as the anticipated environmental benefits, the costs borne by consumers, and the regulatory burdens imposed on the industry. A decentralized approach to addressing global climate change is not a circumstance where a “race to the top” pro-

---

<sup>165</sup> 49 U.S.C. § 39,219(b).

<sup>166</sup> *Id.* § 39,219(c).

<sup>167</sup> Average Fuel Economy Standards for Light Trucks, 71 Fed. Reg. 17,566, 17,669 (Apr. 6, 2006).

<sup>168</sup> *Id.* at 17,657 (quoting S. REP. No. 94-179, 25 (1975)) (internal quotation marks omitted).

duces a socially optimal result, but rather will likely lead to a suboptimal “jurisdictional match.”