Democratic Environmental Experimentalism

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Scholars of democratic experimentalism and new governance rightly criticize the static allocations of authority found in the American traditional federalism framework for its rigidity and potential to stifle innovation at the state and local levels. Nevertheless, this critique underappreciates the level of experimentation harbored by this framework, as witnessed in the dynamic interaction between the various levels of government. This dynamic interplay, which is very much on exhibit with respect to climate change regulation, is far from being devoid of new policy innovation. It also exhibits something that, in the long run, may be just as important—the adoption, at local and regional levels, of policy innovations developed at other levels, often on a national or international scale. Hence not only do we see policy innovation arising out of traditional American federalism, but also "scale innovation."

This backdrop is important when exploring the best governance models for emerging environmental issues, the full scope of which are still poorly understood. Where does climate change adaptation fit? Does it illustrate the market failures and potential gamesmanship that have justified traditional federalism models, complete with a strong policymaking role for

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the federal government, or is it best addressed as a problem ripe for the multilevel governance solutions offered by collaborative models? Any attempt to answer this question must match up the problems presented by adaption to the tools and processes offered by more traditional environmental federalism and that offered by collaborative governance regimes.

I argue that, as understood so far, adaptation calls for a hybrid between traditional federalism models and models suggested by democratic experimentalism and collaborative governance. Commentators uniformly predict that climate change will bring with it dynamic, complex and potentially abrupt, eco-systemic change at varying scales. Thus, for some, regulations in the service of adaptation should seek to reduce the vulnerability of ecosystems to abrupt and uncertain change and to reinforce the resiliency of such systems. This process would seem ideally suited to democratic experimentalism—a problem in need of a regulatory system that is constantly monitoring its effects and updating its requirements. But for others, adaptation will necessitate national (and possibly international) infrastructure and regulations, which, together with needed minimum standards applicable to intrastate issues, will call for federal, state and local regulation similar to traditional federalism. I conclude that a model for a hybrid of the two—experimentalism and federalism—might be found in the cooperative federalism structure of EPA's recent Clean Power Plan. Here, states are held accountable by the federal government to regulatory goals of their own making. Thus the Plan incorporates flexibility of experimentalism but also the minimum standards and backstop of federal regulation.

I.
INTRODUCTION

Democratic experimentalism is a theory of governance intended to encourage continuous improvement in the problem-solving capabilities of local governing units in a federal or decentralized system of government.[1] According to the vision of two founding members, democratic experimentalism locates policymaking authority at the local level. A central regulatory authority would exist, but significantly, the role of that body would be primarily that of supporting local government, feeding the local government information regarding the performance of peer local governments and challenging it to do better. The composition of the central governing body would also differ from that of your typical federal environmental agency given that it would be populated by private and non-profit sector representatives.[2]

The United States provides an increasing number of examples of public-private, multilevel institutional collaborations that reflect aspects of this idealized vision.[3] Often these collaborations are found with respect to ecosystems facing a crisis due to development pressures or external changes related to climate change. A few examples include the Comprehensive Everglades Restoration Plan, the CALFED Bay-Delta Program, and the Piscataqua Region Estuaries Partnership.[4] Like the ideal of

1. *See* Benjamin J. Beaton, *Walking the Federalist Tightrope: A National Policy of State Experimentation*, 108 COLUM. L. REV. 1670, 1700–1701 (2008).

2. Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267, 316–18 (1998).

3. *See* Bradley C. Karkkainen, *Information-Forcing Regulation Environmental Governance*, 33 FLA. ST. U. L. REV. 861, *reprinted in* LAW AND NEW GOVERNANCE IN THE EU AND US 295 (Grainne de Burca & Joanne Scott, eds., 2006).

4. *See* Kirk Emerson & Andrea K. Gerlak, *Adaptation in Collaborative*

democratic experimentalism, these governance arrangements are "networked" and "multilevel" so as to enable decision makers to collaborate in search of solutions and to shift and change in response to changing conditions. Other rules and procedures incorporated into the corpus of U.S. environmental regulation trigger the generation of information and self-regulation.[5]

Nevertheless, it is fair to say that collaborative, multilevel governance regimes, however desirable to address the "wicked" problems facing particular ecosystems, are the exception rather than the rule. Environmental regulation is otherwise characterized by autonomous regulation by states, local governments and the federal government. Granted, the levels of government do interact and are even combined in larger schemes such as cooperative federalism found in major federal environmental laws. Nevertheless, in sharp contrast to the vision of democratic experimentalism, U.S. environmental law presupposes a strong federal role characterized by binding regulatory authority and the power to preempt state and local law. This overarching role of the federal government, made possible through broad interpretations of the Commerce Clause, arises out of concerns for curbing interstate pollution spillovers and preventing a welfare-reducing race to the bottom in state environmental regulation.[6]

Scholars of democratic experimentalism and new governance rightly criticize the static allocations of authority found in this traditional federalism framework for its rigidity and for its potential to stifle innovation at the state and local levels. Nevertheless, this critique underappreciates the level of experimentation harbored by this framework, as witnessed in the dynamic interaction between the various levels of government. This dynamic interplay, which is very much on display with respect to climate change regulation, is far from being devoid of new policy innovation. It also exhibits something that, in the long run, may be just as important—the adoption, at local and

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Governance Regimes, 54 ENV'T MGMT. 768, 769 (2014).

5. Karkkainen, *supra* note 3, at 297–320 (discussing penalty default rules, and citizen suits).

6. *See* Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L. J. 1196, 1210 (1977).

regional levels, of policy innovations developed at other, often national or international levels. Hence not only do we see policy innovation arising out of traditional American federalism, but also "scale innovation."

This backdrop is important when exploring the best governance models for relatively newly understood environmental issues, such as adaptation to climate change. Where does adaptation fit? Does it best pair with the prevailing model of horizontal and vertical competitive federalism, or is it best addressed as a problem ripe for the multilevel governance solutions offered by collaborative models? Any attempt to answer this question must match up the problems presented by adaption to the tools and processes offered by more traditional environmental federalism and that offered by collaborative governance regimes.

I argue that, as understood so far, adaptation calls for a hybrid between traditional federalism models and democratic experimentalism or collaborative governance. Commentators uniformly predict that climate change will bring with it dynamic, complex and potentially abrupt, ecosystemic change at varying scales. Thus, for some, regulations in the service of adaptation should seek to reduce the vulnerability of ecosystems to abrupt and uncertain change and reinforce the resiliency of such systems. This process would seem ideally suited to democratic experimentalism—a problem in need of a regulatory system that is constantly monitoring its effects and updating its requirements. But for others, adaptation will necessitate national (and possibly international) infrastructure and regulations, which, together with needed minimum standards applicable to even intrastate issues, will call for federal, state and local regulation similar to traditional federalism. I conclude that a model for a hybrid of the two—experimentalism and federalism— might be found in the cooperative federalism structure of EPA's recent Clean Power Plan. Here, states are held accountable by the federal government to regulatory goals of their own making. Thus the Clean Power Plan incorporates flexibility of experimentalism but also the minimum standards and backstop of federal regulation.

II.
DYNAMIC, ADAPTIVE ENVIRONMENTAL FEDERALISM

U.S. environmental regulation is frequently portrayed as a rigidly hierarchical regime of dictates from the federal government that purport to solve complex environmental problems in one fell swoop.[7] The reality today, however, is that environmental regulation is a vast network of laws and regulations at all levels of government. Furthermore, there are no particular boundaries between levels of government concerning who is regulating what. Neither the federal government nor the state governments are content to address only the issues that would seem to be in their unique jurisdiction. Thus Congress has authorized the EPA to regulate groundwater contamination,[8] leaking underground storage tanks[9] and municipal solid waste landfills[10]—all activities with fairly local impacts. On the other hand, the states have reached, literally, for the stars, regulating local sources of greenhouse gases in an effort to mitigate global climate change.[11] This section will discuss the legal framework that makes such overlapping regulation possible, the dynamic interaction it fosters, and the benefits, costs and opportunities provided by such overlapping jurisdiction.

A. *The Legal Framework: Unleashing Regulation at Multiple Scales*

By virtue of their general welfare authority, states may regulate broadly in response to political mandates. There are limits, of course, namely where a state regulates with respect to an activity expressly or impliedly preempted by congressional

7. *See* Charles F. Sabel, Archon Fung & Bradley Karkkainen, *Beyond Backyard Environmentalism: How Communities are Quietly Refashioning Environmental Regulation*, BOSTON REV., Oct. 1999, at 4 (discussing the "command" and "market" features of centralized environmental regulation).

8. Safe Drinking Water Act, 42 U.S.C. §§ 300f to 300j-26.

9. Resource Conservation and Recovery Act, Subtitle I: The Federal Underground Storage Tank Program, 42 U.S.C. §§ 6901–6991(i).

10. Resource Conservation and Recovery Act, Subtitle D, 42 U.S.C. §§ 6921–6939.

11. *See* CENTER FOR ENERGY AND CLIMATE SOLUTIONS, http://www.c2es.org.

statute or, in the case of the dormant Commerce Clause, by a quasi-constitutional doctrine protecting the national market.[12] Otherwise, so long as a state can establish a rational basis for its concern that an activity will adversely affect its citizens or its territory, it is subject to lawful regulation.[13]

The expansion of federal power under the Commerce Clause during the New Deal[14] ushered in the present era of overlapping federal-state jurisdiction.[15] This modern era is in contrast to the pre-New Deal era when overlap between state and federal authority was rare.[16] Federal environmental regulation has been a particular beneficiary of the modern expansive interpretations of the Commerce Clause. Forgiving interpretations of the Commerce Clause enabled Congress to develop comprehensive environmental programs that protected even the most localized aspects of larger ecosystems. More recent Supreme Court decisions placing limits on federal authority threaten the scope of Congress's regulatory authority over the environment but have not undermined major federal environmental programs.[17]

B. *Rethinking Theoretical Underpinnings of Static Regulatory Frameworks*

The key to a dynamic federal system is the elimination of barriers to overlapping environmental regulation rooted in

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12. *See generally* PREEMPTION CHOICE: THE THEORY, LAW AND REALITY OF FEDERALISM'S CORE QUESTION (William W. Buzbee, ed., Cambridge U. Press 2009).

13. *Cf.* CALIFORNIA AIR RESOURCES BOARD, INITIAL STATEMENT OF REASONS FOR PROPOSED RULEMAKING, PUBLIC HEARING TO CONSIDER ADOPTION OF REGULATIONS TO CONTROL GREENHOUSE GAS EMISSIONS FROM MOTOR VEHICLES 144–45 (Aug. 10, 2004) (discussing comments upon California vehicle emission standards for greenhouse gases based upon argument State's regulation would have no discernible mitigative impact upon climate change).

14. *See* Wickard v. Filburn, 317 U.S. 111 (1942).

15. *See* United States v. Lopez, 514 U.S. 549 (1995); Gonzales v. Raich, 545 U.S. 1 (2005).

16. Logan Everett Sawyer, *Constitutional Principle, Partisan Calculation, and the Beveridge Child Labor Bill*, 31 LAW & HIST. REV. 325, 333 (2013).

17. *See* Solid Waste Agency of Northern Cook Cty. v. Army Corps of Engineers, 531 U.S. 159 (2001) (reading the scope of Clean Water Act jurisdiction to not cover isolated wetlands visited by migratory birds due to possibility such a jurisdictional claim would exceed Commerce Clause powers).

theoretical models. While numerous models might support a static framework—protection of fundamental human rights, or environmental ethics—efficiency considerations have held a dominant position in debates over the proper allocation of regulatory authority in federal jurisdictions.

One particular efficiency model, the "matching principle," has been highly influential. According to the "matching principle," the choice of regulatory jurisdiction is dictated by the perceived geographic scope of the environmental problem at issue. Hence, under this principle, localized environmental problems are suitable only for local government regulation, whereas, for example, problems of international scope are suitable for agreement by nation states.

The theoretical basis of the matching principle is neoclassical economics and specifically, models of perfect competition.[18] Specifically, where externalities are fully internalized, the environmental standards of each jurisdiction will perfectly reflect the preferences of their residents in terms of any trade-off between environmental quality and economic benefits. Residents unhappy with the standard adopted are free to relocate to a different jurisdiction that better reflects their preferences. As with markets for goods and services, the matching principle assumes that competition between regulatory jurisdictions will lead to more efficient levels of regulation.[19]

Remove the assumption of perfect competition, however, and the theoretical support for the matching principle crumbles. Scholars have demonstrated the rationality of federal regulation, for example, where local jurisdictions would otherwise establish inefficient standards, even as to fully-internalized environmental problems, based upon competition between jurisdictions to

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18. *See* Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principle: The Case for Reallocating Federal Authority*, 14 YALE J. ON REG. 25 (1996). *See also* Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 ECOLOGY L. Q. 183, 191–94 (2005).

19. The Matching Principle has origins in the literature on fiscal federalism, starting with Charles Tiebout's contention that local jurisdictions can compete for residents based upon tax and benefit policies. Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416, 418 (1956).

capture mobile industries with out-sized bargaining power. In such situations, scholars argue the theoretical model that best "matches" the dynamic at play is non-cooperative game theory, as opposed to perfect competition.[20] Like powerful mobile industries (think vehicle manufacturers), the perfect competition assumption will be undercut by the pressure of excessively powerful interest groups who skew the local political process in a manner that results in standards that are either too-lax or too-stringent.[21] In fact, real world economics may result in the conclusion that regulation at a level that decidedly does not "match" the scope of the environmental problem is actually the most efficient regulator. For instance, economic studies support the conclusion that large emitters of carbon dioxide such as China and the United States have an incentive to reduce emissions even in the absence of an international agreement.[22]

Static frameworks are undesirable for a host of reasons. First and foremost, static frameworks for the allocation of regulatory power stifle the democratic impulse. The electorate's urge to develop policies to address any environmental problem affecting their well-being reflects a desire for government response to the will of the people. The electorate may not be motivated by economic efficiency concerns, even where the pathway to an efficient regulatory response is clear. We see this, for instance, in the numerous climate change measures being enacted by state and local governments. These measures will impose costs upon the local electorate, but because of their relatively small contribution to the enormity of the emissions reductions that would be required to mitigate the effects of climate change, cannot be justified based upon the benefits that the policy will accrue in terms of climate change mitigation.[23]

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20. Kirsten H. Engel, *State Environmental Standard-Setting: Is There a "Race" and Is It "to the Bottom"?*, 48 HASTINGS L.J. 271 274–76 (1997).

21. Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 HARV. L. REV. 553, 571 (2001).

22. ENGEL & SALESKA, *supra* note 18, at 207–209 (under the assumptions of these models, cutbacks by these large emitters will have a measurable effect in terms of reducing the impacts of climate change).

23. *See* Kirsten H. Engel & Barak Y. Orbach, *Micro-Motives and State and Local Climate Change Initiatives*, 2 HARV. L. & POL'Y REV. 119, 120 (2008).

Other reasons exist to reject a static regulatory allocation framework. These persist in addition to the negative effects of a static framework upon experimentation, a topic discussed further below, and include the loss of the regulatory safety net provided by having another regulatory jurisdiction available if the other one fails to act. Erwin Chemerinsky has lauded the benefits of having multiple levels of government available to address the same problem. Referring to the need to "empower government at all levels," Chemerinsky writes: "[i]f one level of government isn't providing an adequate deterrent from unsafe products, another level of government can step in and do this."[24] The struggles of the courts to articulate and apply a test that limits federal jurisdiction under the Commerce Clause is evidence of the difficulty of the line-drawing exercise required by a static regulatory framework.[25]

C. *Theoretical Underpinnings of Dynamic Federalism: Ecological Adaptation*

The concept of "adaptive federalism" provides a theoretical framework for a dynamic model of environmental federalism that stands in sharp contrast to the static "matching principle."[26] Similar to, and building upon variants under the names of "interactive" and "polyphonic" federalism, adaptive federalism rejects the static model represented by the matching principle. Adaptive federalism rejects the possibility of identifying a single optimal jurisdiction for regulation. Instead, under adaptive federalism, and like ecosystems, the interactions of the different regulatory levels tends toward filling gaps and, over time, gradually optimizing regulatory outcomes.

Adaptive federalism recognizes that environmental problems are multi-faceted. As stated by the author and a co-author,

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24. Erwin Chemerinsky, *Empowering States: The Need to Limit Federal Preemption*, 33 PEPP. L. REV. 69, 74 (2005).

25. *See* United States v. Lopez, 514 U.S. 549 (1995); Gonzales v. Raich, 545 U.S. 1 (2005).

26. David Adelman & Kirsten Engel, *Adaptive Federalism: The Case Against Reallocating Environmental Regulatory Authority*, 92 MINN. L. REV. 1796, 1799 (2008).

"[s]ources of environmental harm may be the manifestation of numerous failures, market as well as regulatory, that arise along numerous dimensions and at widely variant temporal and spatial scales."[27] At the same time, the motivation to address environmental harms will originate from more than one level of government based upon a variety of social, economic and political variables. This diversity, both in terms of the source of environmental problems and their solutions, contributes to policy experimentation at multiple scales and the dynamic and innovative interactions between regulators at these various scales.

Adaptive federalism is modeled upon the processes at work in ecosystems. Ecosystems exemplify two important processes that are relevant to regulation: diversity-maintenance and optimization. The generation of policy responses at multiple scales results in policy refinement. A good idea or an advantageous idea will catch the attention of other regulators who may adopt the policy but improve upon it or, at the very least, refine it so that it is better adapted to their needs and purposes. This refinement may in turn foster more adoptions by additional policymakers, and the cycle perpetuates.

D. *Examples of Overlapping Jurisdiction*

Recent developments in environmental regulation, especially with respect to climate change, serve as illustrations both of the states as laboratories of democracy, but also the virtues, and hidden innovation potential, of a federalism characterized by dynamic, overlapping jurisdiction. One of the most interesting developments in environmental federalism has been the surprising outpouring of state and local regulatory activity directed at reducing greenhouse gas emissions. These state-level programs consist of diverse regulatory approaches and targets.

States have been experimenting with market-based regulatory mechanisms. One of the first was California's 2006 Global Warming Solutions Act, which requires the State to reduce, to 1990 levels by the year 2020, its greenhouse gas emissions across multiple sectors of the economy.

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27. *Id.*

States have also adopted emissions trading on the regional level. One of the most interesting is a cap-and-trade program for emissions from fossil fuel-fired electric generating facilities established by northeastern states. The Regional Greenhouse Gas Inventory (RGGI) was established in 2009 and now has nine states as members. Sale of allowances between 2009 and 2012 generated 700 million dollars in revenues that the member states have invested in energy efficiency programs.

Other notable greenhouse gas emission related standards include performance standards, renewable portfolio standards, demand-side energy efficiency standards and energy efficiency resource standards. Currently, four states—New York, California, Oregon and Washington—each impose greenhouse gas emissions limits upon new and modified fossil fuel-fired electric generating units. Renewable portfolio standards are perhaps the most widespread state innovation within the energy sector. Under an RPS, utilities are required to ensure that a specified percentage of the electricity they generate originate from renewable energy sources. The percentage required usually increases over time, many from twenty to twenty-five percent by 2025. Currently, more than twenty-five states have enacted an RPS and for many of these states, their RPS has been strengthened since it was first enacted. Finally, demand-side energy efficiency measures include programs, usually administered by utilities under mandates established by regulators, which encourage end users to reduce electricity consumption. Finally, more than twenty states now have energy efficiency resource standards, requiring utilities to save a certain percentage of energy each year or over several years. Arizona, which possesses one of the most stringent such standard in the nation, requires investor-owned utilities to attain a twenty-two percent cumulative energy savings by the year 2020.

Aside from electricity utilities, states have been active in reducing greenhouse gases from motor vehicles. California was the first state to do so, requiring in 2004, emission reductions from passenger cars and light-duty trucks.[28] Nine states currently follow California's requirements, as they are allowed to do under

28. CAL. CODE REGS.. tit. 13, § 1961.1 (2005).

the federal Clean Air Act. The California standards include the requirement that manufacturers generate a certain number of Zero Emission Vehicle (ZEV) credits, depending upon the number of vehicles produced and delivered within the state.[29]

Local governments have also been active in climate change policymaking though their contributions are often labeled as efforts to conserve energy or enhance sustainability, as opposed to mitigate climate change. Local governments are the source of much of society's energy consumption and waste production. At the same time, local governments have considerable authority over transportation networks, building standards and energy consumption.[30] Commentators have also highlighted the role of transnational networks of subnational governments, such as the International Council for Local Environmental Initiatives, in facilitating the role of local governments in climate change mitigation.[31]

Environmental regulation, and especially the recent history of state and local level climate change regulation, contains many examples of interaction, copying and regulation-adoption between the states and the federal government. According to many of these examples, the states generate new policies, which are then picked up by the federal government and then embodied in national regulation applicable to the nation as whole. But according to other examples, it is the federal government that is the original source of a given policy, which is then picked up by the states and applied either on the state level or on a regional level. Hence the dialogue has the capacity to work in both directions—from down (state or local) to up (federal level) and across (applicable to all states), and from up (national) to down (states and local authorities). It also has the capacity to be iterative, i.e., for the states and the federal government to go back and forth in a virtual "dialogue" of standard-setting.

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29. Center for Climate and Energy Solutions, *U.S. States and Regions, Transportation Program, ZEV Program*, http://www.c2es.org/us-states-regions/policy-maps/zev-program (last visited Nov. 5, 2016).

30. Michele Betsill and Harriet Bulkeley, *Cities and the Multilevel Governance of Global.*
Climate Change, 12 GLOBAL GOVERNANCE 141, 143 (2006).

31. *Id.*

Another example is provided by brownfields legislation. In part because of the broad liability net cast by the federal Superfund law for abandoned hazardous waste disposal sites, developers were scared away from desirable sites, thus leaving those sites abandoned. The EPA first addressed this problem by providing letters to potential developers that waived the developer's liability at the site where its involvement was limited to cleaning up the site. This idea caught fire in the states, and multiple states enacted brownfields legislation, providing some sort of waiver to prospective purchasers lacking any past association with the site. The "baton" of regulation was thereafter passed *back* to Congress, which subsequently enacted federal legislation, the Small Business Liability Relief and Brownfields Revitalization Act of 2002, which provided a statutory liability waiver to prospective purchasers of a brownfield site.

Ann Carlson discusses a related dynamic, which she labels "iterative federalism."[32] Under this, the federal government, through legislation, bestows special regulatory power upon a single state or group of states. These states in turn develop the first round of policy responses. These policy responses are, in turn, adopted by higher and lower levels of government in an iterative process. Examples of this are found in many of the transportation—air pollution related areas. These include California's greenhouse gas emissions standards for motor vehicles, the Regional Greenhouse Gas Initiative adopted by northeastern states and the Ozone Transport Commission.[33]

For example, Congress enacted the first national cap and trade program for sulfur dioxide emissions from power plants under the 1990 Amendments to the Clean Air Act after a group of northeastern states enacted measures to reduce sulfur dioxide on a regional basis. Subsequently, the cap and trade program adopted by Congress in the Clean Air Act's Acid Rain program served as the model for the regional grouping of states now engaged in the Regional Greenhouse Gas Emissions program.

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32. Ann E. Carlson, *Iterative Federalism and Climate Change*, 103 NW. U. L. REV. 1097 (2009).

33. *Id.* at 1100.

This program caps the amount of greenhouse gases capable of emission by each fossil fuel fired power plant in the region, but provides that plants can purchase emissions allowances from other plants to meet their mandatory caps.

Why does policy bounce back and forth between the states and between the states and the federal government? There are multiple explanations. Under the "domino effect," regulation at the state and local level can prompt burdened interest groups to appeal to higher jurisdictional regulators for relief from the costs of inconsistent lower-level regulation. It can also result from a search for larger markets by substitute product producers, or from a decision to use a market-based mechanism, such as a tradable permit scheme, to regulate the problem.[34]

III.

DYNAMIC, ADAPTIVE FEDERALISM AND DEMOCRATIC EXPERIMENTALISM

In terms of how it recommends allocating governing authority, democratic experimentalism holds many of the same goals and exhibits many of the same features as dynamic, adaptive federalism. Nevertheless, key differences divide the two that have important implications for environmental issues that lack an established governance scheme, such as climate change adaptation.

Scholars of democratic experimentalism tend to argue strongly for the location of policymaking authority primarily at the local, or subnational level of government, rather than welcoming policy responses from all levels of government, including the central, national or federal government. Granted, the conception of democratic experimentalism is that the local government will work closely with a central body to set initial goals and revise those goals, and will receive a steady stream of assistance from that central body. Nevertheless, the chief policy actor is the local government. For instance, Dorf and Sabel conceive of "local, or, rather, subnational, pragmatist government."[35] These local units might translate to states or municipalities in the United States

34. Engel & Saleska, *supra* note 18 at 223.

35. Dorf & Sabel, *supra* note 2 at 314.

or European nations under the umbrella of the European Union. Sabel and Simon similarly emphasize that the "basic architecture" of democratic experimentalism consists of a "center" and "local units." As stated by Sabel and Zeitlin, "the emphasis in experimentalist reforms is on creating space for local innovation—delegating authority for decision-making, under conditions of dynamic accountability, to local units and frontline workers."[36] After the center and the local units jointly determine goals for action, "local units are explicitly given broad discretion to pursue these ends as they see fit."[37] Sabel and Zeitlin add, in a consistent manner, that experimentalism is "well-suited to transnational domains where there exists no overarching sovereign with the authority to set common goals even in theory."[38]

Under democratic experimentalism, the central authority (the federal government in the United States or the European Union), in contrast, has a role much like a benevolent parent. The central regulatory authority works with the local units to frame general goals the localities must achieve. The central authority also provides funding to localities and oversees a peer review and benchmarking process whereby localities are required to justify their performance in view of the performance of other localities with respect to similar goals.[39] This process earns it the label "directly deliberative polyarchy."[40]

Interestingly, with respect to the allocation of authority to different levels of government, democratic experimentalism and dynamic and adaptive federalism arguably align with different sides of the "matching principle" debate. By providing local and central authorities with distinct roles and functions, democratic experimentalism aligns more closely with the matching principle, as the end result is to allocate authority in a manner that ensures exclusive regulatory authority for a given level of government with minimal overlap with other jurisdictions. The

36. Charles F. Sabel & Jonathan Zeitlin, *Experimentalist Governance*, *in* THE OXFORD HANDBOOK OF GOVERNANCE 14 (David Levi-Faur ed., 2012).

37. Charles F. Sabel & William H. Simon, *Administrative Minimalism and Experimentalism*, 100 GEO. L. J. 53, 79 (2011).

38. Sabel & Zeitlin, *supra* note 36.

39. Dorf & Sabel, *supra* note 2, at 288.

40. *Id.* at 316.

difference is that, in democratic experimentalism, as opposed to environmental federalism, the "match" is along the lines of function as opposed to territorial jurisdiction.[41]

In contrast to democratic experimentalism, dynamic, adaptive federalism rejects the matching principle in favor of overlapping regulation by regulatory authorities at multiple levels of government. While dynamic and adaptive federalism prizes state and local governments as "laboratories of democracy," the primary engines of the development of new policy prescriptions, it is fundamental that the central, or national government, retain a "full-service" policymaking role. Only if it does so can policy ideas truly pass back and forth vertically and, in the re-sizing process, change, adapt, and be refined to better suit society's needs. To preclude a role for the central government in policy innovation may bias the types of innovations developed. Larger jurisdictions, for example, are more likely the source of certain policy innovations. A central government may more likely be the source of market-based policies, for example, for the simple reason that central government jurisdictions are more likely to encompass more numerous market participants and hence a more competitive market. The history of the generation of market-based mechanisms in the United States tends to bear this out. Both offset emissions trading under the Clean Air Act and the Acid Rain Trading Program were first developed on the national level, though they were both later adapted to the state and regional levels.[42]

A second, related, difference between democratic experimentalism and dynamic, adaptive federalism, is the willingness to cross lines separating governmental levels and the public and private sectors when assembling teams of decision-makers. Under democratic experimentalism, decision-makers are encouraged to reach out to service providers from specialist

41. It is not entirely clear whether the process of local decisionmaking is different with respect to matters of broad national scope. Presumably democratic experimentalism leaves this to the domain of local decision making as well.

42. Kirsten H. Engel, *The Enigma of State Climate Change Policy Innovation*, *in* THE LAW AND POLICY OF ENVIRONMENTAL FEDERALISM: A COMPARATIVE ANALYSIS (Kalyani Robbins ed., 2015).

government bureaucracies, non-profit and for-profit firms.[43] According to Dorf and Sabel, "[f]or the purpose of solving particular problems it may choose to federate with other jurisdictions like itself or delegate responsibility to more or less comprehensive units of government."[44] The model for this mixing and incorporation of specialists is that of the modern private firm in which component parts or services may be provided by outside companies and the basal unit is the team or workgroup.[45]

Together these two distinctions illustrate the manner in which the dynamic, adaptive federalism and democratic experimentalism seek to create and perpetuate innovative responses to contemporary social, economic and environmental problems. Dynamic, adaptive federalism operates through the interaction of the policy-related actions of autonomous, self-contained governing units operating at multiple scales of governance. This interaction provides for continual refinement of policies at the same time the involvement of multiple governing units provides a safety net should progress on innovative solutions be stymied at a given level of government. Under dynamic federalism, the democratic accountability of the governing unit is maintained; decision-making authority is not shared (as it appears to be under democratic experimentalism) with representatives of other governing units or private or nonprofit entities. The views of such entities are incorporated through formal and informal contacts and solicitation of views through public participation procedures provided by administrative agencies, such as those dictated by the Administrative Procedure Act.

Relative to dynamic, adaptive federalism, the potential rewards of democratic experimentalism are high, but so are the risks. Democratic experimentalism is arguably more capable of responding nimbly to external changes and with the benefit of more meaningful and direct input from stakeholders and other interested persons. At the same time, however, by lodging

43. Dorf & Sabel, *supra* note 2, at 316. *See also* Sabel & Simon, *supra* note 37, at 91 (frontline issues calling for interdisciplinary diagnosis and intervention are more likely to be decided by a team than by a single worker).

44. Dorf & Sabel, *supra* note 2, at 316–17.

45. *Id.* at 297–98.

policymaking more or less solely in localized units, democratic experimentalism risks placing "all of its eggs in one basket," leaving available no alternative forum should progress at the local level encounter unexpected difficulties. Collaborative governance likewise presents risks. Incorporation of outside interest groups in the making of policy poses risks of capture by powerful interest groups. Alternatively, the success of collaborative governance schemes can be highly sensitive to key factors, such as the severity of the problem being addressed, the availability of incentives to keep stakeholders engaged in the process, and trust.[46]

IV.
ADAPTATION TO CLIMATE CHANGE POLICY

The above background is key to assessing the best governance model for the emerging issue of adaptation to climate change. Where does adaptation fit? Does it illustrate the interstate spillovers, market failures and inequities that have justified traditional federalism models, complete with a strong policymaking role for the federal government? Or is it best addressed as a problem ripe for the multilevel governance solutions offered by collaborative models? Any attempt to answer this question must match up the objectives of adaption policy to the jurisdiction, processes and tools offered by various levels of government as well as by the varying governing frameworks considered.

The objective of adaptation is to minimize and recover from the harms of climate change.[47] Mitigation is arguably the most important means of adaptation as it addresses the root cause of anthropogenic-caused climate change—the buildup of greenhouse gas emissions and land use change. But adaptation is usually understood as the minimization of harms resulting from climate change that will occur despite whatever mitigation

46. Cameron Holley, *Removing the Thorn from New Governance's Side: Examining the Emergency of Collaboration in Practice and the Roles for Law, Nested Institutions, and Trust*, 40 ENVTL. L. REP. NEWS & ANALYSIS 10656, 10683–84 (2010).

47. J. B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, 40 ENVTL. L. 363, 383 (2010).

measures are being taken. In view of this, many believe the objective of adaptation should be resilience. Resilience is in turn defined as the "capacity of an ecosystem to withstand disturbance and maintain the same basic processes and structures"[48] or "the ability of a system to return to its initial state and function in spite of some major perturbation."[49] Commentators generally agree that regulatory approaches should seek to reduce the vulnerability of ecosystems to abrupt and uncertain change and to reinforce the resiliency of such systems so that they survive the onslaught of climatic changes.[50]

The case for lodging adaptation with local and regional governing authorities is compelling. Climate change will impact human societies and ecosystems in vastly different ways and much of the variation will be attributable to differences in the natural environment itself. Hence coastal areas will be forced to adapt to rising seas while dry, mountainous areas will need to address the ravages of drought and forest fires, and urban centers must adapt to the dangers of excessive heat. These are adaptation challenges for human communities; the challenges for wildlife and natural resources can similarly be argued to be local—the effects of unusually intense drying or flooding upon a watershed, or forced migration of species to new locales due to the loss of a food source in an existing habitat. Much scholarship focuses on adaptation at the local and regional scales and Germany has formally located the responsibility for adaptation with local governments.

At the same time, commentators have pointed to the manner in which adaptation policy presents many of the same issues that have in the past justified federal regulation: the existence of

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48. Craig Anthony Arnold & Lance H. Gunderson, *Adaptive Law and Resilience*, 43 ENVTL. L. REP. NEWS & ANALYSIS 10426, 10427 (2013).

49. U.S. ENVTL. PROT. AGENCY, SYNTHESIS AND ASSESSMENT PRODUCT 4.4, PRELIMINARY REVIEW OF ADAPTATION OPTIONS FOR CLIMATE-SENSITIVE ECOSYSTEM AND RESOURCES (2008).

50. *See also* Arnold & Gunderson, *supra* note 48, at 10426; J.B. Ruhl & James Salzman, *Climate Change Meets the Law of the Horse*, 62 DUKE L.J. 975 (2013); Robin Kundis Craig, *"Stationarity is Dead"— Long Live Transformation: Five Principles for Climate Change Adaptation Law*, 34 HARV. ENVTL. L. REV. 9 (2010).

interstate spillover effects, political distortions that hinder state responses, or equity factors that call for fair treatment across local jurisdictional lines.[51] Both Daniel Farber and Robert Glicksman, for example, argue that the same rationales that exist generally in favor of federal regulation apply with equal force with respect to adaptation. Interstate spillovers have long functioned as one of the strongest rationales for federal regulation. But it applies to adaptation as well. Suppose one state refuses to take measures to absorb flood waters when flooding occurs on a water body shared with one or more downstream states. This failure may cause flooding in the downstream states. Similarly, when a state fails to implement water conservation measures with respect to a water body it shares with one or two other states, each of which has implemented water conservation measures, this free-riding behavior may cause water shortages in other states. Invasive species regulation poses additional scenarios for interstate spillovers. Scientists predict an increase in pests that carry diseases, especially invasive species carrying tropical diseases.[52] A southern border state's refusal to take measures to eradicate these pests could cause them to spread. A state's failure to repair interstate bridges, roads and utility lines could similarly cripple critical energy and communications infrastructure on which populations in multiple states rely.[53]

Similarly, the other rationales offered for federal regulation could easily exist with respect to adaptation. Take the race-to-the-bottom rationale, that in the absence of federal minimum standards, states will engage in a welfare-reducing race to implement lax environmental standards. This could plausibly occur, for instance, where, in an effort to attract economic development, states allow construction in flood plain areas or in storm-prone sensitive coastal areas.[54] Much of adaptation may come down to what the government, any government, can afford

51. Daniel Farber, *Climate Change and Adaptation: Mapping the Issues*, 1 SAN DIEGO J. CLIMATE & ENERGY L. 259 (2009); Robert L. Glicksman, *Climate Change Adaptation: A Collective Action Perspective on Federalism Considerations*, 40 ENVTL. L. 1159, 1165 n. 23 (2010).

52. Glicksman, *supra* note 51, at 1184–85.

53. Farber, *supra* note 51, at 267; Glicksman, *supra* note 51, at 1185.

54. Farber, *supra* note 51, at 269.

to spend on it. Experts predict adaptation costs billions of dollars each year. The federal government will have greater available financial resources. Imposing the funding obligation upon the federal government may be justified where states are unable to afford adaptation measures, or can afford them on an un-equal basis, where the federal financing can effectively shift the costs of adaptation to greenhouse gas emitters, or where adaptation measures will affect multiple states.[55]

Given the disincentive to fund adaptation measures as well as the justification for local, state and regional involvement, it makes little sense to locate adaptation governance in one level of government. Instead, the dynamic federalism model would seem to fit adaptation, at least in terms of its embrace of regulation at multiple scales of government.[56] As discussed above, under this model, federal, state and regional governing bodies represent alternative sources of policymaking. There is no presumption that a given issue "belongs" to any one level of government. Instead, dynamic federalism calls for overlapping jurisdiction between the states and the federal government. Dynamic federalism can be expected to promote synergy between government agencies and the formation of informal networks. Given the lack of experience with adaptation policy, it would be foolish to rigidly cut off the source of new solutions from whatever level of government is motivated to act.

The dynamic conception of federalism addresses adaptation's need for innovative policy from multiple scales of government. Nevertheless, it does little to address a different, but no less important, need of adaptation policymaking: the need for constant evaluation of the policies adopted and the capacity to change policies, perhaps rapidly, in response to potentially changing environmental conditions. Scientists are in accord that climate change brings with it widespread changes, the scale of which are unknown and the scope and extent of which we have no basis for predicting. The change is such that it is foolhardy to suppose that ecological systems will, or could ever, return to some prior known state of equilibrium. As summarized by

55. Farber, *supra* note 51, at 273.

56. *See* Ruhl, *supra* note 47, at 428–30.

leading conservation biologists, "stationarity is dead," and is replaced by a "no-analog future."[57] Summarizing the scientific literature, one commentator writes:

> The stationarity premise and all on which it [is] based, however, are going to fall to pieces in the era of climate change. In its stead ecologists now warn of the no-analog future—ecological variability unprecedented in the history of ecology, riddled with nonlinear feedback and feedforward loops, previously unknown emergent properties, and new thresholds of irreversible change. The 'envelop' of variability will grow to dimensions not previously experienced, and ecologists, including paleoecologists who have studied past climate change eras, have no analog for predicting where it is headed.[58]

The lack of even a possibility of returning ecosystems to some prior static state has numerous implications for environmental law, policy and environmental management. Conservation biology in particular continues to be oriented toward returning disturbed ecosystems to their natural and native states.[59] But the feasibility of doing so is now arguably impossible in light of what we know about the variability of climate change impacts.

To respond to this need for a more resilient legal framework, some commentators advocate the development of an entirely new approach to governance: the development of so-called "adaptive law."[60] The aim of adaptive law is to develop resilience in both ecological systems and social systems, including institutions and communities. "Adaptive law" rejects the status quo of environmental regulation as "maladaptive law." According to Craig Arnold and Lance Gunderson, U.S. environmental law is Exhibit A for maladaptive law. Aspects of environmental law that makes it maladaptive are narrow goals and a too-great reliance upon the centralized authority of the federal government.[61]

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57. P.C.D. Milly et al., *Stationarity Is Dead: Whither Water Management?*, 319 SCI. 573, 573 (2008).

58. Ruhl, *supra* note 47, at 394.

59. *See e.g.*, R. Edward Grumbine, *What is Ecosystem Management?* 8 CONSERVATION BIOLOGY 27 (1994).

60. Arnold & Gunderson, *supra* note 48, at 10428.

61. *Id.*

While this entirely new regime of adaptive law may yet develop, in the meantime, it might be advantageous to draw from other frameworks for more responsive policy-making processes. Frameworks that incorporate aspects of democratic experimentalism would be ideal, as experimentalism has a lot to offer adaptation policy. Key features of democratic experimentalism—its emphasis upon self-monitoring networks and systems for constantly updating policies in light of real world experience—address critical challenges of adaptation policy-making. For instance, if we wish to conserve species, we will need to strengthen our efforts to monitor the changing habitats of species. The critical habitat for a species whose survival is threatened by climate change may not be the area around which the species is today found, but instead, are the places to which the species is likely to migrate in the future.[62] At the same time, however, we know that the federal government will have an important role to play in adaptation policymaking and not just in aid of the states. As discussed above, democratic experimentalism does not embrace much, if any, of an actual policymaking role for a centralized government.

This essay suggests that the cooperative federalism model illustrated by EPA's recently-promulgated Clean Power Plan[63] might best be understood as something of a hybrid between dynamic, adaptive, federalism and democratic experimentalism. Here, states are held accountable by the federal government to regulatory goals largely of their own making. The Plan framework thus incorporates the flexibility of experimentalism but also the minimum standards and the enforcement backstop provided by federal regulation.

The Clean Power Plan is an EPA rule implementing section 111(d) of the Clean Air Act.[64] Section 111(d) establishes a classic cooperative federalism framework of action. It provides EPA

62. Ruhl, *supra* note 47, at 389–90.

63. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64662 (Oct. 23, 2015) (codified at 40 C.F.R. pt. 60); Carbon Pollution Emissions Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34830 (proposed June 18, 2014).

64. 42 U.S.C. § 7411(d) (2012).

with the major standard-setting task, that of defining the "best system of emissions reductions" in binding federal guidelines, but calls upon the states to propose the manner in which they will achieve the federal standard. States are not required to submit a state plan—that would violate the Tenth Amendment—but are instead encouraged to do so upon the penalty that the EPA will write a plan for the state.

The Clean Power Plan sets forth the federal guidelines for state plans to reduce greenhouse gas emissions from their electricity sectors. EPA adopted a system-wide approach to determining the "best system of emission reduction" (BSER) for existing power plants, opening the possibility that states could count emissions reductions achieved within the fenceline of existing power plants (efficient upgrades to coal plants, for instance) as well as "beyond the fenceline" options, such as a state's increased reliance upon renewable energy.

Under both its proposed and its final rule, EPA established, for each state, a unique state emissions reduction target that the state must be achieve by 2030 and which, in the aggregate across all states, results in greenhouse gas emissions reductions from the electricity industry of 30 percent below 2012 emission levels by 2030. The Clean Power Plan is arguably a hybrid between democratic experimentalism and dynamic, adaptive federalism. Each state's emission reduction target reflects the state's past investments in low carbon energy options but also the potential provided for reductions on the regional level. Thus, consistent with democratic experimentalism, the goal applicable to the state has been established based largely upon state priorities and capabilities. Here the EPA has established the state's goal, but it is a goal that largely results from prior actions at the state and local levels over the course of the past decade and more of state initiatives with respect to climate change mitigation and renewable and energy efficiency policies.

At the same time, the Clean Power Plan reflects a dynamic and adaptive version of environmental federalism. The co-operative federalism structure of Section 111(d) means that EPA will write and implement a clean power plan for a state should the state fail to do so. Thus the scope of federal policy-making authority overlaps that of the state, providing a safety-net

should states fail—whether due to lack of consensus or interest group capture—to develop a state plan. Finally, EPA's involvement may result in new policy options. Specifically, EPA structured its rule so as to encourage states to collaborate with each other to develop multi-state plans to meet an aggregated joint emissions reduction goal and to possibly do so by creating an interstate emissions trading regime.[65] Federal incentives for collaboration enhances the likelihood that states will use regional emissions trading regimes to comply with their state targets.

V.
CONCLUSION

This article has attempted to do two things: to first unpack the implications of two regulatory frameworks for experimentation in environmental policymaking, and second, to draw conclusions regarding the suitability of the frameworks examined for the newly evolving field of climate adaptation policymaking. Dynamic, adaptive federalism, the first framework, is increasingly apparent in the interactions of regulatory authorities at various scales. Democratic experimentalism is not a framework for federalism *per se* but it does have federalism implications, specifically a preference for regulation by local authorities. Application of the primary features of each framework to the challenges of adaptation demonstrate the need for some aspects of both—for the regulatory experimentation and flexibility offered by democratic experimentalism and the safety net offered by dynamic federalism. The EPA's recently-promulgated Clean Power Plan consists of a cooperative federalism regime incorporating features from both frameworks. It should thus be considered for newly emerging environmental challenges, such as climate change adaptation.

65. *See* 80 Fed. Reg. at 64838.