

State Renewable Portfolio Standards: Is There a “Race” and Is It “To the Top”?†

LINCOLN L. DAVIES*

TABLE OF CONTENTS

I.	INTRODUCTION	4
II.	RENEWABLE PORTFOLIO STANDARDS	10
	A. <i>The RPS</i>	13
	B. <i>RPS Design</i>	16
	C. <i>RPS Goals</i>	20
III.	REGULATORY RACES	24
	A. <i>Defining Regulatory Races</i>	24
	B. <i>Races to the Bottom</i>	30
	C. <i>Races to the Top</i>	38
IV.	CONCEPTUALIZING RPS RACES	42
	A. <i>An Image</i>	43
	B. <i>A Mirror Image?</i>	44
V.	MEASURING RPS RACES	49
	A. <i>The Evidence</i>	50

† This title is in heavy debt to Kirsten H. Engel’s excellent article, *State Environmental Standard Setting: Is There a “Race” and Is It “To the Bottom”?*, 48 HASTINGS L.J. 271 (1997). I send my many apologies, and thanks, to Prof. Engel for this blatant aping.

* Associate Professor of Law, University of Utah S.J. Quinney College of Law. I thank Lesley McAllister for the invitation to participate in this symposium; Brigham Daniels and Kirsten Engel for most helpful comments on a prior draft; Mark Thornton for extensive research assistance and data compilation; Dana Wilson for generous work on the graphics; Pam Pannier for administrative support; the staff of the *San Diego Journal of Climate & Energy Law*, especially Maggie Stehn, for their hard work and patience; and the S.J. Quinney College of Law and the Quinney Fellow program for research funding support.

B.	<i>Weighing the Evidence</i>	52
1.	<i>Frequency</i>	52
2.	<i>Targets</i>	57
3.	<i>Speed</i>	61
4.	<i>Coverage</i>	62
5.	<i>Amendments</i>	64
6.	<i>Efficacy Tendency</i>	67
C.	<i>Implications of the Evidence</i>	69
VI.	CONCLUSION	78

I. INTRODUCTION

Do state renewable portfolio standards (“RPSs”) signify a regulatory “race to the top”? Numerous observers have suggested as much. Most prominently, Professor Barry Rabe wrote in 2006, “[S]tates over time have increasingly tended to elevate the bar for the amount of electricity required by an RPS. . . . In many respects, this resembles a multistate ‘race-to-the-top,’ whereby many states are committing to future renewable energy levels that seemed inconceivable a half-decade ago.”¹ Professor Lesley McAllister likewise has observed: “In climate policy, there seem to be indications of a race to the top. States have, for example, progressively increased the amount of electricity that must be generated by renewable sources under state ‘renewable portfolio standards.’”² David Adelman and Kirsten Engel also highlighted the trend, denominating RPSs as “arguably the most popular program” today “for promoting low-GHG electrical generation capacity.”³

These scholars are not alone. Indeed, more than one commentator has placed state RPSs—laws that force electric utilities to provide a portion

1. BARRY G. RABE, PEW CTR. GLOBAL CLIMATE CHANGE, RACE TO THE TOP: THE EXPANDING ROLE OF U.S. STATE RENEWABLE PORTFOLIO STANDARDS 7 (2006), available at <http://www.pewclimate.org/docUploads/RPSReportFinal.pdf>.

2. Lesley K. McAllister, *Regional Climate Regulation: From State Competition to State Collaboration*, 1 SAN DIEGO J. CLIMATE & ENERGY L. 81, 86 (2009).

3. David E. Adelman & Kirsten H. Engel, *Reorienting State Climate Change Policies to Induce Technological Change*, 50 ARIZ. L. REV. 835, 866 (2008); see also, e.g., Robert J. Michaels, *National Renewable Portfolio Standard: Smart Policy or Misguided Gesture?*, 29 ENERGY L.J. 79, 108 (2008) (“[C]ompetition among the states may improve regulation as they learn from each others’ successes and failures. . . . Some renewables advocates view the evolution of state RPS programs as evidence of a ‘race to the top,’ fostering innovations that facilitate efficiency and growth.”); Ronald H. Rosenberg, *Harmonious Federalism in Support of National Energy Goals—Increased Wind Renewable Energy*, 85 N.D. L. REV. 781, 813 (2009) (“During the last decade, these [renewable portfolio] standards have spread across the United States as states increasingly adopted these policies under their general authority to regulate electrical utilities operating within their borders. In some states, these policies have evolved into second generation standards with more ambitious renewable energy percentages and target achievement dates.”).

of their energy from renewable resources—squarely within the wave of state, local, and regional action on climate change that has well surpassed the federal government’s persistent foot-dragging on the subject. As Vicki Arroyo and Vivian Thomson recently noted, “When it comes to fixing the broken politics of global warming in the United States, all eyes tend to focus on the global stage. However, the path to a national policy has already been paved, by the thirty-five states that have filled the void left by federal inaction.”⁴

There is good reason to think that state RPSs constitute a race to the top. State climate change initiatives, including RPSs, provide some of the most fertile ground in recent memory for finding such regulatory races upward—the situation that occurs when states begin adopting more and more aggressive laws in order to compete with each other for industry, jobs, and business.⁵ RPSs exploded onto the scene in the last two

4. Vivian E. Thomson & Vicki Arroyo, *Upside-Down Cooperative Federalism: Climate Change Policymaking and the States*, 29 VA. ENVTL. L.J. 1, 1 (2011); see also, e.g., David J. Hurlbut, *Multistate Decision Making for Renewable Energy and Transmission: An Overview*, 81 U. COLO. L. REV. 677, 681 (2010) (“Some scholars argue that, by several important benchmarks, states have done a better job of solving renewable energy policy puzzles than has the federal government. Congressional efforts to establish a federal renewable portfolio standard . . . have failed repeatedly since the late 1990s.”); Roberta F. Mann, *Federal, State, and Local Tax Policies for Climate Change: Coordination or Cross-Purpose?*, 15 LEWIS & CLARK L. REV. 369, 376 (2011) (“Founding Father James Madison contemplated that state and local action could be used by the federal government as a policy incubator Operating in the vacuum left by federal inaction, state and local governments have taken a number of different policy approaches to climate change mitigation. . . . Twenty-five states have renewable portfolio standards”); Arnold W. Reitze, Jr. & Marie Bradshaw Durrant, *State and Regional Control of Geological Carbon Sequestration (Part I)*, 41 ENVTL. L. REP. NEWS & ANALYSIS 10348, 10367 (2011) (“[F]ailure of the federal government to develop a sustainable electrical energy policy has led to state efforts that encourage and discourage the use of fossil fuel to generate electricity. States have created renewable portfolio standards”); Rosenberg, *supra* note 3, at 813–14 (“These state renewable energy policies have become increasingly common, having been adopted in approximately 60% of the states. Interestingly, this has been accomplished independently without federal direction or support.”); Patricia E. Salkin, *New York Climate Change Report Card: Improvement Needed for More Effective Leadership and Overall Coordination with Local Government*, 80 U. COLO. L. REV. 921, 922 (2010) (“During the past decade, while the federal government dragged its feet on the issue of global warming, many state and local governments have been stepping up to take a leadership role . . . [including by adopting] renewable portfolio standards”).

5. See generally, e.g., 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. 67, 80–87 (1996) (discussing the circumstances in which a beneficial race-to-the-top are more or less likely).

decades. In 1993, only one state, Iowa, had an RPS.⁶ By 2000, that total had increased to twelve RPS states.⁷ Today, the tally is thirty-seven states plus the District of Columbia, a truly remarkable transformation of the nation's renewable energy legal landscape.⁸

That these laws must put some additional pressure on renewable energy deployment is plain.⁹ To the extent one views a higher level of renewables

6. There is some ambiguity surrounding when Iowa's RPS took effect, or rather, when it actually became an RPS. A number of commentators have pointed to Iowa as adopting the first RPS in the early 1980s. See, e.g., Lincoln L. Davies, *Power Forward: The Argument for a National RPS*, 42 CONN. L. REV. 1339, 1357 (2010); Rosenberg, *supra* note 3, at 812; Ernest E. Smith & Becky H. Diffen, *Winds of Change: The Creation of Wind Law*, 5 TEX. J. OIL GAS & ENERGY L. 165, 173 (2009); Benjamin K. Sovacool & Christopher Cooper, *The Hidden Costs of State Renewable Portfolio Standards (RPS)*, 15 BUFF. ENVTL. L.J. 1, 3 (2007); cf. Gary C. Bryner, *Challenges in Developing a Diverse Domestic Energy Portfolio: Integrating Energy and Climate Policy in the Western United States*, 15 N.Y.U. ENVTL. L.J. 73, 107 (2007) ("Iowa was the first state to create an RPS, setting a goal in 1991 of requiring power companies to produce 105 MW of renewable power."); Reitze, Jr. & Durrant, *supra* note 4, at 10368 ("Iowa, in 1991, was the first state to enact an RPS."). However, the 1983 law merely gave Iowa's public utilities board the authority to order utilities to purchase renewables. IOWA CODE §§ 476.36–.37 (1983). It was not until an April 1992 enactment that the state legislature put in place what might be termed an RPS "target" of 105 MW. See IOWA CODE § 476.43(2)(a) (1993). However, this "target" was somewhat anomalous for an RPS. It was neither a goal nor a mandate per se, but rather, an express limit on the amount of renewables the board could order utilities to acquire. *Id.* ("An electric utility subject to this division . . . shall not be required to own or purchase, at any one time, more than its share of one hundred five megawatts of power [under this statute]."); cf. Alexandra B. Klass, *Property Rights on the New Frontier: Climate Change, Natural Resource Development, and Renewable Energy*, 38 ECOLOGY L.Q. 63, 105 (2011) (suggesting that Iowa does not have an RPS); Brent Stahl, *Wind Energy Laws and Incentives: A Survey of Selected State Rules*, 49 WASHBURN L.J. 99, 108 (2009) (same). Iowa's subsequent administrative action under this statute was challenged as unlawful, and struck down in part as preempted by PURPA. *Midwest Power Systems, Inc.*, 78 F.E.R.C. ¶ 61,067 (1997); see also *Iowa Power and Light Co. v. Iowa State Commerce Comm'n*, 410 N.W.2d 236 (Iowa 1987) (upholding the law). According to one Iowa official, it was only after these legal challenges that the state agency reinterpreted the law as an RPS. Email from John Pearce, Utility Specialist, Iowa Utilities Board, to Mark Thornton, Research Assistant to Lincoln Davies, S.J. Quinney College of Law, University of Utah (Mar. 31, 2011) (stating that the Iowa Utilities Board "re-interpreted the AEP statute as an RPS requirement of 105 MW" in 1997). Nevertheless, because both the board's authority to order renewables purchases and the 105 MW limit that remains in effect today were in place in 1993, this article treats that as the first operative date of Iowa's RPS.

7. See *infra* Part V.B.1. Depending on how the statutes are counted, some would say there were eight state RPSs in 2000. See RABE, *supra* note 1, at tbl.1.

8. See *RPS Policies*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (Jan. 2012), http://www.dsireusa.org/documents/summarymaps/RPS_map.pptx. DSIRE and some scholars differentiate between mandatory RPSs and voluntary statutes that set renewable energy "goals," implicitly (and sometimes explicitly) counting only the former as true RPSs. Because, however, I consider a law's compulsoriness to be merely one of many possible design features of an RPS, rather than a prerequisite to be counted as one, I include state statutes that set renewable energy goals as RPSs.

9. See, e.g., Haitao Yin & Nicholas Powers, *Do State Renewable Portfolio Standards Promote In-State Renewable Generation?*, 38 ENERGY POL'Y 1140, 1149

on the grid as desirable, this pressure is a good thing—a kind of socially beneficial “upward” force, a race to the top. Still, the mere rush to legislation may or may not be indicative of a regulatory race. Races to the top, like their counterpart races to the bottom,¹⁰ have distinct defining

(2009); *see also* RYAN WISER & GALEN BARBOSE, LAWRENCE BERKELEY NAT’L LAB., RENEWABLE PORTFOLIO STANDARDS IN THE UNITED STATES 2 (2008), *available at* <http://eetd.lbl.gov/ea/ems/reports/lbnl-154e-revised.pdf> (calling RPSs “one of the most important drivers of renewable energy capacity additions” in the United States).

10. The environmental law literature on races to the bottom, and federalism in environmental regulation more generally, is immense. *See generally, e.g.*, DENISE SCHEBERLE, FEDERALISM AND ENVIRONMENTAL POLICY (1997) (discussing how state and federal actors’ perceptions of each other shape how environmental laws are formulated and implemented); DAVID SCHOENBROD, SAVING OUR ENVIRONMENT FROM WASHINGTON (2005) (advocating in favor of local control over environmental regulation); Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principle: The Case for Reallocating Environmental Regulatory Authority*, 14 YALE L. & POL’Y REV. 23 (1996) (presenting arguments in favor of some measure of decentralization in the environmental governance arena); Engel, *State Environmental Standard Setting*, *supra* note † (investigating states’ behavior with regard to the imposition of environmental laws and regulations); Daniel C. Esty, *Toward Optimal Environmental Governance*, 74 N.Y.U. L. REV. 1495 (1999) (seeking to reframe the environmental governance debate by looking beyond a state versus federal dichotomy); Jason Scott Johnston, *The Tragedy of Centralization: The Political Economics of American Natural Resource Federalism*, 74 U. COLO. L. REV. 487 (2003) (explaining selected historical episodes and particular strands of Supreme Court jurisprudence by looking to the role centralization has played); David L. Markell, *States as Innovators: It’s Time for a New Look to Our “Laboratories of Democracy” in the Effort to Improve Our Approach to Environmental Regulation*, 58 ALB. L. REV. 347 (1994) (arguing heightened attention to state innovations in the realm of environmental regulation will lead to more successful federal efforts); Robert V. Percival, *Environmental Federalism: Historical Roots and Contemporary Models*, 54 MD. L. REV. 1141 (1995) (investigating relationships between state and federal governments, and what part they should play in successful environmental governance); Richard L. Revesz, *The Race to the Bottom and Federal Environmental Regulation: A Response to Critics*, 82 MINN. L. REV. 535 (1997) (arguing in favor of state control in the realm of environmental governance); Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the “Race-to-the-Bottom” Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992) (attempting to debunk the idea that state control over environmental governance leads to a race to the bottom); Scott R. Saleska & Kirsten H. Engel, *“Facts Are Stubborn Things”: An Empirical Reality Check in the Theoretical Debate over the Race-to-the-Bottom in State Environmental Standard-Setting*, 8 CORNELL J.L. & PUB. POL’Y 55 (1998) (engaging with the race-to-the-bottom debate using a fact-based, rather than theoretical, approach); Joshua D. Sarnoff, *A Reply to Professor Revesz’s Response in “The Race to the Bottom and Federal Environmental Legislation,”* 8 DUKE ENVTL. L. & POL’Y F. 295 (1998) (arguing in favor of federal controls); Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196 (1977) (considering obstacles to successful implementation of environment-related federal mandates); Swire, *supra* note 5 (considering the existence, or lack thereof, of a race to the bottom among states).

characteristics. They are comprised of two parts: (1) state competition that yields more and more ambitious laws, a “race to strictness” or a “race to stringency,” and (2) a positive or negative impact on society from that race to stringency, prompting either a “race to desirability” or “race to undesirability.”¹¹

It is generally assumed that races to the top are to stringency and *desirability*, but this is not necessarily the case. They can be to stringency and *undesirability* as well. The type of race matters. A race to the top that trends to undesirability presents a case for federal intervention in the form of a preemptive maximum or ceiling, whereas a race to the top that pushes to desirability does not create that need. It means that state-by-state regulation is sufficient—states are solving the regulatory problem without federal (depending on one’s view) intervention, interference, or help.

In the case of RPSs, the presumption that state statutes reflect a race to both stringency and desirability makes some sense. More and more states are adopting these laws. Renewable electricity long has been touted as a social good. Moreover, the legislative histories of state RPSs are littered with unabashed overtures from local governments attempting to use RPSs to attract renewable energy industry and jobs to their states.¹²

This article questions this presumption. It asks whether state RPSs really constitute a race to the top and, if so, what kind. Examining a variety of evidence on RPS stringency, the article concludes that contrary to conventional wisdom, state RPSs are not a race to the top because they are not a race to stringency. While far more states have RPSs today than twenty years ago, and while many of these RPSs are more aggressive than their predecessors, three trends point against the presence of a regulatory race to the top in state RPSs.

First, a substantial minority of states remain on the sidelines.¹³ There are many reasons why a state might choose not to adopt an RPS. Given, however, the possibility of passing a law that sends a positive signal to renewable energy developers but that would impose minimal or moderate costs on in-state consumers, the reluctance of many states to even enter the RPS fray militates against the conclusion that there is a race to the top.¹⁴

Second, those states that have adopted RPSs have not done so in a manner consistent with race-to-the-top theory.¹⁵ If there were a race to

11. Swire, *supra* note 5, at 70.

12. *See infra* Part II.C.

13. *See infra* Part V.B.1.

14. *See infra* Parts V.A., V.B.1.

15. *See infra* Part V.B.2–6.

the top, one would expect to see a dominant strategy¹⁶ of more and more aggressive RPSs that every—or almost every—state would adopt to attract industry to their state. The data show that this is not the case. Rather than converging on increased stringency, the prevailing tendency in RPSs is policy diversity.

Third, the way in which states have adopted RPSs is inconsistent with what energy developers crave: consistency and predictability.¹⁷ Thus, what should be expected if there were an RPS race to the top would be statutes that, to the extent they change over time, do not dilute their signals seeking to attract industry to the enacting state. Instead, a distinct minority of state RPSs have become facially weaker, not stronger, when they are amended from their original versions.

This lack of an RPS regulatory race has several important policy implications. Most critically, it means that room remains for federal action on renewables: If the nation would benefit from additional renewable electricity, states have not solved that problem yet. Moreover, if states are not racing to stringency, there should not be a need for a federal ceiling on renewables, as might be the case if there were a race to the top. Finally, the divergence in how states adopt RPSs provides further evidence that something other than renewables promotion is bound up in these laws. States appear to be using RPSs for possible posturing and symbolism, which itself might argue for a national renewable energy requirement.

This article proceeds in six parts. Part II offers a primer on RPSs, describing RPSs' primary traits, how the laws are designed, why they are enacted, and how that relates to regulatory races. Part III overviews the literature on regulatory races, contrasting races to the bottom with races to the top. Part IV conceptualizes how state enactments of RPSs might be viewed as a race to the top. Part V examines evidence on whether RPSs can in fact be understood as a regulatory race. Using this evidence, Part V determines that state RPSs do not appear to be trending toward generally more stringent laws, and then briefly assesses the implications of that finding.

16. In game theory parlance, a dominant strategy is also referred to as a dominated strategy or a Nash equilibrium. Broadly, a Nash equilibrium is “a profile of strategies such that each player’s strategy is an optimal response to the other players’ strategies.” DREW FUNDENBERG & JEAN TIROLE, *GAME THEORY* 11 (1991). The problem with the prisoner’s dilemma is that its Nash equilibrium leads to results that are suboptimal for both parties participating in the game. *See id.* at 9–10. There are, of course, many versions of strategic games. *See generally id.*

17. *See infra* Part V.B.2–6.

Perhaps most important, the lack of an RPS race to the top leaves room for federal action on renewable energy. Part VI concludes.

II. RENEWABLE PORTFOLIO STANDARDS

The RPS is at once a new phenomenon and a historical outgrowth. The RPS's dominance as the preferred way to promote renewable electricity in the United States became clear only in the last decade.¹⁸ States, however, have used RPSs since at least the early 1990s.¹⁹ The RPS, moreover, has its conceptual roots in other longstanding regulatory instruments. The RPS is effectively the reverse of the “cap and trade” legislation that has been proposed in the United States to battle climate change,²⁰ legislation that itself finds a theoretical basis in other longstanding environmental regulatory programs, such as the Clean Air Act's sulfur dioxide (“SO₂”), or “acid rain,” trading program.²¹ Indeed, by combining both a potentially inflexible regulatory directive and the malleable tool of economic trading, RPSs evoke both the cutting edge of modern environmental law and the vintage look of circa late-1960s pollution control.

The RPS's elegance is in its design. Though there is truth to the observation that RPSs are a command-and-control type of “mandate” that forces electricity providers to meet a specific regulatory objective²²—a percentage-based share of power produced from renewables—it is just as plain that RPSs harness markets. Like traditional command-and-control

18. See Davies, *Power Forward*, *supra* note 6, at 1357–58. See generally RABE, *supra* note 1; WISER & BARBOSE, *supra* note 9.

19. See IOWA CODE §§ 476.43–.44 (2011). Some commentators have suggested that Iowa's law was an RPS as early as 1983. See *supra* note 6.

20. For an example of such legislation, see the American Clean Energy and Security Act of 2009, H.R. Res. 2454, 111th Cong. § 335 (2009) (also known as the “Waxman-Markey Bill”). See generally, e.g., Robert N. Stavins, *A Meaningful U.S. Cap-and-Trade System to Address Climate Change*, 32 HARV. ENVTL. L. REV. 293 (2008) (arguing for a cap-and-trade approach); Stephanie L. Wilson, Note, *Dog Days of Climate Change: Heating the Debate for Federal Cap-and-Trade*, 28 J. LAND RESOURCES & ENVTL. L. 163 (2008) (arguing in favor of a cap-and-trade approach).

21. There are, of course, other pollution trading schemes in environmental law. For a primer, see generally, for example, JAMES SALZMAN & BARTON H. THOMPSON, JR., ENVIRONMENTAL LAW AND POLICY 104–07 (2d ed. 2007) (looking closely at attempts to address the problem of acid rain with trading mechanisms); E. Donald Elliott, *Environmental Markets and Beyond: Three Modest Proposals for the Future of Environmental Law*, 29 CAP. U. L. REV. 245, 247–48, 251–54 (2001) (discussing various market-based approaches used to combat environmental problems); Robert W. Hahn & Robert N. Stavins, *Incentive-Based Environmental Regulation: A New Era from an Old Idea?*, 18 ECOLOGY L.Q. 1 (1991) (describing past uses of market-based approaches, and considering what part such approaches might play in the future); Paul L. Joskow & Richard Schmalensee, *The Political Economy of Market-Based Environmental Policy: The U.S. Acid Rain Program*, 41 J.L. & ECON. 37 (1998) (looking in-depth at the acid-rain program).

22. Jim Rossi, Commentary, *The Limits of a National Renewable Portfolio Standard*, 42 CONN. L. REV. 1425, 1428 (2010).

regulation, the RPS sets a firm goal that companies subject to the law must meet.²³ In this way, RPSs are reminiscent of traditional pollution control standards that, for instance, dictate that every sludge incineration plant “shall not exceed 3.2 kg (7.1 lb) of mercury [emissions] per 24-hour period.”²⁴ Also, like newer market-based environmental regulatory regimes, many RPSs allow satisfaction of their mandates through the acquisition of renewable energy credits, or “RECs,” which typically represent the production of one megawatt hour (“MWh”) of renewables-fueled electricity.²⁵ Because RECs can be sold on the open market like a commodity, utilities in states with this type of RPS theoretically could comply with their mandates solely by purchasing RECs and never producing a single additional kilowatt-hour (“kWh”) of renewable electricity. This is directly analogous to other market-based forms of environmental regulation that permit one polluting business to achieve compliance not by reducing its own waste, but rather, by paying another polluter to trim more than its own share.²⁶ Like these market-based rules, RECs inject an element of economic efficiency into RPS schemes. Where it is cheaper for a utility to buy power from someone else rather than expending capital to put its own steel in the ground, RECs expressly endorse that choice: The RPS mandates a renewable goal, but it uses markets to get there.²⁷

There are, of course, other ways to promote renewables. Typologically, these historically fall into four categories: (1) mandates, including RPSs; (2) cost recovery guarantees and purchase requirements, such as those used for “qualifying facilities” under PURPA or, more recently, “feed-in tariffs”;²⁸ (3) subsidies and other tax benefits, such as wind production tax credits,²⁹ and (4) research and development funding. The United States has

23. Davies, *Power Forward*, *supra* note 6, at 1359.

24. 40 C.F.R. § 61.52(b) (2010).

25. Karlynn S. Cory & Blair G. Swezey, *Renewable Portfolio Standards in the States: Balancing Goals and Rules*, *ELECTRICITY J.*, May 2007, at 21, 22. See generally Seth D. Hilton & Chad T. Marriott, *Tradable Renewable Energy Credits in California: The Struggle with Implementation*, *ELECTRICITY J.*, July 2010, at 65 (describing specifically a California attempt at using RECs); Pallab Mozumder & Achla Marathe, *Gains from an Integrated Market for Tradable Renewable Energy Credits*, 49 *ECOLOGICAL ECON.* 259 (2004) (discussing the role RECs can play in an RPS framework).

26. Davies, *Power Forward*, *supra* note 6, at 1359–60, 1392–93.

27. *Id.* at 1393.

28. Public Utilities Regulatory Policies Act of 1978, Pub. L. No. 95-617, § 210(a)–(b), 92 Stat. 3117, 3119 (codified at 16 U.S.C. §§ 2601–2645).

29. See generally, e.g., Mona Hymel, *The United States’ Experience with Energy-*

a long tradition of providing research and development funding for both renewable and more conventional forms of energy.³⁰ In Europe, the more novel instrument of the feed-in tariff, or “FIT,” has dominated,³¹ though equivalents of the RPS also have played a role in some countries³²—and the FIT is beginning to make some headway here.³³

Given the RPS’s dominance domestically, and the FIT’s prevalence abroad, the debate over how to promote renewables increasingly is cast as a binary choice between these two measures. This is true despite the fact that the two tools can be implemented complementarily,³⁴ and that both try to do the same thing: Renewables promotion is, at bottom, about changing our energy landscape—about trying to meld energy, economic, and environmental independence, security, and sustainability in a way that we do not today. Regardless of whether another tool might be more efficient, or effective, at doing this, so far the United States has overwhelmingly chosen the RPS. The question of whether there is a race to the top in renewables in the United States, then, is a question about whether there is a race to the top in RPSs.

A. The RPS

Conceptually, RPSs are straightforward. They are mandates for electric

Based Tax Incentives: The Evidence Supporting Tax Incentives for Renewable Energy, 38 LOY. U. CHI. L.J. 43 (2006) (considering how tax incentives might best be used to encourage the use of renewable); James W. Moeller, *Of Credits and Quotas: Federal Tax Incentives for Renewable Resources, State Renewable Portfolio Standards, and the Evolution of Proposals for a Federal Renewable Portfolio Standard*, 15 FORDHAM ENVTL. L. REV. 69, 72–97 (2004) (surveying various past tax incentive programs).

30. Looking at the data, one might note that this funding has skewed heavily toward fossil fuels, nuclear power, and other conventional energy technologies. See Lincoln L. Davies, Essay, *Energy Policy Today and Tomorrow—Toward Sustainability?*, 29 J. LAND RESOURCES & ENVTL. L. 71, 79–80 fig.3 (2009).

31. Pierre Bull et al., *Designing Feed-in Tariff Policies to Scale Clean Distributed Generation in the U.S.*, ELECTRICITY J., Apr. 2011, at 52, 52–53 (“All told, as of 2009, more than 50 countries were experimenting with, or fully implementing FITs . . .”); see also Wilson H. Rickerson et al., *If the Shoe FITs: Using Feed-In Tariffs to Meet U.S. Renewable Electricity Targets*, ELECTRICITY J., May 2007, at 73, 73–74. For an excellent deconstruction of feed-in tariff design, see Toby Couture & Yves Gagnon, *An Analysis of Feed-in Tariff Remuneration Models: Implications for Renewable Energy Investment*, 38 ENERGY POL’Y 955 (2010).

32. Marc Ringel, *Fostering the Use of Renewable Energies in the European Union: The Race Between Feed-in Tariffs and Green Certificates*, 31 RENEWABLE ENERGY 1, 8–10 (2006).

33. For a discussion of various state FIT policies, see generally Jim Rossi, *Clean Energy and the Price Preemption Ceiling*, 3 SAN DIEGO J. CLIMATE & ENERGY L. 247 (2012).

34. Rickerson et al., *supra* note 31, at 83–84; KARLYNN CORY ET AL., FEED-IN TARIFF POLICY: DESIGN, IMPLEMENTATION, AND RPS POLICY INTERACTIONS 9–11 (2009), available at <http://www.nrel.gov/docs/fy09osti/45549.pdf>.

power providers—known in regulatory speak as “load-serving entities” (“LSEs”)³⁵—to ensure that a portion of the electrons they deliver to consumers are “green,” or come from renewable resources. That is, RPSs are exactly what they sound like. They are requirements that a portion of the provider’s electric generation portfolio is renewable, rather than fossil- or nuclear-powered.

A simple RPS thus could be written in one or two sentences. It need merely state that there is a percentage requirement of renewables that must or should be used in providing electricity, and that electric suppliers are subject to the law. Theoretically, nothing more need be said. Because RPSs count on utilities to acquire whatever renewables they will use, the law needs only to define what is renewable. It does not need to set a price for compliance, establish a preference for any certain type of renewable resource, or mandate what the terms of the RPS contract will be.³⁶ Indeed, some state RPSs are almost this plain. Montana, for instance, has an RPS whose chief operative provision simply declares:

In each compliance year beginning January 1, 2010, through December 31, 2014, each public utility and competitive electricity supplier shall procure a minimum of 10% of its retail sales of electrical energy in Montana from eligible renewable resources.³⁷

Rhode Island’s RPS directive is likewise straightforward. “Starting in compliance year 2007,” it reads, “all obligated entities shall obtain at least three percent (3%) of the electricity they sell at retail to Rhode Island end-use customers, adjusted for electric line losses, from eligible renewable energy resources, escalating, according to the following schedule.”³⁸

Of course, RPSs need not be so plain. Even a few touchstones from Maryland’s and Washington’s statutes expose the possible complexity of RPSs. One uses a 20 percent target,³⁹ while the other sets its sights at 15

35. Load-serving entities earned that moniker because they sell electric power to retail consumers and other end users, or the electric system’s engineering “load.”

36. Cf. NANCY RADER & SCOTT HEMPLING, *THE RENEWABLES PORTFOLIO STANDARD: A PRACTICAL GUIDE* 1–3 (2001), available at <http://www.naruc.affiniscape.com/associations/1773/files/rps.pdf> (describing the ways the “market-based nature of the RPS” enhance efficiency).

37. MONT. CODE ANN. § 69-3-2004(3)(a) (2010) (amended 2011).

38. R.I. GEN. LAWS § 39-26-4(a) (2011).

39. MD. CODE ANN., PUB. UTIL. COS. § 7-703(b)(17) (2011) (amended 2011).

percent.⁴⁰ One applies to “all retail electricity sales in the State by electricity suppliers,”⁴¹ while the other brings only those “qualifying” utilities that “serve[] more than twenty-five thousand customers in the state” within its grasp.⁴² One wants compliance with its mandate by 2022,⁴³ the other by 2020.⁴⁴ One counts “solar,” “wind,” “qualifying biomass,” “geothermal,” “ocean,” “small hydroelectric,” and “methane from the anaerobic decomposition of organic materials in a landfill or wastewater treatment plant” as eligible renewable resources,⁴⁵ whereas the other lifts the restriction on hydroelectric, adds qualifications to what is eligible biodiesel, and puts a very specific, old growth forest-oriented spin on biomass.⁴⁶ Continue further, and the list of possible ways to design an RPS becomes almost dizzying.⁴⁷

Backing away from the details, there are at least four axes along which states can design their RPSs. The first is the target percentage. Does a state, like California, want a full third⁴⁸ of its electricity to come from renewables? Or is it more like North Carolina, which seeks only 12.5 percent?⁴⁹

The second parameter is how quickly the state wants to get to its target. Does the state seek a rapid sea change in its electricity profile, such as Oklahoma’s aspiration to achieve compliance with its RPS by 2015?⁵⁰ Or is the transition it seeks more gradual, such as Hawaii’s target date of 2030?⁵¹

The third question any RPS must answer is to whom the law applies. Does the RPS include all three of the main types of electric suppliers—investor-owned utilities (“IOUs”), cooperatives, and municipalities—such as Utah’s law does?⁵² Or are only the large, incumbent IOUs subject to the RPS, such as in Iowa?⁵³

40. WASH. REV. CODE § 19.285.040(2)(a)(iii) (2011).

41. MD. CODE ANN., PUB. UTIL. COS. § 7-703(a)(1)(i) (2011).

42. WASH. REV. CODE § 19.285.030(16) (2011); *see id.* § 19.285.040(2)(a).

43. MD. CODE ANN., PUB. UTIL. COS. § 7-703(b)(17) (2011).

44. WASH. REV. CODE § 19.285.040(2)(a)(iii) (2011).

45. MD. CODE ANN., PUB. UTIL. COS. § 7-701(l) (2011).

46. WASH. REV. CODE § 19.285.030(18) (2011).

47. *See generally* RADER & HEMPLING, *supra* note 36 (detailing dozens of policy design questions for RPSs).

48. 2011 Cal. Legis. Serv. 1st Ex. Sess. Ch. 1 (S.B. 2) (West), *amending* CAL. PUB. UTIL. § 399.15(b)(2)(B) (2011).

49. N.C. GEN. STAT. § 62-133.8(b) (2011) (amended 2011).

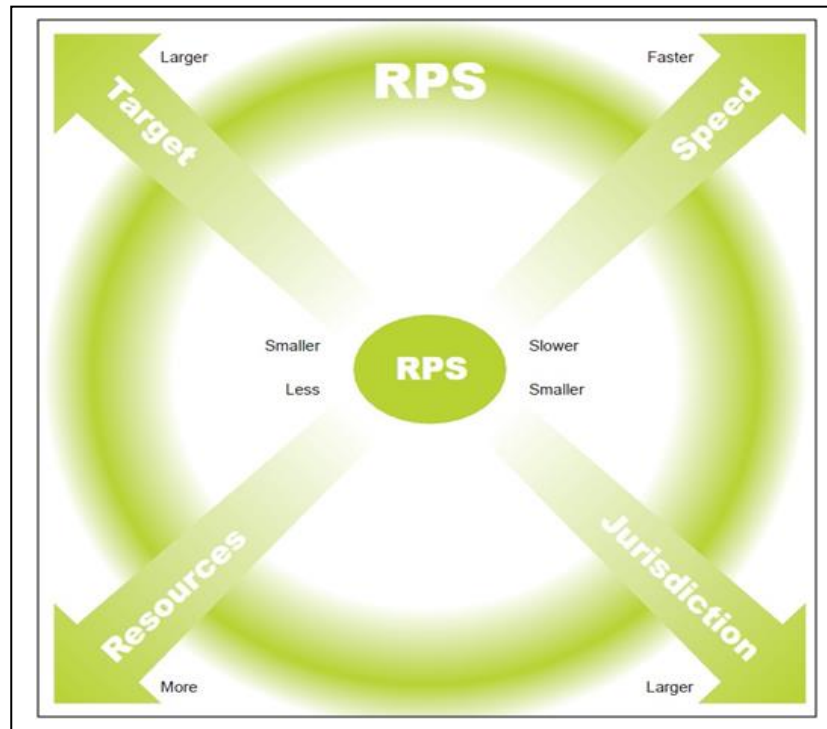
50. OKLA. STAT. tit. 17, § 801.4(B) (2011).

51. HAW. REV. STAT. § 269-92(4) (2010). California and Hawaii have two of the most aggressive percentage targets; Hawaii’s is 40 percent. *Id.*

52. UTAH CODE ANN. §§ 10-19-201, 54-2-1(7), 54-17-602(1)(a) (West 2011).

53. IOWA CODE § 476.42 (2011).

FIGURE 1: POSSIBLE RPS DESIGN PARAMETERS



Finally, there is the question of what resources count as renewable. Does every flavor of renewable resource count, including not just wind, solar photovoltaics, and geothermal, but also solar thermal, biomass, hydroelectricity, and tidal, such as in North Carolina?⁵⁴ Or is the law more restrictive, such as Illinois’s RPS, which excludes ocean and geothermal resources?⁵⁵ Or is its view of eligibility shaped by broader notions of “clean,” “green,” “advanced,” or “carbon lite” power, such that it counts not just renewables but also nuclear, clean coal technologies like carbon capture and sequestration, and efficiency and energy conservation?⁵⁶

54. N.C. GEN. STAT. § 62-133.8(a)(8) (2011) (amended 2011).

55. 20 ILL. COMP. STAT. 3855/1-10, 1-75(c) (2008) (amended 2011).

56. *E.g.*, OHIO REV. CODE ANN. §§ 4928.01(A)(34), 4928.64(A)–(B) (LexisNexis

Even within these four metes and bounds, the myriad possibilities for RPS design should be obvious. This is perhaps why guides on RPS design are so voluminous.⁵⁷ Once one moves past theory, moreover, the message becomes even clearer. The sheer diversity of measures that states have actually adopted is staggering.⁵⁸

B. RPS Design

Most scholarship evaluating the efficacy of RPSs has ignored the potential design characteristics of these laws.⁵⁹ Nevertheless, design matters.⁶⁰ One hardly needs empirics to say that, in all probability, an RPS with a one percent total goal over three decades is less likely to make a meaningful change in the electricity landscape than a statute with a twenty percent target over ten years. Indeed, the chief study to date to take RPS design into account found that how an RPS is written does affect performance.⁶¹ “The difference . . . is striking,” the authors wrote.⁶² “[S]ome seemingly aggressive RPS policies in fact provide only weak incentives, while some seemingly moderate RPS policies are in fact relatively ambitious.”⁶³ They thus concluded:

2011); W. VA. CODE §§ 24-2F-3(2)–(5), (13)–(14), 24-2F-4(a)–(b), 24-2F-5 (2011).

57. See, e.g., RADER & HEMPLING, *supra* note 36.

58. See Davies, *Power Forward*, *supra* note 6, at 1375–81, 1385–89.

59. See, e.g., Sanya Carley, *State Renewable Energy Electricity Policies: An Empirical Evaluation*, 37 ENERGY POL’Y 3071, 3071, 3074 (2009) (using a binary RPS variable to test RPS effectiveness, despite recognizing that “[d]ifferent renewable portfolio standards across the country have considerable variation in policy objectives and policy design”); Magali A. Delmas & Maria J. Montes-Sancho, *U.S. State Policies for Renewable Energy: Context and Effectiveness*, 39 ENERGY POL’Y 2273, 2278 (2011) (using a binary variable for RPS presence); Fredric C. Menz & Stephan Vachon, *The Effectiveness of Different Policy Regimes for Promoting Wind Power: Experiences from the States*, 34 ENERGY POL’Y 1786, 1790 (2006) (using a binary RPS variable).

60. Yin & Powers, *supra* note 9, at 1149.

61. *Id.*

62. *Id.*

63. *Id.*

[O]n average, RPS policies have had a significant and positive effect on in-state renewable energy development. These results cast doubt on the argument that the passage of RPS policies has been purely symbolic, or that they have otherwise not been implemented. These findings are masked when differences among RPS policies are ignored.⁶⁴

Accounting for RPS design, then, is important. Ignoring RPS design is the equivalent of lumping all criminal proscriptions together, misdemeanors with felonies. In assessing these laws, such coarse clustering makes little sense, whether it is for the purpose of measuring their effectiveness, or for weighing if they suggest a regulatory race.

RPS designs can be mapped many different ways—almost as many, it seems, as there are RPSs themselves.⁶⁵ Design metrics, however, that cut across RPS types to show both commonalities and differences in the laws are most useful, because they allow for a clearer juxtaposition of approaches. In a prior article, I devised a composite “efficacy tendency” metric that exposed a number of similarities and divergences among state RPS approaches.⁶⁶ While this metric is admittedly rough—only an initial attempt at weighing design, constructed to show where RPSs differ rather than to carefully rate RPS effectiveness⁶⁷—it highlights a number of RPS features that may be useful for assessing whether there is an RPS race to the top.

The “efficacy tendency” metric comprises four broad classes of RPS design traits, which in turn include their own sub-classes of more specific traits.⁶⁸ The four classes attempt to capture the different ways that RPSs can be structured, based on reasoned assumptions about which traits should make the law more or less effective. The classes are: (1) the laws’ “aspirational aggressiveness,” or how assertive they are in trying to get more renewables on the grid; (2) their “salience distortion,” or the extent to which the laws look strong but in fact tend toward mere symbolism;

64. *Id.*

65. *Compare, e.g.,* RADER & HEMPLING, *supra* note 36, at x, *with* WISER & BARBOSE, *supra* note 9, at 6–10, *and* DAVIES, *Power Forward*, *supra* note 6, at 1376–78.

66. DAVIES, *Power Forward*, *supra* note 6, at 1385. For instance, virtually all states count what might be termed “core” renewable resources: wind, solar PV, hydropower, and biomass. *Id.* at 1376. Likewise, most states expect compliance within the next two decades, but within that period, there is a wide and inconsistent range of target dates. *Id.* at 1385. And while most states make their RPSs mandatory, there is a substantial minority of states that do not. *See infra* Part V.B.

67. *See* DAVIES, *Power Forward*, *supra* note 6, at 1385–86.

68. *See id.* at 1385–88, apps. E & F.

(3) their “market definition,” or what resources, electric providers, and geographic areas they encompass; and (4) their “planning and enforcement rigor,” or the extent to which the laws have “teeth” if a jurisdictional entity does not comply.⁶⁹

A most careful assessment of whether state RPSs constitute a regulatory race would measure both the laws’ precise effectiveness in attracting renewable installations and their perceived strength from a policy design perspective.⁷⁰ It would then match these trends against each other, and weigh what has happened over time. In short, it would ask: Are state RPSs becoming more effective at attracting renewables—or at least are they *appearing* to become more effective? This would be an extensive undertaking, albeit a fascinating one.

Given, however, the dazzling array of ways in which state RPSs can be designed, eking out perfectly calibrated state-by-state scores may not be necessary for assessing whether the general trajectory of the laws is “upward,” “downward,” or otherwise. In this context, perhaps not all RPS traits matter, or perhaps some matter less than others.

For instance, whether a state includes all renewables as eligible resources should, all else equal, make the law more likely to promote the growth of renewables-powered electricity in the state because more resource types are available to compete for a piece of that state’s RPS pie. But such a trait might mean less when context is considered. Iowa likely does not include ocean energy in its law because it does not border a sea.⁷¹ Likewise, some RPS measurements may be ambivalent at best when it comes to assessing a possible regulatory race. A protectionist provision that requires a portion of RPS-qualifying power to come from in-state energy sources⁷² certainly looks like a state that is trying to use its RPS to compete with others to pull commerce into its borders, and thus, might be taken as good evidence of the existence of a regulatory race. There are, however, numerous reasons why a state would not incorporate such a provision into its RPS, even if it viewed itself as “racing” other states. These include,

69. *See id.* at 1386.

70. This is because not counting for RPS design masks possible effects of policy difference. Calculating RPS effectiveness, moreover, may be complicated by “leakage” to other states: the risk that a state with an RPS will merely attract more “green electrons” from neighboring states that do not have RPSs, rather than actually incenting new renewables installations. *See* Adelman & Engel, *supra* note 3, at 867; Rossi, Commentary, *supra* note 22, at 1431–32; *see also* Erwin Chemerinsky et al., *California, Climate Change, and the Constitution*, 37 ENVTL. L. REP. 10653, 10654 (2007).

71. *See* IOWA CODE ANN. § 476.42 (West, Westlaw through 2011 Reg. Sess.).

72. A surprising number of state RPSs include these provisions. *See* Davies, *Power Forward*, *supra* note 6, at 1379–81; Kirsten H. Engel, *Why Not a Reasonable Approach to State Power Mandates?*, 3 SAN DIEGO J. CLIMATE & ENERGY L. 79, 84 (2012).

among others, fear of a constitutional challenge to the provision,⁷³ worries about retail price changes, or the knowledge that cheap renewable imports are available from a neighboring state.⁷⁴

For practical purposes, then, not so nearly wide a net need be cast. “Efficacy tendency”-like scores might provide a good check on other metrics, but from the perspective of assessing whether there is an RPS regulatory race, some traits count more than others. In fact, both in the media and on legislature floors, there are two primary RPS design factors that tend to draw the most attention: (1) whether the state has an RPS at all, and (2) how big its RPS goal is.⁷⁵

Understanding other regulatory races, this only makes sense. One of the chief theories explaining why environmental law “races to the bottom” endure is the symbolism that regulators’ actions carry.⁷⁶ Irrespective of whether lowering the stringency of environmental rules actually helps attract commerce to a state or not, the message a legislature conveys when it says it is making its state more business-friendly is powerful.⁷⁷ So, too, for RPSs: A state legislator who favors an RPS may gain the bulk of the political currency up for grabs merely by casting her vote for any RPS, not by being willing only to vote for a perfect measure.⁷⁸ Further,

73. For analyses of possible constitutional challenges to these laws, see, for example, Nathan E. Endrud, Note, *State Renewable Portfolio Standards: Their Continued Validity and Relevance in Light of the Dormant Commerce Clause, the Supremacy Clause, and Possible Federal Legislation*, 45 HARV. J. ON LEGIS. 259, 265, 270 (2008); Patrick R. Jacobi, Note, *Renewable Portfolio Standard Generator Applicability Requirements: How States Can Stop Worrying and Learn to Love the Dormant Commerce Clause*, 30 VT. L. REV. 1079, 1103 (2006); Trevor D. Stiles, *Renewable Resources and the Dormant Commerce Clause*, 4 ENVTL. & ENERGY L. & POL’Y J. 33, 63 (2009). For a discussion of some challenges that have been lodged, see Engel, *Why Not*, *supra* note 72.

74. Each of these rationales has been offered as a reason not to adopt a federal RPS. See Davies, *Power Forward*, *supra* note 6, at 1370–75.

75. Cf. RABE, *supra* note 1, at 5–7; Cory & Swezey, *supra* note 25, at 21; Thomas P. Lyon & Haitao Yin, *Why Do States Adopt Renewable Portfolio Standards?: An Empirical Investigation*, 31 ENERGY JOURNAL 131, 132 (2010).

76. See Saleska & Engel, *supra* note 10, at 78.

77. See *id.*

78. There is substantial evidence that legislators voting in favor of RPSs are motivated by economic considerations. See *infra* Part II.C; see also RABE, *supra* note 1, at 6 (“Perhaps one of the biggest factors facilitating such diverse support has been a commonly held perception that promotion of renewable energy through an RPS is in the economic interest of an individual state and thereby compatible with the predominant state goals of promoting economic development.”); Lisa Wood et al., *RPS Patchwork Has Common Thread: Clean Energy Must Bring Jobs to States*, ELECTRIC UTILITY WEEK, Mar. 29, 2010, at 1, 1-2.

to the extent the public is weighing what the legislature is doing, the easiest aspect to understand in any RPS is its percentage target.⁷⁹ Consequently, a state may well use an RPS target that is aggressive on its face to mask other statutory traits that erode the law's actual aggressiveness, or its effectiveness.⁸⁰

Indeed, as the history of RPS enactments makes clear, this appears to be exactly the way the public sees these laws—or, at least, how legislatures are trying to portray them. While RPSs initially may have been conceived primarily as tools for promoting renewable energy technology, they quickly became much more than that.⁸¹ Today, goals cited for adopting RPSs routinely include not just renewable energy promotion but also jobs, economics, and money.

C. RPS Goals

If RPSs started out as a way to promote environmentally friendly energy, the trend is largely a historical one. Listen to any press conference on the signing of an RPS today, and it quickly becomes clear that these laws' goals are increasingly lofty. The environmental protection aim remains, but many others have been injected as well.

Take Oregon Governor Ted Kulongoski's statement on signing that state's RPS into law in 2007.⁸² The renewables-promotion message remains front and center, but the other aims he cites are so optimistic it is almost breathtaking:

This bill is the most significant environment legislation we [have] enact[ed] in more than 30 years that will also stimulate billions of dollars in investment—creating hundreds, if not thousands, of jobs in both urban and rural Oregon Today we are not only setting the state on a responsible path toward 25 percent renewable energy by 2025, but we are protecting our quality of life, reducing greenhouse gas emissions, stimulating our economy—and protecting ratepayers with more stable and predictable utility rates.⁸³

79. The plethora of empirical studies that attempt to weigh RPS effectiveness without taking policy design into account are one indication of this. *See, e.g.*, Carley, *supra* note 60; Magali A. Delmas & Maria J. Montes-Sancho, 39 ENERGY POLICY 2273 (2011); Menz & Vachon, *supra* note 60.

80. *Cf.* Davies, *Power Forward*, *supra* note 6, at 1361, 1387.

81. Cory & Swezey, *supra* note 25, at 21 (“Initially proposed as a mechanism to support renewable energy development in competitively restructured electricity markets, the RPS model today serves additional policy aims such as fuel diversity and in-state economic development.”).

82. Press Release, Governor Ted Kulongoski, Governor Kulongoski Signs Renewable Portfolio Standard into Law: Legislation Sets the Goal of Achieving 25% of Energy from Renewable Sources by 2025 (June 6, 2007), *available at* http://archived.websites.sos.state.or.us/Governor_Kulongoski_2011/governor.oregon.gov/Gov/P2007/press_060607.shtml.

83. *Id.*

Governor Kulongoski’s statement is remarkable not just for what it says but also for what it represents. The very first thing he noted was not that the law will pave the way to a more sustainable energy future, but that it will “stimulate billions of dollars in investment”—not that it has an aggressive 25 percent RPS target, but that it will protect Oregonians’ “quality of life” and “stimulat[e their] economy.”⁸⁴ There is little to criticize in such laudable goals, but what it says about RPSs and how politicians see them is telling indeed.

RPSs have become about far more than just clean electricity for clean electricity’s sake. Today, these laws also are about independence, energy security, job growth, and climate change.⁸⁵ Perhaps this was inevitable. Energy issues are always volatile, precisely because energy use cuts across so many segments of society. That is, in part, much of why integrating energy law and environmental law is so difficult.⁸⁶ The former is a battleground for every issue, and the latter seeks to make its domain the chief war field for what society will become. Climate change, too, has come to dominate the energy-environment discourse, even in the absence of comprehensive federal action.⁸⁷ Climate change is the great sucking sound in environmental law today.

Nevertheless, while RPSs have become, almost if not actually,

84. *Id.*

85. Davies, *Power Forward*, *supra* note 6, at 1358; *see also* WISER & BARBOSE, *supra* note 9, at 2; Cory & Swezey, *supra* note 25, at 21. For arguments that RPSs can be used to help address climate change, *see*, for instance, Davies, *Power Forward*, *supra* note 6, at 1358; Timothy P. Duane, *Greening the Grid: Implementing Climate Change Policy Through Energy Efficiency, Renewable Portfolio Standards, and Strategic Transmission System Investments*, 34 VT. L. REV. 711, 748, 750 (2010); Ivan Gold & Nidhi Thakar, *A Survey of State Renewable Portfolio Standards: Square Pegs for Round Climate Change Holes?*, 35 WM. & MARY ENVTL. L. & POL’Y REV. 183, 257 (2010); Barry Rabe, *Race to the Top: The Expanding Role of U.S. State Renewable Portfolio Standards*, SUSTAINABLE DEV. L. & POL’Y 10, 11–13 (2007).

86. For commentary on the divide between environmental law and energy law, and the need to bridge it, *see*, for example, Craig Anthony (Tony) Arnold, *Fourth-Generation Environmental Law: Integrationist and Multimodal*, 35 WM. & MARY ENVTL. L. & POL’Y REV. 771, 874 (2011); Davies, *Power Forward*, *supra* note 6, at 1390–95; Lincoln L. Davies, *Alternative Energy and the Energy-Environment Disconnect*, 46 IDAHO L. REV. 473, 504–06 (2010); Amy J. Wildermuth, *Is Environmental Law a Barrier to Emerging Alternative Energy Sources?*, 46 IDAHO L. REV. 509, 524, 528 (2010); Amy J. Wildermuth, *The Next Step: The Integration of Energy Law and Environmental Law*, 31 UTAH ENVTL. L. REV. 369 (2011).

87. An August 2, 2011 search for the terms “climate change” or “global warming” in the title of articles in Westlaw’s JLR database yielded 1156 results.

everything to everyone, the theme that has perhaps most clearly emerged from their adoption in the last two decades is economics. As Barry Rabe has observed, “Perhaps one of the biggest factors facilitating [the very] diverse support [that RPSs enjoy] has been a commonly held perception that promotion of renewable energy through an RPS is in the economic interest of an individual state and thereby compatible with the predominant state goals of promoting economic development.”⁸⁸ Cory and Swezey echo this view: “One key rationale for states to adopt an RPS is the benefit, in terms of more jobs and greater income, of renewable energy resource and project development.”⁸⁹ The argument has been made in virtually every state that has adopted an RPS in the last decade. RPSs will “create jobs,”⁹⁰ “promote green jobs,”⁹¹ “create new jobs,”⁹² “offer[] important job creation . . . benefits,”⁹³ “provid[e] jobs for local communities,”⁹⁴ and “have a positive impact on jobs . . . [and] an indirect positive impact on jobs [in the community].”⁹⁵ Depending on the state, RPS proponents assert that adoption of these laws will lead to “hundreds” of new jobs,⁹⁶ “thousands of jobs in construction, operation and spin off industries,”⁹⁷ “billions of dollars in private investment,”⁹⁸ and a “doubl[ing]” or “tripl[ing]” of the green energy industry within a state.⁹⁹ RPSs are simply “great from an economic development perspective,”¹⁰⁰ “great for the

88. RABE, *supra* note 1, at 6; *see also* RADER & HEMPLING, *supra* note 36, at 4–5 (states create RPS programs because of the energy, environmental, and economic benefits of renewable energy).

89. Cory & Swezey, *supra* note 25, at 24.

90. *Yee-ha! Oil State Boosts Renewables*, ABERDEEN PRESS & J., Aug. 1, 2005, at 8 (quoting Travis Brown, energy projects director for Public Citizen of Texas).

91. Press Release, Cal. Env'tl. Prot. Agency, Air Res. Bd., California Commits to More Clean, Green Energy, New Standard: 33% of Electricity from Renewable Sources by 2020 (Sept. 23, 2010), *available at* <http://www.arb.ca.gov/newsrel/newsrelease.php?id=155>.

92. *Colo. Governor Signs RPS Bill, Transmission Line Bill*, GREENWIRE, Mar. 28, 2007 (quoting Gov. Bill Ritter).

93. Haw. S.B. 2474 § 1 (2004), *available at* http://www.capitol.hawaii.gov/session2004/Bills/SB2474_HD2_.htm.

94. Jeff Tollefson, *Governor's Clean-Energy Initiative Moves Forward*, SANTA FE NEW MEXICAN, Feb. 1, 2004, at A-1 (quoting Economic Development Secretary Rick Homans).

95. 35 N.J. REG. 4445(a) (2003).

96. Press Release, Governor Ted Kulongoski, *supra* note 82.

97. Press Release, Cal. Env'tl. Prot. Agency, Air Res. Bd., *supra* note 91.

98. Joe Truini, *PA Renewable Standard Awaits Signature*, WASTE NEWS, Dec. 6, 2004, at 15 (quoting John Hanger, President and CEO of Citizens for Pennsylvania's Future).

99. Jim Small, *Arizona Corporation Commission Votes to Require Big Increase in Energy from Renewable Sources*, AZ. CAPITOL TIMES, Nov. 3, 2006.

100. Sara Parker, *Maryland Expands RPS: 1,500 MW Solar by 2022*, RENEWABLE ENERGYWORLD.COM (Apr. 12, 2007), <http://www.renewableenergyworld.com/rea/news/article/2007/04/maryland-expands-rps-1500-mw-solar-by-2022-48102> (quoting Maryland State Senator Rob Garagiola).

economy . . . , a giant step in moving [state] energy industr[ies] into the 21st century.”¹⁰¹ Some have such rosy views of RPSs that they contend the laws can “breathe new economic life” into society.¹⁰² The message legislators and other RPS advocates are trying to put out should thus be clear: RPSs mean a better economy, and more of it.

Indeed, a number of states have expressly written into their RPSs the goal of economic benefits. New Mexico’s law acknowledges that “the use of renewable energy . . . can bring significant economic benefits” to the state.¹⁰³ Illinois likewise seeks to use its statute to “continue to be successful in attracting new businesses and jobs.”¹⁰⁴ In addition, Montana’s RPS aims to “promote[] sustainable rural economic development,” “creat[e] new jobs,” and “stimulat[e] business and economic activity in local communities across” the state.¹⁰⁵

It makes sense that politicians invoke possible economic benefits in favor of RPSs. Renewables have much to offer on this front. With the need for more renewable electricity comes the need for more manufacturing of the facilities used to produce that electricity. To the extent those manufacturing jobs locate in a state with the new renewables installations, the jurisdiction stands to benefit doubly. In any case, numerous jobs are needed to install, operate, and maintain these facilities. Add to this the infrastructure necessary to connect renewable installations to the grid, and the job gains could be substantial. As one study found, “[w]e project that by 2020 the 20 percent RPS would generate more than 355,000 jobs in manufacturing, construction, operation, maintenance, and other industries — nearly twice as many as fossil fuels, representing a net increase of 157,480 jobs. Renewable energy would also provide an additional \$8.2 billion in income and \$10.2 billion in gross domestic product in the U.S. economy in 2020.”¹⁰⁶

The question, then, is not whether economics has become a major argument used to promote RPSs, but how that argument plays out. Does the growing emphasis on jobs create a situation where states are using

101. Truini, *supra* note 98, at 15.

102. *Colo. Governor Signs RPS Bill, Transmission Line Bill*, *supra* note 92 (quoting Gov. Bill Ritter).

103. N.M. STAT. ANN. § 62-16-2(A)(2) (West 2011).

104. 20 ILL. COMP. STAT. ANN. 688/5(c) (West 2011).

105. MONT. CODE ANN. § 69-3-2002(2) (West 2011).

106. Alan Noguee et al., *The Projected Impacts of a National Renewable Portfolio Standard*, 20 ELECTRICITY J. 33, 42 (2007).

RPSs to race against each other to capture those economic benefits? To assess that question, it is necessary first to understand more precisely what regulatory races are.

III. REGULATORY RACES

Scholars long have posited that governments use regulation to compete for non-governmental goods. The most common of these theories is the regulatory “race to the bottom,” which has been used to critique state-by-state regulation in the environmental sphere, for business law, and other areas.¹⁰⁷ There is, however, no shortage of regulatory race theories. There also is the regulatory “race to the top,”¹⁰⁸ and some scholars have gone so far as to suggest regulatory races “sideways.”¹⁰⁹

A. Defining Regulatory Races

At the heart of the regulatory race debate is economic theory. The contention is that states use their power of governance—a kind of market currency—to compete against each other for commerce—a kind of market good. The theory runs: Businesses have to locate somewhere. States are that somewhere. Normally, businesses would evaluate where they locate based on the inherent costs and benefits of a given location, compared to other options. Because states have the power to set law within their

107. See Saleska & Engel, *supra* note 10; see also J. Robert Brown, Jr. & Sandeep Gopalan, *Opting Only in: Contractarians, Waiver of Liability Provisions, and the Race to the Bottom*, 42 IND. L. REV. 285, 305–06 (2009); Eric C. Chafee, *Finishing the Race to the Bottom: An Argument for the Harmonization and Centralization of International Securities Law*, 40 SETON HALL L. REV. 1581, 1594–95 (2010); David Crump, *The Case for Restricting Diversity Jurisdiction: The Undeveloped Arguments, from the Race to the Bottom to the Substitution Effect*, 62 ME. L. REV. 1, 8 (2010); Frank H. Easterbrook, *The Race for the Bottom in Corporate Governance*, 95 VA. L. REV. 685, 686–88 (2009); Daniel R. Fischel, *The “Race to the Bottom” Revisited: Reflections on Recent Developments in Delaware’s Corporation Law*, 76 NW. U. L. REV. 913, 919–22 (1982); Timothy P. Glynn, *Interjurisdictional Competition in Enforcing Noncompetition Agreements: Regulatory Risk Management and the Race to the Bottom*, 65 WASH. & LEE L. REV. 1381, 1391–92 (2008); Christopher Paul, *Innovation or a Race to the Bottom? Trust “Modernization” in New Hampshire*, 7 PIERCE L. REV. 353, 358 (2009).

108. See, e.g., DAVID VOGEL, *TRADING UP: CONSUMER AND ENVIRONMENTAL REGULATION IN A GLOBAL ECONOMY* 259 (1995); Gary S. Guzy, *Reconciling Environmentalist and Industry Differences: The New Corporate Citizenship “Race to the Top?”*, 17 J. LAND USE & ENVTL. L. 409 (2002); Tamara L. Joseph, *The Debate over Environmental Standards in the European Community: A Race to the Top Rather Than a Race to the Bottom?*, 6 N.Y.U. ENVTL. L.J. 161 (1997); Steven A. Ramirez, *The End of Corporate Governance Law: Optimizing Regulatory Structures for a Race to the Top*, 24 YALE J. ON REG. 313 (2007); Bruce Yandle, *Environmental Turning Points, Institutions, and the Race to the Top*, 9 INDEP. REV. 211 (2004).

109. Eleanor M. Fox, Essay, *Antitrust and Regulatory Federalism: Races Up, Down, and Sideways*, 75 N.Y.U. L. REV. 1781 (2000).

borders, however, they can put a thumb on the scale. They can offer subsidies and tax benefits, or lower transaction costs, or make regulation more conducive to what the business needs. Once one state does this, another will do the same in order to stay competitive for getting the business to locate to its jurisdiction. Then, once this competition begins, the race is on. States will ratchet up the incentives they offer to beat competing states, their competitors will do the same, and a regulatory spiral—up or down—ensues.¹¹⁰

One thus might think of regulatory races in antitrust terms. The first step is to define the relevant markets.¹¹¹ There are two: the product market and the geographic market.¹¹² For regulatory races, the product market is for business location. States compete for the chance to have a business locate in their jurisdiction. The geographic market is national, the United States.¹¹³ Each state has the ability to exercise its inherent police powers to attempt to attract industry to its borders. Presumably, this market

110. See, e.g., ANTHONY OGUS, REGULATION: LEGAL FORM AND ECONOMIC THEORY 177–79 (1994); Revesz, *Rehabilitating Interstate Competition*, *supra* note 10, at 1213–17.

111. When assessing an action's effect on competition for antitrust purposes—for instance, in evaluating whether a proposed merger violates antitrust laws—the first step is to define the relevant markets. This includes both the relevant product markets and the relevant geographic markets. E.g., *Brown Shoe Co. v. U.S.*, 370 U.S. 294, 324 (1962); Michael L. Katz & Howard A. Shelanski, *Mergers & Innovation*, 74 ANTITRUST L.J. 1, 8 (2007). The gold standard here is often considered the DOJ-FTC merger guidelines. See U.S. DEP'T OF JUSTICE & FEDERAL TRADE COMM'N, HORIZONTAL MERGER GUIDELINES (2010), available at <http://www.ftc.gov/os/2010/0/100819hmg.pdf> [hereinafter, MERGER GUIDELINES].

112. MERGER GUIDELINES, *supra* note 111, at 7–8, 13.

113. Granted, states may well be competing against other nations for industry, especially in the modern, world-is-flat economy, but for simplicity in exposition, let us assume the market is merely national rather than international. There are, moreover, some indications that this assumption may not be one merely of convenience. See Engel, *State Environmental Standard Setting*, *supra* note †, at 321 & n.144 (“[S]tudies of the effects of domestic environmental regulation upon the international location of industrial firms generally conclude that, while pollution-intensive industries have migrated abroad, it is not clear that they have done so because of increasingly strict environmental regulations.”) (citing Adam B. Jaffe et al., *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?*, 33 J. ECON. LIT. 132, 142–48 (1995), and Richard B. Stewart, *Environmental Regulation and International Competitiveness*, 102 YALE L.J. 2039, 2065–66 (1993)). On the other hand, these pollution data may have less salience in the RPS context, if foreign policies favoring installation of renewable facilities create a higher overall comparative price for renewables-produced electricity. Cf., e.g., Ringel, *supra* note 32, at 8–10.

functions well. Though there are stiff barriers to entry,¹¹⁴ there are more participants than in many markets: fifty, plus the District of Columbia. There is ample transparency, because state laws are uniformly publicly available. Further, information about the market is both abundant and likely symmetrical; a business considering locating in two different states is almost certain to attempt to play them against one another.

Why regulatory races are called “to the top” or “to the bottom” should thus become quickly apparent. These races are directional for a reason. The competition tends to drive state regulation that affects firm location either up or down, depending on what makes the law more advantageous to capture that share of the market.¹¹⁵ States, for instance, competing against each other for industry might lessen their environmental regulation over time to drive the price of doing business in their jurisdiction down, thereby better wooing industry—a “race to the bottom.” States, conversely, competing for business incorporations might make their corporate laws more shareholder-friendly in order to gain businesses who favor shareholder control—a “race to the top.”

Concerns about these regulatory races also are largely economic. The primary concern is that the races make the markets function inefficiently. For races to the bottom, the worry is an economically inefficient result because the race will drive regulation too low, resulting in regulatory suboptimality. Environmental regulation, for example, will be laxer than it should be to maximize the public good—the most protection of the environment as possible at the lowest net cost.¹¹⁶

This can be the case, but it is not necessarily so. Races to the top also can lead to suboptimality, albeit their own version of it. The suboptimality of races to the top is not the “too low” version but the “too high” variety. Environmental regulation, for instance, might become more stringent than it should be to maximize the public good, resulting in more environmental protection than the public actually values—that is, at too high a cost.¹¹⁷

In the traditional view, economic optimality is presumed to be bound up in whether the regulatory race is “to the bottom” or “to the top.” Laxer regulation suggests economic suboptimality, and stricter regulation

114. In simplified economic terms, a barrier to entry is something that limits any firm’s ability to compete in a market. Though all states have the constitutional authority to exercise their police powers to attract business, including deciding what they would like their state’s generation portfolio to look like, *see, e.g.,* *Pacific Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm’n*, 461 U.S. 190 (1983), it is no easy feat to become a state in the first place. It has, after all, been fifty-two years since Alaska and Hawaii were made states.

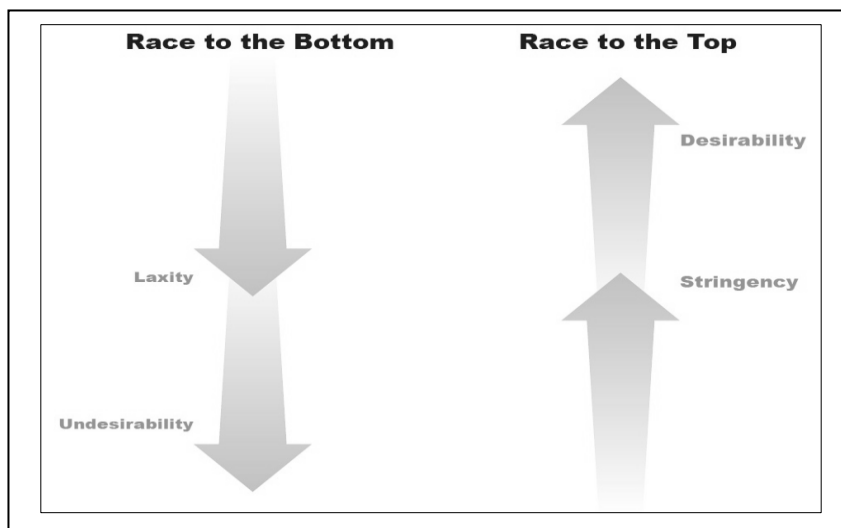
115. *See Swire, supra* note 5, at 80–82.

116. *Id.* at 72–73.

117. *Id.* at 74–76.

intimates optimality. In this view, races to the bottom and the top might be conceptualized as in Figure 2.

FIGURE 2: THE TRADITIONAL CONCEPTUALIZATION OF REGULATORY RACES



The reality, of course, is the converse. There is no reason why regulatory laxity or stringency must lead to economic optimality or suboptimality. One does not necessarily imply the other. Professor Peter Swire perhaps put this best. He observed that the terms “bottom” and “top” are too vague and value-laden.¹¹⁸ He suggested a more careful and analytic way of approaching the question—one that separates the stringency of the regulatory race from the regulation’s social utility:

As a *descriptive* matter, competition among jurisdictions might lead to a “race to strictness” . . . or a “race to laxity.” . . . For law as for parents, neither strictness nor laxity is always appropriate. The second dimension is the *prescriptive* one of whether the competition leads to a desirable result. Even if competition leads to laxer standards, it may result in a “race to desirability” . . . or a “race to undesirability.”¹¹⁹

Professor Swire’s point is plain. The direction—the strictness or the laxity—of the regulatory race is not necessarily coupled with its social optimality—its desirability or undesirability. A race to laxer regulation might yield more net benefits than the status quo, just as a race to more stringent regulations might reduce the net social benefits now in place.¹²⁰

When discussing regulatory races, definitional clarity is thus imperative. It is not enough to say that something is a race to the bottom or a race to the

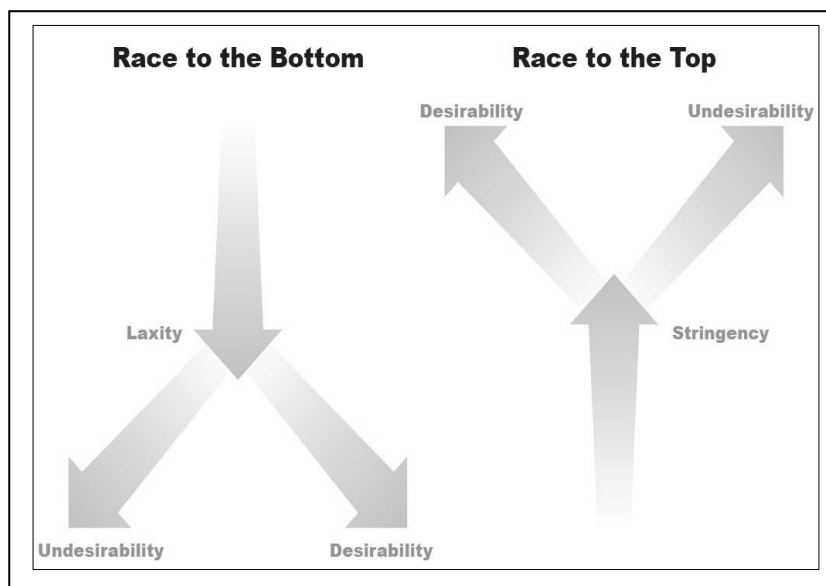
118. *Id.* at 74.

119. *Id.* at 70.

120. *See id.* at 74–76.

top; both the direction of the regulatory rigidity and the social consequences of that directional change must be mapped. This is because there are not just two regulatory races, as the prevalence of the terms “race to the bottom” and “race to the top” implies. There are at least four. As Figure 3 depicts, they are: (1) a race to laxity that leads to economic suboptimality (the “conventional” race to the bottom); (2) a race to laxity that leads to economic optimality (an “unconventional” race to the bottom); (3) a race to stringency that leads to economic optimality (the “conventional” race to the top); and (4) a race to stringency that leads to economic suboptimality (an “unconventional” race to the top).

FIGURE 3: A FULLER CONCEPTUALIZATION OF REGULATORY RACES



Understanding this distinction is not important just for clarity of communication. It matters because it implicates what kind of legislative response is appropriate. The traditional suggestion for a race to the bottom is federal law that stops the race: a national minimum of environmental protection, for instance, that prevents states from gutting the ecosystems on which we rely for a quick monetary return that is economically

unwise.¹²¹ This is the traditional cure because the traditional assumption is that “races to the bottom” inherently drive to economic suboptimality. The traditional suggestion for a race to the top, by contrast, is to do nothing. For example, states’ push to more environmental protection proceeds undeterred because those efforts guard the ecosystems on which we rely in a way that is socially beneficial.¹²² This is the traditional response because the traditional assumption is that races to the top drive inevitably to economic optimality.

Once these assumptions are removed, however, the proper response changes. It may be that a race to the bottom demands a national minimum that prevents the race—but only if the race to laxity is also a race to suboptimality. If, on the other hand, that race to laxity actually makes the state of regulation more economically optimal, there should not be a federal minimum.¹²³ There should be no federal response at all.

The same goes for races to the top. While it may be that the proper response is inaction, that is only the case if the race to stringency is one to optimality. If, however, that ratcheting up of regulation’s strictness makes the regulatory regime less optimal, the appropriate response is the companion to a race-to-laxity-and-to-suboptimality: not a federal floor but a federal ceiling.¹²⁴

This is Professor Swire’s thesis, and it is a critical one. Just as we cannot assume that the level of regulation corresponds to a level of social good, we cannot assume that the direction of a race demands a single type of legislative response.¹²⁵ The proper response of the federal government, if any, hinges on the race’s outcome, not just its direction. Depending on the calculus, federal action might be just as appropriate in a race to the top as it is in a race to the bottom.

Indeed, the possibility of four types of regulatory races rather than two has important implications for a possible RPS race to the top. If there is such a race and it leads to economic optimality, there arguably is no role for federal law. But if such a race leads to suboptimality, there is an

121. See, e.g., PREEMPTION CHOICE: THE THEORY, LAW, AND REALITY OF FEDERALISM’S CORE QUESTION 8–9, 98–104 (William W. Buzbee ed., 2009).

122. See, e.g., 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, 284 n.202 (1997).

123. *Id.*; see also Swire, *supra* note 5, at 70; *supra* note 111.

124. Sarnoff, *The Continuing Imperative*, *supra* note 122, at 279, 284 n.202; Swire, *supra* note 5, at 70; see also, e.g., Michael Burger, “It’s Not Easy Being Green”: *Local Initiatives, Preemption Problems, and the Market Participant Exception*, 78 U. CIN. L. REV. 835, 837–38 (2010); Thomas W. Merrill, *International Law, Global Environmentalism, and the Future of American Environmental Policy*, 21 ECOLOGY L.Q. 485, 490 (1994).

125. Swire, *supra* note 5, at 70; see also *supra* note 111.

argument for a federal cap on renewables. Grasping, then, how races to the bottom and to the top emerge helps illuminate this question.

B. Races to the Bottom

The idea behind the race to the bottom is simple. The theory is that in order to attract industry to their jurisdictions, states engage in a kind of environmental regulatory brinkmanship that results in a lowering of their pollution standards.¹²⁶ This theory is based on at least four assumptions: (1) that industry has so many options to choose from in selecting sites, it can influence the “price” at which states offer up those sites; (2) that states want the kind of industry that may result in more pollution; (3) that the lessening of environmental regulations will lower industry’s costs sufficiently that it will meaningfully affect which sites they select; and (4) that the lowering of environmental standards will also lower social welfare, such that is not just a race to laxity but also a race to undesirability—a true “race to the bottom.”¹²⁷ Race-to-the-bottom theory can be challenged on each of these assumptions, and the scholarly debate over its validity and application is the first evidence of that. Reams of paper have been consumed in assaulting and defending the race to the bottom as justification for federal law.¹²⁸

To explain why states would intentionally lower social welfare, classic race-to-the-bottom theory posits itself as a branch of the prisoner’s dilemma.¹²⁹ In the traditional conceptualization of the prisoner’s dilemma, two different criminals are arrested and have knowledge of the other’s

126. E.g., Saleska & Engel, *supra* note 10, at 57–58; Robert R.M. Verchick, *Why the Global Environment Needs Local Government: Lessons from the Johannesburg Summit*, 35 URB. LAW. 471, 486 (2003).

127. Cf., e.g., Engel, *State Environmental Standard Setting*, *supra* note †, at 311–14; Revesz, *Rehabilitating Interstate Competition*, *supra* note 10, at 1220–21; Saleska & Engel, *supra* note 10, at 57–58; Swire, *supra* note 5, at 76–79.

128. See *supra* note 10.

129. Engel, *State Environmental Standard Setting*, *supra* note †, at 297–98. Early applications of the prisoner’s dilemma to explain the race to the bottom include, among others, MANCUR OLSON, JR., *THE LOGIC OF COLLECTIVE ACTION* 22–36, 49–52 (1965); James A. Brander, *Economic Policy Formation in a Federal State: A Game Theoretic Approach*, in *INTERGOVERNMENTAL RELATIONS* 33, 47–49 (Richard Simeon ed., 1985); Garrett Hardin, *The Tragedy of the Commons*, 162 *SCIENCE* 1243, 1244–45 (1968); Stewart, *Environmental Regulation and International Competitiveness*, *supra* note 113, at 2058–59.

felonious crime.¹³⁰ Each felony carries a ten-year sentence. The best result—the economically optimal one, from the prisoners’ perspective—is for both prisoners to remain silent. If they do this, the police will lack sufficient evidence to prosecute them for the felonies, and will have enough only to convict them of misdemeanors. The misdemeanors carry two-year sentences. And there is the rub. If, rather than remaining silent, one of the prisoners confesses, he knows he will earn credit for his cooperation and be able to make a plea deal for no jail time. This puts immense pressure on both prisoners to confess. They both know that if they confess, they can receive the plea-deal sentence, and both are afraid that the other will confess and “rat” the other out.¹³¹ Of course, if both prisoners confess, they will both receive five-year sentences (for the felony, minus time for cooperation). The setup looks like this, with the years in prison represented in each box:

130. There are many ways to define the prisoners’ dilemma, and many names for it. See, e.g., Herbert Hovenkamp, *Rationality in Law & Economics*, 60 GEO. WASH. L. REV. 293, 312 (1992) (“The prisoners’ dilemma is simply a situation in which the costs of bargaining or of enforcing the resulting contract are very high.”); Gregg P. Macey, *Cooperative Institutions in Cultural Commons*, 95 CORNELL L. REV. 757, 762 (2010) (“With the benefit of hindsight, it is easy to see why the multiparty prisoner’s dilemma of Garrett Hardin’s ‘tragedy of the commons’ or the free riders that figure prominently in Olson’s logic of collective action—both examples of a thin model of rational choice in action—would lead to unnecessarily dire predictions: when self-interested individuals with stable, clear, and fixed preferences try to maximize utility along a narrow time horizon (often a one-shot interaction) without external influences, resources are not adequately cared for and public goods are underprovided.”); Carol Rose, *Game Stories*, 22 YALE J.L. & HUMAN. 369, 378–79 (2010) (“The classic Prisoner’s Dilemma matrix itself could have had quite a number of different names and accompanying stories. An entirely plausible name would have been ‘Deal or Steal?’, describing the very common problem of potential trading partners who do not know whether they can trust each other This would have placed PD in the land of commerce, where it indeed has many applications, instead of in jail, where it has relatively few.”).

131. E.g., Engel, *State Environmental Standard Setting*, *supra* note †, at 301–05; see also FUNDENBERG & TIROLE, *supra* note 16, at 9–10.

FIGURE 4: THE CLASSIC PRISONER’S DILEMMA

		Prisoner B	
		Silence	Confess
Prisoner A	Silence	2, 2	10, 0
	Confess	0, 10	5, 5

The irony of the prisoner’s dilemma is that both prisoners end up worse off than if they had remained silent. This is because each prisoner is rationally compelled to engage in a “dominant strategy—a course of action that he follows regardless of what the other individual does.”¹³² The strategy is to confess. It is dominant because each prisoner knows that if he remains silent but his counterpart does not, he will end up with the full, ten-year sentence.

Yet the end result of following this dominant strategy is economically suboptimal. It is suboptimal because “both [prisoners] would have been better off with another outcome.”¹³³ Because, however, the prisoners are not able to cooperate, they cannot ensure the Pareto-optimal result for them—silence.¹³⁴ Indeed, even if they are able to converse beforehand, both will “defect” to the dominant “confess” strategy because each knows there is no way to enforce an agreement to remain silent.¹³⁵ The temptation to betray your partner in the face of the risk that he, too, will betray you

132. Revesz, *Rehabilitating Interstate Competition*, *supra* note 10, at 1217–18; *see also* Kristen Engel, *supra* note † (defining a dominant strategy as a Nash equilibrium).

133. Revesz, *Rehabilitating Interstate Competition*, *supra* note 10, at 1218.

134. Pareto-optimality “refers to allocations of resources where there is no possible reallocation that can improve one individual’s situation without making someone worse off.” Carol Necole Brown, *Taking the Takings Claim: A Policy and Economic Analysis of the Survival of Takings Claims After Property Transfers*, 36 CONN. L. REV. 7, 59 & n.273 (2003) (citing DAVID W. BARNES & LYNN A. STOUT, CASES AND MATERIALS ON LAW AND ECONOMICS 11–12 (1992)); *see also, e.g.*, DANIEL R. MANDELKER, ENVIRONMENT AND EQUITY 6 (1981) (“When only the participants in the trade benefit or bear costs, and when benefits and costs are defined by the participants’ value structure, the outcome is efficient in the sense that no one can be made better off without another’s being made worse off.”).

135. Hovenkamp, *supra* note 130, at 312.

is just too great.

To see how the prisoner's dilemma applies to regulatory races, imagine two different states: "Island" state and a "Competitive" state.¹³⁶ Both states are home to industry, and both have the regulatory power to enact environmental laws. From there, however, they differ substantially.

Island state does not interact with other jurisdictions. It is self-sufficient. Its industry is local, and its consumption is local; everything it does is local. Thus, if a new factory in Island state opens its doors, it will attempt to pollute. If it can get away with this, it will be able to externalize the cost of that pollution onto society, thereby reducing its own internal costs and increasing its profit margin.¹³⁷ If, however, the Island state wants to force this factory to bear the costs of pollution, it will not matter what method of regulation the government uses. Assuming effective regulation, availability of information, and political action that reflects political will, the level of pollution reduction the government orders will match the value of cleaner air, water, and ecosystems that the people of Island state ascribe to those goods.¹³⁸ For Island state, there is no need to weigh the costs of this pollution abatement against the risk of losing the factory to another state, because the factory cannot move.

The government's choice, however, becomes more complicated when other states are introduced to the mix. Consider now the "Competitive" state. This state is not an island. It competes with other states for industry. For this state, the tradeoff between environmental protection and industrial gain is thus much keener. In the absence of competition, Island state has no reason not to force the factory to internalize the social costs of its pollution. Island state knows that as long as the business can make some money, the factory will locate there because it has nowhere else to go. In the face of competition, however, forcing cost internalization brings risk, a risk that Competitive state must squarely face. If Competitive state increases the cost of doing business within its boundaries by requiring pollution abatement, the factory may well relocate to a jurisdiction that does not impose such costs.¹³⁹ The prisoner's dilemma enters.

The way the prisoner's dilemma works in the context of the Competitive state is not the same as the dilemma's classic setup, but it is directly analogous. The idea is that, rather than a dominant strategy of confessing, competitive states have a dominant strategy of lowering their regulatory standards. The idea originally predominated in the corporate governance

136. This hypothetical borrows heavily from Revesz, *Rehabilitating Interstate Competition*, *supra* note 10, at 1213–16.

137. *See id.* at 1213–14.

138. *See id.*

139. *See id.* at 1214–16.

literature,¹⁴⁰ but has become even more prevalent as a justification for federalization of environmental law.¹⁴¹ Indeed, because the Competitive state version of this hypothetical is much closer to modern reality in the United States than the Island state version, this view of how states operate has long commanded the thinking on how to write environmental law.¹⁴²

In her classic article, *State Environmental Standard-Setting: Is There a “Race” and Is It “To The Bottom”?*, Professor Kirsten Engel explained how the prisoner’s dilemma can work in the Competitive state hypothetical. “Assume that, by cutting its emission standard in half, one state can attract half of the other state’s industrial capital. . . .”¹⁴³ This, Professor Engel noted, is the equivalent to being able to cop a plea by ratting out your conspirator. The assumption is that a reduction in environmental protection brings a corresponding economic payoff, just as in the prisoner’s dilemma, where a reduction in loyalty to a co-conspirator yields the benefit of less jail time. Then, once the incentive exists to drive each side’s dominant strategy, a dilemma ensues that leads to a lose-lose outcome for both sides. Like the lure of a shorter prison sentence in the prisoner’s dilemma, the promise of attracting industry “will push both States A and B to relax their emission standards to the suboptimal standard.”¹⁴⁴

Professor Engel employed her own hypothetical to make this point concrete. In her example, two states, State A and State B, each face two choices: regulate pollution at the level the Island state would, 90 percent, which is the equivalent of remaining silent in the prisoner’s dilemma, or

140. Swire, *supra* note 5, at 72 (“The underlying concepts were developed as New Jersey and Delaware relaxed many of the previous state-law restrictions on corporate charters. As early as 1904, there were denunciations of the ‘tendency of state legislation’ to move with great speed ‘toward the lowest level of lax regulation.’”) (citations omitted); see also, e.g., William L. Cary, *Federalism and Corporate Law: Reflections upon Delaware*, 83 YALE L.J. 663, 697 (1974); Frank H. Easterbrook, *Managers’ Discretion and Investors’ Welfare: Theories and Evidence*, 9 DEL. J. CORP. L. 540, 549–50 (1984); Melvin A. Eisenberg, *The Modernization of Corporate Law: An Essay for Bill Cary*, 37 U. MIAMI L. REV. 187, 203–04 (1983); Ralph K. Winter, Jr., *State Law, Shareholder Protection, and the Theory of the Corporation*, 6 J. LEGAL STUD. 251, 280–81 (1977).

141. Revesz, *Rehabilitating Interstate Competition*, *supra* note 10, at 1246–47; Saleska & Engel, *supra* note 10, at 55–56; Sarnoff, *A Reply*, *supra* note 10, at 303; Stewart, *Pyramids of Sacrifice?*, *supra* note 10, at 1217–18; Swire, *supra* note 5, at 87.

142. Revesz, *Rehabilitating Interstate Competition*, *supra* note 10 at 1246; Saleska & Engel, *supra* note 10, at 63–64; Swire, *supra* note 5, at 88–89.

143. Engel, *State Environmental Standard Setting*, *supra* note †, at 304.

144. *Id.*

cut that standard to 45 percent, which is the equivalent of confessing.¹⁴⁵ The comparable “jail time” tradeoffs are expressed in terms of social utility: the value of environmental protection plus the value of industry in the state. Thus, when both states keep their emission limits at 90 percent, both receive \$200 in net economic and environmental benefits.¹⁴⁶ If, however, one state lowers its pollution standard and the other does not, the state that “confesses”—the state that lowers its standard—earns a net benefit of \$265 (increased by the economic gain and reduced by the environmental loss), while the state that “remains silent”—the state that does not lower its standard from 90 percent—drops to \$175 net benefits (reflecting economic losses but no environmental change).¹⁴⁷ Finally, if both states “confess” by lowering their standards, they both reduce net benefit to \$200 (because neither gains economically but both lose environmentally).¹⁴⁸ The hypothetical looks like this:

FIGURE 5: THE ENVIRONMENTAL PRISONER’S DILEMMA—RACING “DOWN” TO UNDESIRABILITY

		State B	
		Maintain std. at 90%	Relax std. to 45%
State A	Maintain std. at 90%	\$250, \$250	\$175, \$265
	Relax std. to 45%	\$265, \$175	\$200, \$200

Notably, the result is the same as in the prisoner’s dilemma. While both states would be better off if they agreed to keep their emission standards at 90 percent, neither will, and as a result, both end up worse off. The decision is rational, but the outcome is decidedly Pareto-suboptimal. That is why it is a dilemma. States do what appears to make sense, but making that apparently rational choice comes at a cost. As Professor Engel explains, “Fearful that they will be left the ‘suckers,’ and tempted by the possible extra benefits of unilateral defection, both states will

145. *Id.* at 304–05.

146. *Id.* at 305.

147. *Id.*

148. *Id.*

rationally choose to ‘defect’ (unless there is a mechanism—such as a federal power—for imposing the optimal standard or for enforcing agreements between the states not to defect).”¹⁴⁹

Evidence of whether there is actually this kind of race to the bottom—both to laxity and to undesirability—in environmental law is mixed. Professor Engel found that a “substantial minority” of actual environmental regulators have relaxed environmental protection in real life in an attempt to attract industry to their states.¹⁵⁰ Other empirical studies have corroborated this conclusion,¹⁵¹ though some have questioned it as well.¹⁵²

Advocates of decentralized environmental control have been particularly vociferous in their opposition to this race-to-the-bottom theory.¹⁵³ In the face of evidence that state relaxation of environmental standards has little impact on industry decisions of where to locate,¹⁵⁴ perhaps the most

149. *Id.*

150. *Id.* at 279.

151. *See, e.g.,* Saleska & Engel, *supra* note 10, at 73–74; Neal D. Woods, *Interstate Competition and Environmental Regulation: A Test of the Race-to-the-Bottom Thesis*, 87 SOC. SCI. Q. 174, 177 (2006); *cf.* David M. Konisky, *Regulatory Competition and Environmental Enforcement: Is There a Race to the Bottom?*, 51 AM. J. POL. SCI. 853, 869 (2007) (finding “strong evidence of strategic interaction in state environmental regulatory behavior” but noting that a theory other than the race-to-the-bottom is needed to explain the results).

152. *See, e.g.,* Steven G. Calabresi, “A Government of Limited and Enumerated Powers”: *In Defense of United States v. Lopez*, 94 MICH. L. REV. 752, 781 (1995); James E. Krier, *On the Topology of Uniform Environmental Standards in a Federal System—And Why it Matters*, 54 MD. L. REV. 1226, 1236–37 (1995); Revesz, *Rehabilitating Interstate Competition*, *supra* note 10, at 1253–54; Revesz, *The Race to the Bottom and Federal Environmental Regulation*, *supra* note 10, at 538–40, 543–44.

153. *E.g.,* Jonathan H. Adler, *Jurisdictional Mismatch in Environmental Federalism*, 14 N.Y.U. ENVTL. L.J. 130, 134–35 (2005); Butler & Macey, *supra* note 10; Wallace E. Oates & Robert M. Schwab, *Economic Competition Among Jurisdictions: Efficiency Enhancing or Distortion Inducing?*, 35 J. PUB. ECON. 333, 336 (1988); Revesz, *The Race to the Bottom and Federal Environmental Regulation*, *supra* note 10, at 538–39.

154. Engel, *State Environmental Standard Setting*, *supra* note †, at 321 (“[C]ommon sense would suggest that when choosing a location, a profit-maximizing producer would take the cost of compliance with local environmental regulations into account together with other local cost factors. . . . This common sense notion is largely at odds, however, with the empirical literature. Economists and political scientists who have conducted systematic studies of the impacts of state environmental regulation upon plant location decisions have nearly always concluded that, contrary to prevailing belief, the stringency of environmental standards is only a minor determinant of firm location.”); Jaffe et al., *supra* note 113, at 148; *see also, e.g.,* ROBERT W. CRANDALL, *MANUFACTURING ON THE MOVE* 55–58 (1993); Stephen M. Meyer, *Environmentalism and Economic Prosperity: An Update* (1993), available at <http://web.mit.edu/polisci/mpepp/Reports/eeppup.PDF>; ROGER W. SCHMENNER, *MAKING BUSINESS LOCATION DECISIONS* 39–41

cutting critique is that even if there is a race to laxity, it is not to undesirability. This counterargument posits that states which relax their standards value environmental protection less, and thus, are not reducing social utility.¹⁵⁵ They are merely allowing the market to work, to put monetary values on goods consistent with demand. Combine this with the economic return that states achieve by attracting industry to their boundaries with less stringent regulation, they argue, and a race to regulatory laxity may actually reflect a race to economic optimality.¹⁵⁶ Professor Revesz wrote: “[A] race to the bottom requires not just the existence of a ‘race,’ but also that the race be ‘to the bottom.’ This latter element requires . . . that the less stringent standards that emerge from the competitive process be socially undesirable.”¹⁵⁷

Despite these contentions, a more recent study by Professor Engel and Dr. Scott Saleska calls the pro-decentralization proponents’ position into doubt.¹⁵⁸ Examining data on environmental quality and economic performance, Engel and Saleska found no “support for the efficiency hypothesis that increased environmental competitiveness leads to stronger economic performance.”¹⁵⁹ On the contrary, their study showed that “a state’s willingness to ‘compete’ with other states by lowering environmental standards is associated with: (1) either no detectable effect or a significant negative effect on environmental indicators . . . and (2) no detectable impact, and sometimes even a negative impact, on indicators of economic performance”¹⁶⁰

In short, according to Engel and Saleska’s assessment, states that gamble with their environmental regulations in an effort to court industry may break even, but they may also lose what they have put on the table—and what they have in the bank. While no theory can perfectly predict all behavior in all circumstances, what Engel and Saleska observed sounds an awful lot like an environmental regulatory race to the bottom, on both possible counts.

(1982); Timothy J. Bartik, *The Effects of Environmental Regulation on Business Location in the United States*, 19 GROWTH AND CHANGE 22 (1988); Virginia D. McConnell & Robert M. Schwab, *The Impact of Environmental Regulation on Industry Location Decisions: The Motor Vehicle Industry*, 66 LAND ECON. 67 (1990); Howard A. Stafford, *Environmental Protection and Industrial Location*, 75 ANN. ASS’N. AM. GEOGRAPHERS 227 (1985).

155. See, e.g., Revesz, *The Race to the Bottom and Federal Environmental Regulation*, *supra* note 10, at 550–51, 554–56.

156. See *id.*

157. Revesz, *Rehabilitating Interstate Competition*, *supra* note 10, at 1219.

158. Saleska & Engel, *supra* note 10.

159. *Id.* at 67.

160. *Id.* at 66–67; see also *supra* note 151.

C. Races to the Top

Structurally, races to the top are simply the reverse of races to the bottom.¹⁶¹ Races to the bottom come in two parts: a race to laxity and a corresponding race to either desirability or undesirability. So do races to the top: a race to strictness and a concomitant race to either desirability or undesirability.¹⁶² Races to the bottom are presumed to be to undesirability, but need not be. Races to the top are the mirror image of this.¹⁶³ They are assumed to trend to desirability, but might not.¹⁶⁴ When a race to laxity in fact leads to undesirability, federal floors are a possible prophylactic.¹⁶⁵ It is again just the opposite for races to the top: When a race to stringency trends to undesirability, the answer is not a federal floor but a federal ceiling.¹⁶⁶

Races to the top, like races to the bottom, also can be explained by the prisoner's dilemma.¹⁶⁷ The difference is that the incentives are reversed. Take again the hypothetical of the "Competitive state" seeking industry, but flip the assumptions. Rather than assuming that laxer environmental regulation might attract industry by lowering the cost of doing business, assume that *stricter* environmental regulations will tend to attract business.¹⁶⁸ This, of course, is not an entirely implausible assumption. For firms whose operation costs are little affected by environmental regulation, there are many reasons to be attracted to a more environmentally healthy jurisdiction. For instance, their employees may tend to be happier, their employees might tend to be more productive (as they are happier and healthier), and their sales could tend to be higher (as they earn reputational gains for socially responsible decisions).¹⁶⁹

In this version of the hypothetical, then, states have a different dominant strategy. It is the opposite of what they had in Professor Engel's race to the bottom. States now have an incentive to increase, rather than decrease, their environmental standards.¹⁷⁰ What this means is that

161. See Sarnoff, *The Continuing Imperative*, *supra* note 122, at 278–79.

162. See Swire, *supra* note 5, at 70.

163. *Id.*

164. *Id.* at 80.

165. See Burger, *supra* note 124, at 837.

166. See *supra* note at 124 and accompanying text.

167. See Engel, *State Environmental Standard Setting*, *supra* note †, at 301–05.

168. See Revesz, *Rehabilitating Interstate Competition*, *supra* note 10, at 1213–16.

169. *Cf.*, e.g., Konisky, *supra* note 151, at 869.

170. Compare Lucian Ayre Bechuk, *Federalism and the Corporation: The*

regardless of what one state does, the other is likely to strengthen its environmental regulation. The incentives are fixed so that there will be a race to stringency.

The question becomes whether the race to stringency is also one to desirability, or if it is to undesirability. The answer is in the details. Assume, for instance, that two competing states, State A and State B, again have two options. The options, though, are now different. Rather than controlling pollution at a 90 percent emissions limit or dropping it to 45 percent, the options become either to limit pollution at 90 percent or to raise that standard to 95 percent. Either way, both states are likely to move to 95 percent to attract industry, but whether that means they are racing to optimality or suboptimality depends on the math.

In one iteration of this hypothetical, racing to stringency might have few costs but many benefits. This is a race to desirability. In this example, the monetary benefits remain the same as in Professor Engel's race to the bottom. If one state increases its environmental standards and the other does not, it will shift \$75 of industry from the non-raising state to the standards-raising state. In this instance, what changes are the environmental effects. If raising the bar to 95 percent yields some increase in environmental quality, say \$5 worth, and costs only \$4 to implement, then the race will be both to stringency and to desirability. Both states will move to the more stringent position in an attempt to take the other's business. The industry will not shift. However, both states will end up with slightly higher net benefits—by \$1 each. The example would play out this way:

FIGURE 6: THE ENVIRONMENTAL PRISONER'S DILEMMA—RACING "UP" TO DESIRABILITY

		State B	
		Maintain std. at 90%	Increase std. to 95%
State A	Maintain std. at 90%	\$250, \$250	\$175, \$316
	Increase std. to 95%	\$316, \$175	\$251, \$251

Desirable Limits on State Competition in Corporate Law, 105 HARV. L. REV. 1435, 1437 (1992) (positing a race to the bottom), and Cary, *supra* note 140, at 705, with Roberta Romano, *Law as Product: Some Pieces of the Incorporation Puzzle*, 1 J.L. ECON. & ORG. 225, 279–81 (1985) (suggesting a race to the top).

Flip the costs of the additional environmental compliance around, though, and a race to undesirability rather than desirability ensues. Say, for instance, that the increase in environmental compliance still yields a benefit of \$5 in environmental health. Now, however, the price of that additional 5 percent of abatement is much more: \$50 rather than \$4. Both states will still increase to 95 percent emissions control, because the net gain they experience computes. If one state increases its standard and the other does not, the increasing state gets \$75 of additional industry and pays only \$45 to get it. The choice is rational. However, because both states increase their standards, industry does not move, and the states end up in an overall worse condition. This looks like a race to the top because the tendency is to increase regulation, but the result is the exact opposite of what a race to the top assumes. It is not net gains but net losses. It looks like Figure 7. This is why it is so critical to parse the questions of stringency and desirability separately—whether there is a race to stringency first and then whether that race to stringency is to optimality or suboptimality. Theoretically, the states should end up better off by increasing their regulatory requirements. In reality, they end up worse off.

FIGURE 7: THE ENVIRONMENTAL PRISONER’S DILEMMA—RACING
“UP” TO UNDESIRABILITY

		State B	
		Maintain std. at 90%	Increase std. to 95%
State A	Maintain std. at 90%	\$250, \$250	\$175, \$270
	Increase std. to 95%	\$270, \$175	\$195, \$195

Examples of races to the top—either to desirability or undesirability—

are much less common than cases of races to the bottom. Perhaps the foremost examples come from the same realms in which scholars have argued there are races to the bottom, and in many ways are the counterparts of their downward cousins. Some scholars contend, for instance, that the precursor to environmental law's "republican moment" of the late 1960s and late 1970s was itself a race to the top.¹⁷¹ It is well established that in the run-up to the explosion of federal environmental law, states, as "laboratories of democracy,"¹⁷² drove the nation's environmental law agenda. They set pollution standards that the federal government dared not to. They adopted laws to protect the public health, and over time, increasingly so.¹⁷³ This has led some scholars to contend that this state-by-state action was its own race to the top:¹⁷⁴ increased

171. James Gray Pope, *Republican Moments: The Role of Direct Popular Power in the American Constitutional Order*, 139 U. PA. L. REV. 287, 311–13 (1990). For more on "republican moments" in environmental law, see, e.g., Daniel A. Farber, *Politics and Procedure in Environmental Law*, 8 J.L. ECON. & ORG. 59, 66–67 (1992); Christopher H. Schroeder, *Rational Choice vs. Republican Moment-Explanations for Environmental Laws, 1969–1973*, 9 DUKE ENVTL. & POL'Y F. 29, 30–31, 45–46 (1998); David B. Spence, *A Public Choice Progressivism, Continued*, 87 CORNELL L. REV. 397, 429–32, 436 (2002). Some commentators have called this the "environmental decade." ROBERT L. GLICKSMAN ET AL., ENVIRONMENTAL PROTECTION: LAW AND POLICY 63 (5th ed. 2007). Richard Lazarus has noted that the rapid emergence of federal environmental laws was perhaps more evolution than explosion. See Richard J. Lazarus, THE MAKING OF ENVIRONMENTAL LAW 49 (2004) (calling the environmental legislation of the 1970s "a logical, albeit exponential, outgrowth of decades of legal evolution"—a convergence of "host of once-disparate strands of law and social movements [into] what we now think of as modern environmental law"). See also David B. Spence, *The Political Barriers to a National RPS*, 42 CONN. L. REV. 1451 (2010) (suggesting why a federal RPS has not yet been able to achieve a "republican moment").

172. *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting). For discussions of state environmental law before the 1970s, see, e.g., ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY 61–64, 75–76 (5th ed. 2006); Jonathan H. Adler, *Fables of the Cuyahoga: Reconstructing a History of Environmental Protection*, 14 FORDHAM ENVTL. L.J. 89, 107 (2002); Lincoln L. Davies, *Lessons for an Endangered Movement: What a Historical Juxtaposition of the Legal Response to Civil Rights and Environmentalism Has to Teach Environmentalists Today*, 31 ENVTL. L. 229, 271–75, 280–82 (2001); Markell, *supra* note 10, at 353–54; Arnold W. Reitze, Jr., *The Legislative History of U.S. Air Pollution Control*, 36 HOUS. L. REV. 679, 684–88 (1999).

173. California certainly did this with regulation of motor vehicle pollution—"mobile sources" in Clean Air Act speak—as well as in other environmental and consumer protection fields. VOGEL, *supra* note 108, at 263; see also Raymond B. Ludwiczewski & Charles H. Haake, *Cars, Carbon, and Climate Change*, 102 NW. U. L. REV. 665, 675–77 (2008).

174. See David Schoenbrod et al., *Air Pollution: Building on the Successes*, 17 N.Y.U. ENVTL. L.J. 284, 315–16 (2008) ("There are many examples of state and local governments racing ahead of the federal government on air pollution, and, more recently, in regulating greenhouse gases. Many states and cities were reducing air pollution for decades before the federal government stepped in in 1970.") (citing Indur M. Goklany, *Empirical Evidence Regarding the Role of Nationalization in Improving U.S. Air Quality*, in THE COMMON LAW AND THE ENVIRONMENT: RETHINKING THE STATUTORY BASIS FOR

regulation over time by states in a way that was more stringent, and more desirable, than the vacuum of federal silence. Likewise today, many observers have noted the plethora of state-based climate change initiatives while the federal government remains locked in stalemate.¹⁷⁵ One scholar has even coined the phrase “the California effect” to describe this phenomenon, showing how one state with significant enough sway can help the tide rise for all jurisdictions.¹⁷⁶ Similarly, business law scholars have argued that in response to the perceived shift by some states to more management-friendly corporate laws—business law’s presumptive race to the bottom—others have responded by making their own laws more shareholder-friendly—the field’s corresponding presumptive race to the top.¹⁷⁷

Whether these specific examples constitute races to the top or not, they make one thing clear. Races to the top are certainly possible. They are simply the “corresponding . . . puzzle piece[]” to races to the bottom.¹⁷⁸ Their effects, moreover, can be just as positive as has been traditionally assumed, or just as negative as in the race to the bottom itself, presumptions be damned.

MODERN ENVIRONMENTAL LAW 27, 30 (R. Meiners & A. Morriss, eds., 2000)); cf. Wallace E. Oates, *A Reconsideration of Environmental Federalism*, in RECENT ADVANCES IN ENVIRONMENTAL ECONOMICS 1, 12–15, 17 (John A. List & Aart de Zeeuw eds., 2002); Jonathan Adler, *The Ducks Stop Here? The Environmental Challenge to Federalism*, 9 SUP. CT. ECON. REV. 205, 228–29 (2001). The retort, of course, is that states took things only so far. Federal intervention ultimately was necessary to ensure that all states, not just a few leaders, instituted needed protections.

175. See *supra* note 4.

176. See VOGEL, *supra* note 108, at 259. Vogel defines this term as “the critical role of powerful and wealthy ‘green’ political jurisdictions in promoting a regulatory ‘race to the top’ among their trading partners.” *Id.* Notably, he argues that it must not be limited to its “impact [on] American federalism,” but rather, that it extends to the “ratcheting upward of regulatory standards in [all] competing political jurisdictions.” *Id.*

177. Compare, e.g., Bebchuk, *supra* note 170 (positing a race to the bottom), and Cary, *supra* note 140, at 705 (same), with, e.g., Romano, *supra* note 170, at 279–81 (suggesting a race to the top). “Even after decades of academic debate, however, no consensus exists as to whether the ability of a corporation’s managers to ‘choose’ the law of a particular jurisdiction is more likely to result in a race to the top or a race to the bottom in the market for corporate charters.” John F. Coyle, *Rethinking the Commercial Law Treaty*, 45 GA. L. REV. 343, 401 (2011).

178. The Postal Service, *Such Great Heights, on Give Up* (Sub Pop Records 2003).

IV. CONCEPTUALIZING RPS RACES

The first step to determining whether the recent onslaught of state RPSs constitutes a race to the top is to put the laws in the right frame. This is not a complicated task, but it is an important one. What does the market look like? Who are the participants, and how do they compete? And what direction does that competition drive regulation? Is it to laxity or to stringency, and does the result push to desirability or undesirability? Perhaps the easiest way to answer these questions is to contrast a potential renewable energy race to the top with the putative environmental pollution race to the bottom.

A. An Image

Picturing the archetypal environmental regulatory race to the bottom is easy. The market has already been outlined, its contours made clear. It is a national market for industrial location. It has roughly fifty-one players. It is not overly concentrated. And, to participate in the market, states use the stringency of their environmental regulation to engage in bidding wars to court industry.¹⁷⁹

This market thus has four primary traits: (1) it is a geographically broad market, in that industry might look anywhere for possible locations; (2) it is a competitive market, in that no landowner has sufficient market power to withhold the supply of possible industrial locations; (3) it is a price-driven market, or at least states appear to use price in an attempt to compete; and (4) the cost of environmental regulation is only one component of the ultimate price that is charged.

To assess whether state environmental regulations drive this kind of race to the bottom is a two-step process. First, the stringency or laxity of state environmental regulation must be measured over time. Are states increasing or decreasing their environmental standards, and are they doing that to attract industry or for other purposes? The conventional wisdom is that states sometimes decrease their standards in order to invite business into their borders.¹⁸⁰ Second, what is the effect of that trend toward regulatory laxity? Does it enhance social utility or diminish it? Is the loss of environmental quality compensated for by an increase in economic activity, or does the loss of health outweigh the value of more

179. See *supra* Part III.A.

180. Engel, *State Environmental Standard Setting*, *supra* note †, at 321 (“The prevailing impression is that the stringency of environmental standards is an important determinant of firm location.”); Jaffe et al., *supra* note 113, at 148 (“There appears to be widespread belief that environmental regulations have a significant effect on the siting of new plants in the United States.”).

money? This is the optimality versus suboptimality question, the inquiry of desirability versus undesirability.¹⁸¹

In this context, what some studies have shown is that, first, some state regulators do diminish their environmental standards and that, second, such reductions have little to no economic benefit—and may have negative environmental consequences.¹⁸² Thus, in at least some circumstances, there may be races to both laxity and undesirability. Those studies that have attempted to refute these findings tend to focus on proving either that states do not lower their environmental standards, or that environmental quality might not diminish when they do.¹⁸³

In other words, to show that a race to the bottom does not exist, any link in the chain can be broken. If states do not lower their environmental standards, there is no reason to assess whether there is a corresponding decrease in net social value because the prerequisite race to laxity does not exist. Yet challenging the assertion that a race to laxity also leads to undesirability is a messier proposition.¹⁸⁴ To demonstrate this, one must show that overall economic efficiency is harmed—that the net benefits of a regulatory change decrease rather than increase or stay neutral. The tools used to do this are obvious, but the data are harder to compile and parse. They include complicated questions of where and why industry locates; what the economic effects of those location decisions are, including estimates of added revenue to a state’s domestic product and job growth or loss; and the effect on the environment, including to public health, lost or gained work days, environmentally-linked illness and medical expenses, and damage to ecosystem services, just to name a few. Similar questions can be asked in trying to determine whether state action denotes a

181. See *supra* notes 115–23 and accompanying text.

182. See Saleska & Engel, *supra* note 10, at 84; *supra* note 150–51, 148–49 and accompanying text.

183. See *supra* note 152–57 and accompanying text.

184. That states attempt to woo industry is undeniable. The array of tax packages, subsidies, and other economic incentives states are willing to offer to convince industry to locate in their jurisdictions is both vast and well documented. Indeed, that there are so many analyses of which states are most “business friendly” should be evidence enough of this trend. One such report, the Manufacturing and Logistics Report Card compiled annually by the Center for Business and Economic Research at Ball State University, rates states on their human capital, tax climate, cost of employee benefits, availability of venture capital, and other factors. See, e.g., *Manufacturing and Logistics Report Card*, CTR. FOR BUS. & ECON. RESEARCH AT BALL STATE (2011), <http://cms.bsu.edu/Academics/CentersandInstitutes/BBR/CurrentStudiesandPublications.aspx>.

regulatory race to the top.

B. *A Mirror Image?*

It is tempting to assume that a renewable energy race to the top is simply the conceptual mirror image of an environmental pollution race to the bottom. In large part, that may be true. Closer inspection, however, reveals some similarities as well as some differences.

The general idea of a renewable energy race to the top is in fact the flipside of a pollution race to the bottom. It is that, rather than decreasing environmental standards to attract industry, states might adopt environmentally beneficial measures—requirements for renewable energy—to attract industry. This kind of market also looks much like the archetypal environmental race-to-the-bottom market. It too is for industrial location, only for a different type of industry than in the race to the bottom. It involves fifty-one players, the states plus the District of Columbia. It should be a national market, because renewable facilities can be sited in every state.¹⁸⁵ And like the race to the bottom, it is about states using their regulatory authority to change market signals. To participate in this market, states use the stringency of their renewable energy requirements to woo industry.

From here, however, some of the similarities diminish. While the market may be national—electrons are electrons,¹⁸⁶ whether supplied to the grid from coal or the sun, from plutonium or the wind—the market for renewable industry and installations may not be as uniform as the one for “dirty” industry in the race-to-the-bottom context. Studies have shown that potential industrial locations are so plentiful in the United States that firms looking for a location typically consider only a handful of options seriously.¹⁸⁷ While some firms may have unique needs, the basic

185. Numerous studies have concluded that there are renewable resources that could be used under a national RPS in every state. *See, e.g.*, ENERGY INFO., ADMIN., U.S. DEP’T OF ENERGY, REPORT VO. SR-OIAF/2007-05, ENERGY AND ECONOMIC IMPACTS OF IMPLEMENTING BOTH A 25-PERCENT RENEWABLE PORTFOLIO STANDARD AND A 25-PERCENT RENEWABLE FUEL STANDARD BY 2025, at 14 (Aug. 2007), available at [http://www.eia.doe.gov/oiaf/servicerpt/eeim/pdf/sroiaf\(2007\)05.pdf](http://www.eia.doe.gov/oiaf/servicerpt/eeim/pdf/sroiaf(2007)05.pdf); *see* Sovacool & Cooper, *supra* note 6, at 35; *see* Nogee et al., *supra* note 106, at 39.

186. The maxim in the electricity industry is that “electrons cannot be colored,” the shorthand references to “green” electrons in this article notwithstanding. The Supreme Court repeatedly has acknowledged this truth of physics. *See, e.g.*, *New York v. Fed. Energy Regulatory Comm’n*, 535 U.S. 1, 7 n.5 (2002) (recognizing that once energy is placed into the grid, “consumers then draw undifferentiated energy from that grid” (citation omitted)(internal quotation marks omitted)); *see, e.g.*, *Fed. Power Comm’n v. Fla. Power & Light Co.*, 404 U.S. 453, 458 (1972) (finding that transmitted electricity constitutes interstate commerce).

187. *See* Engel, *State Environmental Standard Setting*, *supra* note †, at 318 n.132 (“Evidence that the number of states engaged in competition for a single plant is small is

requirements of infrastructure, a workforce, and other resources likely can be found in multiple states.¹⁸⁸ Thus, theoretically at least, Texas can compete with Tennessee for an industry looking to relocate, just as South Dakota can compete with South Carolina. Of course, because firms typically only look at a few states to site industrial facilities, there also is an argument that they have the ability to exercise “disproportionate market power,” forcing states into what “resemble[s more of] a strategic game than a perfectly competitive neoclassical market” to gain their business.¹⁸⁹

For renewable energy, there are even more limits on a state’s ability to compete. Because the nation’s electricity system is divided up into three chief parts (minus Hawaii and Alaska),¹⁹⁰ and because it features significant transmission constraints, one state’s RPS may be more attractive to a potential renewable facility than another’s. Locating, for instance, in Arizona might give much easier access to California’s burgeoning markets than building in Montana.¹⁹¹

Likewise, there are clear differences in states’ renewable resource wealth. There is more, and stronger, sun in the desert Southwest than in the upper Midwest.¹⁹² There is more wind in Kansas than Kentucky.¹⁹³ Thus, while all states have some resources that can be tapped to make renewable-based

largely anecdotal, though some of it rests upon industry practice. . . . [I]t is rare to hear of more than two to four states, or, for that matter, states from more than one region, competing for a single industrial plant. That the number of states competing for new plants is few is consistent with the industry practice of keeping the list of sites they are considering secret until they have narrowed down the list of candidate states to just a few. Corporations do so to keep real estate prices low.” (citations omitted).

188. *See id.* at 316–17.

189. *Id.* at 319.

190. *E.g.*, PETER C. CHRISTENSEN, RETAIL WHEELING: A GUIDE FOR END-USERS 21 (2d ed. 1996); *see Interconnections of the North American Electric Reliability Council in the Contiguous United States, 1998*, U.S. DEP’T OF ENERGY, <http://www.eia.doe.gov/electricity/page/prim2/fig15.gif>.

191. This is, for instance, an aim of San Diego Gas & Electric’s Sunrise Power project. *See The Powerlink Story*, SAN DIEGO GAS & ELEC., http://www.sdge.com/sunrisepowerlink/powerlink_story (last visited Sept. 13, 2011).

192. *Concentrating Solar Resources of the United States*, NAT’L RENEWABLE ENERGY LAB. (Oct. 20, 2008), http://www.nrel.gov/gis/images/map_csp_national_lo-res.jpg; *Photovoltaic Solar Resources of the United States*, NAT’L RENEWABLE ENERGY LAB. (Oct. 20, 2008), http://www.nrel.gov/gis/images/map_pv_national_lo-res.jpg.

193. *Wind Powering America: 80-Meter Wind Maps and Wind Resource Potential*, U.S. DEP’T OF ENERGY, http://www.windpoweringamerica.gov/wind_maps.asp (last visited Sept. 13, 2011).

electricity, the differences among states may fragment the RPS race-to-the-top market more than the pollution race-to-the-bottom market is.¹⁹⁴ Potentially, this resource disparity, plus existing transmission limitations, could mean that renewable energy race-to-the-top markets play out less nationally than might be presumed initially.

Moreover, states that use RPSs to try to garner renewable installations compete in a different way than do states that reduce their environmental standards to attract industry. Race-to-the-bottom states compete directly on price. RPS states do not. An RPS does not change the direct cost that the firm building the facility will pay to do business in the state. Instead, the RPS attempts to lower the *investment risk* the firm faces in making the decision where to locate: It does not guarantee a lower total cost of production, but rather, a guaranteed amount of demand for the product that the company is selling. Whether renewables firms view this kind of demand guarantee as more or less preferable to a cost discount is open to debate.¹⁹⁵ But it does mean that, unlike the pollution-based race to the bottom, RPS states are competing on something other than price.

The image of the market that RPS states compete in, then, is a likeness to but not quite a facsimile of the environmental race to the bottom. It also has four key characteristics, but the characteristics are slightly shifted. The market is: (1) national generally, but potentially fragmented regionally by transmission constraints and resource availability; (2) competitive, but perhaps not as competitive as that for industrial sites because renewable resources are not spread uniformly across the country; (3) a demand-assurance, rather than price-competition, market; and (4) driven in part by the demand that RPSs seek to foment but by other factors as well, just as the cost of environmental regulation is only one component of the total cost that firms pay to do business in any state in an environmental law race to the bottom.

Measuring whether there is an RPS race to the top also looks much like how one might assess the existence of a pollution race to the bottom. It takes two steps. The first is to evaluate the direction of regulation: Are RPSs becoming more stringent over time? Then, if the answer to that question is yes, a determination of whether such increasing stringency leads to a socially desirable, or a socially undesirable, outcome is necessary.

The prevailing assumption today is that more renewable energy is socially desirable.¹⁹⁶ There are good reasons for this presumption.

194. This certainly has been an argument advanced by opponents of a national RPS. See Davies, *Power Forward*, *supra* note 6, at 1357.

195. Cf. Ringel, *supra* note 32.

196. JOSEPH P. TOMAIN, ENDING DIRTY ENERGY POLICY: PRELUDE TO CLIMATE CHANGE 92, 119 (2011) (“[S]ince the turn of the millennium, a consensus energy policy has been emerging Our energy future no longer resides in fossil fuels; it resides in a

Renewable energy has many established benefits, including pollution reduction, greater energy security, arguable stability in terms of fuel diversity, and reduced pressure on limited fossil fuels.¹⁹⁷ As Professor Amy Wildermuth has aptly summarized, “The key observation at this juncture is that every source of energy is based on a natural resource. . . . [E]very time we create energy, the central ingredient is some part of nature. . . . The advantage of [renewable] power sources is that they do not deplete resources to generate energy.”¹⁹⁸

Just because renewable energy has its benefits, however, does not mean that more and more of it necessarily maximizes social utility. Even the most ardent advocates of renewable electricity must acknowledge that the United States today cannot handle an all-renewables grid. The infrastructure does not exist. Transmission is not sufficient.¹⁹⁹ Renewables are not dispatchable, nor are they baseload.²⁰⁰ And we lack economical electricity storage that would allow this generation resource to move out of the netherworld of neither baseload nor peaking power into one of those categories.²⁰¹ Moreover, renewables cost more than many other energy resources, including natural gas, coal, and, in terms of operating costs alone, nuclear.²⁰² This is, in part, why Professor Jim Rossi has criticized a possible national RPS as risking the displacement of relatively climate-friendly generation, like natural gas, rather than other, more carbon-intensive resources, like coal.²⁰³ Further, renewables create some environmental dilemmas of their own, even if they are less acute than

substantial ramping up of energy efficiency and renewable resources.”).

197. See, e.g., Christopher Cooper, *A National Renewable Portfolio Standard: Politically Correct or Just Plain Correct?*, *ELECTRICITY J.*, June 2008, at 9, 10; Brent M. Haddad & Paul Jefferiss, *Forging Consensus on National Renewables Policy: The Renewables Portfolio Standard and the National Public Benefits Trust Fund*, *ELECTRICITY J.*, Mar. 1999, at 68, 69.

198. Wildermuth, *The Next Step*, *supra* note 86, at 371–72.

199. See, e.g., Joshua P. Fershee, *Misguided Energy: Why Recent Legislative, Regulatory, and Market Initiatives Are Insufficient to Improve the U.S. Energy Infrastructure*, 44 *HARV. J. ON LEGIS.* 327, 331–32 (2007); James A. Holtkamp & Mark A. Davidson, *Transmission Siting in the Western United States: Getting Green Electrons to Market*, 46 *IDAHO L. REV.* 379, 380 (2010); Jim Rossi, *The Trojan Horse of Electric Power Transmission Line Siting Authority*, 39 *ENVTL. L.* 1015, 1029 (2009).

200. Wildermuth, *The Next Step*, *supra* note 86, at 373–74.

201. VACLAV SMIL, *ENERGY* 171–72 (2006).

202. Davies, *Power Forward*, *supra* note 6, at 1371.

203. Rossi, *Commentary*, *supra* note 22, at 1438, 1440; see also Karen Palmer & Dallas Burtraw, *Cost-Effectiveness of Renewable Electricity Policies*, 27 *ENERGY ECON.* 873 (2005).

those of other energy sources.²⁰⁴ In addition, because they are neither consistent nor dispatchable, putting too many on the grid too quickly could significantly diminish system reliability.²⁰⁵ There are, in short, disadvantages as well as advantages to renewables. Thus, potentially, putting too many on the grid at once could be detrimental: in regulatory race speak, suboptimal.

If state RPSs constitute a regulatory race to stringency, calculating whether that race is also to optimality is no easy task. Weighing the benefits and costs of renewables is a complicated, data-intensive endeavor that demands sophisticated economic tools and information.²⁰⁶ It may be that there is a renewable energy “sweet spot”—not too little but not too much. That sweet spot may move around over time, and current RPSs might be pushing the nation’s generation portfolio to it, or past it. As it turns out, however, making that calculation is not necessary because we can stop at the first step of the race-to-the-top inquiry. What the data appear to show is that state RPSs do not reflect a regulatory race to the top at all—not because RPSs clearly push one way to social desirability or undesirability, but because they appear not to be converging on a dominant strategy of heightened stringency.

V. MEASURING RPS RACES

From the fanfare they have received, it would seem obvious that state RPSs constitute a shining example of a traditional race to the top—a race to stringency *and* to desirability. The truth is less obvious, and more complicated. It is undisputable that states increasingly have adopted RPSs. It is also clear that, on average, state RPSs today are more aggressive than the RPSs of, say, 2001. This indicates that at least some states are racing each other. They use increasingly stringent laws to try to drive renewable electricity installations to their states.

The full picture, however, is much messier. While the rush to adopt RPSs is remarkable, a number of states still have no RPS at all. Many more states that have RPSs have adopted flexible standards that are not really mandates but suggestions. Moreover, the aggressiveness of these laws is all over the map. States today tend to adopt more aggressive RPS requirements than in the past. But not all do. Some states have recently

204. Wildermuth, *The Next Step*, *supra* note 86, at 378–79.

205. Rossi, Commentary, *supra* note 22, at 1439–40.

206. The sheer number of—and differences in—studies prognosticating the possible effect of a national RPS illustrates this. See Davies, *Power Forward*, *supra* note 6, at 1370–75, 1382–84 (discussing the studies); Rossi, Commentary, *supra* note 22, at 1439 & nn.50–51 (noting disagreement among researchers over whether a national RPS would displace natural gas or coal-fired generation).

passed RPSs no more potent than some of the early RPSs—and many other states have left their less stringent laws in place, despite action by their counterparts upping the ante on RPS ambitiousness. Other measures confirm this. The design of RPSs over time is diverse, not unidirectional.

Together, this evidence points to a single conclusion: There is no predominating race to the top in state RPSs. If there were, one would expect to see evidence of a dominant strategy that states employ—the equivalent of confessing in the prisoner’s dilemma. Instead, what the data show is that some states employ a dominant strategy, making their laws more and more aggressive, but many others do not. This implies that there is not a general race to stringency, but rather, a situation where if using more renewables is a societal goal, federal action may be necessary.

A. The Evidence

Evaluating whether state RPSs constitute a race to the top might be approached from a number of vantages, but the starting point is whether they constitute a race to stringency. Here, two metrics matter: (1) how many states have RPSs, and (2) what the substance of those RPSs is.²⁰⁷

The first metric is relatively straightforward. If only one or two states were using RPSs to attract industry, the argument that this constitutes a race to the top would be tenuous. If, however, more players were entering the game, the argument would become stronger. That is, because the adoption of an RPS is itself a signal that a state wants to attract renewables installations to its borders, whether a state has done so is at least one way of measuring whether a state is trying to use its legislative power to compete for renewable industry. To be sure, not all jurisdictions must be participating in a regulatory race for there to be one. However, because virtually every state has some kind of renewable energy resource it could seek to tap, because RPSs can be and are written to target specific resources, and because states are free to adopt very modest RPSs that, politically, might be seen as costing very little—many states have voluntary

207. Unless otherwise noted, all data is based on statutory enactments, except for a limited number of states (*e.g.*, Arizona, New York) in which it was necessary to use administrative regulations and executive pronouncements to measure RPS design. Where state statutes do not express their RPSs in terms of a percentage of consumption (*e.g.*, Iowa, Texas), estimated percentage targets were calculated using publicly available peak load data.

RPSs²⁰⁸—the choice to adopt an RPS is at least partially indicative of whether a regulatory race is occurring. RPSs, in other words, do not just change who gets what portion of a fixed payoff. They create a new payoff. They create demand for renewable energy.

What states are doing on this score is transparent. They either adopt RPSs or they do not. Thus, the first metric examined is the frequency of state RPS adoption. It is discussed in Part V.B.1 *infra*.

The second question, RPS substance, is harder to measure. State RPSs are designed with such diversity that juxtaposing the laws can be difficult. Nevertheless, there are at least four measures that both cut across RPS designs and that are indicative of RPS stringency. They are: (1) the RPS's percentage target; (2) its percentage target as amended over time; (3) the portion of customers (or "load") in a state to which the law applies; and (4) the speed at which the RPS must be met (its percentage target over time). Measures (1), (2), and (4) can be extracted from the RPSs themselves; measure (3) is available from the Database of State Incentives for Renewable Energy ("DSIRE") compiled by the North Carolina State University Solar Center. These data are discussed in Part V.B.2-5 *infra*.

RPS percentage targets, of course, can be gamed. Hidden exceptions, exclusions, and loopholes can—and are—built into RPSs. Thus, cross-checking what an RPS says it does against what it actually does may be important. This kind of corroboration can help avoid possible distortion from relying solely on an RPS's facial design characteristics. Empirics on RPS performance remain scant, but there is at least one measure that can be used to confirm what the other data show: how the facial metrics on RPS aggressiveness match up with the laws' efficacy tendency. This metric also is an imperfect gauge of RPS aggressiveness.²⁰⁹ RPS "efficacy tendency" scores are proxies for RPS performance, not actual measures of it.²¹⁰ Nevertheless, comparing facial RPS design characteristics against this cross-check provides at least some assurance that reliance on statutory text alone does not skew the results. This metric is discussed in Part V.B.6 *infra*.

Finally, assuming that the evidence shows there is an RPS race to stringency, assessing whether that race also is to optimality or

208. States' adoption of voluntary RPSs might indicate a race—or the lack of one. See text accompanying *infra* notes 213–15.

209. Another possible cross-check would be to measure RPS design against what renewable energy is produced in the state prior to adoption—and how much of this preexisting power production counts toward the RPS goal. This is one aspect of what some scholars call "salience distortion"; it is captured, partially, by the efficacy tendency metric. See *infra* note 220.

210. See Davies, *Power Forward*, *supra* note 6, at 1386–87.

suboptimality is necessary. As noted, this would require a sophisticated economic calculus²¹¹ parsing what level of renewables use is desirable, taking into account other options, relative fuel values, all externalities, and the long-term value of conservation and sustainability, to name only a few considerations. Because, however, it appears there is not a race to stringency with state RPSs, it is not necessary to also determine whether these laws create an ensuing race to undesirability.

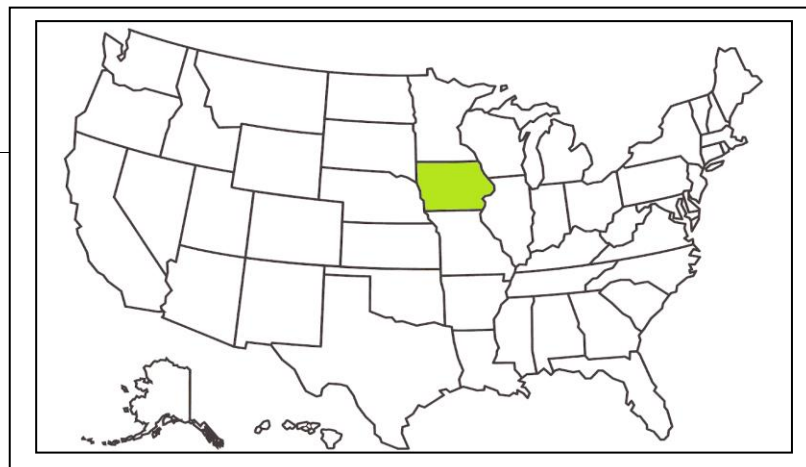
B. Weighing the Evidence

Five metrics of RPS design point in five different directions. RPSs have been adopted with increasing frequency. They are more aggressive, generally but not always. Amendments do tend to make the laws more vigorous, but they also often grant more time for compliance. The percentage of customers covered runs the gamut, as does the speed at which states expect utilities to get there. RPS design overall, as measured by the laws’ “efficacy tendency,” likewise is remarkably diverse. By any measure, this is not a picture of a race to stringency. If anything, the evidence shows some states racing, many not, and perhaps some presaging a kind of race to the bottom—in short, hardly a ringing endorsement of the notion of a renewable energy race to the top.

1. Frequency

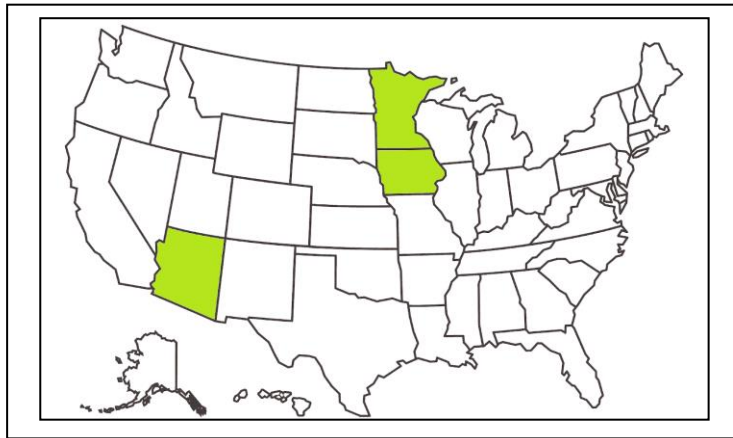
The thing that drew attention to RPSs as a potential regulatory race in the first place is perhaps the best argument in favor of an RPS race to the top. It is undisputed that states increasingly have adopted RPSs. That is, it is clear that by adopting RPSs, more and more states have used legislative enactments to signal to renewable energy developers that they want the business in their state. The numbers tell the story, but the best way to see it is over time. As Figure 8 shows, in 1993, only one state had an RPS: Iowa.

FIGURE 8: STATE RPSs—1993



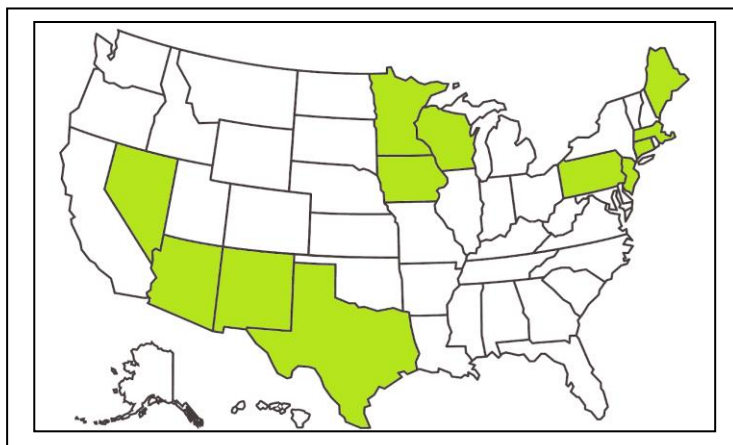
By the middle of the decade, this had begun to change, but only marginally. In 1996, as Figure 9 shows, only three states had RPSs. They were Iowa, Minnesota, and New Mexico.

FIGURE 9: STATE RPSs–1996



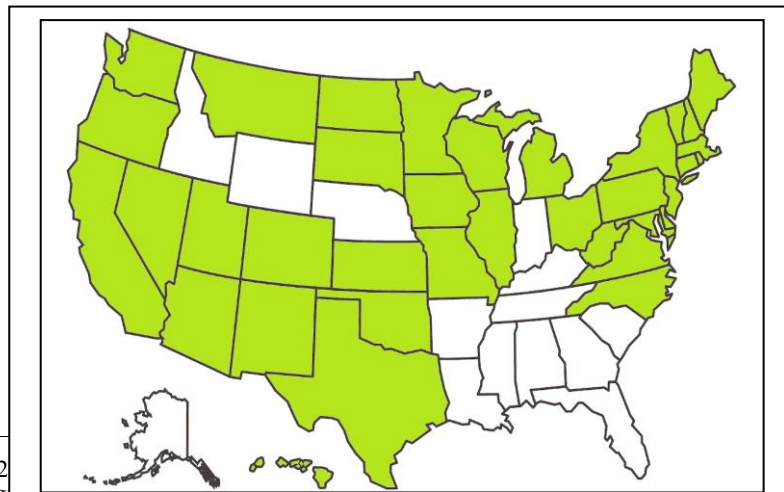
At the turn of the century, the RPS trend truly began to catch on. Between 1996 and the coming of the millennium, there was a virtual explosion of RPS enactments. Nine more states adopted RPSs, quadrupling the number of states with these laws to a full dozen. Figure 10 details which states had RPSs in 2000.

FIGURE 10: STATE RPSs–2000



A decade later, the number of states with RPSs had more than tripled again. In just ten years, another twenty-four states plus the District of Columbia adopted RPSs. Now the map looked almost exactly the opposite as it had twenty years earlier. Rather than showing an expanse of white with a few islands of green, more states had RPSs than did not. Almost the entire nation had gone green. The islands were the few areas of non-RPS states. In fact, if passage of an RPS were to count as a vote to amend the Constitution, enough states would have voted in favor of this hypothetical amendment by 2010 to put it on the verge of ratification.²¹² No wonder the suggestions that states were engaging in a race to the top were so loud.

FIGURE 11: STATE RPSs – 2010



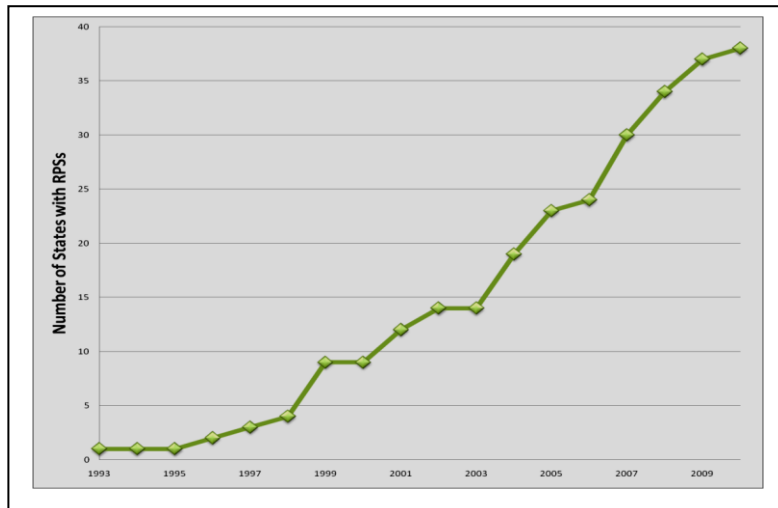
2
Leg

thereof, as the one or the other Mode of Ratification may be proposed by the Congress.”
U.S. Const. art. V.

the
ths

Considering RPSs in this way very much makes them look like a race to the top, at least on the surface. Charting state RPS enactments over time reveals what appears to be a clear trend. It is very directional—very upward. As seen in Figure 12, this is, as one would expect, much what a race to the top should look like: an increasing trend over time to a point at which the trend plateaus, the plateau in turn reflecting the dominant strategy. Certainly very few races to the top will cut a perfectly straight upward diagonal line with a plateau at the end, but the race’s general trajectory should bear these markers. As each competing state puts its dominant strategy into play, the tally of those in the “mutual defection” box of the prisoner’s dilemma should increase: As time passes, the total of states enacting the law in question increases. This is what has happened for RPSs. In 1993, RPSs covered a lone state. Now, they cover almost three-quarters of the nation. If that does not sound at least to some degree like a state-based ratcheting up of pressure for more renewables, very little will—especially given states’ unabashed enthusiasm for using RPSs to attract jobs and industry.²¹³

FIGURE 12: CUMULATIVE NUMBER OF STATES WITH RPSs—BY YEAR



213. See *supra* Part II.C.

On the other hand, the maps of states with RPSs tell another story. While a majority of states has adopted these laws, a substantial minority has not—even when their neighbors put their own RPSs in place years ago. Idaho, Wyoming, and Nebraska are surrounded by states with RPSs. As of 2010, Indiana, Kentucky, and Tennessee also remain sandwiched by RPS states. Yet not one has taken the chance to pass an RPS, a chance that has presented itself every year for the last two decades. There may be eminently rational explanations for this behavior. Some states have more renewable resources than others do. States clearly differ politically. Some states may want to export their renewable power rather than forcing it to be used inside their own jurisdiction. Regardless of the reason for inaction, however, from the perspective of a possible race to the top, it leaves a glaring hole. If RPSs are how states compete for renewable energy industry and jobs—if the race’s dominant strategy is to try to create more demand for renewables by adopting an RPS—the fact that a full quarter of the nation still has not done so cuts against the idea that there is such a race.

Indeed, considering how states have adopted RPSs potentially raises further questions about whether there is an RPS race to the top at all. Pulling back the layers of these laws reveals another possible flaw in the race-to-the-top theory. Not only are there twelve states that remain RPS holdouts, but a number of states that have adopted RPSs have done so in a way that is rather meek. Seven states have RPSs that cannot be counted as mandatory renewable energy requirements, but rather, are only voluntary suggestions that electric utilities use more renewables.²¹⁴

This phenomenon pushes in two possible directions. At one level, the fact that some states have adopted what many would consider faux RPSs might actually bolster the suggestion that there is an RPS race to the top. In this view, states consider the very adoption of an RPS, no matter how vigorous or laggard, a signal to developers that they are open for renewable energy business. So states are willing to send that signal however they can. At another level, however, the adoption of effectively ersatz RPSs belies the suggestion of a race to the top. In this view, states know that they are likely to attract renewable energy business to their states only if

214. See *RPS Policies*, *supra* note 8.

they send a signal stronger than surrounding states. If there were a real regulatory race, that is, states not only would adopt RPSs but would do so with increasing vigor.

If the second view is credited, the fact that seven states have enacted this kind of symbolic legislation arguably further undermines the idea of an RPS regulatory race. There is some reason to lean this way. Indeed, one might debate whether to count voluntary RPSs as true RPSs at all.²¹⁵ At least one reputable organization tracking RPSs and other renewable energy policies appears not to.²¹⁶ If these voluntary RPSs are not counted as real RPSs, the tally of states that are considered to have RPSs plummets. The total barely reaches sixty percent, casting additional doubt on the notion that there is truly an RPS race to the top.

2. Targets

The data on how aggressive RPSs are plays out roughly the same way. On the surface, the data on RPS targets indicate that states are adopting more and more vigorous RPSs as time goes by. Below the surface, however, a more complicated picture emerges.

Strip away all the ways an RPS can be written, and perhaps the most indicative measure of its ambitiousness is its renewable percentage target. A race to the top, seen through the lens of this metric, should, again, approximate an upward sloping diagonal line that plateaus: As time passes, state enactments become more aggressive in what they try to achieve, until they reach a plateau where the dominant strategy is attained.²¹⁷

Plotting, from 1997 to 2035, the average of all RPS targets that were or will be in effect during each of those years creates an image that looks very much like the race to the top just described. The line is not straight, but it definitely moves upward. Moreover, it plateaus at a mean of just under 20 percent renewables:²¹⁸ revealing the dominant strategy of the RPS prisoner's dilemma?

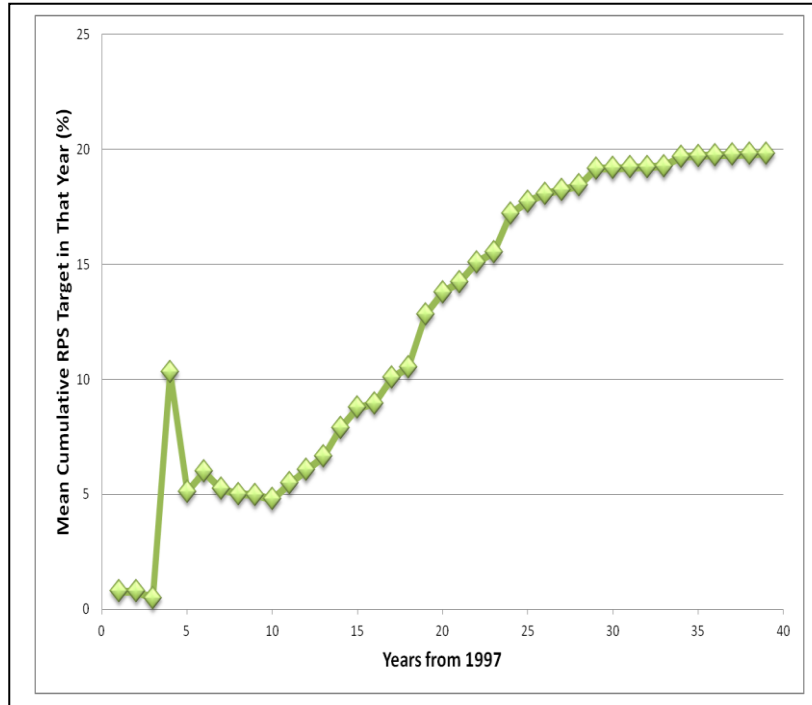
215. See *supra* note 8.

216. See *id.* (distinguishing between states with “renewable portfolio standards” and those with “renewable portfolio goals”).

217. A potential counter to this description of what an RPS target race should look like is that for states to be racing, all they really need do is adopt a more aggressive RPS *than they otherwise would have*, not that they pass a more vigorous law *than their neighbor did*. This is the corollary of the argument that voluntary RPSs prove the presence of a regulatory race, rather than raise doubts of whether there is one. Of course, measuring with any precision what effect one state's promotion of renewable energy has on another jurisdiction's adoption of an RPS is an intractable, if not impossible, endeavor.

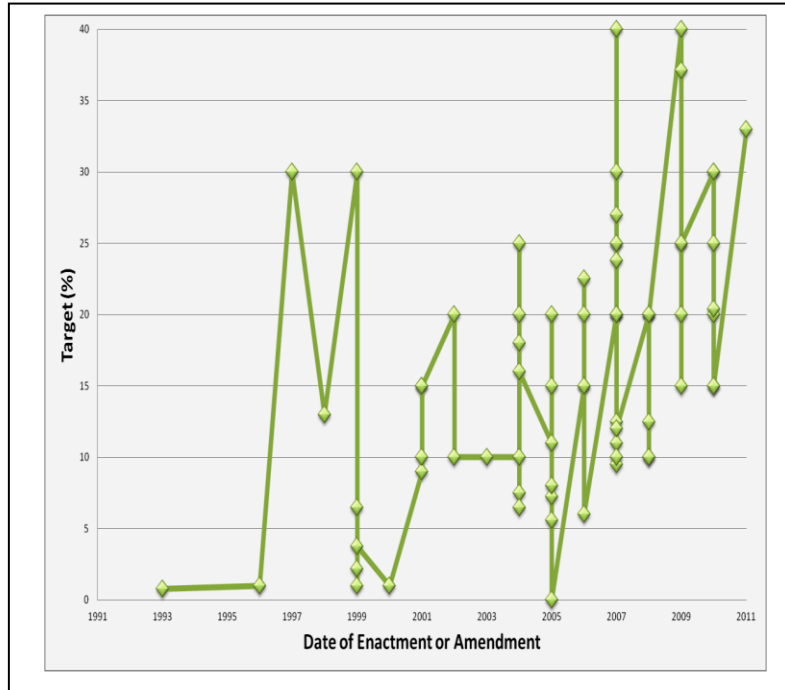
218. For this calculation, where the statute did not specify otherwise, the RPS target in effect for a given year was extrapolated linearly from the final target year back to the initial effective year.

FIGURE 13: MEAN YEARLY RPS TARGETS OVER TIME



Averages, of course, mask variation. Thus, it is important to consider not just the mean of what states are doing but the specific actions themselves. Doing so exposes much more disparity in state RPS action. Rather than every state rushing to a 20 percent renewables dominant strategy, state enactments vary wildly. Figure 14, then, gives a much clearer view than Figure 13 of how states are acting in the suggested RPS race to the top. It marks the highest target a state's RPS seeks to achieve, plotted by date of the RPS's initial enactment and any subsequent amendments thereto.

FIGURE 14: RPS TARGET AGGRESSIVENESS—BY INITIAL ENACTMENT AND AMENDMENT DATE



There are two important observations about this data. First, as Figure 14 makes clear, the general trajectory of state RPSs over time is still generally upward. No state that adopted an RPS in 2009, 2010, or 2011 put in place a mandate below fifteen percent. The same cannot be said for early RPSs, many of which imposed targets in the single digits. Moreover, a number of states recently have adopted RPSs with remarkably aggressive targets—Hawaii’s forty percent and California’s thirty-three percent, for instance.²¹⁹ This generally was not true of early RPSs; the first law to break the thirty percent barrier was not passed until 2007.

Second, and more important from the perspective of a possible RPS

219. S.B. 2, 2011 Leg., 1st Ext. Sess. (Cal. 2011), *amending* Cal. Pub. Util. Code § 399.15(b)(2)(B) (West 2011).

regulatory race, these data show no clear dominant strategy in the adoption of RPS targets. True, the laws have tended to be more aggressive over time. But that is not what matters. States are not just adopting RPSs and then leaving those laws untouched. Many states have amended their laws, often more than once. Further, new states are enacting RPSs for the first time years after other states' laws have been put in place. Thus, the clear trend that one would expect to see if a race to the top existed would be convergence around an "aggressive enough" percentage requirement, the race's dominant strategy.

The data do not bear out such a strategy. States adopted RPSs in the late 1990s with far higher targets than many of those states that entered the RPS fray later on. And while some states are getting truly aggressive, instituting targets as high as forty percent, many states that adopted or amended their RPSs in the last five years have put in place targets barely a third or a quarter as aggressive as the most ambitious states. This hardly suggests a race to stringency, but rather, exposes remarkable diversity in the aggressiveness of state RPSs. Using RPS targets, in short, reveals no dominant strategy that would mark an RPS race.

When other factors are taken into account, moreover, the aggressiveness of RPS targets over time becomes even less clear. There are numerous factors that make some RPSs less vigorous in reality than they initially appear—what some commentators might refer to as the laws' "salience distortion."²²⁰ An RPS, for instance, might only require the installation of renewable capacity, not the production of actual renewable energy; it might count preexisting renewables installations; or it might give credit to nonrenewable resources, such as advanced coal or nuclear installations, as well as renewables themselves.²²¹ Gauging precisely the salience distortion of each state's RPS exceeds the scope of this article. Nevertheless, the mere fact that not all RPS targets are in reality what they appear to be on the surface further exacerbates the noisiness of the RPS target data. Indeed, virtually every RPS on the books has some level of salience distortion.²²² That fact alone yields a clear implication: It amplifies the suggestion that there is not an RPS race to stringency.

220. See Davies, *Power Forward*, *supra* note 6, at 1361; see also, e.g., Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economists*, 93 AM. ECON. REV. 1449, 1468 (2003); Christopher L. Peterson, *Usury Law, Payday Loans, and Statutory Sleight of Hand: Salience Distortion in American Credit Pricing Limits*, 92 MINN. L. REV. 1110, 1114–15 (2008); Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124, 1130–31 (1974).

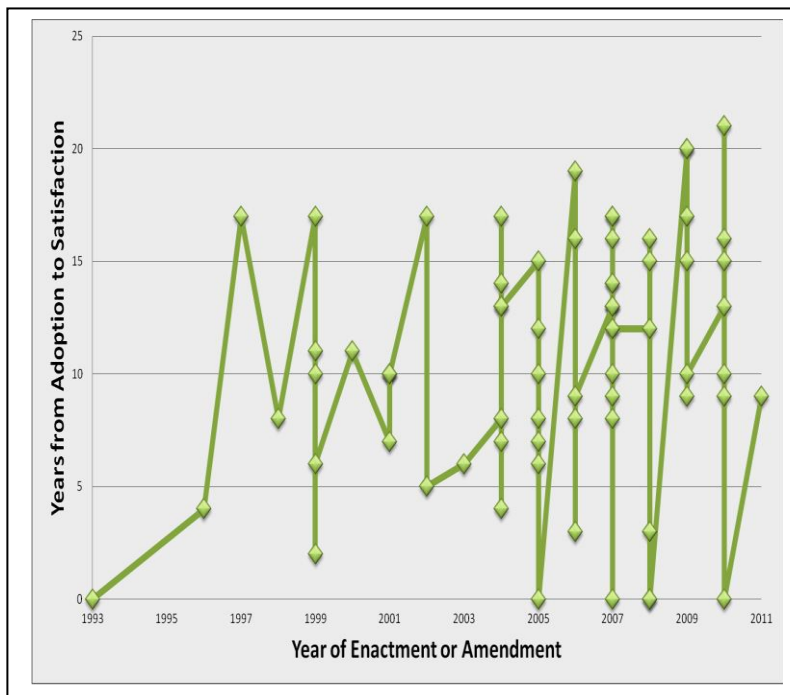
221. See Davies, *Power Forward*, *supra* note 6, at 1361.

222. See *id.* at 1361, 1388. A prior analysis showed that, of states with RPSs at the time, only four had no salience distortion, eighteen had mild salience distortion, eight had a moderate amount, and six had more than a moderate amount. *Id.* at 1388.

3. Speed

A similar observation can be made based on another measurement of RPS aggressiveness. One mark of an RPS’s vigorousness is its ultimate target; another is how quickly that target must be met. Hypothetically, one would think that if states were in a race to attract renewable industry to their borders, they would not only tend to adopt bigger RPS targets over time but also would require faster and faster compliance with those goals. This makes sense for at least two reasons. First, a more rapid compliance period should generate additional pressure to build facilities. Second, states joining the race relatively late should want to catch up with those who had a head start. Using a faster compliance timeline compared to your competitors is a logical way to do that.

FIGURE 15: ALLOTTED TIME FOR RPS SATISFACTION—BY ENACTMENT AND AMENDMENT DATE



The data, however, do not reflect this putative trend. In this case, if there were an RPS race, one would expect to see a downward sloping line to a valley: an emerging dominant strategy of allowing fewer and fewer years to meet the RPS compliance as statutes are enacted over time, with a leveling off in the trend line at some period of time reflecting the minimum needed to connect renewables to the grid.²²³ Yet what the data show, as Figure 15 depicts, is no such dominant strategy. Instead, the statute that allows the most compliance time—over twenty years—was adopted in one of the last years plotted on the graph, 2010. Likewise, more recently adopted statutes do not tend to allow less time for compliance. Rather, if anything, RPSs adopted or amended after 2005 tend to allow more time for compliance than their earlier counterparts: closer to ten or fifteen years than to five or ten. This is hardly a death knell for the notion of an RPS race to the top but, when taken together with the target data, it certainly makes the likelihood of such a regulatory race diminish.

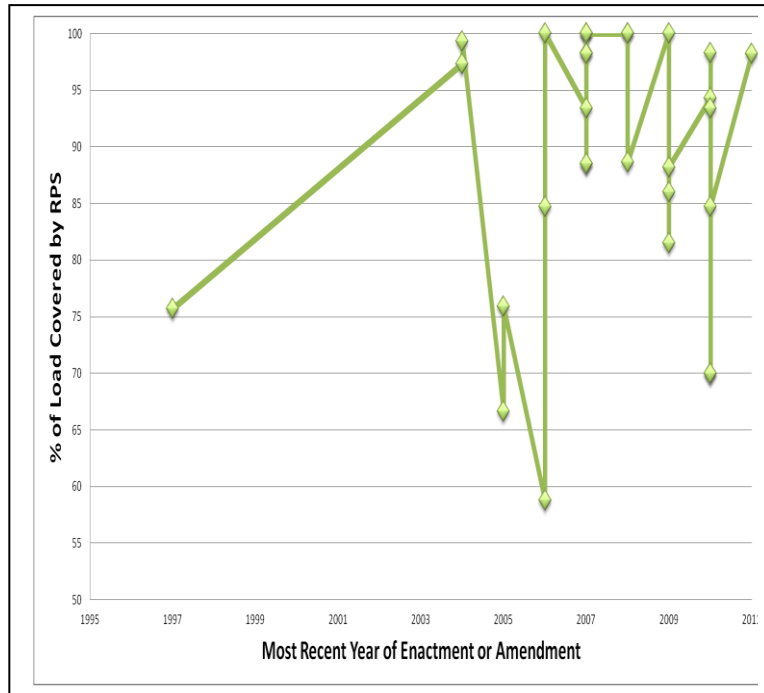
4. Coverage

Yet another metric of RPS design points away from, rather than toward, an RPS race to the top. A further way to gauge RPS forcefulness is how broadly it applies inside a jurisdiction. Comparing two otherwise identical RPSs, the one that applies to all of a state's electricity demand must be considered more vigorous than the other that applies only to half of the state's demand. Because DSIRE keeps data on the percentage of customers, or "load," to which RPSs apply,²²⁴ this data can be used to track another way that states may or may not be competing in a regulatory race.

223. One would not expect to see the line decrease indefinitely, because it typically takes several years to site a new energy installation. See Kenneth T. Kristl, *Renewable Energy and Preemption: Lessons from Siting LNG Terminals*, NAT. RESOURCES & ENV'T, Winter 2009, at 58, 59 (reporting an average of four to seven years).

224. The RPS load data are available at *Quantitative RPS Data Project*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (June 1, 2011), <http://www.dsireusa.org/rpsdata/index.cfm>. For this article, data from DSIRE's June 2011 spreadsheet were used.

**FIGURE 16: PERCENTAGE OF RPS LOAD COVERAGE—BY
ENACTMENT AND AMENDMENT DATE**



Again, it appears that states are not racing. Using this load coverage metric, a dominant strategy of a race to stringency should manifest as an upward sloping line to a plateau, with states passing laws that cover more and more load as time goes by. As Figure 16 indicates,²²⁵ however, this is not what the data suggest. Instead, if anything, there is a general tendency for states to include three-quarters or more of their load within their RPSs, but this has been then trend from the beginning. Most states, in fact, make eighty-five percent or more of their load subject to their RPSs, but according to the DSIRE data, those states that have included the lowest

225. Figure 16 is an admittedly rough estimate of trends on RPS load coverage. This is because the DSIRE data is for current coverage and does not extend prior to 2009. A historical outlook would provide a fuller picture.

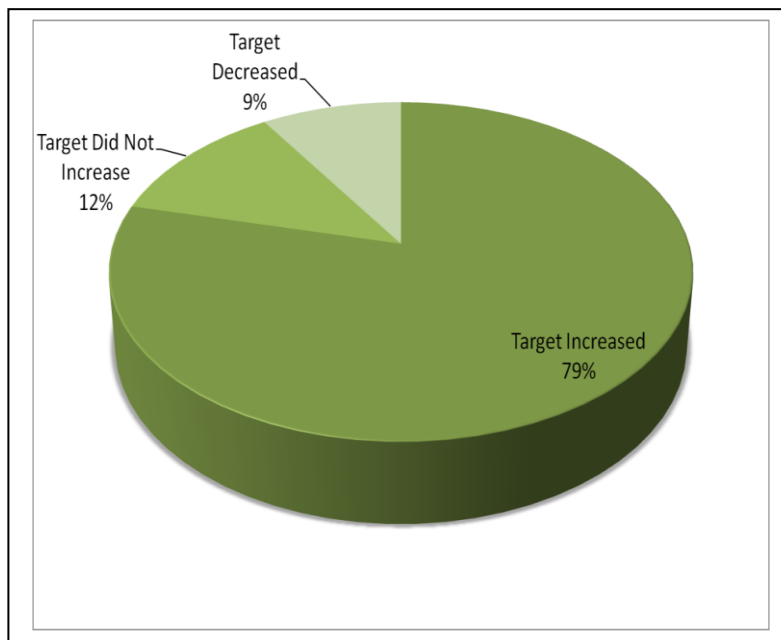
percentage electricity demand in their laws have adopted their RPSs more, rather than less, recently: The lowest percentage was put in place in 2006, the second lowest in 2005, and the third lowest in 2010. Yet again, this measure, like the other metrics of RPS stringency, is indicative of some states attempting to design vigorous laws but others using RPSs symbolically. It is, in other words, not indicative of a true race to stringency.

5. Amendments

Initially, that RPSs have been amended so frequently might be considered a sign that states are racing each other. The sheer frequency of changes to these laws could indicate that states keep adjusting their RPSs' aggressiveness in response to other jurisdictions entering the renewables game. In fact, of the thirty-seven states with RPSs, twenty states—a remarkable fifty-four percent—have amended their statutes at least once since initial enactment. Ten states—or twenty-seven percent—have amended their RPSs more than once.

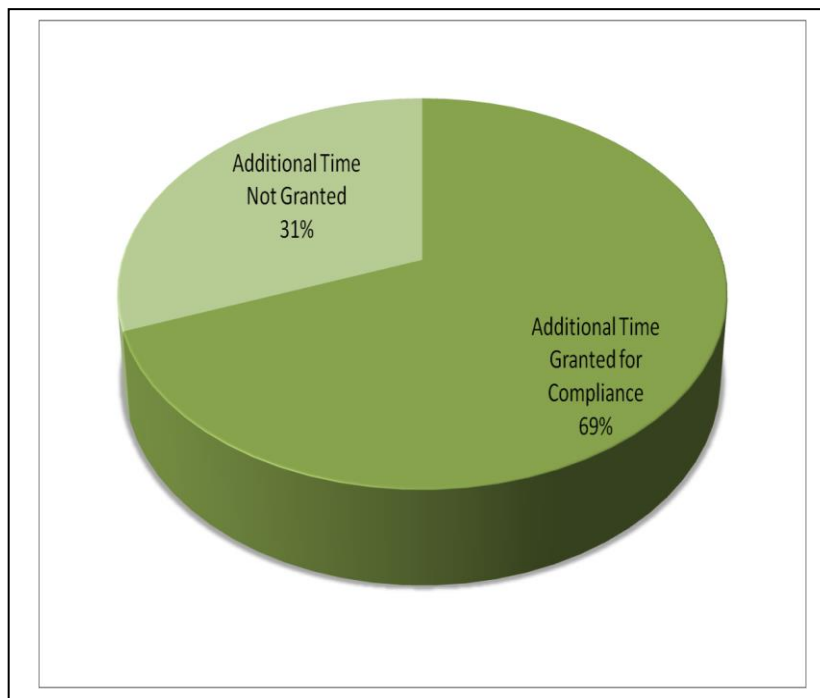
Despite what this data might suggest, a deeper assessment of the amendments reveals a more complex story than a straightforward race to stringency. Notably, most states that amend their RPSs tend to increase their law's target when they do so. In the amendments to date, this happened nearly eighty percent of the time. This situation appears consistent with a theory of state amendments passed in an effort either to compete with other states or, at the least, to become more aggressive over time generally.

FIGURE 17: AMENDMENTS TO RPS TARGETS—BY DIRECTION



That, however, is not the whole picture. As Figure 17 shows, a fifth of the time states did not increase their RPS targets at all when they amended—and in almost a tenth of cases, they actually decreased it. That some amendments do not ratchet a state’s RPS target upward is hardly surprising. There are many reasons to amend a law; only one of them is to make the target itself more stringent. But the fact that more than twenty percent of amendments do not increase the target, and that sometimes the target actually decreases through the legislative process, cannot be considered evidence of a true race to the top. If it were, a dominant strategy of ever-increasing targets through amendments should emerge, not one of most-of-the-time upward movement but also stagnation plus some *downward* movement as well. This evidence on amendments thus appears to confirm that something more complex than a single race to the top among states is happening.

FIGURE 18: AMENDMENTS TO RPS TARGETS—BY ALLOWANCE OF ADDITIONAL COMPLIANCE TIME



Indeed, when the nature of these amendments is taken into account, the argument that they demonstrate a clear race to the top weakens further. In general, states grant more time to comply with their RPSs about 60 percent of the time when they amend their statutes for any reason. This figure increases further when only the twenty-six amendments that increased states' RPS targets are considered. More than two-thirds of those changes also extended—sometimes by as many as twelve years—the period that utilities have to comply. As shown in Figure 18, eighteen of the twenty-six amendments that increased RPS targets also enlarged the overall compliance period. Thus, while the amendments that increased RPS targets did so by an average of an additional 9.9 percent, the two-thirds of those amendments that granted additional time gave, on average, an additional 5.9 years for utilities to meet these targets.²²⁶ This makes sense. Utilities that

226. When all of the amendments that increased targets are considered—those that granted additional time and those that did not—the average drops to 3.7 additional years for compliance.

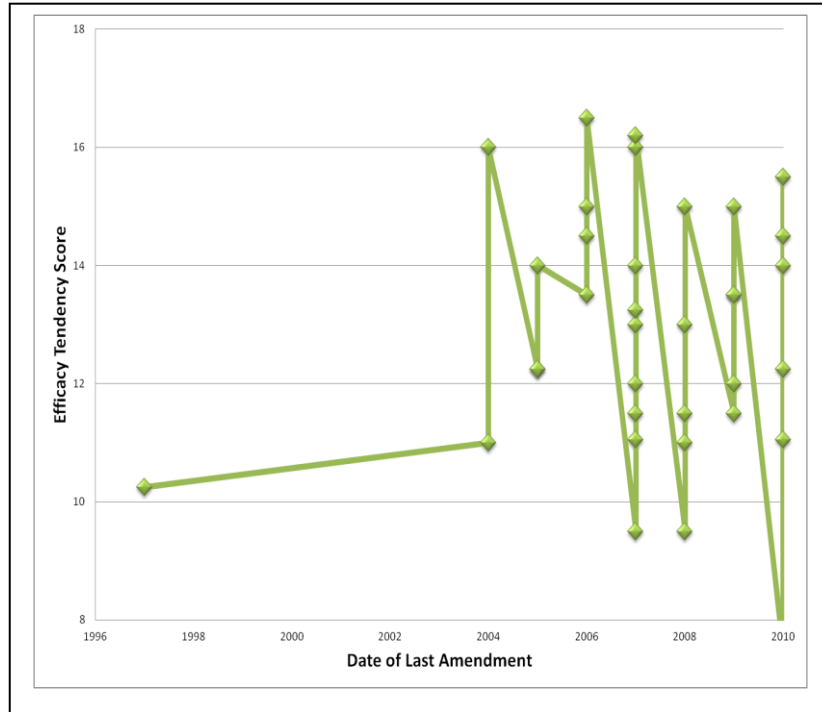
suddenly become subject to more stringent laws will also need more time to comply with that heightened target. But when that additional time for compliance is considered in terms of a regulatory race, the amendments start to look much less aggressive than they might have seemed at first. In fact, once the additional time that these amendments grant is accounted for, the newly heightened RPS targets hardly look more aggressive at all: Prior to amendment, the RPSs whose targets were later increased demanded a mean of 1.47 percent additional renewables per year. The amendments increased that figure but only mildly so—to 1.74 percent per year, or a somewhat meager increase of 0.27 percent per year. In short, while states generally can point to their RPSs being adjusted upward over time, this small bump in aspirations should not be credited for demonstrating a prevailing race to the top.

6. *Efficacy Tendency*

Finally, these different metrics of RPS aggressiveness can be measured against the laws' overall policy design—what in a prior article I referred to as an RPS's "efficacy tendency" score.²²⁷ While imperfect, this too tends to confirm what the other metrics of RPS strictness indicate: that the passage of some of these laws might be consistent with a notion of increased stringency over time, but overall, the bottom line on state RPSs is diversity—not a dominant strategy that indicates a true regulatory race to the top.

227. See Davies, *Power Forward*, *supra* note 6, at 1385–86.

FIGURE 19: EFFICACY TENDENCY SCORE—BY DATE OF LAST AMENDMENT



“Efficacy tendency” scores are available for thirty-five states, and only for the versions of those laws that were in effect at the beginning of 2010.²²⁸ Nevertheless, graphing those laws’ efficacy tendency scores against the date they were last amended reveals a pattern very much like that for RPS speed and load coverage: in short, one of policy divergence rather than increased stringency over time. Efficacy tendency scores range from a possible low of zero to a possible high of twenty.²²⁹ An RPS with a higher score should tend to be more effective—and more aggressive—than a law with a significantly lower score.²³⁰ Because twenty is the maximum score, the expected trend we should see if there were an RPS race to the top is an upward sloping line over time that plateaus closer to twenty than to zero. Instead, as plotted in Figure 19, the result is a jagged line that bears no apparent relation to time. RPSs enacted

228. *See id.*; *see also id.* app. E.

229. *Id.* at 1386.

230. *See id.*

or last amended in the 1990s might have low scores, or they might have high ones. The same can be said of laws adopted or last amended between 2005 and 2010. There is no plain pattern toward additional stringency. Eleven states have efficacy tendency scores of fourteen or higher. Seventeen states have scores lower than fourteen.

By itself, this evidence hardly disproves the suggestion of an RPS race to the top. Efficacy tendency scores merely aim to approximate, not to measure, an RPS's robustness. Presumably, a more robust RPS should be more effective at incentivizing deployment of renewable energy installations—of achieving what a racing state wants, namely, more business in its geographic boundaries—but there is no definitive verdict yet on how RPS design relates to RPS performance.²³¹ Nevertheless, when the lack of a clear trend in efficacy tendency scores is taken into account together with the other five metrics already discussed, the conclusion that emerges becomes even clearer: While there are some indications of some states ramping up their renewable energy laws in the last two decades, not all states have. This may mean that some states are engaging in a race to the top, but it falls well short of the standard necessary to deem a universal regulatory race to the top.

C. Implications of the Evidence

What does it mean that there appears not to be a race to the top in state RPSs? The first question this inquiry begs is whether that conclusion computes. RPSs have become such a dominant force, so quickly, in domestic renewable energy law, it seems odd to say that these measures do not represent some kind of regulatory race forward. Certainly, there is no denying RPSs' somewhat surprising emergence in so many states. The data do not refute this. What the data do show, however, is that the rapid emergence of state RPSs does not rise to the level that would be expected in order to conclude that they constitute regulatory race to the top. This is not because RPSs are scarce or generally meager. Rather, it is because their adoption is not plentiful enough—a substantial minority of states remain holdouts—and because the way they have been adopted is not stringent enough—they do not reflect a clear dominant strategy of

231. As noted previously, most empirical studies of RPSs have eschewed assessing the laws' design in weighing their effectiveness. Those that have taken policy design into account, however, have concluded that design matters. *See supra* Part II.B.

heightened vigorousness over time. In short, some state enactments may be driven by a desire to compete for renewable energy installations, but there is enough noise in the data that it would be inappropriate to make a universal conclusion that jurisdictional competition is the primary driver of RPS enactment and design.

Indeed, a recent study by Professors Thomas Lyon and Haitao Yin suggests that while states clearly sound the bell of economic development when they adopt RPSs, this may be more bluster than gust. In actuality, “states with higher unemployment rates”—the very states one would expect to adopt RPSs if these laws are truly about economic development —“are less likely to adopt an RPS” than their counterparts with lower unemployment rates.²³² Specifically, the “odds ratio for adopting an RPS decreases by 65% if the unemployment rate increases by one standard deviation (1.24%), all else equal.”²³³ From a regulatory race perspective, the implications of this finding are crucial. It means that political symbolism may be dominating not only *how* states write RPSs, but *whether* they adopt them in the first place: Those states that decide to pass the laws claim them for all they are worth in presumed economic benefits, but the states that need the economic benefits the most are not willing to focus their job-seeking resources on adopting RPSs. Lyon and Yin conclude, “state-level job creation is not a driving force for RPS adoption. On the contrary, states with higher unemployment rates may be preoccupied with the task of stimulating economic growth, and have little interest in considering an RPS—a fundamentally environmental policy tool that stands to increase electricity prices.”²³⁴

This view of RPSs is further confirmed by the way states design their laws. The trend in RPS design is diversity, not convergence. Perhaps this should not be surprising. Because RPSs largely “address global issues of sustainability and climate change more than localized pollution concerns,” some observers find it “puzzling” that governments, especially subnational governments, have “moved suddenly” toward RPSs.²³⁵ If it is perplexing that there has been sufficient political will to adopt RPSs in the first instance, and if it is plain that state politicians use RPSs symbolically, it is not a far leap to surmise that there would be political differences in how states write their laws.

To be sure, although the burst of RPS enactments over the last two decades is remarkable, there are many reasons why a state might put an RPS in place but do so in a way that is not necessarily more aggressive

232. Lyon & Yin, *supra* note 75, at 147.

233. *Id.*

234. *Id.* at 147–48.

235. *See id.* at 132.

than its neighbor's law. To begin, simple political differences may explain much.²³⁶ A state whose politics are not as “green” as its neighbor might have sufficient political will to adopt an RPS but not enough to pass the most aggressive law. Lyon and Yin's study, in fact, suggests that the political leanings of a state's legislature are statistically correlated with whether the state will adopt an RPS. “[T]he percentage of Democrats in the state legislature,” they observe, “is an important factor driving RPS adoption.”²³⁷ “The odds ratio for adopting an RPS increases by just over 3 times if the percentage of Democrats in the state legislature increases by one standard deviation This suggests that Democrats, who normally have stronger environmental preferences, are significantly more favorable towards RPSs than Republicans.”²³⁸

Relying on politics, however, may go only so far. As Professor Joshua Fershee has noted, RPSs are “especially intriguing” from a political perspective because “so many states—both ‘red’ and ‘blue’—have adopted some form of a mandate.”²³⁹ Thus, according to his analysis, “religion is a better predictor of an RPS than political party.”²⁴⁰ Nevertheless, given that politics appear to have some bearing on whether an RPS is adopted at all, it should be self-evident that they also could have an impact on how those laws are designed—on a state's willingness, that is, to ratchet up its RPS's stringency to compete with other states for renewables jobs.

By the same token, a state rich in solar and wind resources might be more willing to enact a thirty percent RPS, when a state with fewer of these resources might be willing only to go to fifteen. Resource disparity also may explain some differences in RPS policy. Professor Fershee's data indicate that, in general, there is a “greater concentration of [states that have adopted] RPSs at the top of the scale [of wind capacity] and a lesser concentration at the bottom” of that scale.²⁴¹ That correlation, however, does not extend to solar capacity, according to Fershee's assessment.²⁴²

236. See *supra* text accompanying notes 174–75.

237. Lyon & Yin, *supra* note 75, at 148.

238. *Id.*

239. Joshua P. Fershee, *When Prayer Trumps Politics: The Politics and Demographics of Renewable Portfolio Standards*, 35 WM. & MARY ENVTL. L. & POL'Y REV. 53, 61 (2010).

240. *Id.* at 92.

241. *Id.* at 75. A state's wind capacity may be especially important because wind power traditionally has been the most cost-competitive of renewables. See *infra* note 262.

242. *Id.* at 76. On this point, Lyon and Yin reach a slightly different conclusion: “[W]ind and solar potential both exhibit strong impacts on the state decision to adopt an

Regardless, what natural resources a state has been endowed with clearly has had at least some impact on how states design their RPSs; otherwise the prevalence of solar set-asides in these laws, especially among many sunny states, would be much harder to explain.

Likewise, there are reasons why even states that are attempting to use their RPSs to compete in a race for industry might not adopt the most vigorous law. A politician in a mildly “green” state that is also down on its economic luck might make a rational risk-benefit calculation. If she believes that an RPS will increase the cost of electricity in the state by, say, 2¢/kWh, and she thinks that there is only a chance, perhaps 50 percent, that the law will actually bring industry to the state, she may write, or vote for, a law that compromises those two probabilities: an RPS, for instance, that only has a 33 percent chance of attracting industry because it is less aggressive than the originally proposed measure, but that also will only increase prices by 1¢/kWh. One possible explanation of some decisions in regulatory races is the attempt to capture the political benefits of taking a position without actually incurring the costs of fully investing in that position.²⁴³ In the case of RPSs, this might manifest as some states passing largely symbolic laws. Doing so would give legislators potential environmental credibility with their constituents²⁴⁴ but would avoid possible fallout from, for instance, fossil fuel industry lobbyists, incumbent utilities opposed to forceful RPSs, or ratepayers who do not want their electricity prices to go up.

This brand of political calculus, moreover, is the very kind of reasoning that yield *races to the bottom* in environmental law. A politician’s desire to signal the state’s willingness to accommodate business can lead simultaneously to less environmental protection and no real economic benefit. Given the diversity of stringency in RPSs, this same kind of result may be the case for some states’ laws. If a state’s politicians know, for instance, that passage of an RPS is inevitable, they may game how it is designed to ensure that it sends the positive “we want renewables” political signal, but that it has no real impact on what facilities are actually built in the jurisdiction. If this is the case, the answer for why the RPS design data are so noisy may be that there is more than one dominant strategy at play: Some states may be racing to the top while others are concurrently racing to the bottom.

Such choices would be entirely consistent with the diversity of laws

RPS. . . . [S]tates with high wind potential are significantly more likely to adopt an RPS than those states with low wind potential. . . . The estimates also show that states with high solar potential are more likely to adopt an RPS compared to those with medium solar potential.” Lyon & Yin, *supra* note 75, at 148–49.

243. See Saleska & Engel, *supra* note 10, at 78–84.

244. See *id.*

now on the books. Some commentators have suggested that state decisions to adopt climate change regulation today may reflect state posturing with the federal government to prevent more aggressive federal law later, or to ensure an advantageous position if national climate change legislation is enacted.²⁴⁵ A state that has already acted can call itself a leader, and thus, argue that its own, carefully compromised legislation should be protected under federal law. For RPSs, this might mean that preexisting standards would not be preempted by a national RPS, or could be grandfathered in.²⁴⁶ If so, this would explain why some RPSs appear stringent on their face but underneath are not. It would be another reason why states might adopt RPSs in a political strategy other than a race to the top.

All this is to say that while there may be much excitement surrounding the continued adoption of state RPSs, there are many reasons why that apparent legislative enthusiasm might not equate to a regulatory race. The more important question, then, is not whether the absence of an RPS race to the top is logical, but rather, what that absence means. Depending on the type, a race to the bottom or the top might suggest the need for federal action: a federal floor or a federal ceiling. But what are the implications for the federal-state government divide when the data show that there is no clear race to stringency or, perhaps, competing races to stringency among some states and races to laxity among others?

For RPSs, there perhaps is no more important—or timely—question than this: Should the broad array of state RPSs become nationalized? It

245. See, e.g., Robert L. Glicksman, *From Cooperative to Inoperative Federalism: The Perverse Mutation of Environmental Law and Policy*, 41 WAKE FOREST L. REV. 719, 779–80 (2006) (noting the possibility of state climate change action to preempt “the imposition of more rigorous federal controls”); cf. Barry G. Rabe et al., *State Competition as a Source Driving Climate Change Mitigation*, 14 N.Y.U. ENVTL. L.J. 1, 3–4 (2005) (“The concept of state competition implies that interests other than primarily environmental ones also may drive proactive climate change policies.”); Mary Bede Russell, Note, *What’s It to You?: The Difficulty of Valuing the Benefits of Climate-Change Mitigation and the Need for a Public-Goods Test Under Dormant Commerce Clause Analysis*, 94 IOWA L. REV. 727 (“states anticipate regulation at the federal level and believe that starting early will make their transition from fossil fuels more efficient.”).

246. Gold & Thakar, *supra* note 85, at 234 (“State RPS programs often anticipated federal RPS requirements that would likely preempt state programs but still provide credit for achievements realized at the state level.”); James M. Van Nostrand & Anne Marie Hirschberger, *Implications of a Federal Renewable Portfolio Standard: Will It Supplement or Supplant Existing State Initiatives?*, 41 U. TOL. L. REV. 853, 874 (2010) (“It is essential that a federal RPS not hinder or preempt the substantial progress that states have already made in developing and implementing RPS requirements.”).

is a longstanding question. Literally dozens of national RPSs have been proposed.²⁴⁷ None has been adopted. The lack of an RPS race to stringency has something to say on this front, at least three things to be precise.

First, because there is no overarching race to stringency, there should not be a need for a federal ceiling that limits state RPS enactments. If states were pushing their RPS standards too far, there would be a risk that this kind of regulatory race could lead to an undesirable result. Instead, the lack of a race to stringency implies that states, at most, are adopting laws tailored to the political, social, and natural traits of their states. If we assume those political decisions reflect constituents' political preferences,²⁴⁸ that outcome should be economically efficient—or at least not inefficient because of wasteful state competition for renewable industry. The trap of a regulatory race should not be skewing the result.

Second, the lack of an RPS regulatory race lends credence to the suggestion that at least some states have adopted these laws for largely symbolic purposes.²⁴⁹ If so, this may represent a kind of race within a race—a race to laxity for some states while other states race to strictness. The presence of a clear race to stringency would have helped refute this suggestion. As it turns out, that evidence is not there. Certainly, other studies showing the sheer diversity of state RPSs already call into question whether all RPSs are truly motivated by the desire to foment a renewable energy renaissance. Add to this the increasing variety, and loftiness, of goals cited as RPS aims—plus the fact that so many states have adopted voluntary RPSs—and there is further support for the proposition.

Third, the lack of a single RPS race means that there remains room for federal action on renewable electricity. That is, if promoting increased renewables is a societal goal, we may need federal action to do it. The hypothesis of an RPS race to the top is that states are stepping into the breach to solve the problem of what our generation mix should look

247. Davies, *Power Forward*, *supra* note 6, at 1364–65. Two recent versions were included in the Waxman-Markey bill, the American Clean Energy and Security Act, which passed the House of Representatives but not the Senate, and the American Clean Energy Leadership Act of 2009. *See also* S. 3813, 111th Cong. (2010).

248. This is, of course, a somewhat tenuous assumption.

249. *Cf.* Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 *ECOLOGY L.Q.* 183, 219 (2005) (“Strategies like renewable portfolio standards have the potential to be much more than mere symbolism, and could actually become effective levers for substantially reducing greenhouse gas emissions if the renewable portfolio percentage is set high enough. However, they are often justified on grounds other than mitigation of climate change”); Robert J. Michaels, *National Renewable Portfolio Standard: Smart Policy or Misguided Gesture?*, 29 *ENERGY L.J.* 79, 79 (2008) (“The actual record of state [RPS] implementations has been largely symbolic.”); Spence, *The Political Barriers to a National RPS*, *supra* note 171, at 1461 (“Distinguishing the action-forcing RPSs from those that represent mere symbolic action is difficult”).

like.²⁵⁰ That, it turns out, is only partially the case. Most states have acted, but many have not. Additionally, many states are putting more and more vigorous laws into place, but again, many are not. Notwithstanding the significant attention they have received, state RPSs reflect a piecemeal approach to renewables in the United States, not a holistic solution.

However, showing that there is not a state-based RPS race to the top hardly answers all questions about a possible national RPS, even if it indicates that room remains for federal involvement in this sphere. To begin, that there is not an RPS race does not clarify whether we should have a national RPS at all. One might argue, for instance, that the plethora of action by some states, and the entrenched inaction by others, indicates that our political system has already set the appropriate level of renewables needed: If more RPSs were appropriate, more states would act.²⁵¹ This argument can be made irrespective of whether there is a race to the top or not: It is that the societal preference for more renewables is not sufficient to strengthen these laws, even when the carrot of more industry and additional jobs is dangled before decisionmakers.

Indeed, a national RPS long has faced an uphill battle to adoption.²⁵² This is both because of its possible costs and because of its lingering political opposition, as Professors Jim Rossi and David Spence have lucidly observed.²⁵³ In a prior article, I explained why, despite political resistance, a federal RPS is preferable to the current status quo of mish-mashed state requirements.²⁵⁴ Most critically, existing state RPSs have erected a fragmented, imperfect market where renewable energy credits are not necessarily fungible from one state to the next, and where some states flat out ban the use of renewable energy produced in other states for satisfaction of their own RPSs.²⁵⁵ Moreover, state RPS design is so divergent that some laws come across as mere window-dressing—symbolic attempts to gain politicians public favor without really seeking meaningful

250. See *supra* text accompanying note 4.

251. See *supra* text accompanying notes 153–57.

252. Davies, *Power Forward*, *supra* note 6, at 1364–65; see also Mary Ann Ralls, *Congress Got It Right: There's No Need To Mandate Renewable Portfolio Standards*, 27 ENERGY L.J. 451, 452 n.11 (2006) (listing prior legislative efforts).

253. Rossi, Commentary, *supra* note 22, at 1433; Jim Rossi, *The Shaky Political Economy Foundation of a National Renewable Electricity Requirement*, 2011 U. ILL. L. REV. 361, 366–68 (2011); Spence, *The Political Barriers to a National RPS*, *supra* note 171, at 1464–73.

254. Davies, *Power Forward*, *supra* note 6, at 1339.

255. *Id.* at 1375.

change—while others come with real bite—offering the possibility to begin a societal transformation to a more sustainable economy. A federal RPS could help change that.

Still, measuring a hypothetical federal RPS against the status quo of thirty-eight state RPSs addresses only half the equation. A federal RPS would have two primary functions. First, it would make RECs, and the renewable energy they are based on, fungible irrespective of geography or political boundary. This is the efficiency-based “market unification” function of a national law.²⁵⁶ Second, a federal RPS would extend the requirement that utilities acquire a percentage of their power from renewables to utilities that are not subject to that requirement today. This might be referred to as the law’s “renewables promotion” function.²⁵⁷

It is difficult to quibble with the market unification function of a federal RPS. Given the vast number of laws already on the books, there is little reason not to make the operation of these laws more efficient.²⁵⁸

The renewables promotion function of a federal RPS, however, bears closer scrutiny. Numerous scholars have noted at length the benefits of renewables when compared to conventional fuel sources for electrical power.²⁵⁹ But a federal RPS also would have costs. The foremost is the increased price of electricity,²⁶⁰ but another is potential inefficacy. If a federal RPS is not supported by needed regulatory complements, such as additional transmission capacity, it may not achieve its goals—and so fail at a significant cost.²⁶¹ Likewise, if the law primarily promotes wind, it might do little to increase fuel diversity, while concomitantly coming up short in helping renewables become more commercially competitive, as wind is much farther along in reducing its cost production curve than many renewable technologies.²⁶² Also, if a national RPS pushes renewables to replace natural gas generation, it could further entrench coal’s position of dominance in the nation’s electrical fuel mix, rather than liberate

256. Rossi, Commentary, *supra* note 22, at 1430.

257. Rossi refers to this as the “‘mandate’ aspect of the national RPS.” *Id.*

258. *See id.* at 1448.

259. These include pollution benefits, primarily in the form of lower air emissions; climate change benefits, namely in the form of reduced CO₂ emissions; security, or “independence,” benefits, largely by freeing the nation of its heavy reliance on foreign sources of fuel; and sustainability benefits, by shifting away from fuels that are limited to those that are perpetually available.

260. *See* Davies, *Power Forward*, *supra* note 6, at 1374–75; Rossi, Commentary, *supra* note 22, at 1433; Spence, *The Political Barriers to a National RPS*, *supra* note 171, at 1457–58.

261. Rossi, Commentary, *supra* note 22, at 1446–48.

262. *Id.* at 1438, 1440. For a particularly insightful account of how energy regulation interfaces with renewable technological innovation, see Joel B. Eisen, *The New Energy Geopolitics?: China, Renewable Energy, and the “Greentech Race”*, 86 CHI.-KENT L. REV. 9 (2011).

renewables to compete against that fuel.²⁶³ Given coal’s comparatively high contribution to greenhouse gas emissions, such an effect would be environmentally counterproductive rather than salutary.²⁶⁴

By definition, whether there is an RPS race to the top does not address these thorny questions. The lack of a race to the top means a national RPS ceiling is unnecessary. It does not, however, mean that an increasingly higher national standard is necessary. That is a question that the lack of a race to stringency specifically leaves open: What is socially desirable?

Ultimately, a more thorough, empirical, value-laden analysis is needed to answer that question.²⁶⁵ How best to promote renewables—whether by an RPS of one kind or another, by a feed-in tariff, or by a combination of the two—is a question of policy design, and of political preferences.²⁶⁶ Likewise, whether the United States should supply ten, twenty, or fifty percent of its electricity from renewal resources by 2020, 2030, or 2050 is by definition an inquiry of our societal and economic preferences: how much we worry (or do not worry) about environmental externalities, how confident we are in existing and pending fossil fuel supplies, and how much we prefer current generations to bear costs versus how much we discount costs into the future. It is, in the end, a question of how much we want our society to change from what it is today.

Societal change, especially big change, takes time. A national RPS, as Professor Fershee rightly notes, is at most a “starting point, not an ending point.”²⁶⁷ Many other questions about a possible federal RPS need to be answered, including where to set the law’s target, and what other “help from other energy legislation” a national RPS would need.²⁶⁸ This article does not attempt to answer these questions, much less the lofty inquiry of what our energy future should be. Given our nation’s increasing trajectory along unsustainable paths, however, the article does suggest that there is at least one more reason to consider whether a national RPS might be a good place to start.

263. Rossi, Commentary, *supra* note 22, at 1438, 1440.

264. *Id.* at 1437.

265. *But cf.* TOMAIN, *supra* note 196, at 236–38 (criticizing cost-benefit analyses in energy planning and arguing that additional reliance on renewables is essential to environmental sustainability).

266. *Cf.* Ringel, *supra* note 32, at 8–10.

267. Joshua P. Fershee, *Moving Power Forward: Creating a Forward-Looking Energy Policy Based on a National RPS*, 42 CONN. L. REV. 1405, 1423 (2010).

268. *Id.*

VI. CONCLUSION

State renewable portfolio standards have been held out as comprising one of the most prominent examples of a regulatory race to the top—sometimes to hail state legislative efforts as innovative and forward-looking, sometimes to suggest that these efforts supplant the need for federal law. The evidence, however, does not support these suppositions. What the evidence shows is that state RPSs are at most a partial effort at energy law innovation. States certainly cite economic rationales for adopting these laws, a phenomenon fully consistent with the notion of a regulatory race. Some states also have adopted more and more forceful RPSs, a fact also supportive of the idea of a race to the top. Yet a deeper analysis of these laws exposes divergence in state efforts, not conformity to a dominant strategy that would indicate a singular race to stringency. Many RPS enactments, including a number of recent ones, simply do not support the idea that states uniformly see these laws as the best way to attract the renewable energy industry to their borders. This has important policy implications because it means that there is not a need for a federal ceiling on state RPSs. Even more critically, it means that relying on state measures alone is not enough. Room remains for federal action on renewable energy—action that, to date, remains absent.