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The Case for State Pollution Taxes

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I. Why Pollution Taxes?

Our present tax system primarily taxes functions that our society seeks to encourage: income, capital formation, payrolls, sales and property. Any tax places a burden on the function taxed, so the effect of these taxes is to depress income, employment and sales, discourage capital formulation and decrease property values.

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Indeed, the distortionary effect of the existing tax system places an enormous burden on the United States economy in terms of lost business, work and savings.

If considerable government revenues could be raised in non-distorting ways, allowing reductions in taxes on income, payroll and profits, the real economic savings would be huge. . . . substituting \$100 billion of non-distorting taxes for a mix of current federal taxes yielding the same revenue might easily generate \$40 to \$60 billion yearly in additional real income. This potential-tax reform dividend is as large as the much-heralded peace dividend.¹

It is much sounder social policy to tax functions society wishes to discourage than those which it seeks to encourage. Hence, increasing attention is being focused, particularly in Europe and Japan and in international forums, on taxing pollution. In the United States, there has been a tendency on the part of governmental entities in recent years to impose "sin taxes" as excises on activities society wishes to discourage, most prominently the sale of tobacco products, liquor, guns and the like. A pollution tax can be considered a type of "sin tax."²

Pollution taxes are also a sound environmental instrument. The principal means of controlling pollution in the United States is by command and control regulation, setting standards or limits on emissions and requiring particular pollution control technologies.³ Command and control regulation of pollution, while necessary to assure pollution reductions, has its limits. While much more certain of reducing pollution than pollution taxes would be, controls tend to be set only at levels that are politically acceptable. Seldom are the full social costs of pollution eliminated in pollution control standards, except where particularly noxious products are banned outright, such as the prohibitions against

1. ROBERT REPETTO ET AL., WORLD RESOURCES INSTITUTE, GREEN FEES: HOW A TAX SHIFT CAN WORK FOR THE ENVIRONMENT AND THE ECONOMY 4 (Nov. 1992).

2. See, e.g., I.R.C. § 5701 (1992).

3. PERCIVAL ET AL., ENVIRONMENTAL REGULATION 420 (1992).

use of asbestos, DDT and lead in gasoline in the United States.⁴ Furthermore, when standards are adopted, there is no incentive provided for emitters to exceed those standards or to develop better pollution control technologies.

Pollution taxes burden activities society wants to discourage. They provide an incentive to create new environmental technologies and efficiencies to promote pollution prevention. They allow the affected polluters to react to the tax incentives in the most economically efficient manner, without prescribing particular control technologies, as many of the command and control regulations do.

Pollution taxes conform to longstanding Pigouvian economic theory that the polluter should pay for the damages caused to society by its pollution, and that the costs to society from pollution should be incorporated into the polluter's prices. Thus, the market place can be used to promote manufacture of less polluting products and to encourage use of less polluting processes.

Pollution taxes promote efficiency improvements in industry that can make the taxed manufacturers more competitive. They foster the development of new pollution prevention and control technologies which open up new business and job opportunities.⁵ They promote efficiencies in the use of energy which can lower energy bills, again fostering competitiveness.

Furthermore, in a time of revenue stringency for all levels of government, pollution taxes create substantial revenues that can be used to balance budgets and for environmental purposes. This would alleviate the economic, gross, sectoral and equity impacts of existing taxes.

Our country is not without experience with pollution taxes. Most particularly, Congress adopted a tax on chlorinated fluorocarbons (CFCs) in 1990 to accelerate the phase-out

4. RICHARD OTTINGER ET AL., ENVIRONMENTAL COSTS OF ELECTRICITY 562 (1990).

5. A. MILLER & C.A. MOORE, CENTER FOR GLOBAL CHANGE, UNIVERSITY OF MARYLAND AT COLLEGE PARK, GREEN GOLD — ENVIRONMENTAL TECHNOLOGY AND THE RACE TO CAPTURE INDUSTRIAL DOMINANCE OF THE 21ST CENTURY (Sept. 1993).

of these stratospheric ozone depleting chemicals.⁶ The Clean Air Act also contains a number of fees for violation of standards that are geared to pollutant emissions and act very similarly to pollution taxes. The Clean Air Act specifies that pollution taxes are one authorized means by which states can meet its air emission requirements.⁷

II. Addressing Pollution Tax Problems

A. Competitive Concerns

Perhaps the chief concern about pollution taxes, as it is with other taxes, is that they may create a competitive disadvantage for the affected taxpayers vis á vis competitors in other jurisdictions which impose no such taxes or impose them at lower rates. This concern applies to international trade at the federal level and to interstate competition at the state level. Pollution taxes can be offset by reductions in other taxes, however, to ameliorate their economic impacts.

Competitive concerns about a revenue-neutral tax exchange should be far less than concerns about a tax without offsets. Furthermore, the distortionary effects of taxes on income, capital and labor create much greater competitive disadvantages than do taxes on pollution, which tend to promote domestic investment and labor. The switch from traditional taxes to pollution taxes should, therefore, create, on average, a competitive advantage to state enterprises.

Finally, a recent study demonstrates that tighter pollution requirements induce affected enterprises to become more efficient, thus more competitive. The added efficiencies create new businesses to manufacture the more efficient processes and pollution control devices, which in turn create new export business opportunities for the affected industries.⁸

6. I.R.C. § 4681 (1990).

7. Clean Air Act § 101, 42 U.S.C. § 7401 (West 1983). See J. Andrew Hoerner, *New Clean Air Bill Directs States To Collect Environmental Taxes*, 49 TAX NOTES 944 (1990).

8. A. Miller, *supra* note 5.

There will still be industrial sectors particularly impacted by pollution taxes. However this effect is not completely undesirable. For example, since coal combustion is so intimately related with a variety of emissions, it is environmentally desirable to eliminate. Some of the sting can be alleviated by using a portion of the tax revenues to assist manufacturers to diversify and to retrain workers. Competitive concerns with respect to pollution taxes can also be partially addressed by taxing imports of the offending products and exempting exports from the tax.

B. Tax Rate

There are concerns deriving from the size of the tax. Ideally, the size of the tax should be high enough to prevent emissions at levels which cause damage to society, but this may be politically difficult to achieve. To the extent the taxes are high, there will be more competitive pressures with which to deal. On the other hand, small taxes will have much smaller pollution-reducing effects.⁹ However, it is better to have a tax at a small level producing some pollution-reducing effects than to have no tax and thus no pollution reductions. Taxes can be phased higher over time as experience with them is gained.

It should be noted that a much lower tax can produce the same environmental improvement if some of the revenues are used for pollution reduction. Thus, a New York study shows that a carbon stabilization target could be achieved at a significantly lower cost if the revenues were used solely for carbon reductions, and that this use of revenues would also substantially offset the regressive effects of the tax.¹⁰

9. CHRISTOPHER STONE, *THE GNAT IS OLDER THAN MAN* 136-41 (Princeton U. Press 1993).

10. Ajay K. Sanghi & Anthony L. Joseph, *Taxing Pollution Instead of Labor: Is it a Prudent CO₂ Reduction Policy?*, 6 *ELECTRICITY J.* 51 (Jan. - Feb. 1993). See also, A. SANGHI ET AL., *N.Y. STATE ENERGY OFFICE STATE LEVEL IMPACTS OF A FEDERAL CARBON TAX: A NEW YORK STATE EXAMPLE* (for presentation at the 84th Annual Meeting & Exhibition, Vancouver, British Columbia, June 16 - 21, 1991).

C. Pollution Substitution

A concern relating particularly to carbon taxes is that taxing fossil fuel emissions without taxing nuclear power environmental risks will unfairly advantage nuclear power and thus promote increases in nuclear risks.¹¹ It is for this reason that the European Community is proposing to combine carbon taxes with broader taxes on energy. A better solution would be to also tax nuclear fuel processing and nuclear waste.

D. Spiking

A concern pertaining to taxes on pollution that is local in nature is the spiking problem. Spiking is the notion that pollution damage is a function not just of what is being added to the environment but also of pollution already present from existing sources. The effects of cumulative pollution may vary sharply from place to place within a jurisdiction.¹² The taxes need to be adjusted, where appropriate, to take account of these differences. Since carbon dioxide emissions affect global environmental problems, however, this spiking problem would not be applicable to a carbon tax.

E. Revenue Erosion

Another problem with all pollution taxes where the revenues are important is that, to the extent the tax is successful in reducing pollution, the tax base is eroded. Funds from tax proceeds sought to provide general revenues, clean up the environment, help with sectoral and equity impact alleviation, or support offsets from other taxes will be eroded.¹³ The solution is to phase in a gradually increasing tax over time, or at least over the relevant planning horizon. Eventually, as optimal carbon tax levels are achieved, other tax options, preferably taxes on other pollutants, will have to be substituted.

11. STONE, *supra* note 9.

12. *Id.*

13. *Id.*

F. Point of Imposition

At what point to impose the taxes is another important issue. Administrative ease and enforcement considerations dictate that the taxes be imposed as far upstream as possible. Upstream taxes are a blunt instrument, however, failing to account for pollution control measures that may occur further downstream.¹⁴ Therefore, where emissions can be readily measured and monitored, it is far better to tax the actual downstream emissions.

G. Avoidance

Another problem that must be addressed is the problem of avoidance and enforcement. The higher the tax, the greater the incentive is to avoid it by moving business activities across the border or by illegal imports from other jurisdictions or from Native American nations in the United States. Particularly problems occur with taxes on petroleum distribution which is a very thin-margin business where a few cents per gallon can be a large difference. As the difference between taxed and untaxed product grows, so does the incentive for evasion.

Great difficulty is experienced now with fuel tax evasion. Additional enforcement measures should be part of any package, particularly one that increases state-level petroleum taxation. Also, state-federal cooperation in assuring compliance with gasoline taxes has been effective and should be pursued in enforcement of state pollution taxes.

H. Exemptions

There will also be pressures for exemptions — for farmers, governments and non-profit organizations — that need to be considered. Present federal and state taxes on energy are rife with such exemptions.¹⁵ Exemptions should not be considered, however, particularly for downstream pollution

14. For example, the use of scrubbers or "clean coal" technologies.

15. See, e.g., I.R.C. § 6427 (1994).

taxes, since exemptions there would seriously erode the environmental effects desired.

I. False Perception of Solution

Lastly, adoption of a pollution tax may give the false impression that the pollution problems subject to the tax have been resolved. Rarely, however, will a tax alone be sufficient for bringing pollution within acceptable limits. The tax is useful as an incentive to speed compliance with regulations, as with the United States-adopted CFC tax, and to go beyond the standards set by regulation, encouraging adoption of new technologies. This should be clearly stated at the time of adoption of a pollution tax.

III. Carbon Tax Considerations

Of particular recent interest has been consideration of carbon taxes as a means of meeting the international goals for stabilizing global climate change. This was proposed at the United Nations Conference of Environment and Development (UNCED).¹⁶ Individual countries were given the responsibility to develop their own strategies for meeting goals the Climate Change Convention adopted.¹⁷ The European Community has under consideration a carbon tax and a number of European countries have already adopted carbon taxes on their own as means of meeting these Convention targets.

The overwhelming majority of carbon dioxide releases come from combustion of fossil fuels at utilities, in industrial processes and in motor vehicles. Carbon taxes can take a variety of forms, largely dependent on the point at which the tax is imposed. In each case, the objective is to create the maximum reduction of carbon dioxide emitted with maximum economic efficiency. The tax can be imposed at any

16. This conference was held in Rio de Janeiro, Brazil, June 1992. The convention worked as an international forum to form future agreements and treaties that affect the environment, development and resources of the Earth.

17. G.A. Res. 45/212, UNCED, 5th Sess. U.N. Doc. A/AC. 237/18 (Part II) (1992) reprinted in *AGENDA 21 & THE UNCED PROCEEDINGS 1685 - 1713* (Nicholas A. Robinson ed. 1992).

point between the extraction of carbon-rich fuel sources as a proxy for carbon dioxide emissions, to the emissions themselves.

For a state carbon tax, on the surface it would appear easiest from an administrative and enforcement standpoint to impose the tax "upstream" at the mine mouth for coal or the well-head for oil or natural gas. However, there are several problems with this upstream taxation. It gives no credit for controls or improved combustion processes that may be added downstream to reduce carbon emissions. It gives no incentives to develop technologies for carbon dioxide emission reductions and it imposes administrative difficulties for treatment of high-carbon fuels imported into a state. States can impose taxes on imported goods, under the Commerce Clause of the United States Constitution,¹⁸ so long as the taxes are non-discriminatory, the same for imported fuels as for domestically produced fuels.

States could also impose a "midstream" tax on the carbon content of imported fuels at their point of entry into the state, whether by truck, tanker, rail or pipeline¹⁹ or at the utility or fuel distribution center to which the fuels are delivered. Taxation at the point of delivery also gives no credit for more efficient combustion processes or for other emission reduction technologies, but is probably easiest administratively.

Finally, the tax could be imposed on the emissions themselves at the point of use. This might be relatively easy for utilities and large industrial facilities where the emissions can be readily measured and monitored, but virtually impossible to administer relative to each commercial or residential fuel combustion or with respect to motor vehicles. To the extent that actual emissions can be measured and monitored, however, taxation downstream of the emissions is the best option environmentally and from the standpoint of economic efficiency, since technological improvements can be fully taken into account.

18. U.S. CONST. art. I, § 8, cl. 3.

19. This could be feasible but administratively even more burdensome.

In the United States, a national carbon tax was considered by the Clinton Administration as one of the instruments for alleviating our budget deficit. The tax was rejected by the Administration on the basis of the anticipated political difficulties flowing from its large impacts on coal-producing states, particularly since the head of the Senate Appropriations Committee was from West Virginia. The Administration instead opted for a Btu tax which it subsequently had to abandon because of the political resistance from affected interests.

Based on this experience, it is unlikely that energy taxes or energy-related pollution taxes will again be visited at the federal level for the foreseeable future. Therefore, it is timely for states to consider pioneering in adoption of taxes on carbon and other pollutants.

IV. Why State Pollution Taxes?

State taxes on income, capital, payrolls, sales and property impose particularly great burdens on state economies. They act not only to burden state businesses and residents, discouraging them from investing and working, but they also drive investment interests and workers from the state. Recent studies show that the competitive disadvantages to a state of these traditional taxes are very great.²⁰

The logic of substituting pollution taxes for traditional state taxes is particularly great since improving the local environment will not only have positive health and environmental effects for existing state residents, but it will also make the state more of an attraction for business investment and labor immigration. Thus, substitution of environmental charges can raise revenues while improving environmental quality and reducing taxes that drive businesses and workers away from the state.

20. REPETTO ET AL., *supra* note 1 at 4-6 (citing Timothy J. Bartik, *Business Location Decisions in the United States: Estimates of the Effects of Unionization, Taxes, and Other Characteristics of States*, 3(1) J. BUS. & ECON. STAT., 14, 14-22 (1985)).

A tax switch to pollution taxes should also be politically attractive. Making polluters pay for the damages they impose on society should be much more palatable than taxing people's income, capital, payrolls, sales and property. Indeed, the public seems to accept only taxes specifically tied to benefits, like the social security tax even though it is highly regressive. Emphasis should be placed on the reduction of their traditional tax bills and the opportunity to mitigate pollution taxes by reducing pollution-causing activity.

At present, the only way most people can reduce their tax bill is to work less and earn less income. The American public is overwhelmingly in favor of environmental protection. If environmental charges were in place, they could instead reduce their tax bills by, for instance, saving energy, bicycling to work, or recycling.²¹

States have traditionally been a crucible for experimentation with new concepts, proving their practicality and thus paving the way for federal legislation, particularly in the environmental field. California pioneered in setting appliance efficiency standards which were later adopted by Congress. California is now playing a similar role with respect to non-polluting vehicles. Adoption of state carbon and other pollution taxes could demonstrate their feasibility and pave the way for future federal action.

State carbon taxes have been resisted as being inconsequential in addressing global problems of climate change. This is not true, however. Consider the following: "Only six foreign nations release more CO₂ than Texas. Texas greenhouse emissions exceed those of Canada, Poland or Italy and Argentina combined. California contributes more to global warming than Spain, South Korea or South Africa."²² As demonstrated Table 1, New York contributes more pollution than three quarters of the nations of the world including

21. *Id.* at 12.

22. F. Muller & J.A. Hoerner, *The Promise of State Carbon Taxes: Opportunities and Policy Issues*, STATE TAX NOTES 530 (1993).

Belgium, Yugoslavia, Nigeria, Greece, Iraq, Iran, Switzerland, Israel and all the Scandinavian countries together.

Adoption of a carbon tax at the state level, therefore, can have meaningful impact on the global warming threat in and of itself, and even more so as an example which other states and the federal government can follow. If each state and country adopts an attitude that its small contribution to the global problem is too insignificant to matter, nothing will ever get done to address the problem.

A number of states have already acted on various non-tax measures to reduce their emissions of greenhouse gases.

Vermont has developed a comprehensive plan to reduce greenhouse gas emissions and non-renewable energy consumption per capita as a result of a 1989 gubernatorial directive. In 1992, the Connecticut legislature directed that the state energy plan include a CO₂ emissions reduction level . . . New York, Massachusetts, California, and Nevada [and recently Wisconsin] have all assigned explicit monetary costs to CO₂ emissions for purposes of doing least-cost planning. A host of other initiatives are in place in other states.²³

Table 1

Rank	Nation/State	Total Emissions	Rank	Nation/State	Total Emissions
1	United States	5,3238.7	59	Washington	65.9
2	U.S.S.R.	4,116.3	60	Kansas	64.1
3	China	2,517.2	61	Sweden	63.7
4	Japan	1,069.3	62	Pakistan	63.4
5	India	695.5	63	Maryland	63.4
6	Germany, Dem. Rep.	692.5	64	Colorado	59.0
7	United Kingdom	618.9	65	Iowa	57.5

23. *Id.* at 530 n. 5 (stating for a review of state initiatives on global warming, see P. WEXLER, CENTER FOR GLOBAL CHANGE REPORT, COOL TOOLS: STATE AND LOCAL POLICY OPTIONS TO CONFRONT A CHANGING CLIMATE (1992); ANDREW SILBERGER & RON GRAVIS, THE BRUCE COMPANY, SELECTED SUMMARY OF CURRENT STATE RESPONSES TO CLIMATE CHANGE (July 1992)).

Table 1 (continued)

Rank	Nation/State	Total Emissions	Rank	Nation/State	Total Emissions
8	Texas	568.7	66	Arizona	56.8
9	Canada	495.7	67	South Carolina	56.2
10	Poland	477.8	68	Columbia	55.9
11	Italy	409.6	69	Finland	55.7
12	France	380.5	70	Austria	54.4
13	Mexico	339.5	71	United Arab Emirates	54.2
14	California	322.5	72	Malaysia	51.4
15	South Africa	302.2	73	Wyoming	51.4
16	Australia	280.3	74	Denmark	50.7
17	Czechoslovakia	243.5	75	Norway	50.0
18	Pennsylvania	232.7	76	Utah	49.1
19	South Korea	227.0	77	New Mexico	48.9
20	Romania	226.2	78	Algeria	47.7
21	Ohio	222.7	79	Arkansas	46.9
22	Brazil	214.4	80	Mississippi	45.8
23	Spain	210.6	81	Phillipines	43.0
24	Louisiana	188.0	82	Portugal	41.8
25	New York	187.8	83	Switzerland	40.3
26	Indiana	187.5	84	Libya	40.2
27	Saudi Arabia	186.3	85	North Dakota	40.0
28	Illinois	184.4	86	Singapore	38.6
29	Iran	176.2	87	Israel	35.0
30	Florida	170.3	88	Connecticut	34.9
31	Michigan	161.6	89	Kuwait	34.4
32	Indonesia	144.1	90	Alaska	31.8
33	Yugoslavia	141.8	91	Ireland	31.5
34	Netherlands	135.8	92	Nebraska	29.8
35	Argentina	127.8	93	Syria	29.1
36	Georgia	126.8	94	Oregon	28.4
37	Turkey	125.9	95	New Zealand	28.3

Table 1 (continued)

Rank	Nation/State	Total Emissions	Rank	Nation/State	Total Emissions
38	Bulgaria	114.9	96	Trinidad and Tobago	20.3
39	Kentucky	108.7	97	Maine	16.5
40	Belgium	104.4	98	Ecuador	15.8
41	New Jersey	104.2	99	Delaware	15.4
42	Venezuela	103.2	100	Qatar	14.5
43	Alabama	101.8	101	Bahrain	13.4
44	West Virginia	98.6	102	New Hampshire	13.0
45	North Carolina	98.2	103	South Dakota	10.4
46	Tennessee	97.0	104	Idaho	10.3
47	Missouri	94.8	105	Luxembourg	9.9
48	Nigeria	85.4	106	Gabon	8.5
49	Virginia	84.1	107	Coted' Ivoire	8.0
50	Egypt	82.3	108	Rhode Island	7.4
51	Oklahoma	79.6	109	Vermont	4.8
52	Thailand	77.4	110	Cyprus	4.1
53	Wisconsin	77.4	111	Dist. of Columbia	4.0
54	Massachusetts	74.1	112	Costa Rica	2.5
55	Greece	71.0	113	Guinea-Bissau	2.5
56	Minnesota	70.6	114	Nicaragua	2.3
57	Iraq	69.1	115	Iceland	2.1
58	Hungary	68.5	116	Malta	1.8
			117	Paraguay	1.7

V. Getting States to Consider and Pass Pollution Taxes

State and local governments already impose a wide variety of taxes on energy consumption, including taxes on gasoline, diesel fuel, utilities and Btu, as well as a potpourri of related taxes such as severance taxes. The problem with energy taxes is that they may fall equally on clean and dirty

fuels. Being narrowly imposed on energy, they require a higher level of tax to achieve the same revenue and pollution reduction than a broader based carbon tax. Carbon taxes are broadly distributed over residential, commercial and industrial taxpayers and an appropriate share is born by interstate commerce and tourism.²⁴ Energy taxes also are likely to encounter more political resistance than pollution taxes which can be supported on the basis of making polluters pay for the environmental costs they impose on society.

Carbon taxes do not have to have large economic effects. A modest ten dollars per ton state carbon tax would impose a very low economic burden. Even with a utility which has a fuel mix of ninety percent coal, the price increase would only be 2.8 mills per kWh, or less than a gross receipts tax of five percent which is well within the range of existing state energy taxes. For most utilities, with lower proportions of coal in their fuel mix, the effects on prices would be considerably less. Furthermore, if the response to a carbon tax is to increase energy efficiency, the savings may more than offset the tax.²⁵

Legislation for small state carbon taxes was introduced in Maryland in 1992, in Minnesota in 1990 and in California last year. While none of these bills were adopted, the Maryland proposal was the subject of legislative hearings²⁶ and the bill was dropped only in a last minute settlement by the houses of the legislature.²⁷

There is a tremendous aversion to taxes in the United States today. The failure of the very modest federal Btu tax which was proposed by the Clinton Administration to help balance the budget demonstrates this aversion to taxes. Recent state elections also demonstrate this aversion, most notably the New Jersey gubernatorial election, which hinged in large part on voter aversion to taxation.

24. *Id.* at 531-32.

25. *Id.* at 534.

26. *Small State Carbon Taxes: Hearings on S.665 Before the Subcommittee on Budget and Taxation of the Maryland Senate Comm.* (1992).

27. F. Muller & J.A. Hoerner, *supra* note 22 at 541-44.

It may be, therefore, that the only way to get pollution taxes introduced initially will be on a revenue-neutral basis, shifting tax burdens from income and capital to polluting activities. This should be very attractive politically, particularly in light of a study published by EPA researchers demonstrating that a shift from federal taxes on capital and business income to a federal carbon tax could produce a significant national economic stimulus because of the greater economic efficiency of a carbon tax.²⁸ If this phenomenon can be demonstrated at the state level, pollution taxes, properly presented, could be very saleable.

Revenue-neutral pollution taxes could encompass offsets to alleviate the economic burden to the state from the taxes, the sectoral impacts on energy-intensive industries particularly affected and the equity impacts on low income people. Consideration should also be given to using some of the tax revenues for pollution reduction.²⁹ It might be possible to garner support from utilities for the tax exchange if utility gross receipts taxes, particularly anathema to the utilities, were reduced and if the pollution taxes were to replace use of externality values in resource selection.

States today are very concerned about avoiding economic hardship from loss of business to other states and about promoting economic development within their borders. Many states, like New York, import most of their fuels today, so a carbon tax or other taxes on air pollution would have the effect of discouraging these fuel imports and substituting in-state spending on energy efficiency, thus discouraging the export of jobs and encouraging in-state employment. It should be possible to demonstrate that there will be a net economic stimulus to the state from shifting to pollution taxes.

Of course, all taxes burden the taxpayers affected and there would be negative sectoral impacts of a carbon tax, particularly on energy-intensive industries and on the producers of fossil fuels, the combustion of which produces high carbon

28. Robert Shackleton et. al, *The Efficiency Value of Carbon Tax Revenues* (Mar. 27, 1992) (unpublished draft manuscript, on file with the Pace University School of Law Energy Project, Center for Environmental Legal Services).

29. Ajay K. Sanghi & Anthony L. Joseph, *supra* note 10.

dioxide emissions. Consumption taxes are also likely to affect a higher proportion of income of poor people. Some of the revenues of the taxes should, therefore, be used to alleviate these sectoral and equity effects.

The best way to promote adoption of a state tax shift from business and income taxes to a carbon tax and other pollution taxes is to perform a highly credible study to determine the economic impacts of the taxes on the state's economy and the industrial sectors within the state. The study should also determine the impact on low income residents, and the ability of the offsets to alleviate these pollution tax impacts.

The Pace University Center for Environmental Legal Studies and Tellus Institute have proposed such a study for New York. We chose to study a state carbon tax. The study also concentrates on a variety of uses of the revenues from these taxes to address gross economic impacts and sectoral and equity effects, to reduce pollution and to derive state revenues.

We are hopeful that, armed with a study which shows significant net state benefits from such a tax exchange, we can persuade the New York Governor and Legislature to become the first state to adopt a carbon tax and a pioneer in promoting taxes on pollution.