FEDERAL, STATE, AND LOCAL TAX POLICIES FOR CLIMATE CHANGE: COORDINATION OR CROSS-PURPOSE?

by
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Although the United States has not yet enacted comprehensive climate change legislation at the federal level, federal tax laws affecting energy have significant climate change effects. At the regional level, several groups of states have joined together in climate change legislation. Most states and many localities have tax laws affecting energy. When national, state, and local governments all attempt to influence energy use through tax legislation without coordination, inefficiencies and conflicts are bound to arise. Not only in the energy area, but in general, federal decisions impacting state and local tax policy are ad hoc and uncoordinated. What level of government should bear the primary responsibility for setting climate change policy? In the absence of federal leadership on climate change, a second-best alternative is coordination between federal, state, and local efforts to encourage wise energy behavior. This Essay will explore alternatives for coordination and potential challenges.

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I. INTRODUCTION

Although the United States has not yet enacted comprehensive climate change legislation at the federal level, federal tax laws affecting energy have significant climate change effects. Most states and many localities also have tax laws affecting energy.[1] At the regional level, several groups of states have joined together in climate change legislation.[2] Anticipating comprehensive climate change legislation at the federal level, legislators and scholars have contemplated interactions between existing and proposed regional climate change legislation and future federal climate change legislation.[3] However, analysis of the interaction between federal, state, and local tax incentives and other climate change policies has been ad hoc and sporadic.[4] As the enactment of federal climate change legislation in the foreseeable future seems increasingly unlikely, this Essay argues that interactions between energy tax incentives at the federal, state, and local levels and other climate change policies requires scrutiny.

Comprehensive climate change legislation proposals in the United States have focused on economic instruments, most notably implementation of a greenhouse gas (GHG) cap-and-trade system.[5] Cap-and-trade is an economic policy tool that discourages the use of GHG-intensive technologies by increasing the cost of using such technologies.[6] A cap-and-trade system increases the cost of GHG emissions by capping the allowable amount of GHG emissions and by requiring emitters to purchase allowances if their emissions exceed the cap.[7] Increasing the cost of traditional fossil energy would encourage a shift to less GHG-intensive renewable energy, increased energy efficiency, and energy conservation measures. On the other hand, tax incentives for renewable energy would encourage a shift to renewable energy by reducing its cost through reducing the tax burden on taxpayers who invest in renewable energy projects.

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[1] N.C. Solar Ctr. & Interstate Renewable Energy Council, *Financial Incentives for Renewable Energy*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, http://www.dsireusa.org/summarytables/finre.cfm (last visited Mar. 18, 2011) [hereinafter *Financial Incentives*].

[2] *See* Robert Stavins, *A U.S. Cap-and-Trade System to Address Global Climate Change* 6 (John F. Kennedy Sch. of Gov't. – Harvard Univ., Faculty Research Working Paper No. 07-052, 2007), *available at* http://ssrn.com/abstract=1026353 (select "One-Click Download").

[3] *See, e.g.*, ANDREW AULISI ET AL., WORLD RES. INST., CLIMATE POLICY IN THE STATE LABORATORY: HOW STATES INFLUENCE FEDERAL REGULATION AND THE IMPLICATIONS FOR CLIMATE CHANGE POLICY IN THE UNITED STATES (2007), *available at* http://pdf.wri.org/climate_policy_in_the_state_laboratory.pdf.

[4] *See infra* note 15 and accompanying text.

[5] *See, e.g.*, Stavins, *supra* note 2.

[6] *See id.* at 8.

[7] *Id.*

Rewarding investors by reducing their tax burdens comes at a cost: tax incentives reduce government revenues.[8] Governments at all levels share concerns about efficient use of fiscal resources. The paradox of energy tax incentives is that they are frequently inefficient, non-transparent, unevenly applied, and of doubtful effectiveness,[9] but almost universally popular. When a government uses revenues to encourage behavior such as fuel shifting and conservation, its responsibility to taxpayers should require that it show the effectiveness of its spending. The federal government generally does not assess the effectiveness of tax incentives in changing behavior.[10] However, some states have been more conscientious than the federal government in assessing the effectiveness of energy tax incentives.[11]

Coordination of federal, state, and local tax policies for climate change raises concerns similar to those raised by scholars contemplating the effect of comprehensive federal climate change legislation on existing regional, state, and local efforts to mitigate climate change. What level of government should bear the primary responsibility for setting climate change policy? From a business perspective, setting climate change policy at the national level is efficient because it avoids the need to comply with a patchwork of state and local regulations. From a fiscal perspective, letting the federal government fund climate change efforts makes sense as well. The federal government can run a deficit; most State governments are constitutionally prohibited from doing so[12] and are further limited by their inability to print money.

Recent federal economic stimulus legislation increased tax incentives for investments in renewable energy for individuals and businesses.[13] At the same time, budgetary concerns caused some states to consider cutting back energy tax incentives.[14] Local governments facing budget shortfalls may consider reducing climate-friendly public transportation services and increasing property taxes. On the other hand, state and local

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[8] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-05-690, GOVERNMENT PERFORMANCE AND ACCOUNTABILITY: TAX EXPENDITURES REPRESENT A SUBSTANTIAL FEDERAL COMMITMENT AND NEED TO BE REEXAMINED 18 (2005), *available at* http://www.gao.gov/new.items/d05690.pdf.

[9] *See id.* at 4–5.

[10] *See id.* at 5.

[11] *See, e.g.*, ECONORTHWEST, ECONOMIC IMPACTS OF OREGON ENERGY TAX CREDIT PROGRAMS IN 2007 AND 2008 (BETC/RETC) (2009), *available at* http://www.oregon.gov/ENERGY/CONS/docs/BETC_RETC_Impacts-020209_FINAL.pdf (documenting the economic impact of OR. REV. STAT. §§ 469.185–.225, 469.878 (2009)).

[12] James M. Poterba, *Balanced Budget Rules and Fiscal Policy: Evidence from the States*, 48 NAT'L TAX J. 329, 330 (1995).

[13] *See* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 1101–1123, 123 Stat. 115, 319–25.

[14] David Steves, *House Clears Tax Bill*, REGISTER-GUARD, Feb. 24, 2010, http://www.registerguard.com/csp/cms/sites/web/business/24494383-41/tax-energy-credits-bill-program.csp.

governments, while lacking revenue, may be well positioned to identify and encourage the use of locally abundant renewable energy sources.

As exemplified by climate change efforts, state and local governments often enact legislation in response to federal actions or to fill gaps in federal legislation. When national, state, and local governments all attempt to influence energy use through tax legislation without coordination, inefficiencies and conflicts are bound to arise. Not only in the energy area, but in general, federal decisions impacting state and local tax policy are ad hoc and uncoordinated.[15] With the demise of the Advisory Commission on Intergovernmental Relations in the mid-1990s,[16] there has been little effort in recent years to develop any sense of what set of rules, policies, and institutions might work to ensure an effective and efficient intergovernmental tax policy.

Ideally, the federal government would set a price on GHG emissions through comprehensive climate change legislation. A consistent price signal at the federal level could encourage an energy shift to renewable sources, efficiency, and conservation, and reduce or eliminate the need for renewable energy tax incentives. In the absence of federal leadership on climate change, a second-best alternative is coordination between federal, state, and local efforts to encourage wise energy behavior. Renewable energy tax incentives are found at all governmental levels.[17] All governments owe taxpayers a duty to responsibly and efficiently spend revenues. Without coordination, the federal government cannot know if its policies complement or conflict with policies at the state or local levels. Conflicting tax incentives will likely reduce efficiency and effectiveness and lead to a waste of fiscal resources.

While some level of federal preemption may be the best solution for comprehensive climate change legislation, federal preemption is not usual when it comes to taxing authority.[18] As shown by the examples set forth in this Essay, without coordination, federal and state policies may conflict, and the conflict increases costs to taxpayers.

This Essay will first briefly set out a background of the United States's climate change efforts, including political and behavioral factors that

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[15] GILBERT E. METCALF, CTR. FOR ENERGY POL'Y AND THE ENV'T AT THE MANHATTAN INST., TAXING ENERGY IN THE UNITED STATES: WHICH FUELS DOES THE TAX CODE FAVOR? 3 (2009), *available at* http://www.manhattan-institute.org/pdf/eper_04.pdf.

[16] NAT'L ACAD. OF PUB. ADMIN., FINANCING GOVERNMENTS IN THE 21ST CENTURY: INTERGOVERNMENTAL COLLABORATION CAN PROMOTE FISCAL AND ECONOMIC GOALS 17 n.10 (2006), *available at* http://www.napawash.org/wp-content/uploads/2006/06-08.pdf.

[17] *See* discussion *infra* Parts IV–V.

[18] *See, e.g.*, Howell E. Jackson & Stacy A. Anderson, *Can States Tax National Banks to Educate Consumers About Predatory Lending Practices?*, 30 HARV. J.L. & PUB. POL'Y 831, 852–53 (2007). *See also* Meghan McGuinness & A. Denny Ellerman, *The Effects of Interactions Between Federal and State Climate Policies* 3–4 (Ctr. for Energy & Envtl. Pol'y Res., Working Paper No. 08-004, 2008), *available at* http://tisiphone.mit.edu/RePEc/mee/wpaper/2008-004.pdf (discussing the Acid Rain Program).

may influence legislative choices. Next, it will outline the scholarly debate on the interaction of proposed federal climate change legislation with existing regional efforts, by way of introducing the potential conflicts in intergovernmental tax policies for climate change. The Essay next sets forth, in turn, federal and state renewable energy tax incentives and assesses their effectiveness in mitigating climate change, pointing out several examples of conflicts between different governmental levels of incentives and policies. A proposal for coordination then follows. The Essay concludes that coordination is possible and would improve the efficiency and effectiveness of tax policies for climate change.

II. BACKGROUND

Climate effects of human activity have been recognized for over 100 years.[19] Large-scale action to mitigate global climate change began in 1988 with the establishment of the Intergovernmental Panel on Climate Change (IPCC), an independent body under the auspices of the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP).[20] In 1992, the United Nations adopted the Framework Convention on Climate Change (UNFCCC).[21] In 1994, the UNFCCC entered into force after receiving its 50th ratification.[22] The United States is a party to the UNFCCC, but did not ratify the Kyoto Protocol, which was added to the UNFCCC in 1997.[23] While the UNFCCC set out a framework, the Kyoto Protocol requires actual emission reductions.[24] The implementation of the Kyoto Protocol stimulated the development of national and regional GHG trading systems, most prominently the European Union's Emissions Trading System (EU-ETS).[25]

The United States is lagging far behind Europe in its climate change mitigation efforts. In the United States, the national debate on how to address climate change has been framed as cap-and-trade or carbon

[19] *See* BERT BOLIN, A HISTORY OF THE SCIENCE AND POLITICS OF CLIMATE CHANGE: THE ROLE OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 3–7 (2007).

[20] *See id.* at 47.

[21] *See id.* at 68–77.

[22] *See id.*

[23] *See Essential Background: Feeling the Heat*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/essential_background/feeling_the_heat/items/2914.php (last visited Mar. 17, 2011); *Status of Ratification of the Convention*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php (last visited Mar. 17, 2011); *Status of Ratification of the Kyoto Protocol*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php (last visited Mar. 17, 2011).

[24] *See* BOLIN, *supra* note 19, at 148.

[25] *See* Paul Ekins, *Carbon Taxes and Emissions Trading: Issues and Interactions*, *in* CARBON-ENERGY TAXATION: LESSONS FROM EUROPE 241, 251–54 (Mikael Skou Andersen & Paul Ekins eds., 2009).

taxes, with cap-and-trade as the dominant option.[26] The cities of Boulder, Colorado and San Francisco, California, and Montgomery County in Maryland have all enacted carbon taxes.[27] The Regional Greenhouse Gas Initiative (RGGI) is a functioning cap-and-trade program covering power plant emissions across several northeastern states.[28] The Western Climate Initiative (WCI) and the Midwest Greenhouse Gas Reduction Accord (MGGRA) are still in the planning stages.[29] At the federal level, the first comprehensive climate change bill, the American Clean Energy and Security Act (ACES, a.k.a. the "Waxman-Markey Bill"), passed the House of Representatives on June 26, 2009.[30] The Senate Majority Leader, Harry Reid, announced that the Senate would not consider climate change legislation during the 111th Congress,[31] which was marked by extreme partisanship and gridlock.

The way that proposed climate change actions are framed may make a significant difference in public acceptance and support for the actions. Taking action to mitigate climate change requires current investment to protect against future hazard. Humans tend to discount future harm and put off long-term investments in favor of short-term return.[32] Although the link between human action and climate change enjoys wide scientific acceptance,[33] scientists rarely express their views with complete certainty. This scientific "uncertainty" has provided political cover for inaction.[34]

[26] *See* Robert J. Shapiro, *Is Cap and Trade a Dead Policy Walking?*, NDN BLOG (April 1, 2009), http://ndn.org/blog/2009/04/cap-and-trade-dead-policy-walking.

[27] *See* Elizabeth McGowan, *Maryland County Carbon Tax Law Could Set Example for Rest of Country*, SOLVE CLIMATE NEWS (May 25, 2010), http://solveclimatenews.com/news/20100525/maryland-county-carbon-tax-law-could-set-example-rest-country; Kristina Shevory, *California to Charge Fee for Emissions*, N.Y. TIMES GREEN BLOG (Oct. 12, 2009, 8:33 AM), http://green.blogs.nytimes.com/2009/10/12/california-to-charge-fee-for-emissions (noting that both San Francisco and Boulder had passed carbon taxes).

[28] Joanna D. Malaczynksi & Timothy P. Duane, *Reducing Greenhouse Gas Emissions from Vehicle Miles Traveled: Integrating the California Environmental Quality Act with the California Global Warming Solutions Act*, 36 ECOLOGY L.Q. 71, 90 n.110 (2009).

[29] *Id.*; *see also Regional Initiatives*, PEW CTR. ON GLOBAL CLIMATE CHANGE (Feb. 10, 2011), http://www.pewclimate.org/what_s_being_done/in_the_states/regional_initiatives.cfm. The MGGRA faces political opposition and delays. *See* Evan Lehmann, *Midwest Carbon Pact Faces Delays and Rising Partisanship*, N.Y. TIMES, Feb. 19, 2010, http://www.nytimes.com/cwire/2010/02/19/19climatewire-midwest-regional-carbon-pact-faces-delays-an-40140.html.

[30] The American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009), passed the House 219-212. 155 CONG. REC. H7686 (daily ed. June 26, 2009).

[31] Carl Hulse & David M. Herszenhorn, *Democrats Call Off Climate Bill Effort*, N.Y. TIMES, July 22, 2010, http://www.nytimes.com/2010/07/23/us/politics/23cong.html.

[32] Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCIENCE 453, 456–57 (1981).

[33] *See* NAOMI ORESKES & ERIK M. CONWAY, MERCHANTS OF DOUBT: HOW A HANDFUL OF SCIENTISTS OBSCURED THE TRUTH ON ISSUES FROM TOBACCO SMOKE TO GLOBAL WARMING 169 (2010).

[34] *See id.* at 169–70, 182–83, 186, 215; Oliver Houck, *Tales from a Troubled Marriage: Science and Law in Environmental Policy*, 302 SCIENCE 1926, 1926, 1928 (2003).

According to a recent survey, climate change is a relatively low national priority, but energy and energy independence are important to the public and policy-makers across political party lines.[35] A National Research Council report notes that "[s]olving the nation's energy challenges will require many of the same policies and investments needed to reduce GHG emissions, such as improved energy efficiency, conservation, and the development of new renewable sources of energy."[36] Encouraging investment in renewable energy technologies and energy efficiency through the tax system may provide a politically palatable approach to climate change mitigation.

III. COORDINATING FEDERAL AND REGIONAL CLIMATE CHANGE PROPOSALS

Professor Richard Lazarus characterizes the crafting of climate change legislation as a "super wicked problem."[37] He identifies several distinct challenges for law-making: the need for major reductions in GHG emissions; the long time lag between the reductions in GHG emissions and the mitigating effect on climate change; the difficulty of using a cost-benefit analysis over the multi-generational impacts of climate change; and the fact that the longer a government waits to address climate change, the more dramatic are the necessary reductions in emissions.[38] Adding to the complexity at the federal level is the challenge of coordinating climate change legislation that has already been implemented at the regional, state, and local levels.

Climate policy is a federalism issue.[39] A federal system is one in which political, legislative, and regulatory power is divided between different levels of government.[40] What federalism means depends on the area of law examined.[41] Concepts of federalism span the gamut from exclusive jurisdictions without overlap (dual federalism) to fully overlapping jurisdictions (cooperative federalism).[42] In the tax realm, Professor Kirk J.

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[35] *See* Press Release, Envtl. Def. Fund, Pollster Frank Luntz Releases New Polling Results: Bipartisan Public Support for National Climate Legislation (Jan. 21, 2010), *available at* http://www.edf.org/pressrelease.cfm?ContentID=10735; Anthony Leiserowitz, Edward Maibach & Connie Roser-Renouf, Yale Project on Climate Change & George Mason Univ. Ctr. for Climate Change Commc'n, *Global Warming's Six Americas, January 2010*, at 12, 14 (Jan. 2010), http://environment.yale.edu/uploads/SixAmericasJan2010.pdf.

[36] NAT'L RESEARCH COUNCIL, INFORMING AN EFFECTIVE RESPONSE TO CLIMATE CHANGE 32 (2010).

[37] *See* Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153, 1159–61 (2009).

[38] *Id.* at 1166–68.

[39] Barry G. Rabe, *States on Steroids: The Intergovernmental Odyssey of American Climate Policy*, 25 REV. POL'Y RES. 105, 105 (2008).

[40] Larry Kramer, *Understanding Federalism*, 47 VAND. L. REV. 1485, 1488 n.5 (1994).

[41] *Id.* at 1486.

[42] *Id.* at 1523, 1550.

Stark notes that federal leadership has dominated fiscal federalism.[43] In the environmental realm, Professor Kirsten H. Engel questions the conventional view that regulatory authority "should be allocated to one or the other level of government with minimal overlap."[44] She argues that that jurisdictional overlap occurs by design in our federal government structure, and it should be embraced as a positive benefit in the case of environmental issues.[45] Engel finds that jurisdictional overlap is a logical and efficient way of combating excessive interest group influence, "which can prevent effective regulation by one level of government."[46] "If interest groups succeed in negatively influencing a policy initiative at the federal level . . . the states still have a shot at correcting the ultimate policy result."[47] In Engel's view, the real concern is federal preemption rather than overlapping jurisdiction because federal preemption obviates the policy ideas of an entire level of government.[48]

Founding Father James Madison contemplated that state and local action could be used by the federal government as a policy incubator, allowing the national government to build on the prior experience of the states.[49] Operating in the vacuum left by federal inaction, state and local governments have taken a number of different policy approaches to climate change mitigation. As noted above, several states have formed regional alliances to operate cap-and-trade systems.[50] Two cities and one county have enacted carbon taxes.[51] Twenty-five states have renewable portfolio standards (RPS) that require a specified proportion of the electricity generated or used in the state to be from renewable sources.[52] Why have the states been able to take action on climate change mitigation when the federal government has not? "Compared with the national policymaking process, the political interests of most states are relatively cohesive and homogeneous, thereby enabling them to achieve consensus on policy action more quickly."[53]

Several groups of researchers have examined the potential interactions between federal and state climate policies.[54] Andrew Aulisi

[43] *See* Kirk J. Stark, *Fiscal Federalism and Tax Progressivity: Should the Federal Income Tax Encourage State and Local Redistribution?*, 51 UCLA L. REV. 1389, 1390 (2004).

[44] Kirsten H. Engel, *Harnessing the Benefits of Dynamic Federalism in Environmental Law*, 56 EMORY L.J. 159, 161 (2006).

[45] *See id.*

[46] *Id.* at 178.

[47] *Id.* at 178–79.

[48] *Id.* at 163.

[49] *See* AULISI ET AL., *supra* note 3, at 5; David G. Victor, Joshua C. House & Sarah Joy, *A Madisonian Approach to Climate Policy*, 309 SCIENCE 1820, 1820 (2005).

[50] *See supra* notes 27–29 and accompanying text.

[51] *See supra* note 27.

[52] Rabe, *supra* note 39, at 119.

[53] AULISI ET AL., *supra* note 3, at 6.

[54] *Id.* at 1; Lawrence H. Goulder & Robert N. Stavins, *Interactions Between State and Federal Climate Change Policies* 1 (Nat'l Bureau of Econ. Research, Working Paper No.

and other researchers from the World Resources Institute examined case studies to determine when leading state policies would "vertical[ly] diffus[e]" and be adopted by the national government.[55] The most significant factors for successful vertical policy diffusion were the push for diffusion by state champions, policy learning by example and innovation, and the spillover effect.[56] State officials may press for federal adoption of their policies because those policies may fail without expansion to the national level, due to "competition with other states with conflicting policies or weaker commitments to the policy goal."[57] State policies may demonstrate that a policy can be implemented and be effective. The spillover effect is "the extent to which the perceived benefits and costs of state policies cross over state lines to other states" or the nation.[58] The results of vertical diffusion may be full or partial preemption of the issue by the federal government, issuance of grants or incentives by the federal government to the states to perpetuate the activity, or federal mandates, with or without funding.[59] The researchers concluded that the RGGI cap-and-trade program contained all the significant vertical diffusion factors, including the somewhat less significant factor of business support for federal action.[60] The researchers predicted that the federal government is "likely to use partial preemption to respond to the RGGI . . . standards."[61] The House-passed climate change bill (ACES) would have fully preempted existing regional cap-and-trade programs.[62] The choice of full preemption in the legislation may have been driven by the concerns of business constituents. Business interests have considerable influence on policymaking in the United States.[63] Business support for federal action is motivated by the desire for uniform standards, which enables businesses to avoid a patchwork of varying state rules that would increase compliance costs and create competitive advantages.[64]

Other researchers focused on the impact of the co-existence of a federal cap-and-trade program with state or regional cap-and-trade programs.[65] They identified two key issues: (1) the extent to which the federal program covered the same sources as the state or regional

16123, 2010), *available at* http://www.nber.org/papers/w16123; McGuinness & Ellerman, *supra* note 18, at 2.

[55] AULISI ET AL., *supra* note 3, at 1.

[56] *Id.* at 10–11.

[57] *Id.* at 12.

[58] *Id.* at 10.

[59] *See id.* at 22.

[60] *Id.*

[61] *Id.*

[62] American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 335 (2009) (full preemption through 2017); *see also* AULISI ET AL., *supra* note 3, at 23.

[63] *See* AULISI ET AL., *supra* note 3, at 21.

[64] *See id.*

[65] Goulder & Stavins, *supra* note 54, at 1; McGuinness & Ellerman, *supra* note 18, at 2.

program, and (2) the relative stringency of the two systems.[66] If both systems have the same coverage (e.g., both cover only emissions of the electricity generation sector), the cost of compliance with both systems will be the same as the cost of compliance with the most stringent system.[67] Thus, if the state has a more stringent system, the lower emissions from sources covered by the state program will reduce demand in the federal auction and lead to a lower federal allowance price.[68] The higher costs imposed on emissions within the state would cause a shift of emissions out of state (leakage), thereby resulting in no net reduction in national emissions because of the extra stringency of the state program, assuming free mobility of emission sources.[69] Thus, a more stringent state program adds to the cost of compliance without reducing overall emissions, thereby reducing economic efficiency.[70] This result would argue for full preemption. A less stringent state program would have no additional effect,[71] also arguing for full preemption.

If the programs do not perfectly overlap, one of two scenarios would occur: either the federal program would cover more emission sources than the state program, or the state program would cover more emission sources than the federal program. In the first instance, the results are the same as with perfectly overlapping coverage. In the second instance, a more stringent state program (covering more sources) can lead to reductions in nationwide emissions. More complex interactions are likely if the policy instruments differ at the federal and state levels. For example, if the federal government decided to regulate GHG as a criteria pollutant under the Environmental Protection Act and if RGGI continued as a regional cap-and-trade program, the specifics of the regulation would be critical in determining the interaction effects. One set of researchers concluded that the difficulties are minimized if the federal and state policies have little overlap in coverage or when the federal policy sets prices for emissions.[72] The highest potential for problems occurs when the federal policy sets limits on aggregate emissions quantities or allows sources to average performance across states.

Preemption, of course, is not the only method of coordination between federal, state, and local rules. To "coordinate" is defined as "to act together in a smooth concerted way;"[73] to "preempt" is defined as "to

[66] Goulder & Stavins, *supra* note 54, at 1; McGuinness & Ellerman, *supra* note 18, at 2.

[67] Goulder & Stavins, *supra* note 54, at 4; McGuinness & Ellerman, *supra* note 18, at 21.

[68] Goulder & Stavins, *supra* note 54, at 4.

[69] *Id.*; McGuinness & Ellerman, *supra* note 18, at 21.

[70] McGuinness & Ellerman, *supra* note 18, at 21.

[71] Goulder & Stavins, *supra* note 54, at 4.

[72] *Id.* at 11.

[73] MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 275 (11th ed. 2004).

seize upon to the exclusion of others" or "to replace with something considered to be of greater value."[74] Ideally, coordination would allow federal, regional, state, and local policies for climate change mitigation to act in harmonious combination. Coordination implies conscious action—it does not occur randomly or by happenstance. Coordination is far more likely when legislation at the federal, regional, state, and local levels serve the same goals. With tax legislation, although climate change mitigation may be a beneficial by-product, the goals may vary at different levels of government.

IV. FEDERAL ENERGY TAX INCENTIVES

A. Overview

Congress has acted to encourage renewable energy through the tax code even while resisting comprehensive climate legislation. The federal government provides greater subsidies to the energy sector through the Internal Revenue Code (IRC) than by any other means.[75] Tax provisions create incentives for activity, such as producing electricity from renewable energy, by reducing the tax cost of the activity. Until 2005, a majority of the benefit of federal energy tax incentives accrued to fossil energy, through benefits such as percentage depletion and the credit for enhanced oil recovery costs.[76] Beginning with federal energy legislation enacted in 2005, the federal energy tax incentive balance shifted to renewable energy.[77] Goals of this federal policy include reducing the cost of energy for U.S. consumers and improving domestic energy security.[78] Federal stimulus legislation in 2009 pursued investment in green energy because of perceived spillover effects on U.S. technological development, economic growth, and employment.[79]

In the wholesale and retail electricity sector, tax credits are available to electricity producers that use renewable energy sources.[80] Electricity distributors that invest in smart grids and smart meters that help manage demand and accommodate increased use of electricity generated from renewable energy also receive accelerated deductions.[81] Additionally, tax

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[74] *Id.* at 978.

[75] *See* ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, SR/CNEAF/2008-01, FEDERAL FINANCIAL INTERVENTIONS AND SUBSIDIES IN ENERGY MARKETS 2007, at xii (2008), *available at* http://www.eia.doe.gov/oiaf/servicerpt/subsidy2/pdf/subsidy08.pdf.

[76] *See* METCALF, *supra* note 15 (see Executive Summary); *see also* I.R.C. §§ 43, 611, 613 (2006).

[77] *See generally* METCALF, *supra* note 15.

[78] *See* Gilbert E. Metcalf, *Using Tax Expenditures to Achieve Energy Policy Goals*, 98 AM. ECON. REV. 90, 91 (2008).

[79] COUNCIL OF ECON. ADVISORS, THE ECONOMIC IMPACT OF THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009, at 3, 19, 29 (2010), *available at* http://www.whitehouse.gov/files/documents/cea_4th_arra_report.pdf.

[80] I.R.C. §§ 45, 48 (2006).

[81] I.R.C. § 168(b)(2)(C), (e)(3)(D)(iii), (iv) (2006 & Supp. III 2009).

credits are available to manufacturers of equipment used in renewable energy generation.[82] A tax exclusion for households receiving subsidies from utilities for conservation measures encourages electric utilities to provide customers with energy conservation measures.[83]

In the residential sector, a tax credit applies to builders of new homes that exceed certain energy saving criteria.[84] Similarly, manufacturers of energy-efficient household appliances enjoy a tax credit.[85] Homeowners who improve the energy efficiency of their homes by adding insulation or energy-efficient windows, doors, or roofs also benefit from a tax credit,[86] as do homeowners who install equipment that produces heat or electricity from renewable energy.[87]

In the commercial and industrial sectors (other than electricity generation), businesses can take accelerated deductions for "green building" expenditures.[88] In the transportation sector, tax expenditures encourage taxpayers to purchase alternative fuel vehicles.[89] Producers of alternative fuels, such as ethanol and biodiesel, receive income or excise tax credits.[90] Fuels with high ethanol concentrations need specialized refueling equipment, and businesses that install such equipment receive a tax credit.[91]

B. Effectiveness

Tax incentives, like carbon taxes or cap-and-trade systems, are economic instruments that operate to change the cost of a particular action by reducing the tax burden on taxpayers engaging in the favored action. Economists criticize tax incentives generally for their inefficiency.[92] If reducing GHG emissions is the desired behavior, it is more economically efficient to increase the cost of emitting GHGs rather

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[82] I.R.C. § 48C (Supp. III 2009); *see also President Obama Awards $2.3 Billion for New Clean-Tech Manufacturing Jobs*, U.S. DEPT. OF ENERGY, http://www.energy.gov/recovery/48C.htm (last visited Mar. 17, 2011).

[83] *See* I.R.C. § 136 (2006).

[84] *Id.* § 45L (2006).

[85] *Id.* § 45M (2006).

[86] *Id.* § 25C (2006).

[87] *Id.* § 25D (2006).

[88] *Id.* § 179D (2006). "Green building" expenditures refer to costs incurred in installing certain qualifying energy efficient lighting, heating and cooling, or hot water systems in a commercial building. *Id.* § 179D(c)(1).

[89] *See id.* §§ 30, 30B.

[90] I.R.C. § 40 (2006 & Supp. II 2008); I.R.C. § 6426 (2006).

[91] I.R.C. § 30C (2006). Many of the above provisions were extended by the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, Pub. L. No. 111-312, 124 Stat. 3296 (2010).

[92] *See* LILY BATCHELDER & ERIC TODER, CTR. FOR AM. PROGRESS, GOVERNMENT SPENDING UNDERCOVER: SPENDING PROGRAMS ADMINISTERED BY THE IRS 1 (2010), *available at* http://www.americanprogress.org/issues/2010/04/pdf/govspendingundercover.pdf.

than reduce the costs of technologies that have varying effects on GHG emissions via tax incentives. The GHG-reduction potential of wind generated electricity, for example, depends on the GHG emissions of the technology it replaces. Yet providing a federal incentive for wind generated electricity has the same effect on the price of the electricity whether the replaced source is GHG intensive coal or less GHG intensive natural gas. As noted by Metcalf, some energy sources are "tax-favored"; that is, some sources receive a greater tax benefit per unit of energy generated.[93] The tax incentive model allows Congress to pick technology "winners."

As different regions of the country have access to different energy sources, political considerations in designating those "winners" come into play. It is unclear whether replacing petroleum-based gasoline with corn-based ethanol reduces GHG emissions,[94] but it is quite clear that Congressional representatives from Corn Belt states strongly support federal ethanol subsidies.[95] For a member of Congress, voting to support cap-and-trade or a carbon tax that would increase energy costs on constituents requires considerable courage. On the other hand, voting to lower taxes by adding a tax expenditure that benefits a constituent is easy. Thus, the democratic process favors tax expenditures over the more economically and environmentally efficient carbon tax or cap-and-trade. Furthermore, "[f]rom a budgetary perspective, most tax expenditures are comparable to mandatory spending for entitlement programs . . . ."[96] "Tax expenditures do not compete overtly in the annual budget process and, in effect, receive a higher funding priority than discretionary spending subject to the annual appropriations process."[97]

Tax legislation is subject to budgetary rules. The most significant limitation on tax legislation is found in congressional budget resolutions commonly called "Pay-As-You-Go" (PAYGO).[98] Under PAYGO rules, tax legislation must be revenue-neutral within defined budget windows.[99] The Joint Committee on Taxation (JCT) is required to estimate the revenue

[93] METCALF, *supra* note 15, at 5.

[94] RENEWABLE FUELS AGENCY, GALLAGHER REVIEW OF THE INDIRECT EFFECTS OF BIOFUELS PRODUCTION 8 (July 2008), *available at* http://www.renewablefuelsagency.gov.uk/reportsandpublications/reviewoftheindirecteffectsofbiofuels.

[95] *See, e.g.*, Joseph Morton, *Ethanol to Test Midlands Reps*, OMAHA WORLD-HERALD (Jan. 3, 2011), http://omaha.com/apps/pbcs.dll/article?AID=/20110103/NEWS01/701039936/1046; John Collins Rudolf, *Corn Belt Senators Defend Ethanol Subsidies*, N.Y. TIMES GREEN: A BLOG ABOUT ENERGY AND THE ENV'T (Dec. 2, 2010, 12:41 PM), http://green.blogs.nytimes.com/2010/12/02/corn-belt-senators-defend-ethanol-subsidies.

[96] U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 8, at 18.

[97] *Id.*

[98] ROBERT KEITH, CONG. RESEARCH SERV., RL33850, THE HOUSE'S "PAY-AS-YOU-GO" (PAYGO) RULE IN THE 110TH CONGRESS: A BRIEF OVERVIEW 1 (2007), *available at* http://www.policyarchive.org/handle/10207/bitstreams/3115.pdf.

[99] *Id.*

gain or loss of each proposed tax provision to ascertain the revenue neutrality of proposed legislation.[100] Tax expenditures, such as the production tax credit (PTC), for generating electricity from renewable sources cause revenue loss, relative to a defined baseline.[101] However, the federal government has no requirement for *ex post* analysis of the cost of tax provisions or whether the provisions meet their stated goals.[102] Thus, if the goal of the PTC is to increase production and reduce the cost of electricity produced with renewable energy, there is no legislative requirement to analyze or report on whether the provision has met this goal. Congress has considered implementing an *ex post* analysis requirement for extensions of energy tax provisions, but the legislation has not been enacted.[103] *Ex post* analysis would give Congress the ability to make rational decisions about whether a tax expenditure should be extended or repealed, based on both its efficacy and its true cost.

The tax expenditure approach to climate change is not the most efficient way of achieving GHG mitigation. There is no regular assessment of the effectiveness of any particular tax expenditure, although advocacy groups and non-profit organizations alike frequently provide data in support or opposition. Despite these criticisms, the tax expenditure approach has the advantage of political feasibility. While economists tout the efficiency of the carbon tax and environmentalists favor the precision of cap-and-trade, one researcher notes that "the relationship between the 'economic desirability' and 'political feasibility' of climate policy options may be nearly inverse . . . ."[104]

V. STATE AND LOCAL ENERGY TAX INCENTIVES

A. Overview

At the state and local levels, energy tax incentives may reduce property or sales taxes as well as state income tax. More than half of all states offer one or more incentive programs for renewable energy production to corporate or individual taxpayers;[105] most offer programs to both types of taxpayers.[106] Incentive types include production tax credits, based on a per kilowatt-hour for energy generated and sold by eligible entities; investment tax credits which reduce individual or corporate tax by a percentage of the investment in commercial and

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[100] I.R.C. § 8022 (2006).

[101] *See generally* RYAN WISER, MARK BOLINGER & TONY GAGLIANO, ERNEST ORLANDO LAWRENCE BERKELEY NAT'L LAB., LBNL-51465, ANALYZING THE INTERACTION BETWEEN STATE TAX INCENTIVES AND THE FEDERAL PRODUCTION TAX CREDIT FOR WIND POWER (2002), *available at* http://eetd.lbl.gov/EA/EMP/reports/51465.pdf.

[102] *See* U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 8, at 5.

[103] H.R. 4213, 111th Cong. §§ 621–622 (2009).

[104] Rabe, *supra* note 39, at 116.

[105] *Financial Incentives*, *supra* note 1.

[106] *Id.*

residential alternative energy systems, with specific limits set based on the technology installed; and accelerated deductions for the purchase and installations of eligible renewable energy or energy efficiency equipment, or for green building construction.[107] The amount varies by program, and "in most cases, there is a maximum limit on the dollar amount of the credit or deduction."[108] Some states permit carryover or structured application of the credit over a set number of years.[109] "Some states allow the tax credit only if a corporation has invested a minimum amount in an eligible project."[110]

Nineteen states employ some form of tax incentive to reduce the cost of purchase and installation of energy efficiency measures.[111] Of those, 14 states offer a deduction or credit against personal income.[112] Corporate incentives for conservation, offered in nine states, include credits, exemptions, and deductions for specific projects or for whole buildings.[113] "Comprehensive measures," or whole-building credits, are designed to incentivize energy efficiency measures and renewable energy systems in new construction projects, such as solar hot water or solar photovoltaic (PV) systems.[114]

Sales tax incentives characteristically provide a refund of, or an exemption from, the state sales tax (or sales and use tax) for the purchase of energy efficiency measures or a renewable energy system, in full or partial amount.[115] Sales and use tax incentives are employed in 31 states.[116] In 2009, Colorado enacted a policy to provide a sales and use tax exemption for a comprehensive list of equipment used to produce alternating current (AC) electricity from a renewable energy source, including "photovoltaic (PV) systems, solar thermal-electric systems, small wind systems, biomass systems, or geothermal systems."[117] Both commercial and residential taxpayers are eligible.[118]

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[107] N.C. Solar Ctr. & Interstate Renewable Energy Council, *Database of State Incentives for Renewables & Efficiency: Glossary*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, http://www.dsireusa.org/glossary/ (last visited Mar. 18, 2011) [hereinafter *Glossary*].

[108] *Id.* (defining "Corporate Tax Incentives" and "Personal Tax Incentives").

[109] *Id.*

[110] *Id.*

[111] *Financial Incentives*, *supra* note 1.

[112] *Id.*

[113] *Id.*

[114] *See, e.g.*, N.C. Solar Ctr. & Interstate Renewable Energy Council, *Delaware Sustainable Energy Utility (SEU) - Efficiency Plus Homes (Green for Green) Program Overview*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (June 16, 2010), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=DE14F&re=0&ee=1.

[115] *Glossary*, *supra* note 107 (defining "Sales Tax Incentives").

[116] *Financial Incentives*, *supra* note 1.

[117] N.C. Solar Ctr. & Interstate Renewable Energy Council, *Colorado Sales and Use Tax Exemption for Renewable Energy Equipment Program Overview*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (May 25, 2010),

Property tax incentives are exemptions, exclusions, abatements, and credits that exclude the added value of the upgrade or renewable energy system from the valuation of the property for taxation purposes.[119] Property tax incentives are the most common type of renewable energy incentive at the state or local government levels.[120]

B. Effectiveness

Analysts at the National Renewable Energy Laboratory have concluded that "[s]tate tax incentives have generally provided an incremental incentive that supports but does not drive renewable energy growth."[121] Theoretically, state tax incentives may be structured to take best advantage of a state's natural resources and industrial base. For example, New Mexico has one of the best solar resources in the nation and has provided a solar-specific state production tax credit.[122] However, due to concentrated pressure from local business interests, state political structures might be more subject to industry capture than the federal government.[123] In Wyoming, which has excellent wind resources and also is the nation's largest coal producer, the legislature has allowed renewable energy tax incentives to expire and enacted a one dollar per megawatt-hour wind energy generation tax, effective 2011.[124]

The state of Oregon has a robust portfolio of tax incentives for renewable energy, for both businesses (the Business Energy Tax Credit—BETC) and individuals (the Residential Energy Tax Credit—RETC).[125] Significantly, and unlike the federal government, the Oregon Department of Energy has a legislative mandate to monitor progress in energy conservation and accordingly publishes regular reports on the impact of the tax credits.[126] The report covers both short-term and long-term economic impacts.[127] For 2008, the BETC cost the state $156 million

http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CO160F&re=1&ee=1.

[118] *Id.*

[119] *Glossary*, *supra* note 107 (defining "Property Tax Incentives").

[120] *Financial Incentives*, *supra* note 1.

[121] ERIC LANTZ & ELIZABETH DORIS, NAT'L RENEWABLE ENERGY LAB., NREL/TP-6A2-46567, STATE CLEAN ENERGY POLICIES ANALYSIS (SCEPA): STATE TAX INCENTIVES 16 (2009), *available at* http://www.nrel.gov/docs/fy10osti/46567.pdf.

[122] *Id.* at 19.

[123] *Id.* at 22.

[124] *See* John J. Fialka, *Wyoming's Crash Program to Develop 'Green' Coal*, N.Y. TIMES, Mar. 17, 2010, http://www.nytimes.com/cwire/2010/03/17/17climatewire-wyos-crash-program-to-develop-green-coal-18583.html; *Industry Says Wyoming Wind Tax Tops Rockies*, WYO. ENERGY NEWS, June 23, 2010, http://wyomingenergynews.com/2010/06/industry-says-wyoming-wind-tax-tops-in-rockies/; WYO. STAT. ANN. § 39-22-104 (Supp. 2010).

[125] OR. REV. STAT. §§ 315.354(1)–(2), 316.116, 469.185–.225 (2009).

[126] 2009 Or. Laws 3300.

[127] ECONORTHWEST, *supra* note 11, at 2.

and resulted in net energy cost savings of nearly $192 million, as well as reducing carbon emissions by 1.7 million tons.[128] The energy savings increased wages by almost $500,000 and resulted in the creation of 13 high wage jobs.[129] Despite this overall positive impact, the Oregon legislature subsequently capped the BETC at $450 million through the middle of 2012, citing runaway costs and potential abuse by out-of-state firms.[130] In troubled financial times, even efficient and productive state tax expenditures are at risk as legislators struggle to balance budgets.

Sales tax incentives may be more effective than income tax incentives for certain products. In a study examining tax incentives for hybrid automobiles, researchers found that at the state level, sales tax incentives had a much larger impact on demand than state income tax credits.[131] This appeared to be true even when taking into account the amount of each incentive.[132] The researchers concluded that the immediacy and the automatic nature of the sales tax incentive had a positive impact on consumer behavior.[133] This study shows that the effectiveness of the design of the incentive depends on the target audience for the incentive. It also highlights the need for systematic and regular assessment of the effectiveness of tax incentives. While private and non-profit researchers provide analysis of some tax incentives, such analyses are ad hoc and sporadic.

Property tax abatements, which typically exclude the value of energy improvements from property assessments, are meaningless unless the energy improvement results in an increase in the appraised value of the property. The increased value would, but for the exemption, result in increased property tax. The evidence for increased value from energy improvements is mixed. At the 2010 National Association of Home Builders (NAHB) Green Building Conference, conferees noted that while new green homes sold more quickly than traditional homes, many appraisers did not take green building features into account in determining home values.[134] Researchers have concluded that energy improvements increase the sales price and desirability of a home, citing studies showing a $20 increase in home value for every $1 reduction in

[128] *Id.* at 26.

[129] *Id.* at 34.

[130] Steves, *supra* note 14.

[131] Kelly Sims Gallagher & Erich Muehlegger, *Giving Green to Get Green: Incentives and Consumer Adoption of Hybrid Vehicle Technology* 28 (John F. Kennedy Sch. of Gov't, Harv. Univ., Working Paper No. RWP08-009, 2008), *available at* http://www.hks.harvard.edu/fs/emuehle/Research%20WP/Gallagher%20and%20Muehlegger%20Feb_08.pdf.

[132] *Id.*

[133] *Id.*

[134] *Green Homes Said to Sell Faster, but Appraisals Remain a Sticking Point*, KITSAP PENINSULA BUS. J. (June 6, 2010), http://kpbj.com/business_weekly/2010-06-07/green_homes_said_to_sell_faster_but_appraisals_remain_a_sticking_point.

annual energy bills.[135] On the other hand, functional remodeling like replacing windows and adding insulation does not rank high on most buyers' "must-have" lists.[136] Another study found that energy cost concerns do not predominate in new home purchasers' decision-making.[137] Although popular, the effectiveness of property tax abatements in encouraging energy improvements has not been proved.

C. Existing Renewable Energy Policy Conflicts

The preceding paragraphs have described tax incentives used by all levels of government—federal, state, and local—to encourage renewable energy and conservation—actions that may help mitigate climate change. Coordination between these incentives sometimes occurs, but more often does not. In general, the effect of any state or local tax incentive is muted because of the federal deduction for state and local taxes (SALT deduction).[138] The state or local property tax incentive will reduce the state or local tax due, thereby reducing the SALT deduction and increasing the federal tax burden.[139]

Tax incentives for renewable energy have their own particular coordination problems. One scholar describes the U.S. effort to encourage renewable energy as "a complicated saga of erratic and unfocused federal policy and widely divergent state policies, with results that have not surprisingly varied considerably over time and among the states."[140] Other researchers agree, noting, "[t]he interaction of state and federal policy incentives is often fraught with ambiguity."[141] Not only can federal tax incentives interact with state or local tax incentives, but they can also interact with non-tax state policies. Similarly, state tax incentives may interact with non-tax federal policies.

When a state provides a tax incentive for an activity also covered by a federal tax incentive, results vary. The federal PTC for renewable energy contains an anti-double-dipping provision that requires that the federal PTC be reduced if the project receives certain other kinds of support, such as grants, tax-exempt bonds, subsidized energy financing, or other

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[135] Rick Nevin, Christopher Bender & Heather Gazan, *More Evidence of Rational Market Values for Home Energy Efficiency*, 67 APPRAISAL J. 454, 454 (1999).

[136] Jim Cory, *Curb Appeal is King*, REMODELING MAG., Nov. 2009, *available at* http://www.remodeling.hw.net/remodeling-market-data/curb-appeal-is-king.aspx.

[137] RICHARD MAULLIN, FAIRBANK, MASLIN, MAULLIN & ASSOCS., NEW SOLAR HOMES PARTNERSHIP NEW CONSTRUCTION HOME BUYERS MARKET RESEARCH REPORT, CEC 180-2008-003, at 5 (2008), *available at* http://www.energy.ca.gov/2008publications/CEC-180-2008-003/CEC-180-2008-003.pdf.

[138] I.R.C. § 164 (2006).

[139] LANTZ & DORIS, *supra* note 121, at 20.

[140] Richard Schmalensee, *Renewable Electricity Generation in the United States* 2 (Ctr. for Energy & Envtl. Pol'y Res., Working Paper No. 09-017, 2009), *available at* http://web.mit.edu/ceepr/www/publications/workingpapers/2009-017.pdf.

[141] LANTZ & DORIS, *supra* note 121, at 16.

credits.[142] For a considerable period, taxpayers did not know whether the federal PTC would be reduced by the state tax credit.[143] The IRS clarified that overlapping state tax credits do not constitute double-dipping and do not reduce the federal PTC.[144] Similarly, the federal investment tax credit (ITC) is not reduced for state tax credits.[145] Unlike the PTC, the federal ITC need not be reduced for subsidized energy financing. Lantz and Doris concluded that state tax incentives and federal tax incentives for renewable energy both play valuable roles.[146] State tax incentives reduce specific local barriers to renewable energy development while federal tax incentives increase the economic feasibility of renewable energy technologies.

Many states and the federal government provide tax incentives for the installation of solar equipment on a residence.[147] Overlapping state tax credits do not reduce the federal credit. However, if a public utility provides a rebate on the solar equipment, the federal credit must be reduced by the rebate.[148] The rebate does not increase the recipient's taxable income.[149] In Oregon, the state tax credit need not be reduced by the rebate.[150]

Many states use renewable portfolio standards (RPSs) to meet clean energy goals. RPSs require that a minimum percentage of energy generated or sold by a covered entity come from renewable sources.[151] Federal (or state) tax incentives that complement state RPSs effectively transfer costs from utility ratepayers to taxpayers.[152] This result could be considered positive or negative, and it is unclear whether it is economically efficient. One scholar has noted that using tax expenditures to encourage climate change mitigation activities conflicts with the polluter-pays principle.[153] The polluter-pays principle, a recurrent theme in environmental law, is based on two concepts: (1) that placing the cost of pollution on the polluter promotes economic efficiency; and (2) it protects relative competitive positions in the

[142] I.R.C. § 45(b)(3) (2006).

[143] WISER, BOLINGER & GAGLIANO, *supra* note 101, at 1.

[144] Rev. Rul. 06-9, 2006-1 C.B. 519, 519.

[145] I.R.C. § 48 (2006). *See also Federal Incentives for Commercial Solar: Commercial Solar Energy Grants*, GETSOLAR.COM, http://www.getsolar.com/commercial_federal-incentives-for-commercial-solar.php (last visited March 18, 2011) (explaining the framework of the ITC as established in I.R.C. § 48).

[146] LANTZ & DORIS, *supra* note 121, at iv.

[147] I.R.C. § 25D (2006); *Financial Incentives*, *supra* note 1.

[148] I.R.C § 136 (2006).

[149] *Id.*

[150] LANTZ & DORIS, *supra* note 121, at 17.

[151] *Id.* at 17 n.41.

[152] *Id.* at 18.

[153] Janet E. Milne, *U.S. Climate Change Policy: A Tax Expenditure Microcosm with Environmental Dimensions*, *in* TAX EXPENDITURES: THE STATE OF THE ART, (Lisa Philipps, Neil Brooks & Jinyan Li eds.) (forthcoming 2011) (manuscript at 7).

marketplace. Thus, shifting costs from the utility ratepayers ("polluters") to taxpayers would be inappropriate under the polluter-pays principle.

Property tax incentives for renewable energy are popular, but some property-tax-related programs are facing failure because of policy set at the federal level. In 2007, the Berkeley FIRST program provided financing for solar photovoltaic (PV) systems by allowing property owners to pay for the installation through their property tax bills.[154] One problem with this program was lack of clarity regarding the interaction between the program and the federal tax credit for renewable energy. A more serious problem arose when the Federal Housing Finance Agency, which oversees the government-chartered mortgage finance companies, Fannie Mae and Freddie Mac, imposed restrictions on loans on properties enrolled in the programs.[155] In response, California Attorney General Jerry Brown sued Fannie Mae and Freddie Mac, asking the court to declare that the program known as Property Assessed Clean Energy (PACE), available in about half of California's counties, does not violate the federal lending standards.[156] The Department of Energy invested $150 million in PACE projects, and a 2009 study showed that energy efficient homes had default and delinquency rates 11% lower than for typical homes.[157] This is a clear example of cross-purpose between federal programs and between federal and state policies.

The lack of clarity resulting from myriad interactions of incentives provided by all levels of government may reduce the attractiveness of all the incentives. One study found the effectiveness of incentive policies hampered by complexity and lack of education.[158] If the policy goal is to encourage renewable energy to mitigate climate change, clarity and coordination would help accomplish that goal in a more efficient manner.

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[154] Claudia Eyzaguirre & Annie Carmichael, *Municipal Property Tax Assessment Financing: Removing Key Barriers to Residential Solar*, VOTE SOLAR INITIATIVE (Oct. 2008), http://www.votesolar.org/linked-docs/Solar%20Finance%20Paper_100808_Final.pdf.

[155] Todd Woody, *A Blow to Home Retrofits*, N.Y. TIMES GREEN: A BLOG ABOUT ENERGY AND THE ENV'T (July 6, 2010, 4:21 PM), http://green.blogs.nytimes.com/2010/07/06/a-blow-to-home-energy-retrofits/.

[156] Todd Woody, *Fannie and Freddie Are Sued in California*, N.Y. TIMES GREEN: A BLOG ABOUT ENERGY AND THE ENV'T (July 14, 2010, 4:35 PM), http://green.blogs.nytimes.com/2010/07/14/fannie-and-freddie-are-sued-in-california/.

[157] Jonathan Hiskes, *Energy Efficiency Helps Homeowners Avoid Foreclosure*, GRIST (July 12, 2010, 10:13 AM), http://www.grist.org/article/2010-07-12-home-energy-efficiency-cuts-mortgage-default-rates.-fannie-fredd.

[158] S. GOUCHOE, V. EVERETTE & R. HAYNES, NAT'L RENEWABLE ENERGY LAB., NREL/SR-620-32819, CASE STUDIES ON THE EFFECTIVENESS OF STATE FINANCIAL INCENTIVES FOR RENEWABLE ENERGY 19 (2002), *available at* http://www.nrel.gov/docs/fy02osti/32819.pdf.

VI. A PROPOSAL FOR COORDINATION OF FEDERAL, STATE, AND LOCAL CLIMATE CHANGE POLICIES

Regional, state, and local actions are not enough to meet the challenge of climate change. There are areas where only the federal government can act, such as setting nationwide GHG emission reduction targets; establishing mechanisms to regulate carbon; providing policy certainty for corporations seeking to make long-term investments; generating substantial revenues that can be directed towards climate change responses; and making large-scale investments in research and development.[159] When the federal government decides to act, it should consider areas in which state or local action may be more effective than federal action. As discussed above, sales tax incentives may be most effective in encouraging consumer response to alternative-fuel vehicles. In the absence of a federal sales tax, states and localities are the only levels of government that can implement sales tax incentives. Comprehensive land use planning, municipal transportation, and building and energy codes are functions of local government that can have a significant impact on climate change.

State and local governments will likely be significantly involved in climate adaptation measures, as droughts and floods resulting from climate change have differing impacts across the nation. Although there is no coordinated national approach, several federal agencies have begun to take ad hoc action with respect to climate change adaptation.[160] The Pew Center on Global Climate Change produced a report highlighting the importance of the federal role in climate change adaptation.[161] The report found the federal government to be "uniquely positioned to provide the necessary leadership, guidance, information, and resources."[162] Among other recommendations, the report suggests that federal agencies should develop comprehensive strategic adaptation plans, to "include review, modification, and development of existing programs, laws, policies, regulations, and management approaches relevant to adaptation as well as coordination across sectors and with states and appropriate stakeholders."[163] This recommendation would seem to hold true for climate mitigation measures as well.

Issues of coordination among multiple levels of government arise in many contexts, both fiscal and regulatory in nature. In 1959, Congress

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[159] NAT'L RESEARCH COUNCIL, *supra* note 36, at 81–83.

[160] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-05-461, CLIMATE CHANGE: FEDERAL REPORTS ON CLIMATE CHANGE FUNDING SHOULD BE CLEARER AND MORE COMPLETE (2005), *available at* http://www.gao.gov/new.items/d05461.pdf.

[161] JOEL B. SMITH ET AL., PEW CTR. ON GLOBAL CLIMATE CHANGE, ADAPTING TO CLIMATE CHANGE: A CALL FOR FEDERAL LEADERSHIP, at ii (2010), *available at* http://www.pewclimate.org/docUploads/adaptation-federal-leadership.pdf.

[162] *Id.*

[163] *Id.* at 4.

established the Advisory Commission on Intergovernmental Relations (ACIR).[164] The enabling legislation cited seven goals for the commission:

> 1. [To] bring together representatives of the Federal, State, and local governments for the consideration of common problems;
> 2. [To] provide a forum for discussing the administration and coordination of Federal grant and other programs requiring intergovernmental cooperation;
> 3. [To] give critical attention to the conditions and controls involved in the administration of Federal grant programs;
> 4. [To] make available technical assistance to the executive and legislative branches of the Federal Government in the review of proposed legislation to determine its overall effect on the Federal system;
> 5. [To] encourage discussion and study at an early stage of emerging public problems that are likely to require intergovernmental cooperation;
> 6. [To] recommend, within the framework of the Constitution, the most desirable allocation of governmental functions, responsibilities, and revenues among the several levels of government; and
> 7. [To] recommend methods of coordinating and simplifying tax laws and administrative practices to achieve a more orderly and less competitive fiscal relationship between the levels of government and to reduce the burden of compliance for taxpayers.[165]

During its 36 years of operation, ACIR published reports addressing a broad variety of intergovernmental coordination problems, from federal-state coordination of personal income taxes (1965)[166] to the state and local role in the federal system (1982)[167] to intergovernmental decision-making for environmental protection and public works (1992).[168] In its last year of operation, 1994, ACIR addressed health care,

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[164] Act of Sept. 24, 1959, Pub. L. No. 86-380, § 1, 73 Stat. 703, 703.

[165] *Id.* § 2, 73 Stat. at 703–04.

[166] ADVISORY COMM'N ON INTERGOVERNMENTAL RELATIONS, A-27, FEDERAL-STATE COORDINATION OF PERSONAL INCOME TAXES (1965), *available at* http://www.library.unt.edu/gpo/acir/Reports/policy/a-27.pdf.

[167] ADVISORY COMM'N ON INTERGOVERNMENTAL RELATIONS, A-88, STATE AND LOCAL ROLES IN THE FEDERAL SYSTEM (1982), *available at* http://www.library.unt.edu/gpo/acir/Reports/policy/a-88.pdf.

[168] U.S. ADVISORY COMM'N ON INTERGOVERNMENTAL RELATIONS, A-122, INTERGOVERNMENTAL DECISIONMAKING FOR ENVIRONMENTAL PROTECTION AND PUBLIC WORKS, (1992), *available at* http://www.library.unt.edu/gpo/acir/Reports/policy/a-122.pdf.

childcare, infrastructure, drought planning, and mail-order sales tax.[169] ACIR would seem to be ideally constituted to tackle the daunting coordination challenges of climate change. Climate change is certainly a common problem of all levels of national government. But ACIR will not be making recommendations on coordinating climate change issues, because it was disbanded, rather unceremoniously, in 1995.[170] Although the legislation providing for the "prompt and orderly termination" of ACIR offered little explanation, it is probably not a coincidence that 1995 saw a budgetary impasse in Congress that led to the temporary shutdown of the federal government.[171] With an estimated 800,000 federal employees furloughed and some 9,000,000 visitors to national parks, museums, and monuments turned away,[172] perhaps the coordination of federal, state, and local government functions seemed less important. Unfortunately, without coordination, having multiple levels of government dealing with the issue of climate change will probably result in inefficiencies and waste.

VII. CONCLUSION

The conclusion of this Essay is unsurprising: Coordination of federal, state, and local policies for climate change is preferable to ad hoc policymaking, which frequently leads to cross-purposes. Randomness leading to cross-purpose is a hazard of the democratic form of government, famously described by Winston Churchill as "the worst form of Government except all those other forms that have been tried from time to time."[173] Tax legislation has less oversight at the federal level than other forms of government spending, which is probably why Congress increasingly uses tax legislation for "social" purposes.[174] Tax expenditures for renewable energy, while inefficient and non-transparent, have the advantage of being a politically feasible method of addressing climate change. Tax incentives do not require specific appropriation of funds, and tend to be less politically contentious. Tax incentives can be capped to limit fiscal impacts. Tax incentives can be structured to target specific technologies.

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[169] ADVISORY COMM'N ON INTERGOVERNMENTAL RELATIONS, ACIR: THE YEAR IN REVIEW: 36TH ANNUAL REPORT 7-11 (1995), *available at* http://www.library.unt.edu/gpo/acir/Reports/annlrept/annlrept36.pdf.

[170] *See* Treasury, Postal Service, and General Government Appropriations Act, 1996, Pub. L. No. 104-52, tit. IV, 109 Stat. 468, 480 (1995) (terminating ACIR).

[171] KEVIN R. KOSAR, CONG. RESEARCH SERV., 98-844 GOV, SHUTDOWN OF THE FEDERAL GOVERNMENT: CAUSES, EFFECTS, AND PROCESS, at CRS-2 (2004), *available at* http://democrats.rules.house.gov/Archives/98-844.pdf.

[172] *Id.* at CRS-2, CRS-5.

[173] Winston Churchill, Speech in the House of Commons (Nov. 11, 1947), *in* OXFORD DICTIONARY OF QUOTATIONS 216 (Elizabeth Knowles ed., 5th ed. 1999).

[174] BATCHELDER & TODER, *supra* note 92, at 1.

A National Research Council study found that "the federal government has the responsibility and opportunity to lead and coordinate the response to climate change, not only to protect the nation's national security, resources, and health, but also to provide a policy framework that promotes effective responses at all levels of American society."[175] State tax incentives are typically not enough to support renewable energy without complementary federal incentives, so overlap is preferable to offset or exclusion.[176] Different levels of government incentive may be better for certain types of responses. State sales tax incentives are superior for encouraging purchase of consumer products, land use policies are best implemented at the local level, and federal income tax incentives are best for driving technology shifts.

When it comes to the sausage factory of legislation, messiness and complexity are perhaps inevitable. Although interactions between federal, state, and local policies are inevitable, their negative consequences can be avoided only if the interactions are systematically evaluated. Eliminating the federal SALT deduction could enhance the effectiveness of state and local tax incentives, as well as raise federal revenues, but at a significant political cost. Systematic review of tax incentives for renewable energy would help assess their efficiency, effectiveness, and the consequences of interactions between policies at different levels of government. An intergovernmental commission on climate change, similar to the ACIR, could serve the purpose, provided it had committed support at the federal level.

[175] NAT'L RESEARCH COUNCIL, *supra* note 36, at 3.
[176] LANTZ & DORIS, *supra* note 121, at 16.