Articles

Subnational Climate Mitigation Policy: A Framework for Analysis

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I. INTRODUCTION

In the United States ("U.S."), federal policies designed to reduce greenhouse gas ("GHG") emissions have been modest and piecemeal. The recent failure of the 111th Congress to pass comprehensive climate legislation combined with the political fallout of that effort and the subsequent 2010 midterm elections suggest that ambitious federal legislation is unlikely to be enacted in the near future.[1] The Environmental Protection Agency ("EPA") will continue to press forward with regulation under the Clean Air Act pursuant to authority granted in *Massachusetts v. E.P.A*. and the subsequent Endangerment Finding.[2] These regulatory measures, however, will not be sufficient to bring about the scale of GHG emissions reductions that would be required of the U.S. as part of any global effort to stabilize atmospheric GHG concentrations at a tolerable level.[3] Moreover, the EPA's regulatory authority is under threat, with a bevy of proposals to block, limit, or delay the EPA's action gaining some traction in Congress.[4] President Obama has pledged to veto any bill that strips the EPA of its authority to regulate GHGs and a veto-proof congressional coalition is unlikely, but it is possible that such a measure could be attached to a bill that the President feels compelled to sign or that he will be replaced in the 2012 election.[5] In any case, there is little political will for further action at the federal level.

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1. Ryan Lizza, *As the World Burns: How the Senate and the White House Missed their Best Chance to Deal with Climate Change*, THE NEW YORKER, Oct. 11, 2011, *available at* http://www.newyorker.com/reporting/2010/10/11/101011fa_fact_lizza.

2. *Massachusetts v. EPA*, 549 U.S. 497 (2007); Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, Final Rule, 74 Fed. Reg. 66,496 (Dec. 15, 2009) (to be codified at 40 C.F.R. ch. 1).

3. *See* U.N. Climate Change Conference, Dec. 7–18, 2009, Copenhagen Accord, U.N. Doc. FCCC/CP/2009/L.7 (Dec. 18, 2009) [hereinafter Copenhagen Accord]; *see generally* NICHOLAS M. BIANCO & FRANZ T. LITZ, WORLD RESOURCES INSTITUTE, REDUCING GREENHOUSE GAS EMISSIONS IN THE UNITED STATES USING EXISTING FEDERAL AUTHORITIES AND STATE ACTION, *available at* http://pdf.wri.org/reducing_ghgs_using_existing_federal_authorities_and_state_action.pdf.

4. *Congress Pushes to Strip EPA Authority to Regulate Greenhouse Gases,* OMB Watch, Mar. 22, 2011, http://www.ombwatch.org/node/11567; Nicolas Viavant, Marc Levitt, & Kathryn Zyla, *Bill Comparison: EPA Authority Regarding Greenhouse Gases (GHGs)*, Georgetown Climate Center (2011), *available at* http://www.georgetownclimate.org/sites/default/files/GCC_GHG_Reg_Authority_Bill_Comparison_Apr_1_2011%20(1).pdf.

5. *White House: Obama would veto bill stopping EPA*, REUTERS.COM, Apr. 5, 2011, http://af.reuters.com/article/energyOilNews/idAFN0514426120110405?sp=true (last visited Mar. 15, 2012).

Many state governments have stepped in to fill the void left by the lack of aggressive federal climate mitigation policies.[6] California has been a leader in this regard, as have the consortium of states in the northeast and mid-Atlantic participating in the Regional Greenhouse Gas Initiative ("RGGI").[7] Even among supporters of sharp reductions in domestic GHG emissions, however, these state and regional programs are somewhat controversial.[8] While many see them as the best way forward in a political climate that cannot support federal action,[9] others see subnational[10] climate policy as inherently irrational and unlikely to contribute meaningfully to the global project of mitigating climate

6. *See generally* Patrick Parenteau, *Lead, Follow or Get Out of the Way: The States Tackle Climate Change with Little Help from Washington*, 40 CONN. L. REV. 1453 (2008); Irma S. Russell & Jeffery S. Dennis, *State and Local Governments Address the Twin Challenges of Climate Change and Energy Alternatives*, 23 NAT. RESOURCES & ENVTL. 9 (2008); Mekaela Mahoney, *State and Local Governments Take the Reins in Combating Global Warming*, 38 URB. LAW. 585 (2006); Dale Bryk et al., *Panel I: State Initiatives to Reduce Greenhouse Gas Emissions*, 17 FORDHAM ENVTL. L. REV. 111 (2006).

7. *See* Assemb. B. 32, 2006 Leg. (Cal. 2006); *See* Regional Greenhouse Gas Initiative, Memorandum of Understanding (Dec. 20, 2005), *available at* http://www.rggi.org/docs/mou_final_12_20_05.pdf [hereinafter Regional Greenhouse Gas Initiative]; *see* Parenteau, *supra* note 6, at 1454; *see* Mahoney, *supra* note 6.

8. *See* Kevin L. Doran, *U.S. Sub-Federal Climate Change Initiatives: An Irrational Means to a Rational End?*, 26 VA. ENVTL. L.J. 189, 192 (2008); Joseph A. MacDougald, *Why Climate Change Must Be Federal: The Clash Between Commerce Clause Jurisprudence and State Greenhouse Gas Trading Systems*, 40 CONN. L. REV. 1431, 1431 (2008); Cass R. Sunstein, *Of Montreal and Kyoto: A Tale of Two Protocols*, 31 HARV. ENVTL. L. REV. 1, 58–59 (2007); Brian Stempeck, *Climate Change: All Signs Point to Continued Greenhouse Gas Efforts by States,* GREENWIRE, Nov. 12, 2004 (noting that competition in retail electricity generation markets may encourage businesses to use cheaper unregulated electricity generated in a state without greenhouse gas controls); Jonathan B. Wiener, *Think Globally, Act Globally: The Limits of Local Climate Policies*, 155 U. PA. L. REV.1961, 1964–73 (2007); Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 ECOLOGY L.Q. 183, 215–23 (2005) (suggesting that "at least for now" much of the current environmental legislation is "symbolic" and "more show than substance"). It should be noted that all these sources were published prior to the failure of federal climate legislation in 2009 and 2010.

9. *See* Vivian E. Thomson & Vicki Arroyo, *Upside-Down Cooperative Federalism*: *Climate Change Policymaking and the States*, 29 VA. ENVTL. L.J. 1 (2011); Katherine Trisolini, *All Hands on Deck: Local Governments and the Potential for Bidirectional Climate Change Regulation*, 62 STAN. L. Rev. 669, 669 (2010); *see* Judith Resnik et al., *Ratifying Kyoto at the Local Level: Sovereigntism, Federalism, and Translocal Organizations of Government Actors (TOGAs),* 50 ARIZ. L. REV. 709 (2008); *see* Randall S. Abate, *Kyoto or Not, Here We Come: The Promise and Perils of the Piecemeal Approach to Climate Change Regulation in the United States*, 15 CORNELL J.L. & PUB. POL'Y 369 (2006).

10. Subnational is used to refer to regional, state, and local government units.

change.[11] There are two main reasons for this skepticism of state level emissions reduction policies: (1) most states cannot realistically achieve emissions reductions that can make a significant dent in global GHG levels; and (2) states cannot make agreements that are binding under international law.[12] These considerations, while not to be dismissed lightly, should not stand in the way of subnational action on climate mitigation. Instead, this Article will argue that these limitations should guide state policy, so that any political will that exists on the state level can be leveraged for maximum impact on the global effort to reduce GHG emissions. Viewed through this lens, state policymakers must embrace criteria beyond direct emissions reductions in order to craft optimal regulatory strategies.

The remainder of this Aricle will draw out the implications of the inherent limits on subnational climate mitigation, developing a framework for policy analysis. Part II will outline the features of a first-best policy approach on global and national scales, where subnational governments would only contribute complementary policies designed to lower the cost of emissions abatement. Part III will shift to examining the expanded role of state policy in the actual, imperfect policy environment. In this context, states can play additional roles in substituting for, and promoting, federal policy. When tradeoffs arise between these roles, the optimal balance is dependent upon basic assumptions and conclusions regarding how atmospheric GHG stabilization is likely to come about. Part IV will address potential tradeoffs between the functions of state policy, providing an initial overview of the sort of analysis that should be applied to all state policy decisions. Part V will focus on the transportation sector, conducting a more in-depth application of the framework the Article's proposes. Part VI concludes, noting the tentative nature of the particular policy prescriptions advanced in this Article and emphasizing the overriding importance of recognizing the tradeoffs and corresponding assumptions implicit in a wide range of policy choices.

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11. *See* Doran, *supra* note 8, at 213–17 (describing the limits on state policy that prevent it from achieving meaningful emissions reductions); MacDougald, *supra* note 8, at 1441–45 (explaining how the dormant commerce clause precludes state efforts to address emissions leakage); Sunstein, *supra* note 8, at 58–60 (suggesting California's AB 32 was irrational, "In 2006, California enacted a statute that would, by 2020, stabilize the state's emissions at 1990 levels . . . . As a first approximation it will, by itself, contribute nothing to reductions in climate change by 2050, 2100, or any other date . . . . At the same time . . . [it] would almost certainly impose significant costs on the citizens of California."). Again, these views on the irrationality of and inefficacy in state policy were expressed prior to failure to pass federal climate legislation in 2009 and 2010.

12. Related to the second point, they also cannot adopt policies to address international or domestic leakage under the dormant commerce clause. *See* MacDougald, *supra* note 8, at 1441–45.

II. A FIRST-BEST CLIMATE MITIGATION REGIME

The optimal[13] role for subnational governments in climate policy is highly contingent on the nature of the national and international mitigation regime. A first-best[14] approach to climate mitigation would include a harmonized global carbon price[15] set at a level sufficient to generate the emissions reductions required to stabilize atmospheric GHG concentrations at a tolerable level.[16] This would internalize the cost of carbon emissions, providing strong economy—and world-wide incentives to reduce emissions how and where it is most cost-effective.[17] National and subnational governments would be tasked primarily with enforcement and the implementation of complementary policies that lower the average and marginal costs of emissions reductions. Depending on the structure of the global pricing mechanism, the effect would be to lower the cost burden associated with the global mitigation target (fixed target system, e.g., cap-and-trade with no safety valve, banking or borrowing), enable greater reductions at a set price (fixed price system

13. For the purposes of this Article, optimality is defined as maximizing the contribution to global climate mitigation, broadly defined, given political and economic constraints. This contribution is correlated with, but not identical to, the direct emissions reductions generated.

14. In economic jargon, first-best refers to a situation in which all the applicable optimality conditions are satisfied. If one or more these conditions cannot be met, then it is possible that the next-best solution involves violation of other optimality conditions to partially cancel out the original market failure. R.G. Lipsey & Kelvin Lancaster, *The General Theory of Second Best*, 24 REV. OF ECON. STUDIES 11, 11 (1956).

15. Carbon pricing can be implemented either through a carbon tax or a cap-and-trade system. For cap-and-trade, the price would be discovered by the market after the emissions cap is set as a matter of policy. A carbon tax would require an estimate of the price needed to achieve the desired emissions reductions and this number could be calibrated over time to achieve the desired emissions reductions. There is significant dispute regarding the relative merits of these two approaches. *See generally* Nathaniel O. Keohane, *Cap and Trade Is Preferable to a Carbon Tax, in* CLIMATE FINANCE: REGULATORY AND FUNDING STRATEGIES FOR CLIMATE CHANGE AND GLOBAL DEVELOPMENT 57 (Richard B. Stewart, et al., eds., 2009); ReuvenAvi-Yonah & David Uhlmann *Combating Global Climate Change: Why a Carbon Tax Is a Better Response to Global Warming than Cap and Trade*, 28 STAN. ENVTL. L.J. 3 (2009). This dispute is beyond the scope of this Article, except to note how complementary policies would interact differently with each.

16. *See* NICHOLAS STERN, GREAT BRITAIN TREASURY, THE ECONOMICS OF CLIMATE CHANGE: THE STERN REVIEW, 311–22 (2007).

17. *Id.* at 311–12; *see generally* Jason Furman, Jason Bordoff, Pascal Noel, & Manasi Deshpande, *An Economic Strategy to Address Climate Change and Promote Energy Security,* (Hamilton Project Strategy Paper, 2007), *available at* http://www.brookings.edu/~/media/Files/rc/papers/2007/10climatechange_furman/10_climatechange_furman.pdf [hereinafter Furman et al.].

like a flat carbon tax), or some combination.[18]

Given the limited coercive power of international institutions, carbon pricing is more likely to emerge from coordination of national policies.[19] In that context, there are two basic roles for federal climate policy: to decrease domestic GHG emissions and to promote emissions reductions abroad. The main mechanism through which federal policies aim to reduce foreign emissions is through the multilateral negotiations process, which can be aided by domestic mitigation measures that demonstrate a credible commitment.[20] Federal action can also promote emissions reductions abroad by fostering technological advances, which can be used both within the country as well as outside its borders.[21] Accordingly, federal domestic policies need to be evaluated both on their direct mitigation benefits (domestic emissions reductions) and the extent to which they can be leveraged for emissions reductions outside the country.

If the federal government imposed an economy-wide carbon price at a level sufficient to achieve an ambitious domestic emissions reduction goal, then the optimal state role would still be highly circumscribed,[22] even in the face of insufficient global action.[23] The federal government

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18. *See* Carolyn Fischer & Alan K. Fox, *Comparing Policies to Combat Emissions Leakage: Border Tax Adjustments versus Rebates*, 6–7 (Resources for the Future, Discussion Paper No. 09-02, 2009), *available at* http://www.rff.org/RFF/Documents/RFF-DP-09-02.pdf.

19. Robert Stavins, *Policy Instruments for Climate Change: How can National Governments Address a Global Problem?*, 1997 U. CHI. LEGAL F. 293, 296–98 (1997).

20. *See* Lisa Novins, *A Stop on the Road to Copenhagen: Implications of a U.S. Climate Bill*, 9 SUSTAINABLE DEV. L. & POL'Y 52, 52–53 (2009), *available at* http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1137&context=sdlp.

21. *See generally* David E. Adelman & Kirsten H. Engel, *Reorienting State Climate Change Policies to Induce Technological Change*, 50 ARIZ. L. REV. 835 (2008).

22. Whether states retain the legal authority to pursue particular mitigation policies would depend on the relevant preemption provisions of the federal legislation and their judicial interpretation. The argument is that there would be no policy rationale for state efforts to substitute for or promote federal action.

23. It is possible that the United States government or other national government will implement economy-wide carbon pricing at a level that is not sufficient to achieve the requisite emissions reductions. In this case, there would remain a role for subnational policy to substitute and promote more robust national policy, in addition to the complementary role. Any dispute regarding the optimal national emissions reductions target would imply a gray area where federal policy is within the range of plausible targets and there is room for dispute regarding the merits of state policies designed to achieve further emissions reductions. Some have argued that this implies that states should retain authority to enact tighter mitigation policies, even after a robust federal regime is implemented. *See* Thomson & Arroyo, *supra* note 9; Ann Carlson, *Iterative Federalism and Climate Change,* 103 NW. U. L. Rev. 1097, 1101 (2009); Jared Snyder & Jonathan Binder, *The Changing Climate of Cooperative Federalism: The Dynamic Role*

would be filling most of the relevant policy space, leaving states to focus on complementary policies like congestion pricing, land use and building code reform, etc. These complementary policies[24] are a core function of state and local governments, because they involve areas of traditional state responsibility where the federal government lacks the authority and/or the policy tools to take effective action.[25] With a global or national carbon price internalizing the social cost of GHG emissions, state and local governments seeking to maximize economic efficiency would have adequate reasons to take emissions into account in setting policy. In practice, however, local political dynamics may lead to governance failures that justify state or national action or intervention, like the S.B. 375 legislation in California, which is designed to incentivize local governments and metropolitan planning organizations to consider GHG emissions in their land use policy decisions.[26] As the Introduction indicates, federal policy in the U.S. is insufficiently comprehensive and robust, leaving greater scope for subnational action.

III. STATE ACTION IN AN IMPERFECT POLICY ENVIRONMENT

In the absence of a comprehensive or sufficiently ambitious global, or even federal, mitigation program, the role of state policy is much more complicated. In addition to complementing federal policy, subnational policies can serve to spur federal action, and in some instances, substitute federal action. That is, states and regions can encourage the federal government to adopt more ambitious climate mitigation policies by building constituencies and providing models and demonstration.[27] They

of the States in a National Strategy to Combat Climate Change, 27 UCLA J. ENVTL. L. & POL'Y 231 (2009).

24. Throughout this Article, phrases like *complementary policies* and *complements to federal action* will refer only to these core state fields of regulation, where state and local governments are generally involved anyway and would retain an ongoing role even after the implementation of a robust and comprehensive federal mitigation policy.

25. *See* Alice Kaswan, *A Cooperative Federalism Proposal for Climate Change Legislation: The Value of State Autonomy in a Federal System,* 85 DENV. U. L. REV. 791, 801 (2008); John P. Dwyer, *The Practice of Federalism Under the Clean Air Act*, 54 MD. L. REV. 1183, 1218 (1995).

26. S.B. 375 (Cal. 2008). In the particular case of S.B. 375, it is questionable whether such a local governance failure was occurring, since local governments and MPOs were fairly cooperative. The general point, however, is that public choice dynamics operating at the local level may prevent such governments from adopting complementary policies that promote economic efficiency even after the pricing policies to fully internalize the social costs of GHG emissions.

27. *See generally* Kirsten H. Engel, *State and Local Climate Change Initiatives:*

can also seek to fill the federal government's role by implementing policies that reduce GHG emissions within their borders (domestic substitution) and encourage emissions reductions outside their jurisdictions (international substitution), either through generating and spreading new emissions-reducing technologies or by aiding the multilateral process.[28] It is in this latter substitution role where the twin limits constraining the efficacy of subnational mitigation policy come into play; limited capacity to drive direct emissions reductions hampers domestic substitution, while the inability to make binding commitments under international law complicates international substitution. For complementary policies, by contrast, states, regions, and local governments are not seeking to fill the role of the federal government, but rather to exploit their particular policy niches, where they can lower the cost of compliance with any chosen mitigation target. The inherent limits on effective state substitution for federal action, moreover, actually heighten the importance of the promotion role for state policy. To the extent that a robust and comprehensive federal policy is indispensable, any policy tools with the capacity to spur its establishment are extremely valuable.

The optimal balance between complementary policies, domestic and international substitution, and promotion of federal action is contingent upon several contested propositions. The least controversial aspects of subnational mitigation policy are the complementary and direct substitution benefits of state policies. There are disagreements regarding the cost effectiveness of particular policy proposals, but few doubt the capacity of states and local governments armed with sufficient political will to implement policies that produce substantial direct emissions reductions, at least relative to the scale of their current emissions.[29] Nor is there much dispute that there are effective complementary policies that would lower the costs of achieving a federal mitigation target and reduce emissions at low or negative economic cost in the absence of comprehensive federal regulation.[30] The capacity of subnational policy to

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What is Motivating State and Local Governments to Address a Global Problem and What Does this Say about Federalism and Environmental Law? (Arizona Legal Studies, Discussion Paper No. 06-36, 2006).

28. *See generally* Adelman & Engel, *supra* note 21.

29. Kirsten Engel, *Mitigation Global Climate Change in the United States: a Regional Approach*, 14 N.Y.U. ENVTL. L.J. 54, 63–64 (2005); Engel & Saleska, *supra* note 8, at 228; *but see* MacDougald, *supra* note 8, at 1443 (arguing that the leakage can significantly undermine direct emissions reductions).

30. HOUSE COMMITTEE ON ENERGY AND COMMERCE, CLIMATE CHANGE LEGISLATION DESIGN WHITE PAPER: APPROPRIATE ROLES FOR DIFFERENT LEVELS OF GOVERNMENT, 2 (2008), *available at* http://www.fws.gov/southeast/climate/policy/Climate%20Dingell%20Third%20Paper%2

promote federal action and encourage foreign emissions reductions is far less certain.[31] The more confidence policymakers have in the promotion and international substitution effects of state action, the more resources they should be willing to devote to policies tailored to produce such benefits. The analysis does not end there, however.

One's estimate of the likely structure of a future global solution, or lack thereof, to climate change is also crucial. For those who can only imagine the required scale of emissions reductions ultimately being achieved through a binding global compact, the best that domestic substitution can do is buy time for and lower the costs of federal and multilateral action. If one can imagine voluntary, bottom-up mitigation measures successfully stabilizing atmospheric GHG concentrations, then domestic substitution looks more promising. If robust federal and global action is ultimately indispensable, then subnational policies that even marginally improve the probability of such action make a contribution that is qualitatively distinct from domestic substitution.[32] Buying time, making incremental progress toward stabilizing atmospheric GHG concentrations, and reducing the eventual cost of a global deal are significant contributions that should not be dismissed; these benefits must be weighed against the leveraged contributions that subnational policy can potentially make to the actual adoption of such an agreement. Thus, tradeoffs between alternative strategies for subnational mitigation policy often implicate basic assumptions about the broader project of stabilizing atmospheric GHG concentrations. To clarify their thinking and enable more rigorous analysis, policymakers and advocates should explicitly acknowledge and scrutinize these underlying assumptions.

IV. POLICY TRADEOFFS

Complementary policies, domestic and international substitution, and promotion of federal action are not in as much direct competition as the above analysis might suggest. Many of the same policies that would produce direct emissions reductions could also help build constituencies for federal action, encourage development of technologies that could be used to reduce emissions abroad, and possibly demonstrate a credible

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0Govt%20Roles%20022508.pdf ; Snyder & Binder, *supra* note 23, at 251.

31. Engel & Saleska, *supra* note 8, at 223–29.

32. The author's view is that, absent one or more radical and unforeseen technological breakthroughs, robust global action will be necessary to stabilizing emissions at a tolerable level. *See* Gabriel Weil, *Costs, Contributions, & Climate Change: How Important Are Universal Emissions Caps?*, 23 GEO. INT'L ENVTL. L. REV. 319 (2011).

U.S. commitment to emissions reductions that would facilitate a multilateral mitigation agreement.[33] Complementary policies also can help build political coalitions for, and reduce the eventual cost of, robust federal or global action.[34] Nonetheless, different baskets of policies and framing strategies will tend to advance some objectives more than others. To elucidate these tradeoffs, it will help to discuss the mechanisms through which subnational policies substitute for, promote, and complement federal action.

A. Domestic & International Substitution

As discussed above, substitution for federal action can be broken down into domestic and international components. The domestic component, direct emissions reductions within the regulated jurisdictions, is generally the primary focus of policy discussions and the mechanisms are well known.[35] For instance, domestic policies like carbon pricing and sector-specific variants[36] have empirically proven—or at least theoretically sound—emission reduction benefits on both the national and state/regional level.[37] The international component is more speculative and can be further broken into two distinct mechanisms. First, state level policies may promote the development of technologies that make emissions reductions outside the U.S. more cost-effective; they may also refine and model policies that can be later adopted by foreign national or subnational governments.[38] Second, state and regional action may be able to signal a credible commitment to foreign governments that, despite sluggish federal action, the U.S. is prepared to take serious steps to reduce its GHG emissions.[39] Many consider this sort of credible commitment to be the most important reason to pass comprehensive federal legislation, so it would be a significant policy breakthrough if subnational action could adequately fill this role. Since states lack the capacity to make binding commitments under international law, and they cannot compel their fellow U.S. states to adopt similar policies, any international substitution will be imperfect.

Nonetheless, it is important to consider what features of policy

33. Engel, *supra* note 27, at 15–16.

34. *See id*. at 16.

35. *See generally* Stern, *supra* note 16.

36. Sector specific variants include fuel economy standards, low carbon fuel standards, and clean and renewable electricity standards.

37. Furman et al, *supra* note 17.

38. Adelman & Engel, *supra* note 21, at 835–37, 849; Engel, *supra* note 27, at 14–15.

39. *See* Engel, *supra* note 27, at 15–16.

design impact the international substitution role of subnational policies. Two policies can achieve similar emissions reductions benefits, while sending very different signals. A regional cap-and-trade program like RGGI or the Western Climate Initiative ("WCI") may send a more powerful signal of U.S. commitment than an amalgam of programs in individual states that achieve comparable emissions reductions.[40] It may even be the case that accepting somewhat less ambitious direct emissions reductions is advantageous for the overall mitigation project due to the perceived impact and seriousness of the effort. If California successfully links up with other states and Canadian provinces as part of the WCI, it may end up facing trade-offs on the margin between including more states and pushing for an aggressive emissions target. It is possible that greater universality sends a stronger signal of commitment than greater emissions reductions concentrated in a few clearly committed jurisdictions. This strategy may be particularly effective when the overall region can claim to be meeting globally recognized targets, such as reducing emissions seventeen percent below 2005 levels by 2050.[41] California has already distinguished itself as a leader in climate policy, and few foreign governments see it as a roadblock to a global deal. The international substitution value of including more marginal U.S. states may exceed the direct emissions reductions benefits of insisting on tighter restrictions under some circumstances.

Likewise, a policy framed explicitly in terms of GHG emissions and mitigating climate change will signal credibility more effectively than a similar one based on a rationale of energy independence and economic nationalism. This consideration must be weighed against the international fallout of a failed subnational policy initiative. If the political environment is not amenable to explicit GHG emissions reduction goals, pushing for them may be counterproductive on the local and global levels. Similarly, there are tradeoffs between cost-effectiveness in terms of direct emissions reductions and the international substitution benefit. In particular, any policies that launch states on a durable trajectory of decreasing emissions that is resistant to future political reversal should be highly preferred. It may even be worth paying some policy costs in terms of direct emissions reductions and economic efficiency in order to build an enduring political coalition.[42] Over and above the direct benefits of a stable policy environment, this

40. This is admittedly a speculative claim, based on the premise that a regional program is likely to get more media attention and appear more durable and meaningful than a string of state efforts.

41. Copenhagen Accord, *supra* note 3; H.R. 2454, 111th Cong. (1st Sess. 2009).

42. For instance, by compensating stakeholders more than would be required just to get the policy in place.

would provide a more credible signal of commitment to policymakers and other relevant actors outside the jurisdiction.

B. Promotion

Promotion of federal action via state policy also has two primary mechanisms, refinement and demonstration of policy tools, and constituency building.

The first mechanism is the classic model of the states as laboratories of democracy. States can test out different emissions reductions policies, work to improve their cost effectiveness, and provide models for federal action.[43] In addition to refinement, the mere existence of state and regional action can demonstrate the political and economic viability of particular mitigation strategies, informing and potentially emboldening the activities of federal officials and climate advocates.[44] Policy experimentation and innovation may come at some cost in terms of expected emissions reductions or cost effectiveness, but may still be justified based on even a relatively low probability that an untried policy approach proves especially successful and can be then be widely adopted.[45] As with international substitution, there is a tension between the desirability of demonstrating that explicit climate mitigation policies can be politically viable, and the risk of political failure that potentially sets back the cause of mitigation both within and outside the jurisdiction.[46]

Making an explicit case for action on the basis of the threat posed

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43. Snyder & Binder, *supra* note 23, at 249–50.

44. Engel & Saleska, *supra* note 8, at 224–27.

45. The point here is not to say that the probability of states developing effective new policy approaches is generally low. Rather, it may be worth adopting an untried policy that has a lower expected payoff than a proven alternative, so long as the variance is high enough that there is substantial probability of discovering a superior approach that can then be scaled up. This policy experimentation and innovation benefit also militates against preemption of state policy in future federal legislation.

46. *See, e.g.*, Lizza, *supra* note 1. The fallout from federal failure to pass an ambitious piece of legislation has made even modest efforts that might have passed during the 111th Congress non-starters. It is difficult to disentangle the causation, but there is probably also some backlash against climate action at the state level, as the issue has become more partisan. *See e.g.* Amelia Chasse, *NH House moves to Pull Out of RGGI*, NH JOURNAL, Mar. 31, 2011, http://nhjournal.com/2011/03/31/nh-house-moves-to-pull-out-of-rggi/; (last visited Mar. 17, 2012); Amanda Carey, *New Jersey Could Be Next State to Pull Out of Regional Cap-and-Trade System*, THE DAILY CALLER, Mar. 28, 2011, http://dailycaller.com/2011/03/28/new-jersey-could-be-next-state-to-pull-out-of-regional-cap-and-trade-system/ (last visited Mar. 17, 2012). This negative demonstration effect likely applies, at least to some extent, to political failures at the state level, as cautious politicians see significant downsides to pursuing climate mitigation.

by climate change can also raise public awareness and aid the cause of constituency building.[47] In fact, there may be constituency building benefits even if the policy fails to garner sufficient support to be enacted because the push for adopting emission reduction policies would still raise public awareness of the threat posed by climate change. Failed efforts can also serve as learning experiences to guide the future undertakings of policymakers and advocates.[48] Again, these potential benefits must be balanced against the risk of a negative demonstration effect in terms of promotion, international fallout, and frustration of future subnational GHG emissions reductions efforts.

Implementing any sort of emissions reductions policy, even if not explicitly based on a climate mitigation goal, may also have constituency building benefits.[49] Regulated entities, like electric utilities, often prefer to be subject to a single federal regulatory framework that preempts state policies, rather than a patchwork of state regulations.[50] Even if the costs of regulatory diversity are low and outweighed by the greater stringency and breadth of federal standards, the existence of state regulation would still soften resistance from regulated entities, by minimizing the net cost of complying with federal regulation.[51]

Similarly, subnational climate mitigation policies would force consumers within the regulatory jurisdiction to internalize some or all of the costs of their GHG emissions. As a result, these consumers are more likely to support federal policies that would force consumers in other states to bear similar costs, and share the burden of domestic emissions reductions. As with regulated industries, the net cost of federal regulation to consumers in a state that had previously initiated a substantial emissions reduction policy would be much lower than if the state did not already have an emissions reduction policy in place.

V. APPLICATION: TRANSPORTATION EMISSIONS

This Section will apply the analytical framework developed above to specific subnational policies designed to reduce GHG emissions in the transportation sector. It will focus primarily on two policy proposals: a

47. *See* Engel & Saleska, *supra* note 8, at 223.

48. For example, the later cap-and-trade programs learned about the problem of over-allocating emissions credits from the European Union Emission Trading Systems.

49. Engel & Saleska, *supra* note 8, at 223.

50. *Id*.

51. Net compliance cost refers to the gross cost of complying with federal regulation minus the avoided cost of complying with state regulations that are either preempted or have overlapping requirements.

linked-fee on transportation fuels and congestion pricing, and will analyze how they would interact with various federal policy regimes.

The linked-fee can promote federal action and partially substitute for its inadequacy on the domestic and international level. Framing the policy explicitly in terms of climate mitigation could potentially have greater promotion and international substitution benefits, but would be politically risky and thus less likely to generate direct emission reductions. Tradeoffs between political viability and policy efficiency also arise in comparing the linked-fee to less comprehensive pricing approaches.

Congestion pricing, by contrast, is primarily a complementary policy, though it also has promotion and international substitution potential. The policy case for congestion pricing is actually strengthened by robust federal action. The key question for climate policy advocates is whether it is worth diverting political capital from more direct mitigation measures to push for congestion pricing.

A. Linked-Fee

The linked-fee is a charge assessed on fuel before it is loaded onto trucks for retail distribution.[52] This is the same point of regulation as the federal gas tax.[53] The link aspect refers to the amount of the fee, which varies with the price of emissions allowances in a cap-and-trade system that does not include transportation emissions.[54] Accordingly, the emissions produced in the transportation sector are priced at the same level as those in the cap-and-trade system. This proposal is only viable if there is a cap-and-trade system to link with, such as RGGI, which covers utility sector in Northeast and Mid-Atlantic states.[55]

The linked-fee is primarily a policy of domestic substitution in the context of inadequate federal action. The federal gas tax itself performs a similar function, by providing incentives for consumers to drive more fuel efficient cars fewer miles, which results is less fuel consumption and fewer carbon emissions.[56] The federal gas tax, however, is set at a level

52. Robert Puentes, *A Linked Fee for Carbon Reduction?*, The New Republic Blog, Mar. 11, 2010, *available at* http://www.tnr.com/blog/the-avenue/linked-fee-carbon-reduction.

53. *Id*.

54. *Michael Levi*, In Memoriam: The "Linked Fee", *Council on Foreign Relations Blog*, *April 23, 2010, available at* http://blogs.cfr.org/levi/2010/04/23/in-memoriam-the-linked-fee/.

55. Regional Greenhouse Gas Initiative, *supra* note 7.

56. THOMAS L. FRIEDMAN, HOT, FLAT AND CROWDED: WHY WE NEED A GREEN REVOLUTION – AND HOW IT CAN RENEW AMERICA, 350 (2008).

insufficient to adequately fund federal highway expenditures, let alone fully internalize the social cost of the carbon emissions associated with fuel consumption.[57]

If the federal gas tax was both set to fully internalize the social cost of the carbon emissions associated with fuel consumption and scaled proportionate to the carbon content of fuels,[58] the optimal role for states in the transportation sector would be to adopt effective complementary policies. The federal action would then be fully occupying the pricing space within the realm of transportation emissions policy. In this context, state policies that seek to act as substitutes for inadequate federal policy would be distortionary. For simple carbon pricing, this distortion would be fairly innocuous, but would drive emissions reductions in the transportation sector in excess of the economically efficient levels for a given overall mitigation target.[59]

If national action on economy-wide emissions reductions remains inadequate, such policies may be better than nothing, though they are likely inferior to policies focused on achieving emissions reductions in sectors where doing so would be more cost-effective. Moreover, transportation emissions reductions may be less susceptible to interstate leakage than those in other sectors and states may wish to adopt disproportionately aggressive policies across the board to compensate for excess emissions in other states. More problematic would be state policies, like a fee-bate[60] system to encourage sales of fuel-efficient cars, or any form of pricing non-congestion based vehicle miles travelled ("VMT").[61] These efforts would distort the manner in which

57. Josh Mitchell, *Highway Funding Is at Risk*, Wall Street Journal, Apr.14, 2011, *available at* http://online.wsj.com/article/SB10001424052748704116404576262842630672026.html?mod=WSJ_hp_MIDDLENexttoWhatsNewsSecond.

58. If the federal gas tax does not adjust based on the carbon content of fuels, then there will still be a role for a separate state or federal policy regulating that content, such as a low-carbon fuel standard. Should the federal government fail to occupy this policy space, it would be appropriate for states to fill this gap.

59. As is noted in the general case above, a comprehensive federal approach could have a mitigation target that is insufficiently ambitious, leaving room for more aggressive state action. Under these circumstances, subnational carbon pricing would be justified to supplement the inadequate federal action. This is simply a smaller-scale version of the general state role in substituting for inadequate federal policy. Also, there is room for reasonable disagreement regarding how aggressive the mitigation target should be, which implies a gray area in which the appropriateness of state action is open to dispute.

60. A fee-bate program is a self-financing system of fees and rebates that are used to shift the costs of externalities produced by the private expropriation, fraudulent abstraction, or outright destruction of public goods onto the responsible market actors.

61. Fee-bates may also be particularly prone to interstate leakage, since any increase in the average fuel economy within a particular state or region would take pressure off

transportation emissions reductions are achieved by targeting particular elements rather than the overall policy goal.[62] This compartmentalized approach may be necessary when broader pricing policies are not politically viable, but these cruder policy tools should be abandoned once more efficient alternatives become viable at either the federal or state level.

In the current policy environment characterized by weak federal action, the linked-fee is good policy if it can be successfully implemented.[63] If the fee is either adjusted to reflect the carbon content of fuels or paired with a low-carbon fuel standard, it fully and efficiently occupies the pricing space for transportation emissions policy. Linking the price to a cap-and-trade system assures that the emissions reductions incentives are provided evenly across the regulated sectors, so that private actors can alter their activities in accordance with the lowest marginal costs of emissions abatement and their individual preferences.[64]

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the compliance burden for federal Corporate Average Fuel Economy ("CAFÉ") standards. This would allow manufacturers to sell a lower proportion of fuel efficient cars in the rest of the country while complying with the CAFÉ mandate, which is based on a national average.

62. THOMAS STERNER, THE MARKET AND THE ENVIRONMENT: THE EFFECTIVENESS OF MARKET-BASED POLICY INSTRUMENTS FOR ENVIRONMENTAL REFORM, 138 (Edward Elgar Publishing, 1999); *See* William J. Baumol, *On Taxation and the Control of Externalities*, 62 AMER. ECON. REV. 307 (1972) (making the general case that direct externality pricing is optimal). With the social cost of transportation emissions fully internalized through federal taxes, consumers should have adequate incentives to purchase fuel efficient vehicles in order to reduce their fuel consumption. Adding a fee-bate pushes further on the fuel efficiency lever, providing incentives above and beyond those implicit in the gas tax. A VMT tax also pushes further, since fuel consumption is also affected by driving habits (not just the volume of VMT, but also avoiding congested roads and taking steps to maximize operating efficiency). The mix between alternative fuel savings strategies would be distorted by an incentive that affects one and not the others. A broad pricing approach fosters responses that reflect individual preferences and minimizes the marginal cost of abatement. Policies that target a particular strategy distort such responses. On the other hand, one might argue that consumer short-sightedness results in underinvestment in fuel efficiency. Jerry A. Hausman, *Individual Discount Rates and the Purchase and Utilization of Energy-Using Durables*, 10 BELL J. OF ECON. 33 (1979). The question is whether government intervention is capable of reliably producing a more optimal outcome.

63. A potential policy objection is that the linked-fee, like many forms of carbon pricing, is regressive. However, this can be offset by using the revenue generated in progressive ways, such as cutting other regressive taxes (probably general sales taxes at the state level) or funding public services targeted at lower income people. In practice, the revenue may be diverted to other purposes, particularly closing budget gaps on the state level. In any case, the linkage between carbon pricing and the offsetting uses of the revenue may not be clear or salient enough to overcome this objection as a political matter.

64. *See* Joel Bluestein & Jessica Rackley, COVERAGE OF PETROLEUM SECTOR

If this price level does not bring about the desired emissions reductions,[65] the overall cap on emissions within the cap-and-trade system can always be ratcheted down,[66] such that the price of allowances rises and further emissions abatement is incentivized evenly across the board.[67] Moreover, explicit externality pricing for carbon emissions can help build constituencies to promote federal action and send a clear signal to the multilateral process that elements within the U.S. political system are committed to GHG emissions reductions.

Pure policy merits notwithstanding, the linked-fee shares a common problem with other broad emissions pricing proposals: politics. Gas tax increases, which are difficult to viably distinguish from the linked-fee, are politically toxic and poll notoriously badly.[68] Everyone notices the price of gasoline at the pump and the public generally overrates its value as a broader economic indicator.[69] Particularly in a weak economy, a

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GREENHOUSE GAS EMISSIONS UNDER CLIMATE POLICY, (2010), *available at* http://www.c2es.org/docUploads/coverage-petroleum-sector-emissions.pdf.

65. This is likely, since translating a carbon price into the impact on gas prices yields about a penny increase in per gallon gas prices for every dollar of carbon price per ton. In recent years, RGGI allowances have traded between one and four dollars per ton, which translates to a one to four cent increase in per gallon gas prices. RGGI CO2 Auction Yields $83M for Energy, Job Investments, Environmental Protection Online, (Mar. 21, 2011), http://eponline.com/articles/2011/03/21/rggi-co2-auction-yields-83m-for-energy-job-investments.aspx; Nathanial Gronewold, CLIMATE: Carbon price climbs in third RGGI auction, Greenwire, (Mar. 20, 2009), http://www.eenews.net/public/Greenwire/2009/03/20/4.

66. This is true as a matter of policy, but it may be politically problematic.

67. Baumol, *supra* note 61, at 316.

68. *See Americans Strongly Reject Mileage Tax, Gas Tax Hike*, RASMUSSEN REPORTS (Mar. 30, 2011), http://www.rasmussenreports.com/public_content/business/taxes/march_2011/americans_strongly_reject_mileage_tax_gas_tax_hike (74% "oppose raising the gas tax to help meet new transportation needs"); *Public Opinion Survey* (June 17 – June 22, 2010), INSTITUTE FOR ENERGY RESEARCH, *available at* http://www.instituteforenergyresearch.org/wp-content/uploads/2010/07/June-2010-IER-Questionnaire.pdf (over 70% oppose "new energy taxes in order to limit greenhouse gas emissions and address global warming"); *see also*, *The New York Times/CBS News Poll* (February 22–26, 2006), http://www.nytimes.com/packages/pdf/national/20060228_poll_results.pdf (85% opposed increasing federal gas tax, but 55% favored an increase if it "would reduce the United States' dependence on foreign oil" and 59% favored an increase if it "would cut down on energy consumption and reduce global warming").

69. *See As Gas Prices Spike, More See Economic News as Bad,* PEW RESEARCH CENTER FOR THE PEOPLE AND THE PRESS (Mar. 8, 2011), http://people-press.org/2011/03/08/as-gas-prices-spike-more-see-economic-news-as-bad/; *Gas Prices Dominate the Public's Economic News Agenda,* PEW RESEARCH CENTER FOR THE PEOPLE AND THE PRESS (June 19, 2008), http://pewresearch.org/pubs/874/gas-prices-dominate-the-publics-economic-news-agenda; Sotiris Georganas, Paul J. Healy, & Nan Li,

proposal to implement a linked-fee is likely to fail, setting back the cause of climate mitigation significantly. One option in light of this challenge is to frame the policy in terms of a fuel consumption target, justified on the basis of both energy security and reducing the economic impact of oil price shocks, with emissions reductions as a side benefit.[70] This approach would also face significant political obstacles, particularly the risk that it would be successfully portrayed as rationing. It might also require the linked-fee to ignore the carbon content of fuels, although it could be coupled with a low-carbon fuel standard, which is likely to be more politically viable as an explicit climate mitigation policy.

The main drawbacks of this approach, relative to an explicit emissions target, are framed in terms of international substitution and promotion through constituency building. As discussed above, a policy that is not specifically targeted at emissions reductions may fail to demonstrate a credible commitment to mitigation, above and beyond more parochial concerns. Not explicitly addressing climate change may also undermine any potential to build support for broader policies designed to reduce emissions, especially those that would discourage domestic coal consumption.[71] On the other hand, it provides a way of framing transportation sector emissions reductions policies that is scalable to the federal level and applicable to other jurisdictions.

In any case, the current political environment is unlikely to support an explicit push for pricing vehicle emissions in the United States. While it may be that no system-wide transportation pricing policy will be viable in the near future, one framed in terms of fuel consumption and energy security, which are currently more salient public concerns than the effects of global climate change, might have some chance.[72] It may be a good idea to develop a mechanism for varying a component of the fee independent of the utilities cap-and-trade to smooth out the volatility in

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Frequency Bias in Consumers' Perceptions of Inflation, available at http://healy.econ.ohio-state.edu/papers/Georganas_Healy_Li-InflationExperiment.pdf.

70. FRIEDMAN, *supra* note 55, at 338–41.

71. If the public views the problem primarily in terms of energy security, the public is likely focusing on oil. Coal, by contrast, is abundant in the United States and is not subject to supply shocks or high price volatility. Thus, an explicit climate mitigation rationale, or an environmental or public health rationale, is likely necessary to justify policies that discourage coal combustion, which is highly emissions-intensive. A transportation sector strategy that focuses on justifications other than climate mitigation may miss an opportunity to build constituencies for broader efforts to address GHG emissions, particularly from coal-fired power plants.

72. There are other rationales for raising revenue via carbon pricing, including investing in infrastructure, addressing budget shortfalls, and offsetting other taxes. Some combination of these is likely to be part of the policy solution, regardless of whether it is framed primarily in terms of fuel consumption or emissions reduction.

oil prices.[73] The fee could exceed the allowance price during periods of low oil prices, creating a price floor, and reduced during price spikes, to minimize their economic impact.[74] Implementing this is likely to be challenging on both a political and technical level, but it is a concept worth exploring.[75]

Whether to make even this more modest push is a matter of judgment, dependent on local political conditions. A failure to implement the linked-fee, framed as an energy security policy, would certainly be discouraging. On the other hand, it might not be perceived as a direct defeat for climate mitigation advocates, limiting the negative promotion and international substitution fallout. Moreover, even an unsuccessful effort would likely yield some valuable lessons for future climate policy endeavors. Nonetheless, the costs of failure under either approach are high and demand caution, including consideration of less economically efficient emissions reductions policies that might be more politically palatable.

B. Congestion Pricing

Congestion pricing is a complementary policy because it is entirely compatible with robust, economy-wide carbon pricing on the global, national, or state level. Congestion pricing is really just a correction of a basic policy failure that artificially sets the price of scarce and valuable road space at zero.[76] As with any price ceiling placed below the market-clearing price, shortages arise.[77] Road space is an atypical market because the supply of road space is generally a political rather than a market outcome. However, this does not fundamentally alter the basic economics of allocating a scarce resource.[78] At any given point in time,

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73. Henry Blodget, *It's Time for a Gas Tax,* BUSINESS INSIDER (Feb. 24, 2011), http://www.businessinsider.com/its-time-for-a-gas-tax-2011-2.

74. *Id*.

75. Politically, there will always be resistance to raising the fee when prices drop, a phenomenon that might undermine the mitigation benefits of the policy. Technically, it would require a reliable theory regarding the fundamentals of oil prices, in contrast to temporary market fluctuations. Of course, futures markets are supposed to already play this smoothing function, so it is unclear that policymakers would be able to reliably anticipate future price trends better than the market. One might argue that if anyone was capable of doing so, they could make a lot of money trading in oil futures markets.

76. FEDERAL HIGHWAY ADMINISTRATION: OFFICE OF TRANSPORTATION MANAGEMENT, HOTM FHWA-HOP-07-074, CONGESTION PRICING: A PRIMER (2006) [hereinafter FEDERAL HIGHWAY ADMINISTRATION].

77. *Id.* at 1; Anthony Downs, *Stuck in Traffic: Coping with Peak-Hour Traffic Congestion*, (Brookings Institution Press, 1992).

78. FEDERAL HIGHWAY ADMINISTRATION, *supra* note 75, at 1.

the quantity of available road space in an area is essentially fixed. If more people wish to use particular roads than the roads can accommodate at any given time, congestion results.[79]

It is not the case, however, that there is some fixed demand for scarce road space that public policy cannot meaningfully address.[80] Like for any scarce resource, there is some price at which the demand for rush-hour access to particular roads is equal to the non-congested carrying capacity of those roads.[81] Charging that price[82] generates an efficient allocation of the space, as some drivers shift their commuting times, car pool, or choose alternative modes of transportation to avoid paying the charge.[83] The remaining drivers self-identify as individuals

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79. *Id*.

80. *See Congestions Pricing for Highways: Hearings Before the Joint Econ. Comm.*, 108th Cong. (May 6, 2003) [hereinafter Holtz-Eakin] (Statement of Douglas Holtz-Eakin), *available at* http://www.cbo.gov/doc.cfm?index=4197&type=0.

81. *Id.* at 4.

82. Technically, efficient congestion pricing would not entirely eliminate congestion. Drivers consider the level of congestion when deciding whether to travel on a particular road, but they generally fail to take into account their marginal impact on congestion for other drivers, producing an equilibrium with sub-optimally high levels of congestion. Pricing would internalize the congestion externality that each marginal vehicle imposes on others sharing the road. Thus, the resulting level of congestion would be an efficient outcome, reflecting the preferences of those who use the roads. Determining the magnitude of the externality and the corresponding optimal level of congestion is not a trivial task, but that magnitude is substantially greater than zero for many roads. *See Id.*

83. *See id.* at 4; *Reducing Congestion: Congestion Pricing Has Promise for Improving Use of Transportation Infrastructure*: *Testimony Before the Joint Economic Committee*, U.S. Cong. 7 (May 6, 2003,) [hereinafter *Hecker*] (statement of JayEtta Z. Hecker), *available at,* http://www.gao.gov/new.items/d03735t.pdf. There are four basic forms of congestion pricing: variably priced lanes (some parallel lanes are un-priced), variable tolls on entire roadways, cordon charges (charges to enter or drive within a particular geographic area at peak time), and area-wide per-mile charges. All four are improvements over no pricing, but they work in different ways. Variably priced lanes in particular, do not solve the basic policy failure of crowded road space that is entirely un-priced, though they may be more politically palatable than more robust forms of congestion pricing. Variable tolls on entire roadways, particularly if they are dynamically adjusted to prevailing traffic conditions, most directly internalize the congestion externality. Area-wide per-mile charges work well as long as there is not significant variation in congestion levels within a priced area. To the extent that there is such variation, inefficiencies necessarily arise as a single price is applied to the entire area. Cordon charges share the same limitation, and also do not adjust for trip length. Nonetheless, these approaches may be preferable when variation in trip length and in area congestion levels are low enough that the efficiency gains of full variable tolling are outweighed by the implementation costs. *Road Pricing: Congestion Pricing, Value Pricing, Toll Roads and HOT Lanes*, VICTORIA TRANSPORT POLICY INSTITUTE, http://www.vtpi.org/tdm/tdm35.htm (last visited Mar. 15, 2012).

who place a high value on access to the priced roads.[84] These drivers get a much quicker commute in exchange for the fee.[85] The revenue raised can be used to fund further road construction, invest in public transportation services to accommodate those deterred by the congestion charge, and for other, more general public purposes including tax cuts, covering budget shortfalls, and general expenditures.[86]

Congestion pricing is sound economic and transportation policy independent of any concern over energy security or climate change.[87] The failure to implement it to date has been driven by technological limitations and political resistance from those who expect to be harmed by the policy. However, the technology is now available and the success of efforts to implement congestion charges in some metro areas suggests that the political opposition can be overcome.[88] As with almost any policy change, some people will likely to be made worse off,[89] but the overall increase in welfare from efficient road pricing justifies this harm.[90] The emissions reductions benefits are fairly modest compared to the scale of both required emission reductions and other policies, like direct emissions pricing.[91] Cambridge Systematics estimates fuel savings of five percent for each priced VMT, and a twenty percent reduction in VMT for traffic affected by congestion pricing.[92] They also estimate that

84. Holtz-Eakin, *supra* note 79, at 4–5.

85. *Id*.

86. Hecker, *supra* note 82, at 12–13.

87. Olof Johansson-Stenman, *Regulating Road Transport Externalities: Pricing Versus Command and Control*, *in* THE MARKET AND THE ENVIRONMENT: THE EFFECTIVENESS OF MARKET-BASED POLICY INSTRUMENTS FOR ENVIRONMENTAL REFORM 134, 139–40 (Thomas Sterner ed., 1999).

88. *See* FEDERAL HIGHWAY ADMINISTRATION, *supra* note 75, at 7 (discussing congestion pricing in London, Singapore, and Stockholm); Hecker, *supra* note 82, at 11–12 (discussing congestion pricing schemes in Singapore; London, England; and Trondheim, Norway).

89. In particular, marginal drivers who are barely deterred by the congestion charge, and drivers who pay the charge because they strongly prefer driving and must travel at a particular time, but place a relatively low valuation on a faster commute, are likely worse off.

90. *See* FEDERAL HIGHWAY ADMINISTRATION, *supra* note 75, at 9.

91. Reg Evans*, Central London Congestion Charging Scheme: ex-post evaluation of the quantified impacts of the original scheme* 17, TfL Congestion Charging Modeling and Evaluation Team (2007), *available at* http://www.tfl.gov.uk/assets/downloads/Ex-post-evaluation-of-quantified-impacts-of-original-scheme-07-June.pdf.

92. CAMBRIDGE SYSTEMATICS, INC., MOVING COOLER: AN ANALYSIS OF TRANSPORTATION STRATEGIES FOR REDUCING GREENHOUSE GAS EMISSIONS B-13-B-14 (2009), *available at* http://www.movingcooler.info/Library/Documents/Moving%20Cooler_Appendices_Complete_102209.pdf.

twenty-nine percent of urban VMT and seven percent of rural VMT would be affected by congestion pricing.[93] To be clear, the climate and other externalities associated with fossil fuel consumption only strengthen the case for efficient congestion pricing; they are not a necessary, or even a primary, justification.

The key political question surrounding congestion pricing is whether climate mitigation advocates should devote resources to pushing for congestion pricing. On the one hand, most of the benefits are purely economic and scarce political resources might be able to achieve greater emissions reductions if they were devoted to more direct mitigation policies. It may be a mistake for climate policy advocates to engage in a costly political fight over congestion pricing. In addition, casting the policy in terms of climate mitigation may actually harm its prospects. On the other hand, congestion pricing is sound policy that voters could eventually come to like, and climate advocates may find value in having been on the right side of the fight.[94] Moreover, as a complementary policy, it is unlikely to ever be preempted by federal legislation and would actually reduce the economic cost of any national emissions target.[95] The purely economic case for congestion pricing is even stronger once robust carbon-pricing is in place. In this scenario, drivers would now bear the full social cost of driving, including climate externalities. As such, they would be further incentivized to avoid congestion because it would reduce their fuel consumption.[96] Under an economy-wide or fuels cap-and-trade regime with no safety valve, congestion pricing would only reduce costs. Under a linked-fee or carbon tax, however, congestion pricing would induce modest additional emissions reductions.[97] The tactical question of what groups should

93. *Id*. at B-14.

94. *See* STERNER, *supra* note 61, at 139–40.

95. *See* Holtz-Eakin, *supra* note 79, at 4–5.

96. It is true that those who continue to drive on congested roads at peak times will be double-charged in the sense that they must pay both the congestion price and the carbon component of the fuel price. On the other hand, they will consume less fuel as a result of reduced congestion, a benefit that is magnified by carbon pricing. In addition, drivers generally reap other benefits from congestion pricing, including saving time. In the aggregate, a policy that promotes efficiency, even when emissions externalities are disregarded, produces even greater economic benefits once the avoided emissions are priced.

97. This is because a fixed-cap regime would have a set number of allowances, with the price fluctuating in response to demand. If reduced congestion took some pressure off the demand, the price would fall, marginally reducing the incentive to reduce emissions elsewhere in the transportation sector and, depending on the specific structure of the cap, possibly throughout the economy. Under a fixed-price regime, anything that enables further emissions reductions at a lower cost than the emissions price will result in net emissions reductions. *See* Fischer & Fox, *supra* note 18, at 6–7.

invest resources in advocating for congestion pricing may be an open one, but it is clear that policymakers concerned about global climate change should support efficient road pricing wherever and whenever congestion is a serious problem.

VI. CONCLUSION

The foregoing analysis of potential tradeoffs facing state policymakers is far from definitive; there is plenty of room for debate regarding the effectiveness of particular policies in exploiting the various opportunities for states to contribute to the global project of mitigating climate change. The important point is to acknowledge the existence of these distinct functions for state policy and the assumptions that form the basis for different policies. Policy debates regarding local, state, and regional approaches to climate mitigation should engage explicitly with these questions and make judgments based on a clear-eyed analysis of how to maximize overall mitigation impact, given political and economic constraints. The primary contribution of this Article is to develop a framework for clarifying what is at stake in these policy choices.