THE REGULATORY ASSISTANCE PROJECT

Who Slices the Pie in the Sky?

What Role Should States Play in Allocating GHG Allowances and Distributing Carbon Auction Revenues?

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A. Introduction:

The creation of a national greenhouse gas (GHG) reduction program perhaps naturally appears to many policymakers, especially those in Washington D.C., as a matter almost exclusively of national policy and federal agency jurisdiction. To date, climate change legislation proposed in Congress has, in almost all cases, been designed as though almost every important decision will be made by Congress directly, or by the Environmental Protection Agency (EPA) on a uniform national basis. Most of these bills assume that there will be a national cap-and-trade program for carbon allowances, dominated by national rules for their creation, allocation, sale and retirement.

Meanwhile, across the nation, a growing number of states and localities are developing carbon management plans, emission reduction policies and even multi-state cap-and-trade programs.[1] These efforts are leading to a re-examination of the assumption that GHG regulation must be, or even ought to be, dominated by uniform national rules and a centralized national administration. This is true for at least three reasons:

- First, it is apparent that some states or regions may decide to make deeper emission cuts than the overall national goal, and these efforts need to be respected and supported.

- Second, reducing climate change emissions across multiple economic sectors of our entire country is a very complex undertaking, one that could well use the local knowledge and technical expertise of state and local agencies and other governmental officials; and

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[*] This paper was prepared as a framing paper for the National Association of Clean Air Agencies' Conference, *Defining the Role of States and Localities in Federal Global Warming Legislation* (February 2008). The term "pie in the sky" is not new here; it has been used by a number of analysts considering the allocation of GHG emission entitlements. See, e.g., Peter Barnes and Marc Breslow, "Pie in the Sky: The Battle for Atmospheric Scarcity Rent," (IASCP 2000); Doniger, "The Pie in the Sky: Distributing Pollution Allowances for Public Benefit" (November 2002). However the balance between national and state authorities in allocating these resources has received much less attention. Comments are welcome – please direct them to the author at rapcowart@aol.com.

[1] More than 20 states have developed, or are developing, statewide multi-sector GHG reduction policies. Meanwhile, there are three serious multi-state efforts underway: in the Northeast, 10 states have developed the Regional Greenhouse Gas Initiative (RGGI); six states (and two Canadian provinces) are now working together on the Western Climate Initiative (WCI) and six more states (and one province, also active in the WCI) are beginning work on the Midwest GHG Accord.

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- Third, economic and physical conditions vary across the nation, and policy preferences vary across the states – thus, a national program will be able to meet national objectives at lower cost, and will find greater political acceptance if decision-making is distributed across the states.

Finding the best balance between national uniformity and state and local discretion is not, however, an easy matter. Logically, program designers need to address at least the following questions:

1. Assuming that there will be a national emissions reduction goal, what fraction of total emissions (and reductions) is subject to a cap-and-trade regime with tradable allowances, and what fraction of reductions will be attained through a "policy portfolio" or management-based reductions? Who should set the goals for individual sectors? And must they be uniform nationwide?

2. For those emissions that will be covered by a cap-and-trade regime:

    a. What sectors are covered and what are their individual caps and trajectories? Are these first-tier decisions federal or state decisions?
    b. Within covered sectors, how are allowances distributed? There are two main sub-questions here
        i. To what degree and to whom should allowances be allocated for free versus sold to regulated entities at auction?
        ii. Should there be a single national formula for allocations to regulated sources and/or others, or should allowances be apportioned to states, and then allocated or sold according to individual state rules?

3. For those emission credits that are sold, who should receive the funds? Should states or Congress decide how the funds will actually be spent?

These questions are introduced for discussion in the sections below. In each section, the paper identifies concerns and arguments that are, or could be, put forward by proponents of an "active states' view" and counter-arguments that support a more "nationalist" position on GHG regulation and administration. While this paper attempts to present both sides of the discussion, as a general matter, it is based on the view that a system that embraces a robust state and local policy role is both more desirable and more realistic than a GHG program based on decisions made solely by Congress and administered entirely by federal regulators.

B. Allowance Issue #1: What fraction of emissions and what fraction of desired emission reductions will be controlled through tradable allowances?

The first question on allowances is not "how do we distribute allowances?" but rather, "what sectors are covered by tradable allowances in the first place?" That is, to what degree might national GHG attainment goals be achieved through a portfolio of state and local environmental policies rather than through reductions in tradable allowances distributed or sold to individual covered sources?

Active States' View: Policies Are Crucial and States Should Make Them

An excellent argument for state/local policy leadership is made by the Center for Climate Strategies as a result of their work in several states to develop a portfolio of state policies that can effectively lower GHG emissions across the most important sectors. The Center observes:

> "There is no 'silver bullet' for achieving the required GHG reductions. Rather, a 'Chinese menu' approach in which 10 to 20 policy choices from each of 6 sectoral columns appears to work best. This comprehensive 'portfolio' approach is critical to gaining political support for any action on climate as it provides an enormous range of choice and flexibility by which potential conflicts can be resolved."[2]

These authors further note that congressional approaches to date do not take account of the wide array of state-level policies and actions that could improve the depth of GHG mitigation and reduce the cost of action, and conclude that:

> "The urgent need for comprehensive action, opportunities presented by state actions, the wide array of public and private reduction programs needed, and the complexity of governance across all levels of governance suggest that the conventional model of developing federal legislation "inside the beltway" is unlikely to address the climate issue adequately without substantial augmentation by state learning and example."[3]

Advocates of a policy portfolio approach to GHG reductions can point to three main advantages:

- First, many low-cost carbon reduction strategies are not easily susceptible to cap-and-trade approaches for practical reasons. For example, in the agriculture, land use and transportation sectors, it is hard to imagine imposing carbon caps on individual emitters (e.g., farms, subdivisions, personal cars). Rather, reductions will need to come as a result of the application of multi-faceted policies (e.g., crop payments and education for conservation tillage, smart growth strategies for housing projects, emission standards for cars and public transportation initiatives).

- Second, in many cases, policy-based approaches will reduce emissions at lower cost to the public than the costs that would have to be imposed via a cap-and-trade regime to attain the same degree of reduction.

- Third, and most pertinent to questions of federalism, many of the policies that are needed to attain significant reductions at low cost are policies that are best designed and implemented at the state and local levels, rather than through national legislation and rulemaking.

Nationalist View: We Need Wider Caps and Uniform National Policies

On the other hand, there are many advocates of a more pervasive cap-and-trade approach, perhaps with a backup of nationally applied policies that would support overall program goals.

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[2] Peterson, et al, "Developing a Comprehensive Approach to Climate Change Policy in the United States: Integrating Levels of Government and Economic Sectors," University of Virginia Environmental Law Review (2007).

[3] Ibid...

- Possibly the strongest arguments in favor of the broad application of caps and allowances are based on market economics. Environmental economists argue that from a societal perspective, the most cost-effective path to GHG reduction is to include the cost of emissions in the price of as many goods and services in the economy as possible. This view underlies proposals to impose carbon taxes or caps on GHG sources well "upstream" in the economy – for example, at the wellhead, coal mine or tanker terminal. With a cap (or carbon tax) applied far upstream, carbon regulation becomes a matter of fuel regulation or tax policy much more than it is "source" regulation. At least on the tax incidence side of the market, carbon regulation would be more national, and more monetary in nature – and less state-specific, and less a matter of air quality regulation.

- In the absence of comprehensive upstream caps or carbon taxes, cap proponents argue that tradable emission credits should be extended to as many major sources as possible on a uniform national basis. Thus, a cement plant or steel mill in Ohio would face the same carbon price and credit regime as a competing plant in Illinois or Arkansas.

- For similar reasons of competitive equality, uniformity advocates might argue that even non-capped sources or sectors should face the same regulatory costs. Thus, for example, a national carbon policy could impose uniform national low-carbon fuel standards and emission rates on mobile sources,[4] create a national uniform renewable portfolio standard for the power sector, and so forth. In some of these cases, advocates make a strong case for national preemption in addition to a national floor (e.g., appliance efficiency standards), but in others it is understood that states might well be permitted to go further (e.g., clean fuels standard, renewable portfolio standards).

C. Allowance Issue #2: Setting Caps and Apportioning Allowances

Nationalist View

Even a quick review of the climate change bills introduced to date in Congress reveals a set of shared assumptions in Washington DC that (a) most GHG reductions will be accomplished via declining caps set at the national level; (b) those caps will be imposed on individual sources regulated through a uniform national administration; and (c) carbon regulation will involve a relationship between individual sources and the EPA, rather than between EPA and the states, or individual sources and state regulatory authorities. The table below is from a Congressional Research Service report on climate change legislation in the 110th Congress. In every case but one the "responsible entity" is EPA, and there is very little discussion in these bills or in Congress about the role that states and localities could play in designing or implementing national GHG regulations.[5]

[4] See, e.g. the US EPA's recent rejection of the California automobile carbon emissions standard waiver

[5] Table excerpted from *Greenhouse Gas Reduction: Cap-and-Trade Bills in the 110th Congress* (Congressional Research Service, November 5, 2007) at 5.

Table 1: Allocation Schemes and Responsible Agency in Recent Congressional Bills

Topic	S. 280 (Lieberman)	S. 309 (Sanders)	S. 317 (Feinstein)	S. 485 (Kerry)	S. 1766 (Bingaman)	S. 2191 as reported (Lieberman/Warner)	H.R. 620 (Olver)	H.R. 1590 (Waxman)
Emission reduction/ limitation scheme	Absolute cap on total emissions from all covered entities in the electric power, transportation, industry, and commercial sectors.	Absolute cap on total emissions economy-wide.	Absolute cap on total emissions from covered electric generators.	Absolute cap on total emissions economy-wide.	Emissions targets for all covered entities that refine petroleum, process natural gas, consume coal, or import petroleum products, coke, natural gas. Includes importers of HFCs, PFC, SF_6, N_2O, or products containing such compounds.	Absolute cap on total emissions from all covered entities in the electric power, transportation, and industry sectors.	Absolute cap on total emissions from all covered entities in the electric power, transportation, industry, and commercial sectors.	Absolute cap on total emissions economy-wide.
Responsible agency	Environmental Protection Agency (EPA).	EPA.	EPA.	EPA.	To determined by the President.	EPA.	EPA.	EPA.

Active States' View

Against this apparent prevailing direction is the potential for a much more active state role in GHG program design. First, state and local advocates would say, do not forget those sectors where GHG reductions will realistically come from state and local policies rather than from federal caps. And even where national caps are needed, it is not at all clear that in a federal system, those caps should be administered directly from Washington. A wide range of more creative state-federal working relationships are possible, and would be consistent with the history of air quality regulation as well as other important economic, resource management and public policy practices in the US.

Since GHG regulation focuses on air pollution, the most obvious source of experience on federal-state joint implementation is the Clean Air Act. The basic structure of the original Clean Air Act and its implementation, based on State Implementation Plans that allowed states significant latitude in the manner of meeting national standards, provides a useful model to consider in the GHG context. More recent examples can be found in administration of the NO_x budgets and the Clean Air Interstate Rule (CAIR), which relied on state-level administration and allowed states explicit zones of administrative flexibility.[6]

Question #1: What sectors are covered and what are their individual caps and trajectories? Are these first-tier decisions federal or state decisions?

As a general matter, it is important to realize that *the nation's* actual objective in GHG regulation will be to lower total emissions in a cost-effective manner that is sustainable and does not imperil fundamental national needs (like national security). Beyond those general objectives, the details of cap-and-trade implementation are not central to the *national* purposes of GHG regulation and could be left to the states. Thinking about the situation in this way allows us to think about a range of potential roles for federal and state governments in GHG program design:

[6] States were given flexibility in a variety of areas, including the option to set aside a portion of allowances for new units, or for energy efficiency and renewable energy, and could permit opt-ins for industrial units to be covered by the same program as utility generators.

- **The strongest state position** would be for Congress to create a national system of state-level caps, leaving to each state the requirement and the opportunity to design a suite of state policies to achieve them. In this model, different states could cover different sectors, flexibly cover the same sectors in different ways, etc.

- Alternatively, the national legislation could identify the key sectors and sources that all states must cap, but allow state programs flexibility with respect to the trajectory of reductions applied to different sectors and sources, provided that the overall state emissions cap is met. In this model, State A might decide to focus on achieving more rapid reductions from power plants, while State B might decide to focus on improving transportation emissions and put less pressure on power plants and electric rates.

- **From a nationalist perspective, the strongest national program** would be one in which each regulated sector is fixed in federal legislation, and the rate of reduction in each sector is also fixed by federal law or rule.

Question #2: Within covered sectors, how are allowances distributed? To what degree and to whom should allowances be allocated for free versus sold to regulated entities at auction?

There is now a large literature base and an evolving debate on the question of free allowance allocations versus auctions in cap-and-trade programs. The U.S. Acid Rain program, of course, was dominated by free allocations to emitters, distributed by the federal program administrators on a grandfathered basis. Most cap-and-trade proposals in the U.S. have been built on this model, so free allocation and grandfathering have been part of the background of assumptions underlying most program designs. However, this is no longer a valid policy assumption. Credit allocation is a huge issue for state officials, including air regulators, because the financial transfers involved are so high, and because the political consequences are potentially critical to the success of any GHG reduction program[7].

The evidence from the European Trading System demonstrates that free allocation to regulated sources can confer large windfall gains on emitters and raise prices to consumers without adding to GHG reductions.[8] The Congressional Budget Office reached similar conclusions for possible free allocation plans in the U.S.,[9] as have a number of academic studies, including modeling done by Resources for the Future for the Regional Greenhouse Gas Initiative (RGGI) program.[10]

[7] The political consequences could flow in either direction. Windfall gains to emitters could lead to a backlash among consumers and voters, undermining the GHG reduction program. On the other hand, requiring emitters to purchase allowances could lead to resistance among affected industries to creation of the program in the first instance.

[8] See, e.g., Jos Sijm, Karsten Neuhoff and Yihsu Chen, *CO2 Cost Pass Through and Windfall Profits in the Power Sector*, May 2006 CWPE 0639 *and* EPRG 0617 .

[9] See e.g., See Mark Lasky, *The Economic Costs of Reducing Emissions of Greenhouse Gases: A Survey of Economic Models*, CBO Technical Paper 2004-4 (May 2003).

[10] See Karen Palmer, Dallas Burtraw, and Danny Kahn, "Simple Rules for Targeting CO2 Allowance Allocations to Compensate Firms," *Climate Policy*, vol. 6, no. 4 (2006), pp. 477-493.

Notwithstanding these studies and conclusions, cap-and-trade stakeholders in the U.S. continue to promote free allocation[11], especially at the outset of the programs, with a variety of policy justifications, including:

- Free allocation is needed to "buy cooperation" from affected industries that would have the political power to block adoption of the entire GHG program; and

- Free allocation is equitable because it helps to moderate the financial consequences of compliance on highly polluting industries that will be most affected by the GHG program, and the workers and communities most affected by those impacts. (This is often termed "transition assistance.")

For the purposes of this paper, the important issue is not whether free allocation in a particular sector is the "right" public policy, or whether an auction would be more equitable and/or efficient, or whether a tagged transition from one to the other is the best solution. *The crucial issue is whether the allocation versus auction decision should be made by Congress or left, in whole or in part, to the states*.

The **nationalist** argument is that it should be up to Congress to balance the competing claims of consumers versus industry, or citizens versus polluters and thus to come up with detailed decisions on how many allowances should be awarded for free, to whom, when and where. In addition, there is a uniformity argument, at least within individual sectors: if an emitter (steel mill, or oil refinery, or power plant) in State X is going to get 80 percent free allowances, then it is essential that any similar emitter in State Y also gets the same fraction of free allowances.

The **active states' view** is that these nationalist assertions are untrue. There is no inherent reason that Congress is better suited to making powerful public policy choices than the state legislators, Governors and utility and air regulators who are closer to the industries and consumers affected by these decisions. As the National Governors Association states in its resolution on climate change legislation,

> "…In the development and implementation of federal policy options, each state must retain the flexibility to tailor an approach that makes the most sense given its individual socioeconomic and geographic conditions.."[12]

Sensitivity to local issues is not the only reason to support state and regional flexibility on allocation and auction issues. The history of allocation discussions and decisions within the RGGI process provides an additional lesson with respect to GHG program design: the states are quite likely to be the better avenues for policy experimentation and program development than is the process of developing legislation in Congress.

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[11] See NCEP allocation proposal, Lieberman-Warner legislation.

[12] National Governors Association Policy on Federal Climate Change
http://www.nga.org/portal/site/nga/menuitem.8358ec82f5b198d18a278110501010a0/?vgnextoid=220b9e2f1b091010VgnVCM1000001a01010aRCRD
NR-11 Global Climate Change Revised August 2006 at the Annual Meeting

Question #3: Should there be a single national formula for allocations to regulated sources and/or others, or should allowances be apportioned to states, and then allocated or sold according to individual state rules?

How allowances are allocated and (if any fraction is auctioned) how funds are raised and distributed are critical components of any national GHG program, and the likely source of growing debates among private economic sectors, and between states and the federal government. The issue is crucial for many reasons. First, the manner in which allocation is done will affect the ability of the GHG program to reach its basic environmental and economic goals. Equally important in a democracy, carbon credits represent potential wealth redistribution. Based on an estimated U.S. inventory of over 6 billion tons of GHG emissions per year, annual revenues from the sale of carbon allowances under proposals considered in Congress are estimated at between $50 billion and $300 billion per year in 2007 dollars by 2020[13].

Should these decisions all be made in Congress, or should they be made, at least in part, by the states?

It's a Big Country

While the effects of GHGs are global, how reductions can best be achieved and impacts best mitigated will vary by state and region due to differing demographics, politics and economics. Whether the issue is buildings efficiency (coal-derived air conditioning drives emissions in one region, oil heat drives emissions in another region); transportation policy (rural areas have fewer opportunities for useful investments in pubic transit); or industrial policy (some states will want transition assistance to "old" industry, others will want jump-start assistance to "new" green industries) it is just not likely that a one-size fits-all federal allocations policy will be able to find the optimum result for the nation as a whole.

In addition to the examples given above, it is instructive to take a close look at the electric power industry, which is one of the central foci of any GHG program. Across the country:

- Electricity rates differ by at least 100 percent;
- The regulatory system in about half of the states is rooted in the historic pattern of vertical integration and cost-based rates, while in the other half there is a much greater role for wholesale markets and unregulated independent power plants;
- Some states have highly developed policies promoting efficiency and renewable power, and other states have almost no experience with such resources; and
- States vary enormously in their reliance on coal for generation and to support growth.

These wide differences in local and regional conditions can lead to quite different program design choices for cap-and-trade programs. For example, in the states where utilities participate

[13]Congressional Budget Office, *Trade-Offs in Allocating Allowances for CO2 Emissions* (April 25, 2007) at 2.

in regional day-ahead and short-term power markets,[14] there is growing concern that carbon policies driving up the price of high-emitting generation like coal will also drive up the market clearing price of low-emitting resources like nuclear and hydro. The cost to ratepayers of this carbon policy is quite different from the cost in the type of vertically integrated, rate-regulated system that characterized the power sector when the Acid Rain program was created, and which is still operating in many U.S. states.

RGGI's Evolution on Allocations: A Useful Lesson on State Authority and Flexibility.

When the RGGI program began, there was almost uniform agreement that allocations would have to be handled as they were in the Acid Rain program – that is, free allocation to emitters on a grandfathered basis. However, the RGGI State Working Group (SWG) set up a stakeholder consultation process and a Resource Panel of national experts to review program designs, discuss options and provide a forum for examining new ideas. With the help of those groups, the SWG was able to examine the pros and cons of different allocation schemes, including the idea that credits should be auctioned, with the proceeds used by the states to support low-carbon policies in the power sector.[15]

Based on this work, the RGGI Principals adopted a provision in the RGGI Model Rule committing each state to at least a 25-percent credit allocation for public purposes, but permitting broad state-by-state flexibility beyond that point.[16] Individual states then began to examine the question, with slightly different results in different states. Nearly all have adopted a complete auction of RGGI credits. A policy choice that would have been very difficult for the region to take as a whole was able to succeed because state-level decision-makers were permitted by the RGGI Model Rule to make their own decisions as to how credits would be allocated in their states. More importantly, the debates over allocations have been occurring on a state-by-state basis, which has permitted Governors, legislators and citizens to engage on these issues, with a focus on what would be best for individual states.

Can the RGGI Model Be Extended to the Nation?

While the RGGI example is instructive, allocation issues become much more complex when multiple sectors are involved. What are the options for effective working relationships between state and federal authorities on allocations as part of a national GHG program?

The good news for policymakers is that there are a lot of models to look at. The genius of American federalism, as it has worked out in different issue areas in different time periods, is that it is highly flexible. For example, consider the intersection of state and federal authorities and priorities in such areas as:

[14]Those markets now include Texas, the New York ISO, New England ISO, and the PJM Interconnection, which together greatly affect sales and dispatch of power across more than a dozen states. Market expansions are also being planned for the Midwest and California.

[15]See, e.g., R. Cowart, *Allocating to Power Resources: Economic and Environmental Options* (RGGI Allocations Workshop, October 14, 2004), D. Burtraw and K. Palmer, *Initial Allocation of CO2 Allowances in the Regional Greenhouse Gas Initiative: Preliminary Observations* (RGGI Stakeholder Group Meeting, June 24, 2004)

[16]RGGI Model Rule

- The network of interstate and state highways nationwide, with a combination of funding sources, policies, priorities and cooperative arrangements, but with the vast majority of implementation work supervised by state highway agencies; and

- Federal housing assistance, administered on the ground by a myriad of state and local housing authorities.

It is obvious from these examples alone that attaining an important national goal does not necessarily require the creation of an army of regulators or administrators working out of a central federal authority. The model for GHG management in the U.S. does not have to be the Department of Homeland Security. Indeed, there are useful lessons to be drawn from the experience of state, local and federal air regulators with program designs like RGGI, and with the Clean Air Act itself.

Once an overall emissions cap and cap trajectory are set, a central question is the apportioning of allowances. In the context of national GHG legislation, options include:

- 100 percent auction by the federal government;

- Allocation to regulated emitters (covered sources);

- Allocation to third parties who can sell to covered sources;

- Apportioning allowances among states who can either sell them or allocate them freely; and

- Combinations of the above.

Since RGGI consists of a collection of states without a regional government, the RGGI program, by necessity, began with an assumption that allowances "belong" to states. The program was designed to permit state flexibility with respect to the treatment of individual sources, the interplay of policy initiatives and cap rules and the distribution of allowances, so long as one state's actions would not undermine the value of the RGGI carbon "currency." To accomplish these goals, RGGI needed to apportion the regional cap among the states, sanctioning the issuance of a certain number of allowances by those states and allowing them to trade freely with the RGGI-eligible allowances issued by other RGGI states.

Apportioning Allowances among States: The Basic Choices

What should each state's apportionment be based on? RGGI designers and advocates considered a variety of alternatives. Leading options were:

- Historic in-state emissions – giving more credits to historic polluters, less to states with cleaner resource mixes;

- Historic in-state generation – which would reward states with clean in-state generation by giving more allowances at the outset than needed by in-state facilities;

- Electric power consumption – which would recognize the fact that in the RGGI region, with pervasive wholesale power markets, rate impacts of carbon regulation would not be confined to the states in which particular generators sit; and

- Population – recognizing that carbon allowances are a public property resource and effectively belong to everyone.

The chart below provides a concrete example of how the use of different apportionment rules would have changed the allocation of carbon credits among the initial RGGI states.[17]

	Emissions	Heat Input	Fossil Generation	All Generation	Total Consumption	Population	Gross State Product
State	RGGI Units 2000	RGGI Units 2000	RGGI Units 2000	1999-2001 Avg.	1999-2001 Avg.	2000	1999-2001 Avg.
Connecticut	9.6%	9.2%	8.3%	9.6%	8.9%	8.1%	9.1%
Delaware	5.8%	4.8%	3.1%	2.0%	3.2%	1.9%	2.1%
Massachusetts	17.6%	19.4%	18.1%	12.2%	15.1%	15.1%	15.8%
Maine	3.0%	3.2%	2.3%	4.8%	3.5%	3.0%	2.1%
New Hampshire	4.2%	3.3%	2.7%	4.8%	3.0%	2.9%	2.6%
New Jersey	10.3%	8.7%	15.7%	18.1%	20.9%	20.0%	20.1%
New York	46.7%	47.2%	46.1%	44.5%	41.5%	45.1%	45.1%
Rhode Island	2.4%	4.0%	3.6%	2.1%	2.2%	2.5%	2.0%
Vermont	0.4%	0.3%	0.2%	1.8%	1.6%	1.4%	1.0%

Across many criteria, apportionment does not change much for most states, but for some it really matters. For example, Massachusetts had almost 18 percent of the emissions in RGGI, but only 12 percent of total generation. New Jersey, on the other hand, had just 10 percent of the emissions, but 18 percent of total generation and 21 percent of total consumption. If allowance allocation to states was intended to compensate emitters, Massachusetts should get 18 percent and New Jersey should get 10 percent. On the other hand, if allowance allocation is intended to compensate ratepayers for the higher prices they will pay in power markets, or to reflect each citizen's *pro rata* share of the region's carbon entitlement, New Jersey would get 21 percent and Massachusetts only 15 percent.

Since the RGGI program design evolved over time there is something of an irony in the way this worked out. At the time apportionment decisions were made, most RGGI Principals figured that allowances should be given to states on behalf of emitters, so state allocations for the most part aligned with historic in-state emission levels. Later, most states decided to auction allowances by selling them to emitters generally, and to use the revenue to advance the state's clean energy goals. Since covered RGGI sources can buy and use allowances from any RGGI state, and the power from RGGI sources is sold in interstate power markets, there is no one-to-one correspondence between a source's physical location and the economics of the RGGI program. Using the examples above, New Jersey will receive only 10 percent of the income from credit sales for state public purposes even though it has closer to 20 percent of the region's population, generation and power consumption.

There are two lessons here for the design of national GHG programs.

[17] From Derek Murrow, *Apportioning the Regional Cap Among States: Allocation Options and Equitable Solutions* (RGGI Allocation Workshop, October 14, 2004).

- First, it would be possible to extend the RGGI example and to apportion a national pool of allowances to the states for distribution or sale by them in accordance with state policies; and secondly,

- If states were to receive allocations directly, the rules for apportionment really matter, and it is crucial to think through the purposes for which credits and credit sales will be used when creating apportionment criteria.

D. Allowance Issue #3: When Allowances Are Sold, Who Gets the Revenue and How Is it Spent?

Building on the RGGI example and the European experience, some Congressional climate bills now contain provisions that require at least some portion of allowances to be auctioned from enactment. To whom the allowances are allocated freely, and the glide path for increasing the percentage of allowances auctioned differs by bill, but recent trends have been towards higher percentages auctioned, regardless of the sector.

Although the most recent leading bills (such as Feinstein and Lieberman/Warner) represent an important step toward auctioning allowances rather than merely allocating them to covered sources, the role of the states is still relatively small. Most of the funds received from auctions are to be deposited to federally administered funds like the Climate Action Trust Fund (Feinstein), the Climate Reinvestment Fund (Kerry) or six different funds – for Worker Training, Adaptation, National Security, Energy Assistance, and Emergency Firefighting (Lieberman/Warner). The table below provides a summary of the public sale and auction provisions of recent legislative proposals.

Table 2: Summary of Public Sale/Auction Provisions in Recent Congressional Bills[18]

Topic	S. 280 (Lieberman)	S. 309 (Sanders)	S. 317 (Feinstein)	S. 485 (Kerry)	S. 1766 (Bingaman)	S. 2191 as reported (Lieberman/Warner)	H.R. 620 (Olver)	H.R. 1590 (Waxman)
						by 2036 and thereafter.		shall implement it.
Public sale/auction of allowances	EPA shall determine the number of allowances allocated to the Climate Change Credit Corporation (CCCC) (established by the bill). EPA shall allocate to the CCCC allowances before 2012 to auction to raise revenue for technology deployment and dissemination. The CCCC may buy and sell allowances, and use the proceeds to reduce costs borne by consumers and other purposes. (See "Revenue recycling" below.)	EPA may choose to provide for trustees to sell allowances for the benefit of entities eligible to receive assistance under the proposal (see above).	From 2011 on, an increasing percentage of all allowances are to be auctioned, with 100% of allowances auctioned in 2036 and thereafter. Revenues from the auction are to be deposited in the Climate Action Trust Fund created by the Department of the Treasury.	The President shall determine the number of allowances to be auctioned. The proceeds of the auction to be deposited with the Climate Reinvestment Fund created by the Department of the Treasury. (See "Revenue recycling" below.)	Beginning in 2012, 24% of available allowances are auctioned to fund low income assistance, technology, and adaptation activities. The percentage auctioned increases steadily, reaching 53% by 2030; after that it increases 1 percentage point annually through 2043. Revenues from the auction are to be deposited in one of three funds created by the Department of the Treasury: The Energy Technology Deployment Fund, The Climate Adaptation Fund, and The Energy Assistance Fund.	Beginning in 2012, 18% (plus 6% from an early auction of 2012 allowances) of allowances are auctioned to fund the activities of the CCCC. This percentage increases steadily to 73% by 2036 and thereafter. Revenues from the auction are to be deposited in one of six funds created by the Department of the Treasury: the Climate Change Worker Training Fund, the Adaptation Fund, the Climate Change and National Security Fund, the Energy Assistance Fund, and two Emergency Firefighting Funds.	EPA shall determine the number of allowances allocated to the Climate Change Credit Corporation (CCCC) (established by the bill). The CCCC may buy and sell allowances, and use the proceeds to reduce costs borne by consumers and other purposes. (See "Revenue recycling" below.)	The President shall determine the number of allowances to be auctioned. The proceeds of the auction to be deposited with the Climate Reinvestment Fund created by the Department of the Treasury. (See "Revenue recycling" below.)

[18]Table excerpted from *Greenhouse Gas Reduction: Cap-and-Trade Bills in the 110th Congress* (Congressional Research Service, November 5, 2007) at 5.

Nationalist View

It is easy to see that if allowances are viewed as entitlements created by the federal government, then receipts from the sale of allowances will be viewed as U.S. Treasury receipts and their disposition will be governed by Congress. In the context of national GHG legislation, this structure is not easily avoided. Moreover, those taking a strong central government view would argue that since air resources belong to the nation as a whole, income from the sale of credits should be directed to purposes chosen by Congress. Among other benefits, congressional oversight will ensure that carbon credit income is assigned to the nation's highest priorities, and is not used to create unwelcome competition among the states via subsidies to favored industries in those states.

Active State View

The active state view of this situation would be quite different. A single national GHG program inherently affects different states differently, and it is entirely reasonable for states to want to moderate local effects, and/or to accelerate progress by focusing expenditures more effectively than Congress is able to do. Moreover, Congress is fundamentally constrained by the power of national lobbies and the traditions of congressional decision-making, and so is much less able than the states to try new policies that could reduce GHG emissions at low cost. By way of example, states representing a large fraction of total U.S. auto sales were able to adopt California's tailpipe emission standards for automobiles before Congress was able to even marginally improve CAFE standards. More than 20 states have adopted Renewable Portfolio Standards, a topic on which Congress has not acted. Many states have robust utility-sector energy efficiency programs, adopted with no federal counterpart and very little federal support. State advocates can argue that national GHG programs should be designed so that carbon credit revenues are directly available to the states for investments in activities of this sort.

What are the structural options? Policymakers will need to evaluate at least the following possibilities, along a continuum from greater state control to greater national control:

- Direct allocation of credits to the states, for sale or allocation by them;

- Direct allocation to state-level public interest or state-regulated entities, so that sales can be supervised by the states in accordance with state policy. (For example, direct allocation of the power sector portion of the national cap could be made to regulated distribution utilities or load-serving entities, with revenues invested in efficiency and renewable power[19]);

- Auction of credits by a federal agency with proceeds distributed automatically to the states in accordance with revenue-sharing formulas;

- Auction of credits by a federal agency, with proceeds deposited into federal funds that could be distributed to states via grant-making procedures; and

[19]Direct allocation to local distribution utilities is included along with direct allocation to states in the Lieberman/Warner bill, the first bill to contain this feature.

- Auction of credits by a federal agency with proceeds deposited into the federal Treasury, subject only to appropriations by Congress over time.

In addition to these structural approaches, it is important for policymakers to establish standards and priorities for the expenditure of carbon credit revenue. Some advocates of carbon taxes have long proposed that carbon revenues be used to displace general taxes and to support the overall functions of government. Many environmental advocates take a more targeted view, arguing that carbon credit revenues should be spent in a strategic fashion to advance the purposes of the GHG program itself – that is, lowering overall emissions more quickly and at lower cost to citizens and the economy.

This latter view has been evident in those RGGI states that have enacted carbon credit sales statutes. The first state to do was Vermont, where the legislature determined that RGGI credit sales revenues should be devoted primarily to enhanced energy efficiency investments, which it understood would both help to *attain the goals* of the RGGI program by reducing demand, and help to *lower the cost* of the RGGI program by lowering consumers' energy bills.[20] Other RGGI states have adopted much the same approach. Other states, however, might take a broader view, and under a national program choose to assign carbon credit revenues to a wider set of ends. The broader list might include:

- Accelerated energy efficiency investments (low-carbon and low-cost);

- Accelerated deployment of renewable resources, combined heat and power, fuel cells, etc. (low-carbon not necessarily low cost);

- Demonstration efforts to promote needed new resources like carbon capture and sequestration, plug-in hybrid vehicles, smart grid technologies;

- Investments in broad-based pattern and practice improvements in sectors or end uses where GHG avoidance is needed but explicit caps are not likely, such as agricultural practices;

- Impact mitigation in industries and communities that are expected to be most negatively affected by the GHG program; and

- Adaptation assistance where the effects of climate change are unavoidable and state officials see the need to invest in mitigating their effects on communities, natural systems or key industries.

In order to compete with the centrist tendencies and interest-group politics that drive federal legislation – and therefore the allocation of the huge sums of money likely to flow from eventual national GHG legislation – state and local government officials will need to address both the

[20] "In order to provide the maximum long-term benefit to Vermont electric consumers, *particularly benefits that will result from accelerated and sustained investments in energy efficiency and other low-cost, low-carbon [resources]* … the public service board …shall allocate 100 percent of [Vermont's] tradable power sector carbon credits and the proceeds from the sale of those credits through allocation to one or more trustees acting on behalf of consumers." H.860 (enacted 2006) (emphasis added).

structural options that could give them a stake in decision-making, and the priorities for expenditures that would justify their claims on the credits or on the funds.

Conclusions and Questions for Discussion

Efforts to craft national climate legislation have thus far focused almost exclusively on Congressional choices and federal rules to administer GHG regulations and/or cap-and-trade markets through the US EPA on a uniform, national basis. This approach bears close examination, because it tends to overlook the crucial role of state and local decision-making and administration in many areas of public policy, including the regulation of the electric power and natural gas sectors, and administration of the Clean Air Act itself. Over against the assumption of a highly "nationalist" approach to GHG reduction is the potential for a more creative and more flexible system that would involve a more active role in both decision-making and implementation by active state and local regulators.

With respect to the allocation of carbon credits, the sale of allowances, and the use of credit revenues, some of the most important policy questions are:

1. To what degree is attainment of national GHG goals dependent on cap-and-trade mechanisms, which might be implemented through a single national market, and to what degree will the nation need to rely on policies and programs developed and administered directly by state and local governments?

2. Should Congress mandate the GHG reduction targets assigned to each major sector, or could Congress assign an overall reduction target for individual states, and allow the states to design a carbon reduction implementation plan more responsive to individual state priorities?

3. Within any covered sector, or within a state's apportioned cap, should allowances be distributed for free to covered entities, or should they be auctioned to those who must have and retire them? Should Congress make these decisions, or could states make them for that portion of the national allowance pool attributable to a state?

4. If carbon credits are sold at auction, who should receive the revenue and what should it be used for? To what extent should these be decisions left to the discretion of states, as opposed to a highly nationalist approach that leaves both the decision on sales and all of the revenue in the hands of the national government?