# CARBON TAXES IN THE UNITED STATES: THE CONTEXT FOR THE FUTURE

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## INTRODUCTION

When the Group of Eight met in Japan in July 2008, the leaders of major economies in the developed world recognized the role of market-based instruments in reducing greenhouse gas emissions:

> Market mechanisms, such as emissions-trading within and between countries, tax incentives, performance-based regulation, fees or taxes and consumer labeling can provide

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> pricing signals and have the potential to deliver economic incentives to the private sector. We also recognize that they help to achieve emissions reduction in a cost effective manner and to stimulate long-term innovation. We intend to promote such instruments in accordance with our national circumstances and share experience on the effectiveness of the different instruments.[1]

Although the George W. Bush Administration has not been sympathetic to climate change measures that will increase the price of energy,[2] the national debate about how to reduce greenhouse gas emissions will continue under a different president and a new Congress in 2009. They will determine whether energy taxes or emissions trading regimes are "in accordance with our national circumstances."

Four decades ago, the United States was a leader in considering the use of taxes to reduce pollution. In 1970, President Nixon proposed a tax on lead additives to gasoline and in 1972 a tax on sulfur dioxide emissions.[3] Although these proposals were not enacted, a tax on gas-guzzling cars went into law in 1978,[4] followed in 1980 by a tax on chemicals to finance the Superfund, a fund dedicated to cleaning up hazardous waste sites.[5] The United States was also a pioneer in permit-trading regimes, using them to implement the regulation of lead in gasoline in the early 1980s, ozone depleting chemicals in 1988, and sulfur dioxide in 1990.[6] In recent years, however, European countries have seized the initiative in using environmental taxes and trading regimes. As detailed in other articles in this volume, a number of European countries have enacted significant,

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1. G8 Hokkaido Toyako Summit Leaders Declaration § 33 (July 8, 2008), http://www.g8summit.go.jp/eng/doc/doc080714_en.html.

2. *See, e.g.*, Statement of the White House Press Secretary (July 11, 2008), http://www.whitehouse.gov/news/releases/2008/07/print/20080711-7.html ("The wrong way [to deal with climate change] is to sharply increase gasoline prices, home heating bills and the cost of energy for American businesses . . . .").

3. *See* WILLIAM A. IRWIN & RICHARD A. LIROFF, ECONOMIC DISINCENTIVES FOR POLLUTION CONTROL: LEGAL, POLITICAL AND ADMINISTRATIVE DIMENSIONS 126–27 (1974) (prepared for the United States Environmental Protection Agency); STANLEY SURREY, PATHWAYS TO TAX REFORM 164 (1973) (discussing Nixon's proposed pollution tax on the sulfur content of fuel).

4. 26 U.S.C. § 4064 (2000). The tax starts at $1,000, increasing to $7,700 for vehicles with fuel economy less than 12.5 miles per gallon, but the tax has been eviscerated by its exemption for "non-passenger" vehicles which, with changes to vehicle design, now applies to SUVs. *Id.* § 4064(b)(1)(B).

5. *Id.* §§ 4661–4662. The tax remained in effect until 1996. *See also id.* §§ 4681–4682 (imposing a tax on ozone depleting chemicals effective in 1990).

6. *See* David Harrison, Jr., *Tradable Permits for Air Pollution Control: The US Experience, in* ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, IMPLEMENTING DOMESTIC TRADABLE PERMITS FOR ENVIRONMENTAL PROTECTION 28–37 (1999) (explaining and evaluating U.S. permit-trading program regimes).

broad-based energy taxes or carbon taxes. In addition, the European Union has put into place the Emissions Trading Scheme for carbon emissions from 11,500 facilities,[7] and it may expand the Scheme in the future to include other facilities and greenhouse gases.[8]

This article provides background and context for considering the use of broad-based energy taxes to reduce greenhouse gas emissions at the federal level in the United States. After a brief introduction in Part I to the concept of energy taxes and their design alternatives, Part II reviews the United States' most significant experience with enacting broad-based energy taxes—President Clinton's proposal to tax energy based on its energy content as measured by British thermal units (Btus)[9]—and the possible implications of that experience for today's debate over carbon taxes and permit trading. Part III sets pending carbon tax alternatives and actions in the context of the current proposals and programs for using tradable permits for greenhouse gas emissions. While it does not undertake to analyze the pros and cons of tax instruments versus other instruments, an exercise that would require many more pages than allowed here, it highlights analytical issues that are key when comparing carbon taxes and cap-and-trade regimes. The article concludes by suggesting that policymakers and advocates should not dismiss the possibility of using taxes to reduce greenhouse gas emissions despite the political volatility of tax proposals. If held to the same analytical standards, taxes and trading regimes bear many similarities and involve some of the same politically difficult choices.

## I. A BRIEF INTRODUCTION TO THE VOCABULARY AND CONCEPTS OF ENERGY-RELATED TAXES

The basic formula for taxation is universal and relatively simple, building on three fundamental components and a very straightforward mathematical formula. The tax base multiplied by the tax rate equals the tax revenue:

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7. *See generally* Council Directive 2003/87/EC, 2003 O.J. (L 275) 32 (establishing a greenhouse gas emission trading scheme); J. ROBINSON ET AL., CLIMATE CHANGE LAW: EMISSIONS TRADING IN THE EU AND THE UK 35 (2007).

8. *Commission Proposal for a Directive of the European Parliament and the Council amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emissions allowance trading system of the Community*, 4 COM (2008) 16 final.

9. EXECUTIVE OFFICE OF THE PRESIDENT OF THE UNITED STATES, A VISION OF CHANGE FOR AMERICA 105 (1993). A Btu is the "quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit." WEBSTER'S NEW WORLD DICTIONARY 178 (3rd college ed. 1991).

***Tax Base x Tax Rate = Tax Revenue***

Energy-related taxes are defined by the fact that the tax base (the commodity being taxed) is some form of energy. The specific tax base can vary significantly depending on the design of the tax. In the case of a carbon tax, the tax base is either the carbon content of fuels or the carbon dioxide ($CO_2$) they produce when combusted, usually measured in tons. By defining the tax base as carbon or $CO_2$, the tax is limited to fossil fuels. If the tax base also draws in non-fossil forms of energy, such as nuclear power or hydropower, it is often called a broad-based energy tax. A classic broad-based energy tax would define the tax base in terms of the energy content of the identified range of energy sources. However, the tax base for a broad-based energy tax could also be defined in terms of the market price per unit of energy (often called an ad valorem tax) or in terms of the volume of the fuel (such as a tax per barrel of oil). The dominant federal energy tax in the United States—18.4 cents per gallon of gasoline[10]—is a volume-based energy tax but not a broad-based energy tax because the tax base is limited to gasoline.

In the climate change context, using either carbon or $CO_2$ as a tax base would be preferable because the tax base provides the most direct link to the environmental problem—the emission of $CO_2$. However, greenhouse gas emissions more broadly might also serve as a tax base. Although carbon dioxide emissions account for 85% of U.S. greenhouse gas emissions, most of which come from combustion of fossil fuels, other types of greenhouse gases contribute to global warming: methane (8% of U.S. greenhouse gas emissions), nitrous oxide (5%), hydrofluorocarbons (2%), and perfluorocarbons and sulfur hexafluoride (less than 1%).[11] A classic greenhouse gas tax would define the tax base in terms of tons of emissions, adjusted for their global warming potential based on $CO_2$ equivalents.

Identifying the tax base also involves determining what commodities or emissions are exempt from the tax or should qualify for refund after the tax has been imposed. For example, a carbon tax that uses carbon content as a surrogate for eventual emissions presumably would exempt fossil fuels that are consumed in manufacturing processes for non-fuel purposes as "feedstocks;" not combusted, they will not yield emissions.

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10. 26 U.S.C. § 4081(a)(2)(A)(i), (B) (2000). *See also id.* § 4081(a)(2)(A)(ii)–(iii) (imposing an excise tax on aviation fuels, diesel, and kerosene).

11. *See* U.S. ENVTL. PROT. AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2006 ES-4-6 tbl.ES-2 (2008), *available at* http://www.epa.gov/climatechange/emissions/downloads/08_CR.pdf (basing 2006 emissions on carbon dioxide equivalents).

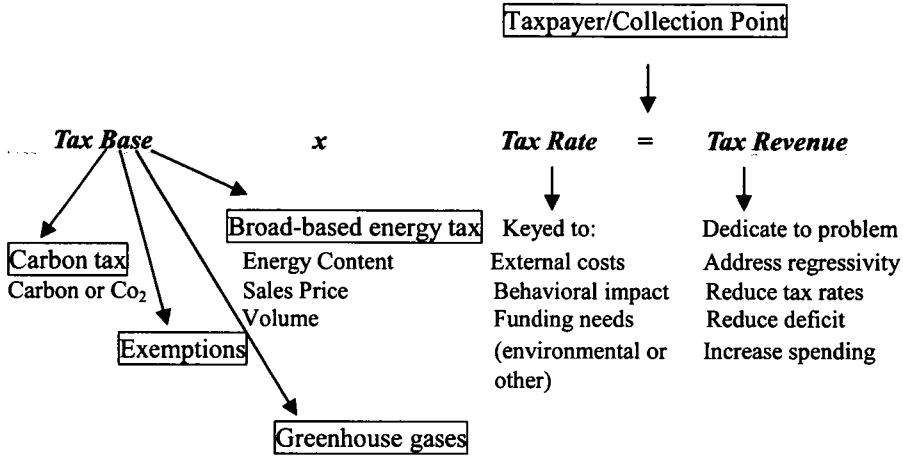
Although often tempered by political considerations, the tax rate of an environmentally related energy or greenhouse gas tax may reflect an environmental theory, such as the internalization of the external costs of emissions or the need to attain a certain degree of behavioral change. In the former instance, the tax rate would be defined by the external costs, and in the latter instance by the level necessary to achieve the specific behavioral effect. Alternatively, the environmental benefit may come primarily from the way in which government will use the revenue, with the rate set to generate the targeted amount. If the tax signal itself is strong enough to achieve some or all of the desired environmental result, however, revenue from the tax can be used to address non-environmental goals, such as measures that might mitigate regressive effects of the tax, fund unrelated programs, reduce the deficit, or reduce the burden of other tax rates in ways that will stimulate the economy.[12] If all of the revenue from the tax is used to provide tax relief of some form, the tax is "revenue neutral." The new revenue offsets the revenue loss from the tax cuts, rendering the tax package as a whole revenue neutral.

Finally, an important design question is determining who will pay the tax. From an environmental perspective, the tax or ultimate incidence of the tax should fall on taxpayers who are most able to change their behavior in ways that will achieve the environmental goal. Political, economic, and administrative considerations, however, may come into play. For example, although consumers are often aware of the federal gas tax at the pump, the tax is actually paid when the fuel is removed from the refinery or terminal, thereby facilitating the collection of the tax.[13]

12. *See generally* Janet Milne, *Environmental Taxation: Why Theory Matters*, *in* 1 CRITICAL ISSUES IN ENVIRONMENTAL TAXATION: INTERNATIONAL AND COMPARATIVE PERSPECTIVES 1, 19–24 (Janet Milne et al. eds., 2003) (discussing theories underlying environmental taxes and their implications for the use of revenue).

13. 26 U.S.C. § 4081(a)(1)(A) (2000).

Figure 1: Basic Choices in Designing Energy or Greenhouse Gas Taxes




## II. THE CLINTON BTU TAX AND ITS LESSONS

### *A. The Clinton Btu Tax*

The experience with the Clinton Btu tax illustrates how environmental, economic, equity, and political factors influence the basic choices governing which type of tax to use, its design features, and its fate. Just four weeks after taking office in January 1993, President Bill Clinton announced to a joint session of Congress that a tax on energy would be part of his five-year, deficit-reduction package.[14] He proposed an energy tax based on energy content as a way to reduce the deficit "because it also combats pollution, promotes energy efficiency, [and] promotes the independence economically of the country . . . ."[15] Although the proposed Btu tax was ultimately replaced by a 4.3-cent increase in the gas tax and

14. 139 CONG. REC. H674, H678 (1993) (State of the Union Address by President Clinton on Feb. 17).

15. *Id.*

other measures,[16] the experience with the Btu tax provides some useful lessons for considering the design and role of energy taxes today.

The tax base of Clinton's proposed excise tax covered an extraordinarily broad range of energy sources—fossil fuels, ethanol and methanol used as fuel, and domestic and imported electricity produced from nuclear or hydro power.[17] Although the tax excluded renewable sources of energy, such as wind, solar, geothermal, and biomass, it was essentially an economy-wide energy tax. To provide a present-day context, Figure 2 summarizes the United States' fuel consumption patterns in 2006:

Figure 2: U.S. Consumption by Type of Fuel[18]

| Fuel | Percent of Consumption |
|---|---|
| Liquid fuels | 40.1 |
| Natural gas | 22.3 |
| Coal | 22.5 |
| Nuclear electricity | 8.2 |
| Hydroelectricity | 2.9 |
| Biomass | 2.5 |
| Other renewables | 0.9 |

The basic rate for the Btu tax, to be phased in over three years, was 25.7 cents per million Btus, with a supplemental tax of 34.2 cents per million Btus for refined petroleum products; each rate was indexed for inflation after 1997.[19] Without the supplemental tax on petroleum, the tax on natural gas would have been higher as a percentage of market price than on oil, potentially discouraging the use of natural gas, which is a cleaner fuel.[20] These rates translated into an average of $3.24 per barrel of oil (or 7.5 cents per gallon of gasoline), $0.26 per million cubic feet of natural gas, $5.57 per short ton of coal, and $2.66 per thousand kilowatt hours for

16. *See generally* OMNIBUS BUDGET RECONCILIATION ACT OF 1993, H.R. REP. NO. 103-213, at 658 (1993), *as reprinted in* 1993 U.S.C.C.A.N. 1088, 1347 (containing conference agreement on the House and Senate bills).

17. STAFF OF THE J. COMM. ON TAXATION, 103D CONG., SUMMARY OF THE PRESIDENT'S REVENUE PROPOSALS 61 (Comm. Print 1993).

18. ENERGY INFORMATION ADMINISTRATION, ANNUAL ENERGY OUTLOOK 2008, at 115 tbl.A1 (2008), *available at* http://www.eia.doe.gov/oiaf/aeo/pdf/tables.pdf.

19. STAFF OF THE J. COMM. ON TAXATION, *supra* note 17, at 61. The Btu content was based on a national average for alcohol fuels and for all fossil fuels except coal, which was based on actual Btu content. *Id.*

20. OFFICE OF TAX POLICY, DEP'T OF TREASURY, FREQUENTLY ASKED QUESTIONS REGARDING THE ADMINISTRATION'S PROPOSED MODIFIED BTU TAX 2 (1993).

electricity from hydro and nuclear power (based on the national average of Btus required to produce electricity from fossil fuels).[21] Estimated to raise $22 billion per year when fully phased in and over $70 billion during the five-year budget period from 1994 to 1998,[22] the proposed broad-based tax represented a significant addition to the relatively limited portfolio of existing federal fuel taxes.

The revenue from the tax contributed to the budget package's deficit reduction goal of $500 billion over five years, achieved through a combination of tax increases and spending cuts. Thus, deficit reduction was the primary use of the revenue. Nevertheless, the budget package as a whole contained other revenue-losing or increased-spending provisions that related to the Btu tax, in particular an increase in the earned income tax credit that would offer greater relief to lower income taxpayers[23] and expansion of the food stamp program and the Low Income Home Energy Assistance Program.[24] Thus, although new dollars from the Btu tax were not explicitly dedicated to offsetting relief, the total budget proposal provided some compensating measures to address the potential regressivity of the Btu tax.

The Btu tax proposal had a short but dramatic life. In a party-line vote, the House Ways and Means Committee approved it in May 1993 with relatively minor changes.[25] The committee's statement in support reads much like a present-day manifesto for carbon reduction:

> In addition to deficit reduction, imposition of an energy tax will foster several worthwhile goals. First, the United States is one of the developed world's most intensive energy consumers. Most of the nation's energy is derived from non-renewable resources. Increasing the cost of non-renewable energy resources to individuals and businesses

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21. OFFICE OF TAX POLICY, DEP'T OF TREASURY, THE ADMINISTRATION'S MODIFIED BTU ENERGY TAX PROPOSAL 2 (1993); OFFICE OF TAX POLICY, DEP'T. OF TREASURY, SPECIFICATIONS OF THE ADMINISTRATION'S MODIFIED BTU ENERGY TAX PROPOSAL 1 (1993).

22. STAFF OF J. COMM. ON TAXATION, 103D CONG., ESTIMATED BUDGET EFFECTS OF THE ADMINISTRATION'S REVENUE PROPOSALS CONTAINED IN THE FISCAL YEAR 1994 BUDGET, JCX-2-93 2 (1993).

23. 139 CONG. REC. H674, H678 (1993) (State of the Union Address by President Clinton).

24. *Administration's Energy Tax Proposals: Hearings Before the Comm. on Finance*, 103d Cong. 7 (1993) [hereinafter *Senate Finance Energy Tax Hearing*] (prepared statement of Hon. Lloyd Bentsen, Secretary, Dep't of Treasury).

25. *See* STAFF OF H. COMM. ON WAYS AND MEANS, 103D CONG., FISCAL YEAR 1994 BUDGET RECONCILIATION RECOMMENDATIONS OF THE COMMITTEE 292–309 (Comm. Print 1993) [hereinafter WAYS & MEANS RECOMMENDATIONS] (explaining the provisions of the Btu tax bill); David Rosenbaum, *Clinton Proposal for Tax Increases Passes First Test*, N.Y. TIMES, May 14, 1993, at A1 (describing the committee's changes).

> will provide an economic incentive to conserve these irreplaceable resources.
>
> Second, the burning of fossil fuels contributes to atmospheric pollution and increases the potential for global warming. Consumers of fossil fuels do not directly bear the cost of the environmental damage pollution creates. Imposing an energy tax on the consumer of fossil fuels will give consumers a financial incentive to reduce energy use. The committee believes that providing an economic incentive to conserve energy use, while also providing an incentive to use renewable resources, will lead to a cleaner environment.[26]

The House of Representatives passed the budget proposal, including the politically sensitive Btu tax, by a margin of six votes in late May[27] after President Clinton and the House leadership struggled to win the necessary last minute votes.[28] Even with the passage of the bill in the House, however, support for the Btu tax was eroding in the Senate. The Finance Committee, which has jurisdiction over tax matters in the Senate, could not hold together its slim, two-vote Democratic majority when Oklahoma Senator David Boren and Louisiana Senator John Breaux signaled that they would not support the tax.[29] With the President's agreement, the committee replaced the Btu tax with a 4.3-cent increase in the gasoline tax and other measures,[30] including controversial increased spending cuts, to make up the difference in lost revenue. This modified plan passed the Senate in June as part of the budget package, with Vice President Gore voting to break the deadlock,[31] and the gas tax increase prevailed over the Btu tax when the Senate and House went to conference to negotiate differences between the

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26. WAYS & MEANS RECOMMENDATIONS, *supra* note 25, at 293.

27. 139 CONG. REC. H3301 (1993) (Roll No. 199, 219 yeas and 213 nays).

28. *See* Clifford Krauss, *When the President Rings, Mavericks Run for Cover*, N.Y. TIMES, May 29, 1993, at A1 (describing Democratic efforts to gain a majority in the House).

29. *See, e.g.*, K. Nelson, *Clinton Yields to Opponents of Energy Tax Economy*, L.A. TIMES, May 29, 1993, at A1; David Hilzenrath & Eric Pianin, *Accord on Energy Tax, Spending Cuts Seen; But Senate Finance Committee Chief's Assessment Seems at Odds With Other Members'*, WASH. POST, May 24, 1993, at A11; David Hilzenrath & Eric Pianin, *Senator Boren Targets Clinton Energy Tax; Lawmaker Seeks Deeper Budget Cuts*, WASH. POST, May 21, 1993, at A1.

30. STAFF OF J. COMM. ON TAXATION, 103D CONG., DESCRIPTION OF CHAIRMAN'S MARK ON REVENUE RECONCILIATION PROPOSALS SCHEDULED FOR MARKUP BY THE SEN. COMM. ON FINANCE, JCX-6-93, at 80 (1993).

31. 139 CONG. REC. S7986 (1993) (Roll call Vote No. 190); *see also* Eric Pianin & David Hilzenrath, *Senate Approves Budget Plan, 50-49; Vice President Gore Casts Deciding Vote*, WASH. POST, June 25, 1993, at A1 (reporting break of deadlock that occurred when six Democrats voted against the budget plan).

House and Senate bills.[32] The final $500 billion deficit-reduction plan, containing the gas tax increase but no Btu tax, passed both the House and Senate by the narrowest of margins in early August[33] and was signed into law by President Clinton.[34]

### *B. Lessons from the Btu Tax Experience*

#### 1. The Fundamental Choice of Tax Base: The Significance of Regional Burden-Sharing and Political Postures

If the Clinton Administration's only consideration had been climate change, it presumably would have proposed a carbon tax. However, as the Administration considered its alternatives—an increase in the gas tax, a carbon tax, an energy tax, or a sales tax on energy—and presented its decision to pursue the Btu energy tax, it became clear that regional burden-sharing played a decisive role in defining the tax base. A significant increase in the gas tax would have disproportionately affected regions where people have to drive longer distances, particularly where public transit is not available.[35] A carbon tax would have placed the greatest tax burden on coal, which has a higher carbon content than oil or natural gas, thereby impacting coal-producing states and states dependent on coal for electricity more than states that rely primarily on nuclear power or hydropower.[36] Significant regional differences would have generated

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32. OMNIBUS BUDGET RECONCILIATION ACT OF 1993, *supra* note 16, at 658–62.

33. *See* 139 CONG. REC. H6271 (1993) (Roll call Vote No. 406) (passing the House by a vote of 218 to 216); 139 CONG. REC. S10763 (1993) (Roll call Vote No. 247) (passing the Senate by a vote of 50 to 50, with the Vice President casting the deciding vote); *see generally* David Rosenbaum, *Clinton Wins Approval of His Budget Plan as Gore Votes to Break Senate Deadlock*, N.Y. TIMES, Aug. 7, 1993, at A1 (reporting on the tie-breaking vote).

34. Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, 107 Stat. 510 (1993).

35. *See* 139 CONG. REC. H674, H678 (1993) (State of the Union Address by President Clinton); Keith Bradsher, *Less for Environment Than Energy in Tax Bill*, N.Y. TIMES, Mar. 18, 1993 (discussing the impact of a gas tax on southern, oil-producing states); Steven Pearlstein & Thomas Lippman, *Industry Analysts See Broad-Based Energy Tax in Clinton's Future*, WASH. POST, Jan. 1, 1993, at A4 (noting the political unpopularity of a gas tax in western states with limited mass transit); David Wessel, *Bentsen Sees Higher Taxes on Consuming*, WALL ST. J., Jan. 25, 1993, at A2 (reporting on Secretary of Treasury Bentsen's concerns about regional impacts of a gas tax).

36. *Senate Finance Energy Tax Hearing*, *supra* note 24, at 7 (prepared statement of Hon. Lloyd Bentsen, Secretary, Department of Treasury). *See also* Dawn Erlandson, *The Btu Tax Experience: What Happened and Why It Happened*, 12 PACE ENVTL. L. REV. 173, 175–76 (1994) (stating that Senator Robert Byrd from the coal-rich state of West Virginia single-handedly caused the carbon tax to be rejected); Thomas W. Lippman, *Energy Tax Has 'Green' Tint; Environmentalists Back Plan They Helped Draft*, WASH. POST, Mar. 2, 1993, at D1, *available at* http://www.washingtonpost.com (explaining that a carbon tax was politically impossible given Senator Byrd's position as Chairman of the Appropriations

questions of equity, economic impact, and the political opposition that comes with each. According to the Administration, the Btu tax's broad tax base would treat states relatively equally, while the higher energy cost and the exemption for renewable energy would still serve environmental goals. The Administration estimated that the tax would range by region from 0.54% to 0.67% of taxpayers' disposable personal income, a variation of only 0.13%.[37] Even so, as indicated above, the tax was not an easy sell.

Thus, the Clinton Btu tax experience in 1993 underscores the political and economic challenges of proposing a tax that targets only fossil fuels and generates regional disparities. Perhaps the argument that polluters should pay despite regional differences might be more persuasive now with the increased awareness of the risks of climate change.[38] But the 1993 events also serve as a reminder that cap-and-trade regimes for greenhouse gases may have similar regional impacts because they target the same base as a carbon tax or greenhouse gas tax. Despite the relative political opaqueness of cap-and-trade regimes, the same policy choice underlies broad-based carbon trading regimes that will place the financial burden disproportionately on some regions.

The political landscape of the moment influenced the choice of tax base as well. President Clinton would have had difficulty defending a significant gas tax increase after opposing, during the presidential race, Ross Perot's campaign proposal to increase the gas tax by fifty cents.[39] In addition, a carbon tax would have run counter to the interests of the powerful Senator Robert Byrd from coal-producing West Virginia, Chair of the Senate Appropriations Committee—a potentially lethal flaw.[40] The choice of tax base reflected the realities of political postures.

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Committee); Matthew L. Wald, *Pondering an Energy Tax That Can't Please All the People*, N.Y. TIMES, Jan. 31, 1993, at F10 (comparing the relative impacts of the carbon tax on the energy sources of Ohio and Washington).

37. *Senate Finance Energy Tax Hearing*, *supra* note 24, at 120 (prepared statement of Hon. Lloyd Bentsen, Secretary, Department of Treasury). The Administration chose to define the tax base as the Btu energy content of these sources, rather than the price of the energy as with an ad valorem or sales tax, so that the tax burden would not vary with the price of energy. 139 CONG. REC. H674, H678 (1993) (State of the Union Address by President Clinton).

38. *See generally* WORKING GROUP II CONTRIBUTION, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: IMPACTS, ADAPTATION, AND VULNERABILITY 7–18 (Martin Parry et al., eds. 2007) (chronicling current knowledge about worldwide impacts of climate change).

39. Timothy Noah, *Clinton Aides Seek Gasoline Tax Boost, New Carbon Levy*, WALL ST. J., Dec. 9, 1992, at A2.

40. Erlandson, *supra* note 36, at 175; Lippman, *supra* note 36; Wald, *supra* note 36. *See also Senate Finance Energy Tax Hearing*, *supra* note 24, at 7 (statement of Hon. Lloyd Bentsen, Secretary, Department of Treasury) (noting disproportionate impact of a carbon tax on coal-producing states).

### 2. Refining the Tax Base: The Significance of International Competitiveness and Political Strategy

The Clinton Administration recognized the need to put imports on equal tax footing with domestic products in order to preserve the competitive position of domestic activities. The initial proposal provided that "imported taxable products" would be subject to tax at a level equivalent to domestic products.[41] The Ways and Means Committee's version of the Btu tax imposed a tax on imported energy-intensive products, defined as those with two percent of their value attributable to energy that would have been taxable if the products had been manufactured in the United States.[42] Conversely, exported energy sources were exempt from the tax.[43] Although always subject to compliance with the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization trade rules,[44] a border tax adjustment can mitigate concerns about the economic impact of the tax. While imposition of a tax on imports is consistent with the environmental goal of reducing carbon emissions, which are transboundary in nature, exempting exports is less justifiable on global environmental grounds.

Refinements to the tax base also illustrate the significance of strategic decisions once a tax is proposed. Not long after the Clinton Administration announced the proposed Btu tax, it signaled that it would revise some of the elements of the tax, in particular by broadening the list of exemptions. For example, faced with objections from states highly dependent on home heating oil, the Administration indicated it would exempt home heating oil from the supplemental tax on refined petroleum products.[45] In addition, proponents of ethanol argued that it should receive the same tax-exempt treatment as other renewable energy,[46] such as solar and wind.[47] The

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41. DEP'T OF TREASURY, SUMMARY OF THE ADMINISTRATION'S REVENUE PROPOSALS 164 (1993). *See also Senate Finance Energy Tax Hearing*, *supra* note 24, at 137 (responses of Hon. Lloyd Bentsen, Secretary, Department of Treasury, to questions submitted by Senator John Danforth).

42. H.R. REP. NO. 103-111, at 746–47 (1993), *reprinted in* 1993 U.S.C.C.A.N. 378, 977–78.

43. DEP'T. OF TREASURY, SPECIFICATIONS OF THE ADMINISTRATION'S MODIFIED BTU ENERGY TAX PROPOSAL 3 (1993); H.R. REP. NO. 103-111, at 746–47 (1993), *reprinted in* 1993 U.S.C.C.A.N. 378, 977–78.

44. *See generally* ORG. FOR ECONOMIC CO-OPERATION AND DEV., THE POLITICAL ECONOMY OF ENVIRONMENTALLY RELATED TAXES 93–106 (2006) (discussing general and specific restrictions the GATT regulatory framework places on border tax adjustments).

45. OFFICE OF TAX POLICY, DEP'T OF TREASURY, THE ADMINISTRATION'S MODIFIED BTU ENERGY TAX PROPOSAL 2 (1993); Rick Wartzman, *Administration Alters Proposal for Energy Tax*, WALL ST. J., Apr. 2, 1993, at A2.

46. *See Senate Finance Energy Tax Hearing*, *supra* note 24, at 10 (statement of Hon. Lloyd Bentsen, Secretary, Department of Treasury, noting Senators' concerns with application of tax to ethanol).

Administration's modified proposal, released in April, acquiesced.[48] Although the House Ways and Means Committee rejected the ethanol change,[49] the Administration's willingness to modify helped open the door to other changes in the tax proposal and the budget plan and emboldened the opposition.[50] "The opponents of the energy tax smelled blood."[51] The controversial Btu tax was defeated at least in part because of the way the Administration played its hand.[52] Strategic decisions for any tax bill will turn on the particular political landscape of the time, but the Clinton experience illustrates how flexibility with exemptions after the proposal is released can erode the strategic momentum of the plan and its perceived or real integrity.

### 3. The Taxpayer/Collection Point: A Technical Issue with Non-technical Consequences

The Clinton Administration originally intended to collect the tax as far upstream as possible, a logical standpoint considering administrative feasibility and the benefits of influencing upstream choices.[53] It fell sway, however, to industry pressures and agreed to allow the tax to be paid by end users of coal,[54] natural gas, and electricity, although the tax would still be collected by the natural gas or electric utility.[55] Not only did this contribute to the sense that the tax plan was negotiable, but it also undercut support for the tax among environmental groups, which argued that imposing the tax on

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47. *See* Lippman, *supra* note 36 (reporting that Iowa Senator Tom Larkin complained to Treasury Secretary Bentsen about ethanol's inclusion in the Btu tax while other renewable sources were exempt).

48. OFFICE OF TAX POLICY, DEP'T. OF THE TREASURY, SPECIFICATIONS OF THE ADMINISTRATION'S MODIFIED BTU ENERGY TAX PROPOSAL 3 (1993).

49. WAYS & MEANS RECOMMENDATIONS, *supra* note 25, at 295.

50. Erlandson, *supra* note 36, at 177–78; Steven Greenhouse, *The White House Struggles to Save Energy Tax Plan*, N.Y. TIMES, May 10, 1993, at A1.

51. Erlandson, *supra* note 36, at 178.

52. *See* Richard Morgenstern, *Issue Brief 8: Addressing Competitiveness Concerns in the Context of Mandatory Policy for Reducing U.S. Greenhouse Gas Emissions*, *in* ADDRESSING U.S. CLIMATE CHANGE POLICY OPTIONS 112 (2008) (explaining that exemptions to President Clinton's Btu tax proposal contributed to its demise in the Senate).

53. DEP'T OF TREASURY, SUMMARY OF THE ADMINISTRATION'S REVENUE PROPOSALS 65 (1993).

54. *Compare* DEP'T OF TREASURY, SUMMARY OF THE ADMINISTRATION'S REVENUE PROPOSALS 65 (1993) (proposing that the tax on coal be imposed at the minemouth), *with* OFFICE OF TAX POLICY, DEPARTMENT OF TREASURY, DESCRIPTION OF MODIFIED BTU TAX 2 (1993) (indicating that the tax on coal would be imposed on the end user).

55. Jackie Calmes & David Wessel, *Clinton Changes Course on Part of Energy Tax—Agreement Would Ease Restrictions on Utilities to Pass Along the Levy*, WALL ST. J., May 11, 1993, at A2.

electric utilities would give utilities a greater incentive to use cleaner energy.[56] In addition, it heightened the political visibility of the tax to voting end users, leading a representative of utility regulators to comment that the Clinton administration did not want reminders that "this isn't the 'BTU tax,' it's 'the Bill-is-taxing-you tax.'"[57] In finding the right collection point, a tax proponent needs to balance the administrative considerations, the environmental impacts, and the political repercussions—a choice perhaps less likely to occur with permit trading regimes where upstream trading is more feasible than downstream.

### 4. The Tax Rate: Balancing the Multiple Driving Factors of Deficits, Environmental Protection, and Economic Impact

The political impetus for the Clinton Btu tax sprang from the need to reduce the deficit. Although discussions about using some form of energy tax appeared on the table a month after President Clinton's election in November 1992,[58] the concept was quickly wrapped into the question of how to reduce the deficit.[59] Consequently, the Btu tax's relatively low tax rate—only $3.24 per barrel of oil even with the supplemental rate on petroleum—generated the $70 billion over five years needed as a key part of the deficit-reduction package. However, the tax rate did not appear to be grounded on an explicit environmental calculation, such as a refined notion of cost internalization or behavioral impact. The environmental aspect of the tax rate's effect was real, but modest; the Administration estimated it would reduce the anticipated growth in energy consumption by seven percent.[60]

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56. Liam Eaton, *Clinton, Democrats Near Energy Tax Compromise Legislation: The Levy's Collection Point Would Shift Closer to Consumers*, L.A. TIMES, May 11, 1993, at A12.

57. Calmes & Wessel, *supra* note 55. Before this concession, the Clinton proposal would have required utilities to pass the cost of the tax on to consumers in order to encourage conservation, but the utilities would have paid the tax so that it would not have appeared as a line item on consumers' bills. OFFICE OF TAX POLICY, DEP'T OF TREASURY, THE ADMINISTRATION'S MODIFIED BTU ENERGY TAX PROPOSAL 2 (1993).

58. Noah, *supra* note 39, at A2.

59. *See* Jeffrey Birnbaum & Michael Frisby, *Clinton Puts Emphasis On Deficit Reduction Goals as He Maps Economic Plans*, WALL ST. J., Dec. 18, 1992, at A1 (explaining that deficit reduction was President Clinton's highest priority and specifying where the energy tax fit into his plan); David Wessell & Rick Wartzman, *Clinton's Options; Tax Increases Seem Inevitable, Including Some on Middle Class*, WALL ST. J., Jan. 22, 1993, at A1 (discussing the President's concerns about the deficit and his advisors' interest in using an energy tax to reduce the deficit).

60. OFFICE OF TAX POLICY, *supra* note 45, at 1. *See* CONG. BUDGET OFFICE, AN ANALYSIS OF THE PRESIDENT'S FEBRUARY BUDGETARY PROPOSALS III-6 (1993), *available at* http://www.cbo.gov/ftpdocs/75xx/doc7531/93doc10.pdf (concluding that the environmental and national security benefits of the tax were likely to be real but minimal).

The tax rate presumably also reflected a desire to limit the financial burden on individuals and industry. The Administration estimated that the tax, when fully phased in, would impose a direct cost of $9.50 per month on a family of four with an income of $40,000 and would increase manufacturing costs on average by 0.1%[61] while still generating $22 billion per year. Yet even that level of relatively modest additional cost met with immediate opposition from industry.[62]

The relatively low tax rate, combined with a broad tax base extending beyond fossil fuels, suggests that while the Btu tax had environmental characteristics, its environmental features were muted by other considerations. This result was not inconsistent with the need of traditional tax policy to consider issues of economic impact and equity. At the same time, the Clinton experience dramatically underscores how the need for revenue can provide an opportunity to introduce a new type of environmental tax. Political opportunities in the future may come from the environmental side of the equation, or they may come from the revenue side, or both, but it will require delicate compromise to take advantage of a revenue-driven opportunity while maintaining the environmental features of the tax itself, in particular, the tax rate.

### 5. The Use of the Revenue: A Crucial Part of the Picture

As mentioned above, revenue demands can create a motive and an opportunity for a tax. In addition, the revenue from the tax can help build a package that reduces the regressivity of the tax itself and may produce broader benefits that can have significant political and policy implications. The Clinton Administration was aware of the regressivity issue from the start. In presenting the budget proposal to Congress, President Clinton announced that the Btu tax would "cost American families with incomes under $30,000 nothing,"[63] given the budget proposal's increases in the earned income tax credit and programs for food stamps, home energy assistance, and home weatherization that would reduce the burden on low-

61. *Senate Finance Energy Tax Hearing*, *supra* note 24, at 6–7, 121 (statement of Hon. Lloyd Bentsen, Secretary, Department of Treasury). The Administration estimated that the tax would raise costs for energy-intensive industries by less than four percent, but those industries might also benefit from tax relief provisions in the proposed budget plan. OFFICE OF TAX POLICY, *supra* note 45, at 3.

62. *See, e.g.*, Gerald F. Seib & David Rogers, *Interest Groups and Lobbyists To Fight Plan*, WALL ST. J., Feb. 18, 1993, at A12.

63. 139 CONG. REC. H674, H678 (1993) (State of the Union Address by President Clinton).

income taxpayers.[64] Although the revenue from the Btu tax was not specifically dedicated to these forms of relief, the total package, which included the new revenue, allowed the Administration to argue that it was protecting low income households—an issue that must be confronted for any energy-related tax.

President Clinton promoted the Btu tax as serving environmental, energy security, and deficit-reduction goals.[65] The implementation of the tax itself would serve the first two goals, and deficit reduction would be achieved by the use of its revenue. The placement of the $70 billion tax within a $500 billion deficit-reduction package allowed the Clinton Administration to present the tax in a broader light and to cite the economic advantages of deficit reduction as reasons to support the tax. The Administration pointed to benefits such as lower interest rates,[66] which would reduce capital costs for industry and mortgage interest costs for homeowners,[67] providing benefits to a broad range of taxpayers and constituents. The President argued that lower interest rates would "more than offset" the additional cost of the tax to middle income people.[68] The President's campaign promises not to raise taxes politically tarnished this net-benefit argument,[69] but the proposal nonetheless illustrates how the use of the revenue and the combined package can generate reasons to support a tax and potentially alleviate concerns. Different decisions about how to use new revenue from a climate change tax could be made at other times—such as whether to use all the revenue for offsetting tax relief on a revenue-neutral basis in order to strengthen the economy, or whether to dedicate some or all of the revenue to the environmental problem, which in turn may strengthen the economy. The point remains, however, that an assessment of the feasibility and merit of a tax is bound to the question of the use of its revenue.

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64. OFFICE OF TAX POLICY, *supra* note 45, at 2; OFFICE OF TAX POLICY, DEP'T OF TREASURY, FREQUENTLY ASKED QUESTIONS REGARDING THE ADMINISTRATION'S PROPOSED MODIFIED BTU TAX 10–11 (1993).

65. 139 CONG. REC. H674, H678 (1993) (State of the Union Address by President Clinton).

66. *Id.*

67. *Senate Finance Energy Tax Hearing, supra* note 24, at 6–7 (statement of Hon. Lloyd Bentsen, Secretary, Department of Treasury).

68. 139 CONG. REC. H674, H678 (1993) (State of the Union Address by President Clinton).

69. *See* David Hilzenrath, *Politics Overtakes Policy in Energy Tax Debate*, WASH. POST, July 20, 1993, at C1 (noting that the energy tax proposal reversed President Clinton's campaign promises). Es Risen, *Energy Tax Hits Consumer More than Oil Firms*, L.A. TIMES, May 27, 1993 (citing legislators' perception of energy tax as a repudiation of the President's campaign promises).

### 6. A Viable Concept?

In sum, the Clinton Btu tax shows how an environmental tax proposal is inevitably shaped by issues of economic impact, equity, and politics. The challenge is to ensure that, if it is truly an environmental instrument, it maintains sufficient environmental integrity while also guarding against unacceptable impacts on the economy and taxpayers. This is not an easy challenge, and the Clinton Btu tax shows how the environmental features, while present, probably did not dominate design decisions. Nonetheless, it offered a creative compromise with its broad tax base, relatively low tax rate (which could have been susceptible to subsequent increases), and equity and economic benefits through the use of the revenue.

The fate of the Clinton Btu tax need not necessarily ring the death knell for a federal carbon tax in the United States. There is no doubting the visceral reaction a new tax seems to inspire and the difficulty of adding additional costs to energy when the price of oil is high or the economy weak. Political prognostication is risky at best, but certain factors might help generate a more positive reaction in the future. For example:

- A wider majority in Congress would leave less political power in the hands of a few players, unlike the two-Senator margin President Clinton faced with the Senate Finance Committee.
- A stronger national commitment to address climate change could create greater political will to pursue a carbon tax.
- A strong need for revenue that can finance increased spending, reduce the deficit, or provide tax relief could add a second set of forces to propel a tax proposal. For example, as former Vice President Al Gore said in July 2008 when he reiterated his support for reducing payroll taxes by using carbon tax revenues, "[w]e should tax what we burn, not what we earn."[70]
- A heightened awareness of how increases in the price of fuel can change behavior could build support for price signals that economic instruments can maintain over time. Although economically painful, higher gas prices in 2008 are starting to change behavior and provide evidence that price signals can work.
- A more thorough discussion of the economic benefits of addressing climate change, with more active support from the

70. Al Gore, Address at D.A.R. Constitutional Hall, Generational Challenge to Repower America (July 17, 2008), *available at* http://www.wecansolveit.org/content/pages/304 (last visited Dec. 2, 2008).

industries that will benefit, would help build the factual case and political support for long-term price signals.

- A sophisticated political understanding about the economic costs of alternative solutions to climate change would put carbon or greenhouse gas taxes on more equal footing with instruments that have less politically visible profiles. The negative impact of alternatives also can generate strange bedfellows for support, just as Ford, General Motors, and Chrysler supported the Clinton Btu tax in hopes of avoiding more stringent fuel economy regulations.[71]
- Campaign rhetoric would need to leave sufficient flexibility for considering a carbon tax unless unforeseen circumstances subsequently diminish the significance of campaign promises.

In the ever-changing kaleidoscope of facts and circumstances, it is difficult to predict which combinations might generate more favorable opportunities for a carbon tax. Nevertheless, the fact of one defeat should not preclude the possibility of a carbon tax—particularly if Congress or a president takes off the table cap-and-trade regimes that do not auction allowances to emit greenhouse gases.

## III. THE PRESENT CONTEXT FOR CARBON TAXES

The United States has a number of laws that address greenhouse gas emissions, but it does not have a comprehensive, integrated, nationwide legal regime for reducing its contribution to global carbon dioxide or other greenhouse gases.[72] Although the Environmental Protection Agency (EPA) has solicited comments on the ways in which it might use its authority under the Clean Air Act to regulate greenhouse gases,[73] the EPA Administrator stated his belief that "the Clean Air Act . . . is ill-suited for the task of regulating global greenhouse gases."[74] This view was shared by the Office of Management and Budget in the Executive Office of the President and numerous Cabinet members in the Bush Administration.[75] A

71. Matthew Wald, *The Clinton Fuel Tax Finds a Few Unexpected Allies*, N.Y. TIMES, Mar. 14, 1993.

72. For an overview of a number of federal programs related to greenhouse gas emissions, see Regulating Greenhouse Gas Emissions under the Clean Air Act, 73 Fed. Reg. 44,354 (proposed July 11, 2008).

73. *Id.* at 44,354.

74. *Id.* at 44,355.

75. *Id.* at 44,356–44,361.

comprehensive program is likely to require federal legislation, and a number of proposals are pending in Congress, including carbon tax bills and more prominent cap-and-trade bills. In addition, states are starting to implement market-based measures. In order to place carbon taxes in the current context, the discussion below briefly describes proposed and actual carbon taxes and cap-and-trade regimes in the United States, focusing on major actions that can illustrate the current state of play. It does not address the range of tax expenditures for environmentally positive activities already in the federal tax code, such as tax incentives for renewable energy or, conversely, tax subsidies that may be environmentally damaging, such as tax benefits for oil and gas. Although beyond the scope of this article, they are significant market-based instruments that should be kept in mind when considering the portfolio of market-based approaches.

### *A. Carbon Taxes*

Two carbon tax bills are currently pending in Congress. These bills differ from the Clinton Btu tax in that they focus on fossil fuels and do not tax nuclear power and hydropower. The "Save Our Climate Act of 2007," H.R. 2069, introduced by Congressmen Fortney "Pete" Stark and Jim McDermott, proposes to tax fossil fuels at a rate of $10 per ton of carbon content of coal, petroleum and petroleum products, and natural gas, increasing by $10 per year until carbon dioxide emissions from the United States are reduced to eighty percent below their 1990 level.[76] The tax would be paid by the manufacturer, producer, or importer of the fuel, but the tax may be refunded if the fuel is used in a way that embeds or sequesters carbon,[77] and exports are exempt from the tax.[78] The bill suggests, but does not require, that the revenue from the tax could be used for tax relief for low- or middle-income taxpayers, funding for developing alternative energy, or other social goals.[79] It also calls for studies every five years of the environmental, economic, and fiscal impacts of the tax.[80]

The second bill, "America's Energy Security Trust Fund Act of 2007," H.R. 3416, introduced by Congressman John Larson, would tax the $CO_2$ content of the same fossil fuels, and would be paid by the same classes of taxpayers as the Stark-McDermott bill.[81] The proposed tax rate is $15 per

76. H.R. 2069, 110th Cong. § 3(a) (2007). The taxable fuels exclude fuel placed in the Strategic Petroleum Reserve. *Id.*

77. *Id.*

78. *Id.*

79. *Id.* § 2(7).

80. *Id.* § 3(b).

81. H.R. 3416, 110th Cong. § 2(a) (2007).

ton, increasing by ten percent plus one percent more than the cost of living adjustment each year.[82] Fuel used as feedstocks and exports are exempt, and taxpayers that carry out offset projects, sequester greenhouse gases, or destroy hydrofluorocarbons in the United States may qualify for a refund or tax credit for taxes paid.[83] According to one estimate, the $15 per ton tax rate on carbon dioxide would translate into $55 per ton of carbon, and by 2017 the tax rate (without inflation adjustment) would be approximately $130 per ton of carbon, compared with $100 per ton of carbon for the Stark-McDermott carbon tax.[84]

Unlike the Stark-McDermott bill, the Larson bill would dedicate the revenue from the tax to a trust fund. The fund would finance a tax credit for clean energy technology (the lesser of $10 billion per year or one-sixth of the fund each year), transition assistance for industries adversely affected by the carbon tax (starting at one-twelfth of the revenue into the trust fund the first year and phasing down to zero over ten years),[85] and a "carbon tax rebate" in the form of an income tax credit for individual taxpayers (the remainder of the revenue).[86] The income tax credit would equal the taxpayer's per capita share of this portion of the trust fund's revenue, capped at the level of federal payroll taxes paid with respect to that taxpayer or ten percent of the social security benefits the taxpayer received that year.[87] The bill also calls for a study of ways to assess a comparable tax on non-carbon greenhouse gases.[88]

The carbon tax concept is not limited to the federal government. Two local areas have chosen to enact modest carbon-related energy taxes. In 2006, the voters of Boulder, Colorado approved a Climate Action Plan Tax, which imposed a tax on the end users of electricity collected by the utility.[89] The tax rates were set for 2007, but the city council has the ability to raise the rates up to specified caps in subsequent years. The maximum rates are 0.49 cents per kilowatt hour for residential users, 0.09 cents per kilowatt

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82. *Id.*

83. *Id.*

84. Carbon Tax Center, Bills, http://www.carbontax.org/progress/carbon-tax-bills (last visited July 10, 2008).

85. H.R. 3416, 110th Cong. §§ 2(b), 3 (2007).

86. *Id.*

87. *Id.* § 3. *See also* GILBERT E. METCALF, BROOKINGS INSTITUTION, A PROPOSAL FOR U.S. CARBON TAX SWAP 11 (2007) (proposing a tax on greenhouse gas emissions at the starting rate of $15 per ton of carbon dioxide equivalent, with revenue used for a refundable earned income tax credit, linked to payroll taxes, that would reduce the regressivity of the tax).

88. H.R. 3416, 110th Cong. § 4 (2007).

89. CAROLYN BROUILLARD & SARAH VAN PELT, A COMMUNITY TAKES CHARGE: BOULDER'S CARBON TAX 11 (2007), *available at* http://www.bouldercolorado.gov/files/Environmental%20Affairs/climate%20and%20energy/boulders_carbon_tax.pdf.

hour for commercial users, and 0.03 cents per kilowatt hour for industrial users.[90] The revenue is used to finance the city's climate action program, which aims to reduce the local greenhouse gas emissions to seven percent below 1990 levels by 2012,[91] and tax rates are based on the amount each sector will receive for programs under the climate action plan.[92]

In the region surrounding San Francisco, California, the Bay Area Air Quality Management District has imposed a fee that has more of the features of a traditional carbon tax. The tax base is explicitly defined in terms of emissions, but it also covers greenhouse gas emissions beyond carbon dioxide.[93] Starting in 2008, industrial facilities and businesses that are subject to air quality permit requirements must pay a fee of 4.4 cents per ton of greenhouse gas emissions.[94] The fee is estimated to generate $1.3 million annually which the District will use for its climate programs.[95] In early 2008, San Francisco Mayor Gavin Newsom announced his intention to put a city carbon tax before voters,[96] and the Department of the Environment was instructed to prepare options.[97] Under the Mayor's revenue-neutral proposal, revenue would be used to reduce the payroll tax.[98]

Thus, while carbon tax proposals have received relatively little political attention, they have been introduced in Congress, and local governmental bodies are using carbon-related tax bases to generate revenue to finance climate programs. Figure 3 summarizes the key features of the various tax regimes, as well as the features of the cap-and-trade systems described below, highlighting differences and similarities.

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90. BOULDER REV. CODE § 3-12-2, *available at* http://www.colocode.com/boulder2/chapter3-12.htm.

91. *Id.* § 3-12-1.

92. BROUILLARD & VAN PELT, *supra* note 89, at 9–10.

93. Bay Area Quality Management District, Reg. 3, sched. T (May 21, 2008), *available at* http://www.baaqmd.gov/dst/regulations/rg0300.pdf.

94. *Id.*

95. Press Release, Bay Area Air Quality Management District, Air District Implements Greenhouse Gas Fee (May 21, 2008), *available at* http://www.baaqmd.gov/pio/news/2008/climate_fee080521.pdf.

96. Associated Press, *San Francisco to Vote on Business Carbon Tax: Mayor Promises Businesses Would Also See Cut in Payroll Tax*, Dec. 6, 2007, http://www.msnbc.msn.com/id/22132812; San Francisco Mayor Gavin Newsom, Inaugural Address 2 (Jan. 8, 2008).

97. COMMISSION ON THE ENVIRONMENT, SAN FRANCISCO CITY GOVERNMENT, RESOLUTION NO. 00208 COE, at 2 (2008), *available at* http://www.sfenvironment.org/downloads/library/res00208coecarbontax.pdf.

98. Associated Press, *supra* note 96. *See also* City and County of San Francisco Small Bus. Comm'n, Minutes, Item 9, Jan. 14, 2008, *available at* http://www.sfgov.org/site/sbc_page.asp?id=75330&mode=text (stating the goal of revenue neutrality for a carbon tax).

Figure 3: Comparison of Elements of Tax and Cap-and-Trade Instruments

| Tax | Tax Base | Tax Rate | Taxpayer | Use of Revenue |
|---|---|---|---|---|
| Federal gas tax now in effect (not including taxes on diesel, aviation fuel) | Gasoline | 18.4 cents per gallon | Oil refiner; Position holder of fuel in terminal; Importer | Highway Trust Fund; Leaking Underground Storage Tank Trust Fund |
| Clinton Btu tax proposal in 1993 | Fossil fuels; Hydropower; Nuclear; Ethanol (in original proposal) | 25.7 cents per million Btus, with 34.2 cents per million Btus supplemental rate for oil | Oil refiner; End user of coal, electricity; Importer | Deficit reduction; Regressivity offsets in budget package |
| H.R. 2069 Save Our Climate Act of 2007 (Stark-McDermott) | Coal; Petroleum and petroleum products; Natural gas | $10 per ton of carbon, increased by $10 per year until emissions 80% below 1990 level | Manufacturer Producer Importer | Not mandated |
| H.R. 3416 America's Energy Security Trust Fund Act of 2007 (Larson) | Coal Petroleum and petroleum products; Natural gas | $15 per ton of carbon dioxide, increased each year by 10% plus cost of living adjustment | Manufacturer Producer Importer | Dedicated to: Tax credit for clean energy technology; Transitional industry assistance; Carbon tax rebate |
| Boulder, Colorado, Climate Action Plan Tax | Electricity | Capped per kilowatt hour at: 0.49 cents (residential) 0.09 cents (commercial) 0.03 cent (industrial) | End user (collected by electric utility) | Climate action program |
| San Francisco, Bay Area Air Quality Management District Fee | Greenhouse gas emissions | 4.4 cents per ton of greenhouse gas emissions | Industry, businesses subject to air quality permits | Climate protection programs |

| Cap-and-Trade | Covered Emissions | Cost per Permit | Regulated Entity | Use of Revenue |
|---|---|---|---|---|
| S. 3036 Lieberman-Warner Climate Security Act of 2008 (Amendment 4825) | Carbon dioxide<br>Methane<br>Nitrous oxide<br>Sulfur hexaflouride<br>Perfluorocarbons<br>Hydrofluorocarbons | Unknown; ability to provide relief if economy subject to harm | Coal user;<br>Importer or producer of natural gas, petroleum, coal-based fuel, or certain greenhouse gases;<br>Producers of HCFCs | Broad range of purposes including: worker assistance; consumer relief; greenhouse gas reduction programs; deficit reduction |
| Regional Greenhouse Gas Initiative (RGGI) | Carbon dioxide from electricity generation | Unknown; potential for liberalized offset provisions if price above $7/ton | Electricity generator | Extent of auctioning and use of revenue varies with state |
| Western Climate Initiative (proposed) | Carbon dioxide<br>Methane<br>Nitrous oxide<br>Sulfur hexaflouride<br>Perfluorocarbons<br>Hydroflurocarbons | Unknown; anticipates rigorous offset program to reduce cost | Broad range of sectors for facilities, starting with electricity sector in 2012 and expanding to other sectors in 2015 | Minimum of 10% allowances auctioned in 2012, 25% in 2020, possibly higher thereafter; within guidelines, use of proceeds can vary by jurisdiction |

## *B. Cap-and-Trade Regimes*

The context for carbon taxes in the United States inevitably involves the question of the role of cap-and-trade regimes, which have been gaining momentum. As indicated at the start, this article does not serve as a critique of the relative merits of taxation versus cap-and-trade instruments. Rather, it can only briefly identify some of the relevant proposals or actions in order to put carbon taxes in context and to illustrate how many of the issues

that arise with carbon taxes also exist in cap-and-trade regimes. These issues include deciding which energy sources or emissions should be covered, at what point in the supply chain the price signal should be imposed, how to treat imports, and how to use any revenue (see Figure 3).

At the federal level, a number of proposals for cap-and-trade regimes for greenhouse gases were introduced in the 110th Congress spanning 2007 and 2008.[99] The most recent legislative activity of note centered on an amendment to the Lieberman-Warner Climate Security Act of 2008, S. 3036.[100] The amendment, submitted by Senator Barbara Boxer on behalf of Senators Joseph Lieberman and John Warner as a replacement for the original language of S. 3036, proposes an economy-wide cap-and-trade program. The amendment was designed to reduce greenhouse emissions to 19% below 2005 levels by 2020 and 71% below 2005 levels by 2050.[101] Although the amendment only received forty-eight of the sixty votes it needed to close debate,[102] it illustrates the type of cap-and-trade program receiving serious legislative attention.

The Lieberman-Warner bill, as described in the amendment, focuses on upstream producers or users and greenhouse gases beyond carbon dioxide. The proposed cap-and-trade system applies to entities that: use more than 5,000 tons of coal each year; process or import natural gas or produce natural gas in Alaska; manufacture or import petroleum or coal-based liquid or gaseous fuels; manufacture or import more than 10,000 tons of $CO_2$-equivalents of $CO_2$, methane, nitrous oxide, sulfur hexafluoride, or per fluorocarbons; or manufacture hydrochlorofluorocarbons.[103] Starting in

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99. *See, e.g.*, S. 3036, 110th Cong. (2008); S. 2191, 110th Cong. (2007); S. 1766, 110th Cong. (2007); S. 1554, 110th Cong. (2007); S. 1201, 110th Cong. (2007); S. 1177, 110th Cong. (2007); S. 1168, 110th Cong. (2007); S. 485, 110th Cong. (2007); S. 317, 110th Cong. (2007); S. 309, 110th Cong. (2007); S. 280, 110th Cong. (2007); H.R. 6316, 110th Cong. (2008); H.R. 6186, 110th Cong. (2008); H.R. 1590, 110th Cong. (2007); H.R. 620, 110th Cong. (2007).

100. The original Lieberman-Warner bill, S. 2191, 110th Cong. (2007), was reported favorably out of the Senate Committee on Environment and Public Works in May 2008 as "America's Climate Security Act of 2007." H.R. REP. NO. 110-337, at 1 (2008). However, Senator Boxer, chair of the committee, introduced a substitute Lieberman-Warner bill, S. 3036, 110th Cong. (2008), and subsequently offered Amendment 4825. 154 CONG. REC. S5048. Because the Senate's vote centered on Amendment 4825, 154 CONG. REC. S5333–34 (2008); S. 3036, 110th Cong. (2008), this article focuses on the cap-and-trade program proposed in the amendment.

101. PEW CTR. ON GLOBAL CLIMATE CHANGE, SUMMARY OF THE BOXER SUBSTITUTE AMENDMENT TO THE LIEBERMAN-WARNER CLIMATE SECURITY ACT 3 (2008), *available at* http://www.pewclimate.org/docUploads/L-WFullSummary.doc. *See also* Juliet Eilperin, *Senate Leaders Pull Measure on Climate*, WASH. POST, June 7, 2008, at A3 (explaining the goals of the bill).

102. David Herszenhorn, *After Verbal Fire, Senate Effectively Kills Climate Change Bill*, N.Y. TIMES, June 7, 2008,*available at* http://www.nytimes.com/2008/06/07/washington/07climate.html?_r=1&scp=1&sq=David%20Herszenhorn,%20After%20Verbal%20Fire&st=cse&oref=slogin.

103. S. 3036, Amend. 4825, 110th Cong. § 4(16), (33) (2008) (defining "covered entity" and "non-HFC greenhouse gas").

2012, these entities would need one allowance for each ton of $CO_2$-equivalent emissions or downstream emissions potential.[104] The bill establishes a declining number of allowances from 2012 to 2050[105] and tightly circumscribes the use of domestic offset projects or allowances from foreign trading programs.[106] Limited relief measures could be available, such as increased borrowing against future years' allowances.[107] To protect competitiveness, importers of products that generated substantial amounts of greenhouse gases during manufacture would have to purchase allowances if the country of origin has not taken comparable climate change actions,[108] somewhat akin to a border tax adjustment for a carbon or broad-based energy tax.

Over time, an increasing percentage of the allowances would be auctioned,[109] with proceeds going toward a variety of uses such as workers' transition assistance,[110] suggested tax relief for consumers hardest hit with cost increases,[111] mass transit,[112] energy efficiency,[113] low- or no-carbon electricity,[114] research,[115] wildlife and land conservation,[116] firefighting,[117] reducing greenhouse gas emissions from activities not covered by the cap-and-trade program,[118] international programs,[119] and deficit reduction.[120] In addition, allowances would be allocated, without charge, to industries dependent on fossil fuels (carbon-intensive manufacturers,[121] electricity generators that use fossil fuels,[122] and petroleum refiners[123]) as well as to a variety of entities that would use the allowances to provide relief to consumers, encourage the transition to a lower-emission economy,[124]

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104. *Id.* § 202(a).
105. *Id.* § 201(a).
106. *Id.* §§ 302(b)(1), (2) (each limited to 15% of the covered facilities allowances).
107. *Id.* § 521.
108. *Id.* §§ 1301–1306.
109. *Id.* §§ 532(c), 582(c), 611(d), 631(c), 1202(c), 1331(c), 1402(c).
110. *Id.* §§ 533–535.
111. *Id.* §§ 583–585.
112. *Id.* §§ 611(f)–(i).
113. *Id.* § 613.
114. *Id.* §§ 903, 905–906.
115. *Id.* §§ 911–912.
116. *Id.* §§ 631(d), (e), 1201(a)(1)(C).
117. *Id.* §§ 1211(b), 1212(b).
118. *Id.* § 527.
119. *Id.* §§ 1331(b), 1332.
120. *Id.* § 1403.
121. *Id.* § 541.
122. *Id.* § 551.
123. *Id.* § 561.
124. *See, e.g., id.* § 601 (allocating to local distribution companies for electricity and natural gas for relief to lower-income consumers and small business); *id.* § 602 (allocating to states dependent on coal and manufacturing for reducing greenhouse gas emissions and encouraging energy efficiency); *id.* §

address adaptation on an ongoing basis,[125] and reward early action.[126] In addition, the proposed legislation contains a separate cap-and-trade program for hydrofluorocarbon emissions.[127]

In the absence of a federal cap-and-trade regime to date, ten states in the Northeast and Mid-Atlantic (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont) have joined together to create a narrower cap-and-trade regime targeting the electricity sector, the Regional Greenhouse Gas Initiative (RGGI).[128] The RGGI cap-and-trade program applies to carbon dioxide emissions from entities that generate at least twenty-five megawatts of electricity[129] with the goal of stabilizing emissions at current levels by 2014 and gradually reducing them to ten percent below 2009 levels by 2018.[130] Although implementation details vary from state to state,[131] the program allows offset projects for up to 3.3% of the emissions and provides more liberal offsets if the price of permits rises to seven dollars per ton or above.[132] The permits will be distributed primarily by auction, and the first auction by six states was held in late September 2008.[133]

Another regional program, the Western Climate Initiative (WCI), is taking shape with efforts by seven western states (Arizona, California, Montana, New Mexico, Oregon, Utah, and Washington) and four Canadian

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614 (allocating to state leaders in the reduction of greenhouse gas emissions); *id.* §§ 801–832 (allocating to Climate Change Technology Board for efficient buildings program, efficient manufacturing, and renewable energy); *id.* § 1011 (allocating to carbon capture and sequestration projects); *id.* §§ 1102–1103 (allocating to the Environmental Protection Agency for fuel efficient commercial fleets); *id.* § 1121 (allocating to the Environmental Protection Agency to reward production of cellulosic ethanol).

125. *See id.* §§ 621–625 (allocating to Indian tribes and states for coastal, freshwater, agricultural, and other impacts).

126. *Id.* §§ 701–702.

127. *Id.* § 1501.

128. *See* Memorandum of Understanding Governing Regional Greenhouse Gas Initiative § 1 (Dec. 20, 2005), *available at* http://rggi.org/docs/mou_12_20_05.pdf (initially signed by the governors of seven states).

129. *Id.*

130. *Id.* §§ 2C, 2D.

131. *See* CONN. GEN. STAT. § 22a-200c (2008); DEL. CODE ANN. tit. 7, §§ 6043–6047 (2008); MASS. GEN. LAWS ch. 25A, § 6 (2008); N.H. REV. STAT. ANN. §§ 125-O:19–28 (West 2008); N.J. STAT. ANN. § 26:2C-45 (West 2008); N.Y. COMP. CODES R. & REGS. tit. 6, § 242 (2008); MD. CODE ANN., ENVIR. § 2-1002 (2007); ME. REV. STAT. ANN. tit. 38, §§ 580-A to 580C (2007); R.I. GEN. LAWS §§ 23-82-1-23-82-7 (2007); VT. STAT. ANN. tit. 30, § 255 (2005).

132. *See* Memorandum of Understanding, *supra* note 128, § 2F(2)–(4).

133. Press Release, The Regional Greenhouse Gas Initiative, RGGI States' First $CO_2$ Auction Off to a Strong Start (Sept. 29, 2008), *available at* http://www.rggi.org/docs/press_release_9_29_08_final.pdf.

provinces (British Columbia, Manitoba, Ontario, and Quebec).[134] WCI's goal is to reduce greenhouse gas emissions to fifteen percent below 2005 levels by 2020,[135] and it issued recommendations for the design of a regional cap-and-trade system in September 2008. The recommendations propose a broad-based regime for a range of greenhouse gases similar to those covered by the Lieberman-Warner bill described above.[136] They also specifically recognize that the cap-and-trade program can "work in concert" with carbon taxes and that WCI jurisdictions will determine how to integrate British Columbia's carbon tax (described in another article in this volume) with the cap-and-trade system.[137] The WCI program has been evolving in tandem with California's efforts to develop programs to meet its statutory commitment to reduce greenhouse gas emissions to 1990 levels by 2020,[138] and the California Air Resources Board has recommended a cap-and-trade system link with the WCI trading program.[139]

### *C. Carbon Tax Issues in the Cap-and-Trade Context*

If the federal government seriously tackles the issue of climate change, it will have to decide whether to create a broad-based, market-based regime for reducing greenhouse gas emissions. Either a carbon tax or an economy-wide cap-and-trade system would create the backbone for a comprehensive program, although neither would necessarily supplant policies targeted toward specific issues, such as fuel economy requirements for vehicles. The Bay Area Air Quality Management District's fee on greenhouse gas emissions and RGGI show conversely that tax and cap-and-trade regimes can also be tailored more narrowly, and the Western Climate Initiative is exploring how a tax may work in concert with a cap-and-trade regime. Policymakers can choose combinations from a large portfolio of options,

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134. Press Release, Arizona, et al., U.S. States, Canadian Provinces Announce Regional Cap-and-Trade Program to Reduce Greenhouse Gases (Sept. 23, 2008), *available at* http://www.westernclimateinitiative.org/ewebeditpro/items/10104F19871.pdf.

135. WESTERN CLIMATE INITIATIVE, STATEMENT OF REGIONAL GOAL (2007), *available at* http://www.westernclimateinitiative.org/ewebeditpro/items/O104f13006.pdf.

136. WESTERN CLIMATE INITIATIVE, DESIGN RECOMMENDATIONS FOR THE REGIONAL CAP-AND-TRADE PROGRAM 1 (2008), *available at* http://www.westernclimateinitiative.org/ewebeditpro/items/0104F19865.pdf. The WCI's recommendations cover a range of greenhouse gases from electricity generation, industrial and commercial facilities, gasoline and diesel-based transportation, and residential, commercial, and industrial fuel (on an upstream basis). *Id.* at 1–2.

137. WESTERN CLIMATE INITIATIVE, *supra* note 136, at 4.

138. CAL. HEALTH AND SAFETY CODE §§ 38500, 38550 (West 2007).

139. CALIFORNIA AIR RESOURCES BOARD, CLIMATE CHANGE PROPOSED SCOPING PLAN: A FRAMEWORK FOR CHANGE 30 (2008), *available at* http://www.arb.ca.gov/cc/scopingplan/document/psp.pdf.

but the fundamental question remains whether the United States will pursue an aggressive tax or cap-and-trade regime at the federal level.

If the government chooses a relatively comprehensive, market-based approach, a fundamental design issue is whether to target only carbon, all greenhouse gases, or other energy sources as well even if they do not directly produce greenhouse gases. In other words, what is the tax base for the tax, or which emissions will define the trading regime? Carbon taxes, greenhouse gas taxes, and cap-and-trade regimes all focus directly on emissions in proportion to their global warming potential. In this respect, they are quite similar. By contrast, the Clinton Btu tax included nuclear power and hydroelectricity and did not tie even the tax on fossil fuels to their global warming potential. As discussed above, this choice was driven in large part by wanting to distribute the burden more evenly around the country. It remains to be seen whether carbon tax and cap-and-trade regimes ultimately will fall prey to the arguments about regional impacts that the Clinton Administration tried to avoid with its choice of the Btu tax—or whether the political will to address climate change will be strong enough to counter those arguments and maintain the focus on greenhouse gases.[140] The fact that ten states are implementing the RGGI cap-and-trade program may not necessarily serve as a bellwether for federal assessment of the tradeoffs between targeting fossil fuels and looking more broadly, since RGGI involves only the electricity-generating sector and states within a region may have more similar interests or profiles.

Taxes and emissions allowances each impose costs. The cost for the tax will be based on the tax rate; the cost of the allowances will depend upon the market. Consequently, both types of market-based regimes will have economic effects and pose regressivity issues.[141] Taxes offer the benefit of a known cost, which may make the calculation of their projected economic effects and regressivity more reliable, though perhaps at the risk that policymakers will then dilute the tax rate below environmentally sound levels to reduce economic impacts. By not starting with a price, a cap-and-trade system may potentially postpone that moment of political reckoning.

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140. One could argue that it is more important to distribute the burden for reducing the federal deficit equally around the country than the burden for reducing greenhouse gas emissions, which may be more allocable to one region than another. Such an argument again illustrates how revenue use is relevant to the policies and politics governing the design of the tax.

141. See Letter from Peter Orszag, Director, Cong. Budget Office, to Senator Jeff Bingaman, Chairman, Comm. on Energy and Natural Res., U.S. Senate (June 17, 2008) and accompanying report, CONG. BUDGET OFFICE, OPTIONS FOR OFFSETTING THE ECONOMIC IMPACT ON LOW- AND MODERATE-INCOME HOUSEHOLDS OF A CAP-AND-TRADE PROGRAM FOR CARBON DIOXIDE EMISSIONS 1 (2008), *available at* http://www.cbo.gov/ftpdocs/93xx/doc9319/06-17-ClimateChangeCosts.pdf (analyzing options for offsetting the disparate economic impacts of a cap-and-trade program).

Nonetheless, either type of instrument will have real costs that warrant full and comparative attention at the start.

Distributing allowances at no cost, without auction, may not provide a sound, easy answer to cost issues. Based on experience with the European Trading Scheme and economists' analyses, entities that receive allowances at no cost may still pass some or all of the value of the allowances on to consumers in the price of their products, using the windfall to increase their profits.[142] Consumers will not necessarily see the savings. This counterintuitive result of free distribution means that awarding cap-and-trade allowances at no cost does not provide a simple way of mitigating the economic effect, regressivity, or regional disparity of a cap-and-trade system. In addition, a cap-and-trade program with free distribution would not create as strong an incentive to reduce aggregate emissions below the capped threshold.

The revenue side of the equation is also important when putting carbon taxes and cap-and-trade regimes in context. Placing a price on emissions through taxes or auctioned allowances will produce revenue for the government. As seen in the examples of proposals above, the revenue can be used to enhance the environmental impact by financing climate change programs, to address regressivity, to assist in economic transitions,[143] or to provide for deficit reduction or tax relief. As with the Clinton Btu tax, the need for new revenue may provide political motivation for the new instrument.

Thus, as Figure 3 illustrates, tax regimes and auctioned cap-and-trade regimes are fundamentally similar in their basic components—targeted fuels or emissions, cost imposed per unit, an identified party responsible for paying that cost, and revenue that can be put to use if the allowances are auctioned. Policymakers must make similar decisions for each. But the two regimes also have their known differences, often shorthanded into certain cost (the fixed tax rate) versus uncertain cost (the market price), and uncertain environmental results (based on the behavioral effect of the tax) versus relatively certain environmental results (based on the cap). Predictability of cost and efficiency lend heft to the carbon tax side, and

142. Staff of the National Commission on Energy Policy, Allocating Allowances in a Greenhouse Gas Trading System 10–11 (2007), *available at* http://www.energycommission.org/ht/display/ContentDetails/i/1578/pid/493. For a discussion of the European experience, see Mikael Skou Anderson, *Environmental and Economic Implications of Taxing and Trading Carbon: Some European Experiences*, in this volume.

143. Nevertheless, the distribution of allowances at no cost to entities required to use them for specific purposes can provide an indirect means of funding programs. Recipients can sell the allowances and use the proceeds for their programs. For examples of this approach, see *supra* notes 124–26 and accompanying text.

certainty of result weigh in on the cap-and-trade side, but the issue should not be overstated—the Intergovernmental Panel on Climate Change has found taxes to be both cost effective and environmentally effective.[144]

Taxes and cap-and-trade regimes are also very different in their administration, with the Internal Revenue Service responsible for taxes and private-sector and nonprofit entities playing significant roles in the implementation of trading regimes. Importantly, they are also within different committees' jurisdictions during the legislative process: the tax-writing committees control taxes and the environmental or energy committees control the cap-and-trade regimes. Different players will have the first voice for each, and their preferences and familiarities will influence choices. The ultimate decisions will be based on the intersection of policy and politics, as evidenced by the Btu tax proposal in 1993.

## CONCLUSION

Climate-related taxes should receive serious attention as a new administration and Congress take shape following the November 2008 elections. The spotlight has been on cap-and-trade regimes, but tax regimes share many of the same characteristics. Although taxes seem more politically volatile, carbon taxes and cap-and-trade regimes should be subjected to the same calculations of economic impact, equity, administrative feasibility, and environmental effect, and the political calculation for each should not rest on a cursory dismissal of the viability of taxes. As detailed elsewhere in this volume, the experience in Europe demonstrates that climate-related taxes can be enacted in a variety of forms. The Clinton Administration's experience with the Btu tax should not toll the bell for climate change taxes, but rather serve as an indicator of sensitive issues that price-based mechanisms must address as the United States considers whether climate change taxes, or cap-and-trade regimes, might be "in accordance with our national circumstances."[145]

144. *See, e.g.*, WORKING GROUP III CONTRIBUTION, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: MITIGATION OF CLIMATE CHANGE 756 (Bert Metz et al. eds., 2007); *see also Approaches to Reducing Carbon Dioxide Emissions, House Comm. on the Budget*, 110th Cong. (2008) (statement of Peter R. Orszag, Director, Congressional Budget Office). The inflexibility of the cap that makes cap-and-trade regimes less efficient could be mitigated through a variety of means. *See generally* CONG. BUDGET OFFICE, POLICY OPTIONS FOR REDUCING $CO_2$ EMISSIONS (2008).

145. *See* Hokkaido Toyako, *supra* note 1.