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ARTICLE

Engines of Environmental Innovation: Reflections on the Role of States in the U.S. Regulatory System

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Ralph Waldo Emerson said, “[d]o not go where the path may lead, go instead where there is no path and leave a trail.”¹ This reflection from an American poet with a passion for the environment seems to set the stage well for an article reflecting on the role of state environmental regulatory, programmatic, and

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1. Ralph Waldo Emerson.

management innovation. States are often referred to as “laboratories” within the American federal system, where innovative approaches to challenging problems facing society and our nations’ governance are pioneered and refined—with the most successful and promising ideas setting the stage for national application.² The arena of environmental statutes and regulation is no exception.³ Think, for example, of California’s Porter Cologne Act, widely acknowledged as the model for the federal Clean Water Act.⁴ However, referring to states as laboratories in the realm of environmental regulation may not fully reflect the role they have come to play over time, particularly in the environmental field. Rather, when we fully consider states’ role as co-regulators in the American system of cooperative federalism, with reflection on and assessment of the volume of purely state-level environmental regulation, we might more properly term states as “engines” of environmental regulation.

This article focuses on the role that states play in environmental regulation. Specifically, this article offers examples of the central part in the evolution of United States

2. See *Oregon v. Ice*, 555 U.S. 160, 160 (2009); *United States v. Lopez*, 514 U.S. 549, 581 (1995) (Kennedy, J., concurring); *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting) (“It is one of the happy incidents of the federal system that a single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.”). Consider, for example, that Massachusetts’ health care system is widely acknowledged as the basis for the Affordable Care Act. See THE HENRY J. KAISER FAMILY FOUND., MASSACHUSETTS HEALTH CARE REFORM: SIX YEARS LATER 2 (2012), available at <https://kaiserfamilyfoundation.files.wordpress.com/2013/01/8311.pdf>, archived at <https://perma.cc/YK8H-DKZK>.

3. See Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 606-07 (1996); see also Jerome M. Organ, *Environmental Federalism: Limitations on State Agency Authority to Adopt Environmental Standards More Stringent than Federal Standards: Policy Considerations and Interpretive Problems*, 54 MD. L. REV. 1373, 1392 (1995).

4. *History of the Water Boards*, STATE WATER RES. CONTROL BD., http://www.swrcb.ca.gov/about_us/water_boards_structure/history_water_policy.shtml (last updated Sept. 20, 2011), archived at <http://perma.cc/4WQ7-VEDF> (“Porter-Cologne, named for the late Los Angeles Assemblyman Carly V. Porter and then-Senator Gordon Cologne, was recognized as one of the nation’s strongest pieces of anti-pollution legislation The new state law was so influential that Congressional authors used sections of Porter-Cologne as the basis of the Federal Water Pollution Control Act Amendments of 1972, known as the Clean Water Act.”).

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environmental regulation states played in the past, continue to play today, and will play in the future. First, this article explores the history of state environmental regulation, demonstrating that despite a lack of resources, states were actively engaged in environmental regulation before the advent of the modern era of federal environmental regulation in the 1970s. This article relates not only the regulatory efforts of states, but also the practical benefits of state regulation. Further, this article discusses the ways in which state environmental regulations were used to form the first federal environmental laws, demonstrating that states have been environmental innovators from the outset. Second, this article describes the current environmental regulatory scheme, often referred to as cooperative federalism, which demonstrates the states' major role in carrying out the nation's system of environmental statutes and regulation. Third, this article provides several examples of states' continuing role as environmental innovators, highlighting several state efforts to establish programs and regulatory approaches that exceed the minimum level of environmental regulation established by the federal government. While acknowledging that some states adopt the federal minimum environmental standards as maximum regulatory approaches in their borders, this article nonetheless asserts that states' actions as innovators is powerful and necessary, as evidenced by their ability to influence the market using their own environmental regulations, their ability to partner with other organizations to create new federal standards, and their ongoing efforts to work with the federal government to improve on the collaborative federalism model. This article concludes that this nation must move to an era of true environmental partnership between states and the federal government to achieve meaningful environmental progress—and to deliver the clean and healthy environment all Americans have come to expect and demand. To do this, we must continue to fuel states with political, fiscal, and public support, so that they may continue their important role as engines of environmental innovation.

I. **WHERE THERE IS NO PATH: STATE ENVIRONMENTAL REGULATION PRE-CONTEMPORARY STATUTES**

Prior to the 1960s, states were doing substantial work to address activities compromising human health, natural resources, and the ambient quality of air, water, and land. For example, state efforts to control air pollution began as early as 1881, and in fact, “the most extensive research, which focuses on air pollution, shows clearly that states and municipalities were making considerable strides before the federal regulatory era.”⁵ There were forty municipalities with effective controls on air pollution by 1920, and by 1970, the year the first major federal environmental statutes were enacted, there were 107.⁶ States were supplementing these local municipal efforts with their own air quality laws, and by 1960, many states had taken significant steps to control air pollution.⁷ Just six years later, states had begun to develop more specific laws, and “ten states had adopted at least some ambient air quality standards, which covered fourteen substances as well as deposited matter. In addition, six states had emissions standards covering some stationary sources.”⁸ Retrospective studies of the effectiveness of efforts undertaken by the states in the 1960s to late 1970s show ambient air quality improvements,⁹ sulfur dioxide reductions,¹⁰ and particulate matter improvements.¹¹

5. Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 HARV. L. REV. 553, 579 (2001).

6. *Id.*; see also Arthur C. Stern, *History of Air Pollution Legislation in the United States*, 32 J. AIR POLLUTION CONTROL ASS'N 44, 44 (1982), available at <http://www.tandfonline.com/doi/pdf/10.1080/00022470.1982.10465369>, archived at <http://perma.cc/95KQ-LLFL>.

7. Revesz, *supra* note 5, at 580 (“By 1960, eight states had general air pollution control laws; another nine had undertaken measures to control air pollution under their general public health laws; and eight others had authorized local air pollution control agencies to transcend municipal boundaries in their regulatory efforts.”).

8. *Id.*

9. *Id.* at 580-82 (discussing studies that “attempted to quantify improvements in the ambient air quality levels for sulfur dioxide and particulates before 1970 . . . [and] which suggest that states responded vigorously to those air pollution problems that were understood at the time”).

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State efforts to protect the environment and public health were not exclusively focused on air pollution prior to 1970. Water quality was also a significant concern for state governments, especially as the link between water quality and disease became clearer. For example, New York State began regulating municipal drinking water in 1904.¹² In 1904, the State created the Water Supply Commission and “[a]ll cities except New York were required to submit their plans for new water supplies to the Commission, and the Commission began reporting on water sources, water quality, and methods of sewage disposal.”¹³ The Commission supplemented the duties carried out by the State Department of Health, created in 1901, which investigated “diseases caused by ‘overflow of the canals.’”¹⁴ Even before New York’s efforts at the turn of the century, Oregon had enacted a statute, which prohibited “pollution of waters used for domestic or livestock purposes.”¹⁵ In 1938, Oregon established the Oregon State Sanitary Authority, which was later “charged with cleaning up pollution in the Willamette River, with a focus on discharges from industrial and municipal facilities.”¹⁶ In 1944, Oregon began “research and treatment of polluted wastewater,” and began construction on sewage treatment plants.¹⁷ Texas authorized the Texas Department of Health “to enforce drinking water standards for public water supply systems,” in 1945,

10. *Id.* at 580 (referencing a Brookings Institution study concluding, “sulfur dioxide concentrations fell by 11.3% per year between 1964 and 1971 . . . but fell by only 4.6% per year in the 1970s”).

11. *Id.* (noting studies that found “the average concentrations of total suspended particulates fell by 2.3% per year between 1960 and 1971, but fell by only 0.6% per year from 1972 to 1980”).

12. BRAD EDMONDSON, ENVIRONMENTAL AFFAIRS IN NEW YORK STATE: AN HISTORICAL OVERVIEW 33 (2002), available at http://www.archives.nysed.gov/a/records/mr_pub72.pdf, archived at <http://perma.cc/39JH-QSYF>.

13. *Id.*

14. *Id.*

15. *Oregon DEQ History Timeline*, ABOUT DEQ, <http://www.deq.state.or.us/about/historytimeline-p1.htm>, archived at <http://perma.cc/D3U2-ZY2D> (last visited Apr. 8, 2015).

16. *Id.*

17. *Id.*

providing a further example of pre-federal environmental protection.¹⁸

Notwithstanding this and other state activity, the sentiment of the nation by the mid-1960s called for federal action.¹⁹ These federal efforts were designed not to supplant existing state regulations, but to “support and prod state-level environmental regulation.”²⁰ National environmental groups and Congress viewed the results of this first interplay between federal and state environmental regulation as producing unsatisfactory results, as air and water quality continued to maintain current conditions, and to deteriorate²¹—the acknowledged tragedy of the commons.²² Although the Commerce Clause provision of the U.S. Constitution²³ was an acknowledged source of constraint on federal activity, three reasons were advanced for a centralization of environmental regulation: “interstate spillovers of pollution; the poor performance of states as environmental regulators; and interstate competitiveness effects arising from differing environmental standards.”²⁴ Other factors that influenced the

18. *History of the TCEQ and Its Predecessor Agencies*, ABOUT THE TCEQ, <http://www.tceq.state.tx.us/about/tceqhistory.html>, archived at <http://perma.cc/3NDA-RBHV> (last visited Apr. 8, 2015).

19. Esty, *supra* note 3, at 600-01 (“[S]tate regulatory efforts of the 1950s and 1960s . . . did little to stem the flow of pollution, and by the mid-60s, the demand for more centralized regulation was growing.”).

20. *Id.* at 601.

21. *Id.*

22. See generally Garrett Hardin, *Tragedy of the Commons*, 162 *SCI.* 1243 (1968), available at <http://www.sciencemag.org/content/162/3859/1243.full.pdf>, archived at <http://perma.cc/8Z2V-367J>.

23. See generally U.S. CONST. art I, § 8, cl. 3. See also Dan L. Gildor, *Preserving the Priceless: A Constitutional Amendment to Empower Congress to Preserve, Protect, and Promote the Environment*, 32 *ECOLOGY L.Q.* 821, 831 (2005).

24. Esty, *supra* note 3, at 601-02; see also Kirsten H. Engle, *State Environmental Standard-Setting: Is There a “Race” and Is It “To the Bottom”?*, 48 *HASTINGS L.J.* 271, 284-85 (1997) (suggesting Congress had four reasons for advancing federal involvement in environmental regulation: “(1) the need to reduce interstate spillovers; (2) the need to reap the benefits of centralized administration, including the economies of scale that can be achieved in areas vital to environmental protection such as scientific expertise; (3) the need to guarantee a minimum standard of human health and ecological integrity as a right of all Americans by ensuring a minimum level of environmental quality everywhere in the nation, and (4) the need to prevent a lowering of environmental standards resulting from interstate competition for industry,

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centralization of environmental law included a growing desire on the part of industries to reduce varying state requirements, and the presidential politics during the 1972 election.²⁵ The explosion of federal environmental law during this period has led to some commentators to suggest that “modern environmental law began in the sixties.”²⁶ Certainly some of the factors, which led to the centralization of environmental regulation were, and continue to be, valid rationales for a centralized approach. State governments must respond to the demands of the citizens who chose them, and in some states, concerns about environmental regulation for the sake of environmental protection may not be as high as in other areas, or the populous may have other priorities that could compromise the environment or exploit natural resources, such as economic development or urbanization. Research demonstrates that individuals responsible for shaping state economic policy (state legislators, economic development agency officials, and members of state chambers of commerce) believe “that environmental standards were either a ‘fairly’ or ‘very important’ factor in firm location.”²⁷ Further, these individuals “responded with surprising frequency that concern over industry location or relocation had played a role in prompting them to pressure their state government (or, in the case of legislators, introducing or sponsoring legislation) to relax their state’s environmental standards.”²⁸ Although not true of a state at all times, research reveals that states at times engage in what is referred to as a “race to the bottom,” in which state actors seek to increase their constituents’ welfare by limiting environmental regulations in order to encourage industry or development to choose their state for operations over another.²⁹

In addition, though they contribute significantly to federal work in this area, states cannot match the federal government in

including (but not limited to) competition based on the advantage of geographic location”).

25. Esty, *supra* note 3, at 602-03.

26. See 1-1 FRANK P. GRAD, TREATISE ON ENVIRONMENTAL LAW § 1.01 (2014) [hereinafter TREATISE]; Revesz, *supra* note 5, at 578 (noting 1970 as the year that Congress enacted first major federal statutes).

27. Engle, *supra* note 24, at 352.

28. *Id.* at 353.

29. *Id.* at 351; Esty, *supra* note 3, at 603-04.

its ability to collate environmental data.³⁰ Before 1970, the federal government did little research on the effects of pollutants, and states “may not have regulated significantly because they lacked this data.”³¹ However, in instances where states had access to clear data on pollution effects, they did act.³²

Certainly today, the federal environmental regulatory approach is premised on the idea that the federal government should have a leading role in determining environmental regulation.³³ However, arguments in favor of “federal environmental regulation [which] rest in part on the empirical claim that states largely disregarded environmental problems before 1970”³⁴ ignore the substantial work states were doing prior to the advent of environmental cooperative federalism. Further, as the next two sections show, states continue to play a vital part in fulfilling current environmental regulatory mandates and also developing exciting innovations to push both industry and the federal government forward in environmental regulations.

II. THE PATH: COOPERATIVE FEDERALISM AT THE HEART OF SOME, BUT NOT ALL, ENVIRONMENTAL STATUTES

The current federal environmental system of statutes and regulations administered largely by the U.S. Environmental Protection Agency (EPA) relies on the theory of cooperative federalism, “an enduring, organizing concept in environmental law.”³⁵ Cooperative federalism is “a system under which the federal and state governments share some degree of regulatory

30. See Revesz, *supra* note 5, at 578.

31. See *id.* at 578.

32. *Id.* at 581-82 For example, of the pollutants covered by one study mentioned above, “only particulate matter and sulfur dioxide were perceived as outdoor air pollutants before 1950,” and for these two substances, the pre-1970 improvements were significant.” *Id.* at 582.

33. See CAA NUTSHELL, *supra* note 26, § 1.03.

34. Revesz, *supra* note 5, at 578; see also Esty, *supra* note 3, at 601.

35. Robert L. Fischman, *Cooperative Federalism and Natural Resources Law*, 14 N.Y.U. ENVTL. L.J. 179, 187 (2005); see also Alexandra Dapolito Dunn & Meghan Boian, *Postcards from the Edge: Perspectives to Reinvent Clean Water Act Cooperative Federalism*, 4 GEO WASH. J. ENERGY & ENVTL. L. 68, 68 (2013).

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authority.”³⁶ In cooperative federalism “[t]he federal government is typically seen as the ‘dominant partner’ . . . but because the Constitution reserved to states all powers that were not explicitly allocated to the federal government, and because federal resources are limited, the federal government often relies heavily on state cooperation and involvement.”³⁷ A review of the Clean Air Act’s State Implementation Plan provision and the Clean Water Act’s Total Maximum Daily Loads (TMDLs) provision provide examples of statutes with a cooperative federalism core, and highlights the essential state role.³⁸ In contrast, the Toxic Substances Control Act is an example of a “chemicals in commerce”³⁹ statute that does not rely on cooperative federalism to accomplish its goals.

A. National Ambient Air Quality Standards Under the Clean Air Act

The Clean Air Act “is the comprehensive federal law that regulates air emissions from stationary and mobile sources.”⁴⁰ The law was originally passed in 1963, and its basic structure was established in the Clean Air Act Amendments of 1970, with major revisions also made to the law in 1977 and 1990.⁴¹ While Congress found “that Federal financial assistance and leadership is essential for the development of cooperative Federal, State,

36. KATIE M. SWEENEY & SHERRIE A. ARMSTRONG, *COOPERATIVE FEDERALISM IN ENVIRONMENTAL LAW: A GROWING ROLE FOR INDUSTRY 1* (2013), available at http://www.americanbar.org/content/dam/aba/events/environment_energy_resources/2013/10/21st_fall_conference/conference_materials/17-sweeney_katie-paper.authcheckdam.pdf, archived at <http://perma.cc/Y48M-7S6H>.

37. *Id.* at 2.

38. See *infra* Parts II.A and II.B.

39. *TSCA Chemical Substance Inventory*, EPA, <http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/basic.html> (last updated Mar. 13, 2014), archived at <http://perma.cc/3L8X-M2VA> (“Substances on the TSCA Inventory are considered “existing” chemicals in U.S. commerce, and substances not on the TSCA Inventory are considered “new” chemicals.”).

40. *Summary of the Clean Air Act*, EPA, <http://www2.epa.gov/laws-regulations/summary-clean-air-act>, archived at <http://perma.cc/42EN-JAK7> (last updated Mar. 13, 2015).

41. EPA, *THE CLEAN AIR ACT IN A NUTSHELL: HOW IT WORKS 1* (2013), available at http://www.epa.gov/air/caa/pdfs/CAA_Nutshell.pdf, archived at <http://perma.cc/6TKK-TNQJ> [hereinafter CAA NUTSHELL]. See generally TREATISE, *supra* note 26, § 2.03.

regional, and local programs to prevent and control air pollution,” it explicitly stated “that air pollution prevention (that is, the reduction or elimination, through any measures, of the amount of pollutants produced or created at the source) and air pollution control at its source is the primary responsibility of States and local governments.”⁴²

A central component of the Clean Air Act is its regulation of common and widespread pollutants. In particular, the EPA’s use of air quality standards and the state’s implementation of those standards is an example of the cooperative federalism that underlies so much of the current environmental regulatory scheme.⁴³ Under the Clean Air Act, the EPA is required “to set and revise national ambient air quality standards (NAAQS) for certain common and widespread pollutants.”⁴⁴ EPA sets primary and secondary standards, and is required to review scientific data every five years and determine whether the standards need to be revised.⁴⁵

Implementation of the standards is a shared responsibility between the states and the EPA, unlike the setting of the NAAQS, which is the sole responsibility of the EPA.⁴⁶ After the EPA has made a determination regarding a new NAAQS or revising a current NAAQS, it determines whether an area is an “attainment area,” which meets the standards, or a “non-attainment area,” which does not.⁴⁷ These determinations are made in consideration of state recommendations.⁴⁸

To address the problems of the non-attainment areas and preserve the attainment areas, the Clean Air Act requires states to create state implementation plans (SIPs).⁴⁹ The Clean Air Act has both generic and specific requirements for SIPs for

42. Clean Air Act, 42 U.S.C. § 7401(a) (2012).

43. *The Clean Air Act: A Partnership Among Governments*, EPA, <http://www.epa.gov/air/caa/partnership.html>, archived at <http://perma.cc/YWY2-U2L2> (last visited Apr. 7, 2015).

44. CAA NUTSHELL, *supra* note 40, at 3.

45. *Id.*

46. *Id.*

47. *Id.* at 4.

48. *Id.*

49. *Id.*

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nonattainment areas.⁵⁰ The generic provisions generally require SIPs for nonattainment areas within three years of a new or revised NAAQS, and “[t]hese plans must provide for attainment of the standard as expeditiously as practicable and within 5 years of designation—or up to 10 years if EPA determines additional time is warranted considering the severity of pollution and availability of controls.”⁵¹ For specific pollutants, the schedule for a SIP may differ.⁵²

If a SIP has not been submitted or carried out, or if EPA disapproves a SIP, then the Agency can issue sanctions.⁵³ For example, “[i]f the state has not cured the deficiency within 18 months of EPA’s finding or disapproval, new major stationary sources in the nonattainment area must obtain offsetting emissions reductions from the same source or other sources at a 2- to- 1 ratio.”⁵⁴ In two years, if the deficiency is not remedied, “restrictions apply to the state’s use of federal highway funds for projects in the nonattainment area,” and “if EPA finds that a state has failed to submit an approvable state plan to demonstrate attainment or disapproves a submitted plan, EPA is required to develop a federal implementation plan to ensure improvement of air quality for citizens living in that area.”⁵⁵

B. Total Maximum Daily Loads Under the Clean Water Act

The Clean Water Act is the federal law that regulates pollutant discharge into the waters of the United States.⁵⁶ The Clean Water Act has its origins in the 1948 Federal Water Pollution Control Act, but its modern form came into being in

50. CAA NUTSHELL, *supra* note 40, at 5.

51. *Id.*

52. *Id.*

53. *Id.* at 7.

54. *Id.*

55. *Id.*

56. Clean Water Act, 33 U.S.C. § 1251 (2012). See *Documents Related to the Proposed Definition of "Waters of the United States" Under the Clean Water Act*, EPA, <http://www2.epa.gov/cleanwaterrule/documents-related-proposed-definition-waters-united-states-under-clean-water-act#proposal>, archived at <http://perma.cc/8SWZ-C3J6> (last updated Jan. 30, 2015).

1972.⁵⁷ The establishment of TMDLs, as required by the Clean Water Act, is another example of cooperative federalism at work in the federal environmental regulatory scheme, with significant reliance on state capabilities.⁵⁸

Under the Clean Water Act, states are required to develop lists of impaired waters.⁵⁹ Impaired waters are waters “that are too polluted or otherwise degraded to meet the water quality standards set by states.”⁶⁰ Lists of impaired waters are required every two years.⁶¹ The Clean Water Act then requires that the states “establish priority rankings for waters on the lists and develop TMDLs for these waters.”⁶² A TMDL “is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.”⁶³ If the EPA Administrator disapproves a state’s list and its TMDLs, the Administrator must “identify such waters in such State and establish such loads for such waters as he determines necessary to implement the water quality standards applicable to such waters and upon such identification and establishment the State shall incorporate them into its current plan.”⁶⁴

In December 2013, the EPA announced a new collaborative framework for implementing the section 303(d) program.⁶⁵ The framework, entitled *A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program*, was the result of collaboration between states

57. *Summary of the Clean Water Act*, EPA, <http://www2.epa.gov/laws-regulations/summary-clean-water-act> (last updated Mar. 13, 2015), *archived at* <http://perma.cc/WC8B-5QB2>.

58. TMDLs are part of the Clean Water Act section 303(d) program. *See* 33 U.S.C. § 1313(d).

59. *Impaired Waters and Total Maximum Daily Loads*, EPA, <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/>, *archived at* <http://perma.cc/8F8X-3MCH> (last updated Mar. 12, 2015) [hereinafter *Impaired Waters*].

60. *Id.*

61. *Glossary*, EPA, <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/glossary.cfm#303dthreatenedimpairedwaters> (last updated Mar. 6, 2012), *archived at* <http://perma.cc/48B2-4NN9>.

62. *Impaired Waters*, *supra* note 58.

63. *Id.*

64. 33 U.S.C. § 1313(d)(2) (2012).

65. *Impaired Waters*, *supra* note 58.

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and the EPA that began in 2011.⁶⁶ The Framework describes “a new, long-term Vision and associated Goals for the Clean Water Act Section 303(d) Program, as well as present implementation plans for achieving the Vision and Goals,” and “reflects lessons learned from the past two decades of CWA 303(d) Program implementation and . . . anticipates new challenges that are likely to present themselves in the coming years.”⁶⁷

C. In Contrast, the Toxic Substances Control Act

In contrast to the Clean Air Act and the Clean Water Act, both of which envision a role for states in the federal environmental regulatory scheme in multiple programs—beyond just the two examples provided—the Toxic Substances Control Act (TSCA) embodies virtually no elements of cooperative federalism. The TSCA “provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures.”⁶⁸ Various sections of the TSCA allow the federal government to engage in various activities, including: requiring pre-manufacture notification for new chemical substances; requiring testing of chemicals by manufacturers, importers, and processors; issuing Significant New Use Rules; and maintaining the TSCA Inventory.⁶⁹ None of these roles are shared with the states.

Thus, while cooperative federalism is the primary principal that guides federal environmental regulation, it is clear that federal environmental regulation still remains diverse in the roles it perceives for states. Within the Clean Air Act conception of NAAQS and SIPs, states cannot set ambient air quality standards, but states have a vital role in creating the plans that will achieve the EPA’s attainment area goals. Under the Clean

66. *Id.*

67. EPA, A LONG-TERM VISION FOR ASSESSMENT, RESTORATION, AND PROTECTION UNDER THE CLEAN WATER ACT SECTION 303(d) PROGRAM 2 (2013), available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/vision_303d_program_dec_2013.pdf, archived at <http://perma.cc/8UH9-E76U>.

68. *Summary of the Toxic Substances Control Act*, EPA, <http://www2.epa.gov/laws-regulations/summary-toxic-substances-control-act> (last updated July 10, 2014), archived at <http://perma.cc/MZH7-QR8Q> [hereinafter *Summary Toxic*].

69. *Id.*

Water Act section 303(d) program, the states have a large role in not only setting pollutant loads but also determining how to best protect water quality given those TMDLs. Finally, under TSCA, the federal government shares little with the states. The following section demonstrates that no matter what role the federal government envisions for the states in environmental regulation, they continue to innovate and regulate, within the confines of the technical, fiscal, and political limitations which face all levels of government.

III. LEAVING A TRAIL: STATES AS ENGINES OF ENVIRONMENTAL REGULATORY, PROGRAMMATIC, AND MANAGEMENT INNOVATION

In addition to the dynamic role, which states occupy in cooperative federalism and the federal environmental statutes that embody that philosophy, states continue to innovate in the environmental regulation space. State innovation has not only advanced environmental regulation within the borders of whatever state has chosen to pass new environmental legislation, but has often, when a critical mass of support has been reached, advanced environmental legislation across the country.

A. Phasing Out Toxic Chemicals to Protect Waterbodies

Copper can have a number of adverse effects in aquatic environments and “is a primary pollutant of concern found in highway stormwater runoff.”⁷⁰ One significant source of copper is vehicle brake pads which, when they wear down, can land on roadways, end up in stormwater, and eventually be discharged in waterways.⁷¹ The states of California and Washington both noticed significant releases of copper into their environment as a result of brake pad wear-down. In California it was estimated that 1.3 million pounds of copper was released into California’s

70. Memorandum of Understanding on Copper Mitigation in Watersheds & Waterways 2 (Jan. 21, 2015), *available at* http://water.epa.gov/polwaste/npdes/stormwater/upload/copper_brakepads_mou.pdf, *archived at* <http://perma.cc/QYW5-G3BW> [hereinafter Memorandum of Understanding].

71. *Id.*

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environment in 2010 in the form of fine dust from vehicular braking.⁷² In Washington, in 2011, it was estimated that 250,000 pounds of copper was released into the environment from vehicular braking.⁷³

In response to the release of copper, both California and Washington passed laws requiring the reduction of copper in motor vehicle brake pads.⁷⁴ Washington issued final implementing regulations in 2012, and since June 2014 California has been developing regulations to implement its law and conducting a series of workshops.⁷⁵ The California and Washington laws have “percent-by-weight requirements for brake friction material formulations sold in each state.”⁷⁶ Since the passage of the California and Washington laws, “brake system manufacturers, friction material manufacturers, vehicle manufacturers, parts retailers and service providers have all engaged and worked collaboratively with states, nongovernmental organizations and other interested stakeholders to address concerns related to these pollutants,” and as a result, “the California and Washington laws are effectively driving an industry de facto standard, leading brake friction material manufacturers to change all of their U.S. product lines to be compliant with those laws.”⁷⁷ The national changes being driven by California and Washington “will ultimately benefit the entire nation’s watersheds and waterways, not just those in California and Washington.”⁷⁸

However, regulators and industry were aware that while California and Washington were driving a national trend, it was still possible for a regulatory patchwork of compliance and enforcement mechanisms to develop.⁷⁹ On January 21, 2015, the EPA, the Environmental Council of the States, and eight

72. *Copper-Free Brake Initiative*, EPA, <http://water.epa.gov/polwaste/npdes/stormwater/copperfreebrakes.cfm> (last updated Jan. 27, 2015), *archived at* <http://perma.cc/6ESW-XDMX> [hereinafter *Copper-Free Brake Initiative*].

73. *Id.*

74. Memorandum of Understanding, *supra* note 69, at 3.

75. *Id.*

76. *Id.*

77. *Id.* at 3-4.

78. *Id.* at 4.

79. *Id.* at 5.

automotive industry groups signed a Memorandum of Understanding on Copper Mitigation in Watersheds and Waterways (MOU). As a result, “the signatories agree[d] to a voluntary memorandum of understanding. This document can ensure that there is a streamlined, national approach on this environmental issue that will create a transparent framework for all parties . . . to phase out copper and other constituents found in brake pads.”⁸⁰ The MOU “calls for reducing copper in brake pads to less than 5 percent by weight in 2021 and 0.5 percent by 2025,” and also “reduces mercury, lead, cadmium, asbestiform fibers, and chromium-6 salts in motor vehicle brake pads.”⁸¹

The Copper Brake Pad MOU is an excellent example of states identifying an on-going environmental issue, legislating and regulating to address that issue, and driving significant national change. California and Washington crafted laws that “effectively dr[ove] an industry de facto standard, leading brake friction material manufacturers to change all of their U.S. product lines to be compliant with those laws.”⁸²

B. Filling Gaps by Addressing Chemicals of Concern

Another manner by which states are driving environmental regulation is by using environmental regulation to fill gaps left by the federal environmental regulatory scheme. One of the most compelling examples of this is action taken by states in the chemical substances arena. The 1976 enacted TSCA has not been the subject of a substantive amendment.⁸³ This has led stakeholders to call for TSCA reform, in order to meet the changing realities of scientific and technological capabilities, and to address new information concerning the relationships between human and environmental health and chemical substances, among other concerns.⁸⁴ In the interim, states have pursued a

80. *Id.*

81. *Copper-Free Brake Initiative*, *supra* note 71.

82. Memorandum of Understanding, *supra* note 69, at 4.

83. Subsequent additions to the law have been made to address concerns about specific standards, but the substantive provisions of Title I remain as originally enacted.

84. ABA Section of Env't, Energy, and Res., *Toxic Substances Control Act (TSCA) Reform*, ABA., http://www.americanbar.org/groups/environment_

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number of strategies to fill in the gaps. In 2014, 537 bills on chemical safety were introduced in forty-three states.⁸⁵

One strategy taken by states has been to urge TSCA reform. Many states have advocated for TSCA reform through legislative resolutions. For example, Arkansas HR 1055⁸⁶ urges Congress to reform TSCA, as does Illinois HR 6087 and SR 70,⁸⁸ Michigan HR 74,⁸⁹ and Maine SP 679.⁹⁰ Various interstate organizations have also advocated for TSCA reform. In 2013, the National Pollution Prevention Roundtable called for federal action to make necessary reforms to TSCA.⁹¹ Also in 2013, the National Conference of State Legislatures encouraged Congress to reform and modernize TSCA in a letter to the Senate Environmental and Public Works Committee.⁹² State environmental commissioners advocated for TSCA reform in a resolution updated in 2013.⁹³

energy_resources/resources/tsca_reform.html (last visited Mar. 25, 2015), archived at <http://perma.cc/D25X-N8WU>.

85. Doug Farquhar, *Chemicals are Essential to our Way of Life, but Who's Ensuring Their Safe Use?*, NAT'L CONF. OF STATE LEGISLATURES (Dec. 1, 2014), <http://www.ncsl.org/research/environment-and-natural-resources/chemical-quandry.aspx#RegulationPurviewProblem>, archived at <http://perma.cc/6C43-7E7X>. As this article goes to press meaningful efforts in the U.S. Congress are underway to reform TSCA.

86. H.R. Res. 1055, 89th Gen. Assemb., Reg. Sess. (Ark. 2013), available at <http://www.arkleg.state.ar.us/assembly/2013/2013R/Bills/HR1055.pdf>, archived at <http://perma.cc/6Z2R-88ZH>.

87. H.R. Res. 60, 97th Gen. Assemb., Reg. Sess. (Ill. 2011), available at <http://www.ilga.gov/legislation/fulltext.asp?DocName=&SessionId=84&GA=97&DocTypeId=HR&DocNum=0060&GAID=11&LegID=58037&SpecSess=&Session=>, archived at <http://perma.cc/6ET2-S9MK>.

88. S. Res. 70, 97th Gen. Assemb., Reg. Sess. (Ill. 2012), available at <http://www.ilga.gov/legislation/97/SR/09700SR0070.htm>, archived at <http://perma.cc/K4NR-KKNP>.

89. H.R. Res. 74, 95th Leg., Reg. Sess. (Mich. 2009), available at <https://legiscan.com/MI/text/HR0074/id/455785>, archived at <https://perma.cc/NWC7-GNJU>.

90. S.J. Res. 679, 125th Leg., 2d Reg. Sess. (Me. 2012), available at http://www.mainelegislature.org/legis/bills/bills_125th/billtexts/SP067901.asp, archived at <http://perma.cc/9R72-9NZN>.

91. Press Release, National Pollution Prevention Roundtable, State Chemicals Policy: Trends and Profiles (Apr. 22, 2013), available at <http://www.p2.org/news/press-releases/>, archived at <http://perma.cc/Z75M-PTGT>.

92. Letter from John McCoy et al., Nat'l Conference of State Legislatures, on S. 1009, "The Chem. Safety Improvement Act" to Senate Env't & Pub. Works Comm. (July 24, 2013), available at <http://www.ncsl.org/research/> environment-

Another strategy taken by states to address the gaps in TSCA has been legislating to implement restrictions on specific chemicals. Chemical substance-specific restrictions are often decided upon through the use of chemicals of high concern lists and alternatives assessments.⁹⁴

Some states have chosen to enact bans on a single chemical substance. These bans are often enforced through prohibitions on the commercial use of all products containing more than a certain amount of the chemical substance. For example, Oregon prohibits the introduction into commerce of any product containing more than one-tenth of one percent by mass of decaBDE.⁹⁵ States have also banned certain uses of groups of chemicals. For example, California has banned the manufacture, sale, or distribution in commerce of toys or child-care articles that can be placed in a child's mouth if they contain phthalate, in concentrations exceeding 0.1%.⁹⁶ Finally, some states have not banned a chemical substance, but rather a certain use of a chemical substance. For example, Illinois bans the use of a weight or other products to balance vehicle wheels if the product contains mercury or more than 0.1% lead by weight,⁹⁷ and Nebraska bans the distribution of liquid mercury thermometers within the State.⁹⁸

These state actions have served a two-fold purpose in driving environmental law forward. First, they have moved environmental law forward within their own jurisdictions, as well as others. It is not unreasonable to think that other states have

and-natural-resources/tsca-reform-letter-to-senate-epw.aspx, *archived at* <http://perma.cc/3JYZ-NL8R>.

93. ENVTL. COUNCIL OF THE STATES, REFORMING THE TOXIC SUBSTANCES CONTROL ACT, RES. 10-8 (2013), *available at* <http://ecos.org/section/policy/resolution>, *archived at* <http://perma.cc/ZCZ8-8CHL>.

94. LAWRENCE E. CULLEEN ET AL., CONTINUING RISE IN STATE EFFORTS TO REGULATE CHEMICALS 3 (2014), *available at* <http://www.arnoldporter.com/resources/documents/ADV914ContinuingRiseInStateEffortsToRegulateChemicals.pdf>, *archived at* <http://perma.cc/58ER-QPS2>.

95. S. 962, 73rd Leg. Assemb., Reg. Sess. (Or. 2005), *available at* <http://www.ncel.net/articles/OR-SB962.2005.pdf>, *archived at* <http://perma.cc/X2JB-FX8E>.

96. CAL. HEALTH & SAFETY CODE § 108937(b) (West 2008).

97. 415 ILL. COMP. STAT. 5 / 22.23c(b)-(d) (2010).

98. NEB. REV. STAT. § 28-1350 (2014).

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adopted chemical regulations similar to those of other states as information has been shared, and as a result of attempts to harmonize regulations in different geographic regions for efficiency—see, for example, the Copper Brake Pad MOU. Second, these state actions seem to have helped to spur Congress in its attempts to reform TSCA. TSCA reform is reportedly more hopeful in the 114th Congress than in the past.⁹⁹

C. Advancing Community Concerns Through Environmental Justice Requirements

States have also moved environmental law forward in the area of environmental justice (EJ). One important role state environmental agencies play is “in promoting fairness and transparency via the process of limiting and managing discharges to the environment through permitting or otherwise authorizing industrial and other developmental activities.”¹⁰⁰ There are a variety of approaches to environmental justice currently being pursued by various states. One approach is that followed by Illinois, which has developed an EJ Public Participation Policy.¹⁰¹ That Policy is triggered “when proposed Agency permitting activities . . . may significantly and adversely affect EJ areas or when the community has made the Illinois EPA aware of EJ concerns for the proposed Agency action.”¹⁰² Each Bureau’s permit section must review all permit applications to determine if they trigger the EJ Public Participation Policy.¹⁰³ If the Policy is

99. See Anthony Adragna, *Inhofe, Shimkus Say TSCA Bill Has Votes to Pass Both Chambers This Year*, BLOOMBERG BNA: DAILY ENVTL. REPORT (Jan. 14, 2015), available at http://dailyreport.bna.com/drpt/display/batch_print_display.adp?searchid=24806154, archived at <http://perma.cc/S5T5-J73V> (quoting Senator Inhofe and Representative Shimkus saying that legislation to reform TSCA will pass their respective houses).

100. Alexandra Dapolito Dunn & Adam Weiss, *Environmental Justice in Permitting: State Innovations to Advance Accountability*, 81 MISS. L.J. 747, 748 (2012).

101. ILL. ENVTL. PROT. AGENCY, ENVIRONMENTAL JUSTICE PUBLIC PARTICIPATION POLICY, available at <http://www.epa.state.il.us/environmental-justice/public-participation-policy.pdf>, archived at <http://perma.cc/2SDJ-LSAD>; Dunn & Weiss, *supra* note 99, at 756.

102. Dunn & Weiss, *supra* note 99, at 756 (quoting ILL. ENVTL. PROT. AGENCY, *supra* note 99, at 4).

103. *Id.*

triggered, the Illinois EPA (IEPA) encourages the permit applicant to engage community stakeholders in open dialogue.¹⁰⁴ Then, IEPA must make fact sheets and plain language summaries of the major aspects of the proposed project.¹⁰⁵ The majority of the public outreach requirements and their related costs are placed on the IEPA under Illinois' EJ policy.¹⁰⁶

Another approach being adopted by states is exemplified by New York's EJ policy, which incorporates EJ concerns into the New York State Department of Environmental Conservation (NYSDEC) permitting process. New York's policy requires the NYSDEC first to "identify whether potential adverse environmental impacts from the proposed action are likely to affect a potential environmental justice area."¹⁰⁷ If a potential area of concern is identified, "the applicant will be required to submit a written public participation plan."¹⁰⁸ Applicants "must also hold informational meetings throughout the permit review process at locations and times convenient to project stakeholders to keep information flowing."¹⁰⁹

A third EJ approach is Connecticut's statutory approach. Under Connecticut's statute, "the permit applicant must identify measures to facilitate meaningful public participation in the regulatory process and certify that they will undertake their proposed public outreach efforts."¹¹⁰ In Connecticut, "[a]pplicants seeking a permit from the Connecticut Department of Environmental Protection (DEP) or Siting Council, for a facility that will be located or expanded in an EJ community, are required to file a 'meaningful public participation plan' (MPPP) with the appropriate agency."¹¹¹ Applicants are also required to

104. *Id.*

105. ILL. ENVTL. PROT. AGENCY, *supra* note 100, § V(D)(3); Dunn & Weiss, *supra* note 99, at 756-57.

106. Dunn & Weiss, *supra* note 99, at 757.

107. *Id.* at 758.

108. *Id.*

109. *Id.*; N.Y. STATE DEP'T OF ENVTL. CONSERVATION, COMMISSIONER POLICY 29, ENVIRONMENTAL JUSTICE & PERMITTING § V(D)(3) (2003), *available at* <http://www.dec.ny.gov/regulations/36951.html>, *archived at* <http://perma.cc/B7VN-KFJC>.

110. Dunn & Weiss, *supra* note 99, at 761; CONN. GEN. STAT. § 22a-20a(b)(2) (2015).

111. Dunn & Weiss, *supra* note 99, at 762; CONN. GEN. STAT. § 22a-20a(b)(1).

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“consult with the elected official of the town or towns in which the facility would be located to evaluate the need for a Community Environmental Benefit Agreement (CEBA); to develop accountability; and designate within the MPPP a convenient time and place to hold an informal public meeting.”¹¹²

States, as demonstrated in the preceding examples, have proven to be engines of environmental regulation with respect to environmental justice. While the federal government has established examples of EJ “through policy, plan, and actual permitting . . . because states are closer to EJ concerns, they have gone farther.”¹¹³ The programs profiled above, though different in approach, all hold parties responsible for EJ.

D. Working Within and Across Boundaries to Promote Air Quality

As the President’s Clean Power Plan is discussed extensively, it is important to take a look at actions the states are taking to advance air quality and to respond to climate change. Some states are working within their boundaries, while others are working across boundaries and even across nations. These examples stand as evidence that states will lead where there is no path. The failure of federal cap and trade legislation to address carbon has not kept several states from developing sophisticated programs to improve air quality. Now, these state examples are being incorporated into the EPA’s current proposal.¹¹⁴

112. Dunn & Weiss, *supra* note 99, at 762; CONN. GEN. STAT. § 22a-20a(b)(1)(B), (b)(2), (c).

113. Dunn & Weiss, *supra* note 99, at 765.

114. *See generally* Carbon Pollution Emission Guideline for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 (proposed June 18, 2014) (to be codified at 40 C.F.R. pt. 60); *see also* Kevin Poloncraz et al., *EPA Proposes Its Landmark Guidelines for Reducing Carbon Emissions From Existing Fossil Fuel-Fired Power Plants*, PAUL HASTINGS (June 4, 2014), <http://www.paulhastings.com/publications-items/details?id=001fe169-2334-6428-811c-ff00004cbded>, *archived at* <http://perma.cc/AEX9-6N5Z> (stating, “in a nod to the two active carbon trading programs in the U.S. to date—the Regional Greenhouse Gas Initiative (“RGGI”) and California’s Cap-and-Trade Program—EPA has provided a clear roadmap in the proposed guidelines for states participating in such market-based programs to demonstrate that the reductions achieved through their implementation meet the participating states’ performance goals.”).

The State of Washington is an example of a state working within its borders to advance air quality and respond to climate change.¹¹⁵ In 2008, Washington set greenhouse gas limits that were, at the time, lower than levels committed to by several nations and states.¹¹⁶ Specifically, Washington committed to reduce overall emission of greenhouse gases in the state to 1990 levels by 2020.¹¹⁷ To do this, the Department of Ecology was directed to “submit a greenhouse gas reduction plan for review and approval to the legislature, describing those actions necessary to achieve the emission reductions.”¹¹⁸ Actions that the Department could take without additional authority from the Legislature were approved, and the Department was also directed to develop and implement a system for monitoring and reporting emissions of greenhouse gases, track progress toward meeting the emission reductions established, and report every other year on the total emissions of greenhouse gases for the preceding two years.¹¹⁹ As part of the state’s efforts to address climate change, the Carbon Pollution Accountability Act was recently introduced in both the Washington State Senate and the Washington State House of Representatives.¹²⁰

Hawai’i and Minnesota have also taken action.¹²¹ Minnesota’s energy policy, created by statute, requires,

115. *Climate Change*, WASH. STATE DEPT OF ECOLOGY, <http://www.ecy.wa.gov/climatechange/> (last visited Mar. 25, 2015), *archived at* <http://perma.cc/YV74-EX9Y>.

116. WASH. STATE DEPT OF ECOLOGY, WASHINGTON GREENHOUSE GAS EMISSION REDUCTION LIMITS (2014), *available at* <https://fortress.wa.gov/ecy/publications/publications/1401006.pdf>, *archived at* <https://perma.cc/DR5R-FF5H>.

117. *Greenhouse Gas Emissions Reductions – Reporting Requirements*, WASH. STATE LEGISLATURE, <http://app.leg.wa.gov/rcw/default.aspx?cite=70.235.020> (last visited Apr. 27, 2015), *archived at* <http://perma.cc/YM3E-JEC7>.

118. *Id.*

119. *Id.*

120. *See* WASH. GOVERNOR, CARBON POLLUTION ACCOUNTABILITY ACT: SUMMARY OF SUMMARY OF SENATE BILL 5283, HOUSE BILL 1314 (2015), *available at* <http://www.ecy.wa.gov/climatechange/docs/CarbonPollutionAct.pdf>, *archived at* <http://perma.cc/MN22-3ES2>.

121. H.R. 226, 24th Leg., Reg. Sess. (Haw. 2007), *available at* http://www.capitol.hawaii.gov/session2007/bills/HB226_CD1_.htm, *archived at* <http://perma.cc/H7AJ-QK45>; S. 145, 85th Leg., 2nd Engrossment (Minn. 2009), *available at* <https://www.revisor.leg.state.mn.us/bills/text.php?number=Sf0145&version=2&session=ls85>, *archived at* <https://perma.cc/VV4H-SMUK>.

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(1) annual energy savings equal to at least 1.5 percent of annual retail energy sales of electricity and natural gas be achieved through cost-effective energy efficiency; (2) the per capita use of fossil fuel as an energy input be reduced by 15 percent by the year 2015, through increased reliance on energy efficiency and renewable energy alternatives; and (3) 25 percent of the total energy used in the state be derived from renewable energy resources by the year 2025.¹²²

Hawai'i's energy agenda currently calls for it to exceed seventy percent clean energy in the next fifteen years.¹²³ In addition, Hawai'i's Greenhouse Gas Emissions Reduction Law aims to reduce the state's greenhouse gas emissions to 1990 levels in the next five years.¹²⁴ In pursuit of these goals Hawai'i has completed an updated greenhouse gas emissions inventory¹²⁵ and the Greenhouse Gas Emissions Reduction Task Force has submitted a work plan and proposed regulatory scheme and legislation.¹²⁶ Hawai'i's government has also passed the Climate Change Adaptation Priority Guidelines, which must be considered in all land use, capitol improvement, and program decisions made by the state and counties.¹²⁷

New Jersey and Washington State have set vehicle emission standards, which serve to advance air quality standards within their borders.¹²⁸ Beginning in 2009, New Jersey required all

122. MINN. STAT. § 216C.03 (2014), *available at* <https://www.revisor.leg.state.mn.us/statutes/?id=216C.05>, *archived at* <https://perma.cc/V4NZ-483Z>.

123. *Home*, HAW. STATE ENERGY OFF., <http://energy.hawaii.gov/> (last visited Apr. 16, 2015), *archived at* <http://perma.cc/EYM9-L45K>.

124. Haw. H.R. 226.

125. HAW. GREENHOUSE GAS INVENTORY: 1990 AND 2007, ICF INTERNATIONAL (2008), <http://energy.hawaii.gov/wp-content/uploads/2011/10/ghg-inventory-20081.pdf>, *archived at* <http://perma.cc/KH26-8JS2>.

126. GREENHOUSE GAS EMISSIONS REDUCTION TASK FORCE, REP. TO THE TWENTY-FIFTH LEGISLATURE, STATE OF HAWAII: WORK PLAN FOR GREENHOUSE GAS EMISSIONS REDUCTIONS (2009), <http://files.hawaii.gov/dbedt/annuals/2009/2009-sid-ghgrtf.pdf>, *archived at* <http://perma.cc/8MSM-AKSP>.

127. *Adapting to Climate Change*, STATE OF HAW., OFF. OF PLAN., <http://planning.hawaii.gov/czm/initiatives/adapting-to-climate-change-2/> (last visited Apr. 27, 2015), *archived at* <http://perma.cc/2ZC2-36HZ>.

128. S. 2351, 210th Leg. (N.J. 2003), *available at* <http://www.c2es.org/docUploads/NJ-S2351%202004%20cal%20emissions.pdf>, *archived at* <http://perma.cc/HEV6-3XLL>; H. 1397, 59th Leg., Reg. Sess. (Wash. 2005),

passenger vehicles or light duty trucks with model years of 2009 or later to meet California's Low Emission Vehicle Program standards.¹²⁹ Effective in 2005, Washington generally adopted California's motor vehicle emission standards.¹³⁰ The Washington Department of Ecology was directed to adopt rules to implement those standards for passenger cars, light duty trucks, and medium duty passenger vehicles.¹³¹

The Northeast states' Regional Greenhouse Gas Initiative (RGGI) is an example of a multistate effort to advance air quality and respond to climate change. RGGI, an effort of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont, "is the first market-based regulatory program in the United States to reduce greenhouse gas emissions."¹³² RGGI, which covers 168 facilities throughout its borders, "reduces [carbon dioxide (CO₂)] emissions by establishing a regional cap on the amount of CO₂ that power plants can emit through the issuance of a limited number of tradable CO₂ allowances."¹³³ The CO₂ emissions cap was set at 88.7 million short tons in 2015 and will decline 2.5% each year from 2016 to 2020.¹³⁴ Following the CO₂ auction, RGGI states invest the proceeds in consumer benefit programs.¹³⁵ The investment from these proceeds demonstrates that the RGGI is not only a leader in reducing CO₂ emissions, but also in finding

available at <http://www.c2es.org/docUploads/WA-1397-S%20SL%202005.pdf>, archived at <http://perma.cc/SJS5-XHGV>.

129. *Understanding Inspections and the Emissions Test*, STATE OF N.J. MOTOR VEHICLE COMM'N, <http://www.state.nj.us/mvc/Inspections/Understanding.htm> (last updated Dec. 13, 2013), archived at <http://perma.cc/YYX4-B6M4>.

130. *Motor Vehicle Emission Standards*, WASH. STATE LEGISLATURE, <http://apps.leg.wa.gov/rcw/default.aspx?cite=70.120A&full=true> (last visited Apr. 27, 2015), archived at <http://perma.cc/2KV6-TNJ7>.

131. *Id.*

132. *Welcome*, REG'L GREENHOUSE GAS INITIATIVE, <http://www.rggi.org/> (last visited Apr. 6, 2015), archived at <http://perma.cc/7WF9-LAVA>.

133. REG'L GREENHOUSE GAS INITIATIVE, ABOUT THE REGIONAL GREENHOUSE GAS INITIATIVE (RGGI) (2015), available at http://www.rggi.org/docs/Documents/RGGI_Fact_Sheet.pdf, archived at <http://perma.cc/7LFY-ZDRD>.

134. *Id.*

135. REG'L GREENHOUSE GAS INITIATIVE, FACT SHEET: INVESTING IN THE CLEAN ENERGY ECONOMY, available at http://www.rggi.org/docs/Documents/RGGI_Proceeds_FactSheet.pdf, archived at <http://perma.cc/XL59-CLQU> [hereinafter FACT SHEET].

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innovative ways to bolster the economy and help consumers. The first control period (2009-2012) saw a \$700 million investment by the RGGI states, which helped create over 16,000 new jobs.¹³⁶ State investment of proceeds from the first control period “is generating \$1.6 billion in net economic benefit and reducing consumer energy bills by \$1.3 billion through the end of the decade.”¹³⁷

The California Global Warming Solutions Act of 2006, also known as AB 32, requires the State Air Resources Board to adopt regulations to address statewide greenhouse gas emissions, and is yet another example of state innovation. The Act requires the State Air Resources Board to adopt regulations “to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program.”¹³⁸ The State Air Resources Board is also required to “determine what the statewide greenhouse gas emissions level was in 1990, and approve in a public hearing, a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020.”¹³⁹ The State Air Resources Board is further required to “adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions from sources or categories of sources.”¹⁴⁰ As part of its regulations, the State Air Resources Board is authorized to include “the use of market-based compliance mechanisms to comply with the regulations,”¹⁴¹ and must “monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism adopted by the state board.”¹⁴² The State Air Resources Board is also authorized to

136. See REG'L GREENHOUSE GAS INITIATIVE, REGIONAL INVESTMENT OF RGGI CO₂ ALLOWANCE PROCEEDS, 2012 (2014), *available at* <http://www.rggi.org/docs/Documents/2012-Investment-Report.pdf>, *archived at* <http://perma.cc/7RJF-67Q5>.

137. FACT SHEET, *supra* note 134.

138. Assemb. Bill 32, § 38530(a) (Cal. 2006), *available at* http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf, *archived at* <http://perma.cc/G3SL-XF2V>.

139. *Id.* § 38550.

140. *Id.* § 38560.

141. *Id.* § 38570(a).

142. CAL. HEALTH & SAFETY CODE § 38580(a) (2006).

adopt by regulation “a schedule of fees to be paid by the sources of greenhouse gas emissions regulated . . . [and] the revenues collected pursuant . . . shall be deposited into the Air Pollution Control Fund and are available upon appropriation, by the Legislature, for purposes of carrying out this division.”¹⁴³

AB 32 has been a successful strategy when viewed individually and as part of California’s overall efforts towards energy efficiency. As required by AB 32, California is scheduled to meet its 2020 greenhouse gas limit.¹⁴⁴ Since California began energy efficiency efforts in the 1970s, “Californians have saved \$74 billion in reduced electricity costs,” and “about 23 percent of the State’s electricity comes from renewable power,” a figure which is set to increase to at least thirty-three percent by 2020.¹⁴⁵ In 2013, California took its air quality efforts abroad by signing an Agreement Between the California Air Resources Board and the Gouvernement du Québec Concerning the Harmonization and Integration of Cap-And-Trade Programs for Reducing Greenhouse Gas Emissions.¹⁴⁶

These examples reveal that when a goal is important to a state, or group of states, the result can be both powerful and precedent setting. The absence of federal activity, today, still does not curtail states’ work as regulatory and innovation engines.

E. Managing Energy and Landscapes: State Hydraulic Fracturing Activities

State innovation is also taking place with respect to hydraulic fracturing, an area the federal government has largely ceded to the states, both in administrative regulation and in

143. *Id.* § 38597.

144. AIR RES. BD., CAL. ENVTL. PROT. AGENCY, FIRST UPDATE TO THE CLIMATE CHANGE SCOPING PLAN: BUILDING ON THE FRAMEWORK ES2 (2014), *available at* http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf, *archived at* <http://perma.cc/D6J5-GMHP>.

145. *Id.*

146. AGREEMENT CONCERNING THE HARMONIZATION AND INTEGRATION OF CAP-AND-TRADE PROGRAMS FOR REDUCING GREENHOUSE GAS EMISSIONS, CAL.-QUE., *available at* http://www.arb.ca.gov/cc/capandtrade/linkage/ca_quebec_linking_agreement_english.pdf, <http://perma.cc/CAQ7-8T7A> (last visited Apr. 27, 2015).

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exemptions from several major environmental statutes.¹⁴⁷ For example, while the EPA is traditionally responsible for “setting requirements for proper well siting, construction, and operation to minimize risks to underground sources of drinking water,” the EPA is not allowed to set such requirements for hydraulic fracturing, except when diesel fuels are used.¹⁴⁸ Further, while the EPA sets national standards for industrial wastewater discharges under the Clean Water Act, at this time there are no national standards that govern the disposal of wastewater from natural gas extraction—although the EPA is working on effluent limitation guidelines (technology based standards) for unconventional oil and gas extractions.¹⁴⁹ Another statutory gap under the Clean Water Act is that it does not require oil and gas operations or transmission facilities to obtain National Pollutant Discharge Elimination System permits for stormwater discharges, except in limited circumstances.¹⁵⁰

The federal government has recently decided to engage in hydraulic fracturing regulation in a more substantial manner. On March 26, 2015, the Bureau of Land Management (BLM) issued a final rule on Hydraulic Fracturing on Federal and Indian Lands.¹⁵¹ The rule is limited in its application “to development on public and tribal lands.”¹⁵² The BLM estimates that the rule will affect around 2,800 hydraulic fracturing operations per year, but

147. William J. Brady, *Hydraulic Fracturing Regulation in the United States: The Laissez-Faire Approach of the Federal Government and Varying State Regulations*, 14 VT. J. ENVTL. L. 39, 43 (2012) (citing RENEE L. KOSNIK, *THE OIL AND GAS INDUSTRY’S EXCLUSION AND EXEMPTIONS TO MAJOR ENVIRONMENTAL STATUTES 2* (2007), available at <http://www.earthworksaction.org/pubs/PetroleumExemptions1c.pdf>, archived at <http://perma.cc/T6HQ-5WZH>).

148. *Natural Gas Extraction – Hydraulic Fracturing*, EPA, <http://www2.epa.gov/hydraulicfracturing> (last updated Mar. 23, 2015), archived at <http://perma.cc/GF73-NGZF> [hereinafter *Natural Gas Extraction*].

149. *Id.*; *Unconventional Extraction in the Oil and Gas Industry*, EPA, <http://water.epa.gov/scitech/wastetech/guide/oilandgas/unconv.cfm> (last updated Mar. 31, 2015), archived at <http://perma.cc/J79W-4QZD>.

150. *Natural Gas Extraction*, *supra* note 147.

151. 40 C.F.R. § 3160 (2015).

152. Press Release, U.S. Dep’t of the Interior, Bureau of Land Mgmt., Interior Department Releases Final Rule to Support Safe, Responsible Hydraulic Fracturing Activities on Public and Tribal Lands (Mar. 20, 2015), http://www.blm.gov/wo/st/en/info/newsroom/2015/march/nr_03_20_2015.html, archived at <http://perma.cc/R969-Z5FL>.

admits that this number could rise to 3,800 operations per year.¹⁵³ Compliance costs are estimated to be around \$11,400 per operation,¹⁵⁴ and it is estimated that compliance costs will be around \$32 million per year for the industry as a whole.¹⁵⁵ However, while the federal regulations are seen by some observers as a significant step up in the federal government's ability to address hydraulic fracturing, it is worth remembering that "the states have jurisdiction over drilling on private and state-owned land, where the vast majority of fracking is done in the United States."¹⁵⁶

Despite the new federal regulation, which only affects federal and tribal lands, the United States still lacks a comprehensive national statute for oil and gas, and states have chosen to take a variety of actions regarding hydraulic fracturing. California passed its first hydraulic fracturing law in 2013, SB 4.¹⁵⁷ SB 4 created a number of requirements for hydraulic fracturing, including receipt of a permit from the Division of Oil, Gas and Geothermal Resources, provision of detailed information in the permit application about the fluids to be used, and, upon approval of the permit, provision of copies of the permit to all

153. 40 C.F.R. § 3160.

154. This is based on the rule affecting 2,800 operations per year.

155. 40 C.F.R. § 3160. If the Rule impacts 3,800 operations per year, BLM estimates compliance costs could reach \$45 million per year. BLM estimates pre-operation compliance costs around 0.13 to 0.21% of the cost of drilling a well.

156. Coral Davenport, *New Federal Rules are Set for Fracking*, N.Y. TIMES (Mar. 20, 2015), <http://www.nytimes.com/2015/03/21/us/politics/obama-administration-unveils-federal-fracking-regulations.html?smid=li-share>, archived at <http://perma.cc/VB5G-GENW>.

157. S. Res. 4, 2013 Leg., Reg. Sess. (Cal. 2013), available at <http://leginfo.legislature.ca.gov/faces/billStatusClient.xhtml>, archived at <http://perma.cc/3Y6L-HYWE>; Louinda V. Lacey, *Governor Brown Signs California's First "Fracking" Law*, SOMACH SIMMONS & DUNN (Oct. 1, 2013), <http://www.somachlaw.com/alerts.php?id=247>, archived at <http://perma.cc/9662-YGNZ>.

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neighboring property owners and tenants.¹⁵⁸ Final regulations to implement SB 4 go into effect on July 1, 2015.¹⁵⁹

In December 2014, the State of New York announced a ban on hydraulic fracturing within the State.¹⁶⁰ New York's ban came after a New York State Department of Health report was released, which recommended against allowing hydraulic fracturing within the state.¹⁶¹ The report found that while the "science surrounding [high-volume hydraulic fracking] activity is limited, only just beginning to emerge, and largely suggests only hypotheses about potential public health impacts that need further evaluation," the potential risks and lack of information about safety of hydraulic fracturing necessitated a ban.¹⁶² New York was the second state after Vermont to ban hydraulic fracturing within its borders, but the first with significant natural gas reserves accessible by hydraulic fracturing.

Other states have decided to potentially allow hydraulic fracturing, but with strict controls over the process. The State of Maryland has proposed regulations for best practices and safeguards on hydraulic fracturing, which are out for public comment, and the recently elected Governor has stated that he believes hydraulic fracturing can be done safely.¹⁶³ In 2013,

158. SENATE BILL 4 IMPLEMENTATION PLAN, CAL. DEP'T OF CONSERVATION (2013), available at <http://www.conservation.ca.gov/index/Documents/Senate%20Bill%204%20Implementation%20Plan%2020131114%20final.pdf>, archived at <http://perma.cc/5XMC-WTHD>.

159. *Well Stimulation*, CAL. DEP'T OF CONSERVATION, <http://www.conservation.ca.gov/dog/Pages/WellStimulation.aspx> (last visited Apr. 28, 2015), archived at <http://perma.cc/HT8C-J6BZ>.

160. Thomas Kaplan, *Citing Health Risks, Cuomo Bans Fracking in New York State*, N.Y. TIMES (Dec. 17, 2014), http://www.nytimes.com/2014/12/18/nyregion/cuomo-to-ban-fracking-in-new-york-state-citing-health-risks.html?_r=0, archived at <http://perma.cc/8MPQ-JHEZ>; Stephen C. Smith, *New York State Bans High Volume Hydraulic Fracturing*, THE NAT'L L. REV. (2014), <http://www.natlawreview.com/article/new-york-bans-high-volume-hydraulic-fracturing-0>, archived at <http://perma.cc/JP36-X9M6>.

161. N.Y. STATE DEP'T OF HEALTH, A PUBLIC HEALTH REVIEW OF HIGH VOLUME HYDRAULIC FRACTURING FOR SHALE GAS DEVELOPMENT 2 (2014), available at https://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf, archived at <https://perma.cc/SLL5-J9QL>.

162. *Id.* at 1-2.

163. Timothy B. Wheeler, *Health, Environmental Groups Seek Fracking Moratorium*, BALT. SUN (Feb. 5, 2015), <http://www.baltimoresun.com/features/>

California passed a law that allowed hydraulic fracturing to move forward, provided that oil companies followed a series of regulations requiring permitting, public disclosure of the chemicals used, and other standards.¹⁶⁴

The EPA's focus on research and effluent limitation guidelines with regard to hydraulic fracturing has left states with the opportunity to fill in gaps necessary to protect human health and the environment. Some states have chosen to completely prohibit the practice to provide this protection, while others have chosen to allow the practice to go forward, under regulation. Whichever strategy is chosen, states are yet again proving that they can and will regulate without federal models, using the resources they have at their disposal.

F. Promoting Efficient Government and Effective Environmental Regulation

A final example of states as engines of environmental innovation can be found in state efforts to advance lean government. State efforts to advance efficient and effective government rose to new heights when the states, before the federal government, were directly impacted by budgetary shortfalls. To overcome these budgetary shortfalls, as well as losses in staffing levels, states began to implement lean concepts to deliver the same, and even improved levels of environmental services—by improving the efficiency of work processes, employing technological advances—with considerably fewer financial resources.¹⁶⁵ For example, in 2008, the Connecticut Department of Environmental Protection conducted an evaluation of the Air Planning and Standards Division Permit Modeling Program, and as a result, the Department rewrote its

[green/blog/bal-fracking-moratorium-sought-in-maryland-20150205-story.html](http://green.blog/bal-fracking-moratorium-sought-in-maryland-20150205-story.html), archived at <http://perma.cc/899R-73TV>.

164. Sharon Bernstein, *California Fracking Bill Signed into Law by Governor Jerry Brown*, HUFFINGTON POST (Sept. 20, 2013), http://www.huffingtonpost.com/2013/09/21/california-fracking-bill_n_3965069.html, archived at <http://perma.cc/2NLY-8HJK>.

165. See, e.g., ENVTL. COUNCIL OF THE STATES, LEAN CASE STUDIES: CONTINUOUS IMPROVEMENT IN STATE AGENCIES 1 (2009), available at http://www.ecos.org/files/3578_file_April_2009_Green_Report_Lean_Case_Studies.pdf, archived at <http://perma.cc/9TNP-XGF7>.

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modeling guidance, implemented new business rules, and reduced the number of total steps in the process by forty-three percent.¹⁶⁶ Connecticut reported that trends indicated a reduction in processing time, a reduction in document transfer time, and the elimination of a time step of approximately ten days for delivery of ambient monitoring data.¹⁶⁷ The Indiana Department of Environmental Management also instituted lean government to improve its permitting process for Permit Renewals and saw a number of improvements: a seventy-one percent decrease in the time it took the Department to issue a Title 5 renewal and a forty-five percent decrease in the time it took to issue a Federally Enforceable State Operating Permit (FESOP) renewal.¹⁶⁸

One example in particular demonstrates states' leading efforts in lean government for environmental regulation, namely the E-Enterprise for the Environment initiative. E-Enterprise aims to improve environmental protection by helping federal, state, and tribal governments work collaboratively.¹⁶⁹ The initiative is transformative and more and more states are pushing ahead recognizing that lean and efficient government is the only path down which to continue.¹⁷⁰ The Environmental Council of States' (ECOS) Past President Pedersen identified two factors that led to the push for E-Enterprise: resource constraints and increasing technological capability.¹⁷¹ Pederson has also emphasized that E-Enterprise is more than "buying a computer in the sky . . . it's a way to approach [improving environmental regulation]."¹⁷² As Pederson pointed out, in trying to reduce the paper usage of his Oregon department,

166. *Id.*

167. *Id.*

168. *Id.*

169. *E-Enterprise for the Environment*, EPA, <http://www2.epa.gov/e-enterprise> (last updated Feb. 2, 2015), *archived at* <http://perma.cc/TH64-UJH3>.

170. *See, e.g.*, ENVTL. COUNCIL OF THE STATES, *supra* note 164, at 4; *see also* Press Release, Office of the Governor, Governor Scott Walker Announces Administrative Appointments (Feb. 27, 2015), *available at* <http://walker.wi.gov/newsroom/press-release/governor-scott-walker-announces-administrative-appointments>, *archived at* <http://perma.cc/3N3Z-E7CR>.

171. Anthony Adragna, *ECOS President Touts New Approach to Environmental Regulation*, 45 ENR 1663 (2014).

172. *Id.*

with E-Enterprise, I can take advantage of that state that has 80 or 90 percent of their stuff electronic, and they've figured some of this stuff out. I don't have to worry about building my own, hoping I'm going to satisfy a federal need, when this is really about taking advantage of all of that [existing work].¹⁷³

E-Enterprise has attracted a significant amount of attention recently, and in its Fiscal Year (FY) 2016 budget request, the EPA requested \$15.7 million in funding for grants to state, local, and tribal governments to support the initiative.¹⁷⁴ The Environmental Information Exchange Network, mentioned below, received a \$23.5 million request in the FY 2016 budget request.¹⁷⁵

Using E-Enterprise concepts, Arkansas' Department of Environmental Quality (ADEQ) is working to improve environmental compliance and inspection. In an effort to improve its Regulated Storage Tanks Program, ADEQ developed and implemented an electronic inspection report system.¹⁷⁶ The

173. *Id.*

174. EPA, FY 2016: BUDGET IN BRIEF 6 (2015), available at <http://www2.epa.gov/planandbudget/fy2016>, archived at <http://perma.cc/3Z9A-JW2F>.

175. *Id.* at 91. The E-Enterprise Initiative is:

At base, it is a new collaborative process through which states and the EPA will work together. E-Enterprise is designed to share resources among jurisdictions and to enable joint priority-setting. It aims to build upon and benefits from decades of regulation at all levels, harnessing the potential to redesign and reengineer environmental regulation while streamlining it. The result would be a single-system approach, applied across environmental endeavors and states. One component is a web-based data-sharing system where regulated entities would be able to use the system to apply for permits, report air emissions, and check their compliance status. Regulators would be able to speak and share information more efficiently with each other. In this way, E-Enterprise would increase transparency and effectiveness. It would also facilitate the use of newer monitoring technology.

Envtl. Law Inst., *Exploring the E Enterprise for the Environment Initiative*, YOUTUBE (May 28, 2014), <https://www.youtube.com/watch?v=wROOsxuV6kY> (panel of experts discussing ways the E-Enterprise Initiative could revolutionize and streamline environmental regulation).

176. ENVTL. COUNCIL OF THE STATES, E-ENTERPRISE FOR THE ENVIRONMENT CURRENT AND PROPOSED STATE PROJECT EXAMPLES AUG. 2014 (2014), available at http://www.exchangenetwork.net/ee/EEnterprise_State_Project_Examples_August2014.pdf, archived at <http://perma.cc/XK6B-9ESQ>.

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system uses “smart” forms on touch screen computers instead of paper inspection forms.¹⁷⁷ “Inspection forms may be customized for each facility and include drop down menus which provide a selection of potential findings for each compliance area,” and are completed during actual inspections.¹⁷⁸ ADEQ’s system also allows individual comments, site diagrams, and photos to be added to the report forms.¹⁷⁹ To provide assurance to facility owners or operators, forms are “locked” once an inspection is complete and the form is signed by the owner or operator, and no changes can subsequently be made to the form.¹⁸⁰

Massachusetts is using E-Enterprise concepts to improve environmental operations. The Massachusetts Executive Office of Energy and Environmental Affairs (EEA) is in the process of acquiring and implementing the Energy and Environment Public Access and Information System (EIPAS). EIPAS is “an information technology (IT) solution that will advance, align, expand, and transform the manner in which EEA’s six secretariat agencies execute timely, predictable, and cost-effective business functions.”¹⁸¹ As an example of the problems EIPAS is expected to help address, from 2002 to 2011, the Massachusetts Department of Environmental Protection (MDEP) saw its budget decrease from \$62 million to \$45 million, and its staffing levels decrease from 1,200 to 840.¹⁸² Further, MDEP’s “outdated and siloed information technology systems impede the Department from fulfilling its critical mission of protecting public health and the Commonwealth’s natural resources.”¹⁸³ It is EEA’s hope that EIPAS will allow MDEP and its other agencies to transform the way in which they carry out their responsibilities.

Setting the foundation for E-Enterprise is the Environmental Information Exchange Network. Initially conceived in 1998, the Exchange Network uses a four-step process to allow Network

177. *Id.*

178. *Id.*

179. *Id.*

180. *Id.*

181. *Id.*

182. MASS. DEP’T OF ENVTL. PROT., ENVIRONMENTAL INFORMATION AND PUBLIC ACCESS SYSTEM (EIPAS) (2012), *available at* <http://www.mass.gov/eea/docs/dep/about/priorities/eipas-executive-summary-abstract-2012.pdf>.

183. *Id.*

Partners to share data across the Internet. First, “[t]hrough trading partner agreements, Partners define how they will use the Exchange Network.”¹⁸⁴ Second, “[a]fter Partners decide what data they will exchange and with whom, each sets up a computer dedicated to sharing data over the Exchange Network.”¹⁸⁵ Third, the Exchange Network makes data sharing easily compatible through the use of Extensible Markup Language (XML); “[s]ince all data shared on the Network uses XML, all Partners’ data structures are compatible.”¹⁸⁶ Fourth, “[o]nce Partners connect to the Network, they’re ready to share data. Every Partner has a Network node or node client, and they all communicate through XML.”¹⁸⁷

The Exchange Network has seen a number of success stories as a result of more effective and efficient sharing of information. For example, the TRI State Data Exchange (SDX), which began as a four-state pilot in 2005, now has twenty-eight participating states and “allows facilities to submit data to EPA and have it forwarded to states automatically.”¹⁸⁸ Seeking cost reduction and efficiency increases, “Massachusetts integrated its air quality data internally and used the Exchange Network to automate data quality assurance processes and provide real-time air quality data to the public.”¹⁸⁹ In addition, a team of states developed NetDMR, “a web-based, open-source application that allows facilities to securely submit data directly to EPA’s discharge permit data system . . . [and] allows agencies to access the reported data easily and automatically.”¹⁹⁰

States, working collaboratively with the federal government through E-Enterprise for the Environment and the Exchange Network, are showing that they are catalysts of environmental innovation not only in the regulatory arena, but also in the area

184. *How It Works*, ENVTL. INFO. EXCH. NETWORK (2013), <http://www.exchange-network.net/about/how-does-it-work/#>, archived at <http://perma.cc/SVT5-53EH>.

185. *Id.*

186. *Id.*

187. *Id.*

188. *Benefits and Success Stories*, ENVTL. INFO. EXCHANGE NETWORK (2013), <http://www.exchangenetwork.net/about/benefits-and-success-stories/>, archived at <http://perma.cc/6N9Z-S7JF>.

189. *Id.*

190. *Id.*

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of environmental program operations. The EPA is a partner with the states in this effort, as shown by the joint governance approach to both E-Enterprise for the Environment and the Exchange Network and also by numerous public statements by the most senior levels of the Agency.¹⁹¹ It is essential to not only have solid regulations on the books, but also to have programs that work efficiently and effectively. Once again, this is an area where states have led the way, and the federal government, slower to move, is coming along as well.¹⁹²

IV. CONCLUSION

States have been, and will continue to be, important engines by which environmental law, regulation, and policy move forward. This is not to say that states are the exclusive vehicle by which environmental law advances; as demonstrated in this article, the federal government plays a prominent role in the environmental regulatory scheme. However, due to the diversity of state interests and needs, states offer new and exciting ways of regulating the environment.

191. See Press Release, EPA, Testimony of EPA Adm'r Gina McCarthy Before House Appropriations Comm. on Proposed FY 2015 Budget (Mar. 27, 2014), <http://yosemite.epa.gov/opa/admpress.nsf/596e17d7cac720848525781f0043629e/dc1fa2e65c2dc69c85257ca80055b153!OpenDocument>, archived at <http://perma.cc/KD4D-6UQH>; see also *EPA's Themes – Meeting the Challenge Ahead*, EPA, <http://www2.epa.gov/aboutepa/epas-themes-meeting-challenge-ahead> (last updated Feb. 10, 2015), archived at <http://perma.cc/4SHB-8268> (As the EPA realizes, “[g]ood government, as well as the reality of scarcer resources, require that EPA work in concert with the states, tribes, local governments, and sister federal agencies that constitute our country's environmental protection enterprise, to ensure the efficiency, efficacy, and coordination of our overlapping and complementary efforts. . . . EPA must work with our co-regulators . . . to build new tools and strategies that enhance coordination, establish joint priorities, manage resources effectively, and share information through E-Enterprise.”).

192. See Whitney Blair Wyckoff, *Could EPA Take a Cue from Amazon.com?*, FEDSCOOP (Jan. 28, 2015, 5:45 PM), <http://fedscoop.com/could-epa-take-a-cue-from-amazon.com>, archived at <http://perma.cc/P2SL-2GCW> (describing EPA's efforts to build an online portal to “allow EPA-regulated companies and local governments to submit data to the agency and track the status of their paperwork”).

Where will our nation go from here? Our country will ensure a new era of state partnerships.¹⁹³ Partnerships are the essential way that we will as a nation ensure that we have a functional federal-state system of environmental regulation. When one cannot accomplish something alone, one must move to a partnership system. This is why states' long history of activity pre-federal law, and current motivation, as well as philosophies of joint governance like E-Enterprise for the Environment, will take our country forward. The result will be better, more effective, and more comprehensive environmental regulation—and more appropriate, based on state needs and environmental conditions—than ever before. It is an imperative keep the states fueled—through public support, federal and state investment, and political support—so that they can continue to play their essential role as engines of environmental innovation.

193. See *The Fiscal Year 2016 EPA Budget: Hearing Before the Subcomms. on Energy & Power and Env't & the Econ. of the H. Comm. on Energy & Commerce*, 113th Cong. (2015) (statement of Gina McCarthy, Administrator of the United States Environmental Protection Agency), available at <http://democrats.energycommerce.house.gov/sites/default/files/documents/Testimony-McCarthy-EP-EPA-FY-2016-Budget-2015-2-25.pdf>, archived at <http://perma.cc/ME8A-ESTH> (EPA Administrator McCarthy testifying in support of budget appropriations which EPA provides directly to states, noted that, “[e]ffective environmental protection is a joint effort of EPA, states and our tribal partners, and we are setting a high bar for continuing our partnership efforts . . . we are also including opportunities for closer collaboration and targeted joint planning and governance processes. . . . with our co-regulatory partners, we are working collaboratively to streamline, reform, and integrate our shared business processes and related systems.”).