



Harnessing the Tax Code For Environmental Protection:

A Survey of State Initiatives

In Recognition of Earth Day, April 22, 1998

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Published in
State Tax Notes
Vol. 14, No. 16 - April 20, 1998
Special Supplement

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ACKNOWLEDGEMENTS

The author gratefully acknowledges the support for this research by the W. Alton Jones Foundation, the Energy Foundation, and the Wallace Global Fund. Many people have assisted in the preparation of this report, but I would especially like to thank three groups of individuals. First, drafts of this paper were carefully and thoughtfully received by Bruce Baker, Tree Bressen, Brian Dunkiel, Loraine Hutchins, Jane H. Malme, Doug MacDonald, Alan Miller, Wallace E. Oates, Diane Lim-Rogers, Stephen R. Rudd, and Alex Thornton, whose helpful comments have greatly improved its contents. Second, this work would not have been possible without the contribution of the many state tax officials who took the time out to respond to our survey and check our results. Theirs is an often difficult and thankless job, but one crucial to the effective functioning of our public and social institutions. Third, many of the ideas in this paper were developed in three years of collaboration and conversation with Frank Muller, now returned to New South Wales. Australia's gain is our loss! Finally, the author would like to acknowledge the contribution of three able and diligent research assistants: John Shade, Laura Riley, and Stephen Wright. Responsibility for any remaining errors is, of course, my own.

1. INTRODUCTION

For the last three decades there has been a growing public concern about environmental quality, a concern that has been reflected in an increasingly comprehensive system of federal law governing activities that cause environmental damage¹ and a comparable growth in environmental activities at the state level. States have concurrent jurisdiction over virtually every area of environmental concern and play a coequal role in environmental regulation, often bearing the lion's share of the responsibility for implementation even of federal programs.² Federal environmental initiatives have often been modeled on successful state programs or have served to replace, supplement, or coordinate common-law remedies, which have evolved primarily through the incremental growth of state case law.³

In most cases environmental policy has taken the form of regulation. Legislative and regulatory frameworks define minimum acceptable standards of environmental behavior. Originally these standards were often expressed in terms of requirements for particular equipment, under the rubric of "best available control technology" or any of several related standards. This approach, derived from the common-law nuisance doctrines, was largely dictated by the requirement that compliance with environmental standards be observable and verifiable. Regulations usually imposed uniform national baselines for technology, requirements that were relatively static over the life of a permit or some longer period. As our ability to monitor emissions themselves has grown, a wider range of regulatory

¹ Milestones in this development at the federal level include the Clean Air Act of 1963 (together with the Clean Air Act Amendments of 1970, 1977) and 1990) and the Federal Water Pollution Control Act of 1972 (also known as the Clean Water Act, 33 U.S.C. 1251-1387 (1994)), both of which require polluters to implement some version of the best available control technology. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, also known as the Superfund Law, 42 U.S.C. 9601 et seq., as amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA)), imposed liability for cleanup of toxic waste dumps, and the National Environmental Policy Act (NEPA) requires environmental impact statements for many major construction projects and other activities, public and private. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA) both create systems of monitoring and regulation based on risk assessment and balancing. The Endangered Species Act of 1973 (16 U.S.C. Sec. 1531-42 (1995)) marked a major federal entry into the protection of biological diversity.

² Susan Rose-Ackerman, "Environmental Policy and Federal Structure: A Comparison of the United States and Germany," 47 *Vanderbilt Law Review* 1587 (October 1994).

³ See, e.g. Guido Calabresi and A. Douglas Melamed, "Property Rules, Liability Rules, and Inalienability: One View of the Cathedral," 85 *Harvard Law Review* 1089 (1972); William H. Rogers, *Environmental Law*, Saint Paul, Minn.: West Publishing Co. (1986) at Vol. 1, chapters 1 and 2.

instruments and approaches has come into use. Gradually, environmental policy is becoming increasingly flexible, output-oriented, and dynamic.

In many ways, U.S. environmental policy has been a great success. Our overall air and water quality have improved considerably by most measures, and a number of serious environmental problems -- e.g., atmospheric lead -- have been virtually eliminated.⁴ Despite this, a number of factors come together to suggest that more serious environmental challenges lie ahead. Advances in science continue to establish that current practices pose unacceptable burdens on environmental and human health. For instance, recent research appears to show that very small smoke particles cause serious health effects at levels that had previously been thought safe. Problems such as global warming and the loss of biodiversity require fundamental changes in the structure of production, in technology, in land use planning, and perhaps in lifestyle, changes that can only be accomplished by a concerted effort over a period of decades. These problems must be resolved in the context of a world economy in which businesses confront increasing global competition and American families continue to face relatively stagnant real wages.

Yet these same challenges also open the door to new opportunities. A fundamental shift in the philosophy of environmental policy is underway. Managers and policymakers are coming to realize that when costly resources are poured down the drain, sent up a smokestack, or shipped to a landfill instead of being made into products, this is a symptom of technical inefficiency that suggests a leaner, cleaner way of doing business may be possible.⁵ Businesses are increasingly looking for opportunities to replace expensive end-of-pipe equipment for removing pollution with more fundamental process redesign to prevent pollution from being created in the first place. This trend presents real opportunities for competitive gains.⁶ In a world inexorably driven by economic and population growth toward stricter environmental standards, those who lead in the development of more efficient products and emerging clean production technologies will gain market share, and nations and states that lag behind will buy their cars and appliances and production equipment from others. At the same time, policymakers and the public are abandoning a view that the sole goal of environmental policy is to limit inevitable damage to acceptable levels. Instead, we are coming to recognize that well-functioning ecosystems and high environmental quality are important sources of economic value and community well-being in their own right, providing amenity values and materials on which the rest of the economy crucially depends.⁷ This in turn leads to increased recognition of the need for public investment in environmental quality and more effective strategies to manage environmental resources.

Both the more rigorous challenges and the emerging opportunities are especially evident at the state level. States face increasing environmental challenges in an environment of shrinking federal support. Interstate competition for jobs and businesses is at least as fierce as international competition -- and states face international competition as well. Anti-tax sentiments limit traditional sources of revenue, while the need for environmental investment continues to be driven upward by growing population, urban sprawl, aging infrastructure, increased public environmental awareness, and a host of other factors.

At the same time, states can achieve competitive advantage by positioning themselves at the forefront of emerging environmental industries and new approaches to pollution control. The environmental service and equipment industry is larger in total value than many industries that have traditionally been

⁴ See, e.g., Council on Environmental Quality, *Environmental Quality: The 25th Anniversary Report of the Council on Environmental Quality (1994-95)*, for a good summary of U.S. air and water quality trends.

⁵ Joseph J. Romm, *Clean and Lean Management: How to Raise Profits and Productivity by Reducing Pollution*, New York: Kodansha International (1994).

⁶ Michael Porter and Claes van der Linde, "Toward a New Conception of the Environment-Competitiveness Relationship," *Journal of Economic Perspectives*, Vol. 9, No. 4 (Fall 1995).

⁷ See, e.g. Robert Costanza et al., "The Value of the World's Ecosystem Services and Natural Capital," *Nature* 387, No. 6630 (May 15, 1997); AnnMari Jansson, Monica Hammer, Carl Folke, and Robert Costanza, *Investing in Natural Capital: The Ecological Economics Approach to Sustainability*, Washington D.C.: Island Press (1994).

recognized as important to state economies, such as computers, plastics, and pharmaceuticals, and employment in the environmental sector has been growing at twice the rate of employment overall.⁸ Moreover, environmental industry jobs are good jobs: they use a mix of professional, skilled, and semi-skilled labor, and are relatively immune to economic downturns.⁹

The magnitude of the opportunity to promote state development through eco-efficiency initiatives is rarely appreciated. For example, total national energy expenditures exceed our total state tax burden by about 35 percent. Consider the potential gains from energy efficiency initiatives alone. Energy expenditures are greater than tax bills in 42 of the 50 states.¹⁰ While enormous political battles are fought over changes in state tax burden of a few percent, estimates of cost-effective energy efficiency improvements of 20 percent or more with current technology are not unusual. Other resource-efficiency initiatives may also offer significant benefits. Thus an efficiency-led development strategy may have more potential for improving the economic condition of overburdened households and businesses within a state than any politically feasible tax-cutting strategy, without the drawback of unpopular cuts in state government services. A clean, healthy, attractive living environment also helps attract and retain the single most important determinant of state competitiveness -- a skilled workforce. And states need to maintain and strengthen their environmental policies in order to support agriculture, forestry, fisheries, tourism, and the many other industries that depend, directly or indirectly, on a base of environmental quality.

To meet these challenges with the resource constraints they face, states will have to augment traditional regulatory methods with new and innovative approaches that better harmonize environmental, economic, and fundamental fairness goals. This paper is devoted to a survey of one of the most promising classes of such approaches: environmental tax provisions. Over the last quarter-century there has been a virtual explosion of such provisions, both taxes and tax incentives. In 1970 environmentally motivated tax provisions were virtually unknown at the state level. Today only five states have fewer than five such provisions and 21 states have 10 or more.¹¹ Our survey has identified 462 such provisions in place as of 1996.

Since the 1920 publication of *The Economics of Welfare* by Pigou,¹² pollution taxes (or economically similar tradable permit systems) have been the policy instrument of choice among economists, who argue that they provide private actors with the price incentives necessary to achieve economic efficiency.¹³ However, "efficiency" in the technical sense used by economists -- more properly, Pareto efficiency¹⁴ -- is neither the only nor the primary rationale for environmental tax measures that have been adopted by the states. Instead, states appear to be most concerned with distributional issues and basic fairness. Most state environmental taxes are intended to charge those who cause environmental burdens or benefit from the behaviors that cause them with the costs of regulation and cleanup. Similarly, many taxes and fees are imposed on those who are the particular beneficiaries and users of natural resources such as parks or waterways to pay the cost of investments in improving or maintaining them.

⁸ J. Andrew Hoerner, Alan S. Miller, and Frank Muller, *Promoting Growth and Job Creation Through Emerging Environmental Technologies*, Washington: National Commission for Employment Policy Research Rept. No. 95-03 (April 1995).

⁹ Management Information Services Inc., *The Net Impact of Environmental Protection on Jobs and the Economy*, Washington: MISI, March 1993.

¹⁰ Skip Laitner, *Comparing State Energy Expenditures With State Government Tax Collections*, Alexandria, Va.: Economic Research Associates (1996).

¹¹ See Table 1 (p. 1218) for state-by-state totals.

¹² A.C. Pigou, *The Economics of Welfare*, London: Macmillan (1920).

¹³ William J. Baumol and Wallace E. Oates, *The Theory of Environmental Policy*, 2nd ed., New York: Cambridge University Press (1988).

¹⁴ An economy is Pareto-efficient if it is not possible to make any individual in the economy better off (in terms of their own preferences) without making some other individual worse off. For an assessment and critique of the Pareto principle as a basis for public policy, see Amartya K. Sen, *Collective Choice & Social Welfare*, San Francisco: Holden-Day (1970).

The second major goal of state environmental taxes has been to promote public environmental goals. Tax credits and other tax measures are often used to jump-start new environmental technologies, to encourage the creation of new institutions or markets, to educate the public, or to ease the shock of transition to new tighter environmental regulations. Again, these provisions are rarely motivated by static efficiency concerns. Instead they are more typically the product of a worldview which sees values, tastes, institutions, and technology as dynamically developing in response to public policy initiatives.¹⁵

In section 2 we discuss in more detail the varying rationales for environmental taxation, illustrated where possible with examples drawn from the states. Sections 3 and 4 discuss current state practice in environmental taxation, based on a comprehensive survey of the states. Section 3 describes the scope and methodology of the survey, and section 4 provides the results. In the final section we offer some thoughts about the frontiers of state environmental taxation, examining emerging trends, innovative approaches worthy of emulation, and more fundamental reforms now being examined.

2. RATIONALES FOR ENVIRONMENTAL TAXATION

2.1. THE ECONOMIC EFFICIENCY ARGUMENT AND ITS LIMITS

Much of the academic literature in support of environmental taxes is couched in the language of neoclassical microeconomics. In this section we will first lay out the neoclassical rationale for environmental taxation, then discuss tax design to achieve maximum benefit under this rationale, and finally look at some of the limits of the neoclassical worldview as a guide to public policy. Those with a background in neoclassical microeconomics may wish to skip section 2.1.1 and proceed to the next section.

2.1.1. Externalities and Pigouvian Taxes

It can be demonstrated that the outcomes of perfectly competitive markets after exchange are efficient in the following sense: It is impossible to make one person "better off" -- better in terms of having a more satisfactory bundle of goods¹⁶ -- without making someone else at least a little "worse off."¹⁷ This definition of efficiency is called "Pareto optimality."¹⁸ It may be possible to make someone a whole lot better off while making someone else only a tiny bit worse off, but this is regarded by neoclassical economics as a distributional rather than an efficiency problem.

In competitive markets, competition drives the price of the good down to the cost of the last unit produced (the "marginal cost"). Suppose, however, that there are inputs to production -- inputs valuable to others -- that a producer can avoid paying for. Perhaps the producer acquires labor by threat of violence rather than by voluntary contract, or perhaps his operations belch forth smoke that fouls the air others wish to breathe. These costs are said to be "external" to the business because the producer does not pay for them, and are referred to as "externalities." In this case, competition drives the price down below the true marginal cost of the inputs used to produce the last unit of output.

Now, turn your attention to the consumer side of the market. Conduct the following thought experiment: Starting from zero, increase production gradually. The first few units will go to those who most desperately want them, and are willing to pay the highest price. As production increases, products go to

¹⁵ See sections 2.6 through 2.9 below.

¹⁶ With satisfaction as measured by the utility index.

¹⁷ See, e.g. Hall Varian, *Microeconomic Analysis*, 3rd ed., New York: W.W. Norton & Co. (1992), for a more complete exposition of the construction and functioning of the competitive model.

¹⁸ After the Italian economist and engineer Vilfredo Pareto.

those who desire them less,¹⁹ and the price must fall apace to clear the market. Those who were willing to pay a higher price reap the benefit of the difference between the price they were willing to pay and the lower price they actually pay. This schedule of prices and quantities is called the demand curve. At every point on the curve, the purchaser of the last unit "values" the product -- in terms of dollars he or she is willing to pay -- at a rate just equal to its selling price.

Now suppose that last buyer is purchasing a good with an external cost. Then the value to her is only the price, which is equal to the internal cost, but the true cost is the sum of the internal and external cost. So each unit of production is wasteful and Pareto-inefficient: the cost to the purchasers is less than the cost to society, consisting of both the producer's cost and the external cost.

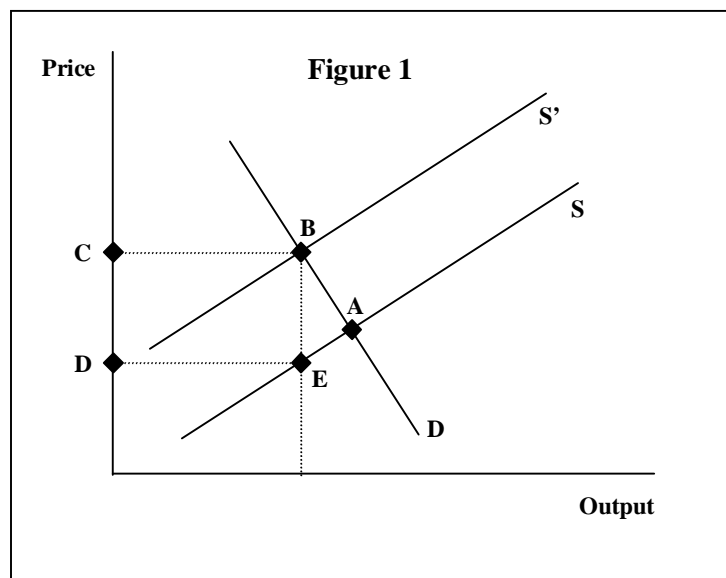


Figure 1 shows the normal supply and demand curves, labeled S and D respectively. The S curve reflects only the private cost to producers. The S' curve is the sum of the private and external cost, and is sometimes called the "social cost" curve. Absent government intervention, the market outcome is the point A, where the demand equals the private marginal cost.

The standard economist's prescription to remedy this problem is a tax on the polluting good equal to the external cost in equilibrium. This is called a Pigouvian tax. The tax is set equal to the external cost -- the gap between S and S' -- at the point where the demand curve intersects

S', the social cost curve (i.e. equal to the line segment BE). This is said to "internalize" the external cost, i.e. make the producer pay it and thereby incorporate it into the price. After the tax has been imposed, and the market outcome is at point B, where the price including the tax equals the marginal social cost. The tax also generates revenue, equal to the rectangle BCDE, which can be used to reduce other taxes or pay for public goods.

A classical Pigouvian tax has three features:

- it is not earmarked for cleanup, recompense to those injured by pollution, or any other closely related environmental purpose;
- it is levied based on units of pollution emissions;²⁰ and
- the rate is equal to the marginal external social cost, usually as measured by the willingness of the affected population to pay to be free from the impact.

¹⁹ These need not be different individuals. In the time span of a week, I may be willing to pay less for my second blueberry pie than I was for my first.

²⁰ In early versions of his theory, Pigou set the tax on the product rather than the emissions. Emission and output taxes are equivalent if pollution is produced in fixed proportion to output. Otherwise emissions taxes produce greater efficiency gains. See, e.g., Thomas Barthold, "Issues in the Design of Environmental Excise Taxes," 8 *Journal of Economic Perspectives* 133 (Winter 1994) for a discussion of pollution tax design when direct taxes on emissions are not feasible. See also Organization for Economic Cooperation and Development, *Implementation Strategies for Environmental Taxes*, Paris: OECD (1996).

The first of these conditions is necessary so that those who are affected by the pollution have a full incentive to take the steps they can to avoid injury, such as by wearing face masks, moving away, etc. The second condition is necessary to reap the fullest efficiency benefit, as it may be possible to reduce pollution per unit of output, such as by adding scrubbers to a smokestack. The third condition is just a restatement of the definition of social cost. Often there is no market for the externality, so economists construct a hypothetical market, asking what people would be willing to pay to be free of pollution, in order to see what a reduction in pollution is worth.

2.1.2. A Critique of the Pigouvian Model

There are many possible critiques of the neoclassical model of environmental policy, and many defenses. We can not fully explore them here. Instead, we will describe three critiques that we believe to be of particular importance in the context of public policy with respect to environmental taxes.

The first, and simplest, is that economic efficiency is not the only rationale for environmental taxation, nor is it the one that has most motivated policymakers. The problem with the neoclassical analysis is not so much that it is wrong in its own terms, as that its defenders often appear to ignore other rationales and insist that all environmental tax instruments should be cut to one stamp. We explore a range of such rationales in the remainder of section 2.

The second critique is that the neoclassical approach often ignores the question of rights. (Note that this need not be true, and there has been some theoretical exploration by economists of the effect of rights on valuation.²¹ However, most empirical economic work adopts the "willingness-to-pay" framework discussed below.) Putting the moral question back into economic terms, it ignores the question of property rights. Do polluters have a right to pollute, so that the proper measure of external cost is our willingness to pay to be free from pollution? Or do citizens have a right to clean air and water, such that the proper measure of external cost is our willingness to accept a payment to bear the pollution?

Empirical studies have consistently shown that the value of environmental quality is much higher when measured by willingness-to-accept than by willingness-to-pay.²² This is consistent with economic theory when the environmental good has no close substitute²³ or where the value of the good represents a large fraction of a person's income. Take the purest case of a good without a close substitute: life. A corporation wishes to operate a production process that produces toxins that will cause you to die within a year. Will your willingness-to-pay be close to your willingness-to-accept? No. Your willingness-to-pay to be free from exposure is capped at your total assets and the present value of your earnings (less subsistence) for the remainder of your life. You cannot be willing to pay more than that, because you haven't got it. On the other hand, your willingness-to-accept has no such cap. You may be willing to sacrifice your life for \$10 million to endow your favorite charity. You may not. But if the right to a clean environment belongs to you, the choice is yours. If the right belongs to the polluter, you can be forced to accept the outcome you can afford. It should be observed that it is quite common for individuals in contingent valuation studies, when asked how much they would pay to avoid a certain environmental

²¹ See, e.g., A. Myric Freeman III, *The Measurement of Environmental and Resource Values: Theory and Methods*, Washington: Resources for the Future (1993).

²² For a review of empirical studies, see Ronald G. Cummings, David S. Brookshire, and William D. Shultze, *Valuing Environmental Goods: an Assessment of the Contingent Valuation Method*, Totowa, N.J.: Rowman and Allenheld (1986). For a review of laboratory experiments involving games with public goods or externalities, see John O. Ledyard, "Public Goods: A Survey of Experimental Research," in John H. Kagel and Alvin E. Roth, eds. *The Handbook of Experimental Economics*, Princeton, N.J.: Princeton U. Press (1995).

²³ W. Michael Hanemann, "Willingness to Pay and Willingness to Accept: How Much Can They Differ?" 81 *American Economic Review* 635 (1991); J. Shogren, S. Shin, "Resolving Differences in Willingness to Pay and Willingness to Accept," 84 *American Economic Review* 255 (1994).

consequence, to simply reject the question outright and refuse to answer, insisting that they have a right to a clean environment and should not have to pay anything.

In actuality, neither willingness-to-pay nor willingness-to-accept provide a sound foundation for public policy. As discussed above, using willingness-to-pay as a measure of external value, as economists most often do, is an unacceptable grant of property rights to polluters. On the other hand, a pure willingness-to-accept approach implies that a few Luddites could shut down industrial civilization by refusing to sell. Ultimately, the boundary of the right to be free from pollution must be set by some social or legal process that decrees what sort of exposures are reasonable, taking into account the full range of economic and moral factors.

Finally, economics takes its definition of the common good from a rather peculiar version of utilitarianism. I will not labor over the decision to look at the good defined over a space of commodities that excludes such things as love and peace of mind.²⁴ Rather, I focus on utilitarianism's definition of the social good as a simple increasing function of the good of individuals. If one believes in democracy, then societies can choose directions, goals, and values that are more than, or different from, the goals and values that we hold as private individuals. Before President Kennedy, whose goal was it to put a person on the moon? But as a nation, through our elected representatives, we decided to do that. The neoclassical approach is methodologically individualist. It is not well suited to respecting such collective decision processes.

Environmental policy is formulated through a process of public discourse as expressed through the fundamental institutions of democracy. In this public discourse many values and goals play a part. Not all of these goals are economic. Economic goals include overall growth, development of livable communities, improved standard of living for ordinary working families, poverty reduction, the economic health of various constituent groups, and many others. Pareto-efficient economies need not be high-growth, pleasant to live in, or fair; nor do they necessarily provide the public services or liberties of action most demanded by key constituencies. The goal of achieving Pareto-efficiency, though central to the policy analysis of academic economics, generally plays little role in public debate.²⁵ This accounts for the virtual nonexistence of classical Pigouvian taxes in the states. Indeed, among the more than 450 enacted state environmental tax provisions, we are unable to identify a single provision that even attempts to follow the classical Pigouvian model.

However, we do find a great diversity of tax rates and bases, exclusions, incentives, and rules. We find many provisions ingeniously tailored to a wide range of specialized purposes. We see this diversity as a good thing, representing both the experimental phase of what is still very young family of policy instruments and the efforts of legislatures to respond to local needs, values, and conditions.

This is not to say that economics should be discarded. Willingness-to-pay sets a lower bound for the appropriate stringency of environmental policy -- a useful contribution, especially because in many areas we have not yet risen to the level of taxation where a willingness-to-pay approach and a rights-based approach disagree. Economics has much to teach about the incentive effects of environmental taxes, lessons that could be used to increase the environmental benefit of many existing and potential instruments. Finally, economists have been focusing our attention on a promising and underused class of instruments that has an important place in the environmental policy toolbox.

²⁴ The general approach of economics to such nonmarket goods is to assume they can be monetized through the use of hypothetical "shadow" markets, so that rational decisions can be made on allocating one's time between, say, acquiring an incremental unit of love and another tomato.

²⁵ Although efficiency itself is of minor political importance, efficiency arguments often frame or mediate more fundamental political concerns. For example, efficiency criteria are often cited when arguing that the government should not take actions that place burdens on private businesses. Opposition to government policies that burden business does play an important role in public debate.

In the remainder of section 2 we provide a catalogue of alternative rationales for environmental taxation. We list rationales that have been important in the public debate or that appear to have provided the motive for particular tax provisions. Where possible we provide examples drawn from state experience. It should be recognized that legislation enacted in the real world of tax politics and policy is shaped by multiple rationales and that there is a certain amount of judgment -- or more pessimistically, arbitrariness -- in assigning a tax provision to any one rationale. Because of the role that economics has played in this debate, we will examine these alternative rationales in a running dialogue with neoclassical economics. We will observe that some rationales can be expressed in neoclassical terms as a response to particular market imperfections. However, other rationales derive from principles or values which are not reducible to -- or at odds with -- a vision of humanity as a collection of atomistic insatiable utility-maximizing engines, and of public policy as a nonlinear optimization problem in the calculus of several variables.

2.2. 'POLLUTER PAYS' AS A MORAL PRINCIPLE

Environmentalists generally regard pollution as an infringement of our right to clean air and water. In the language of the common law, pollution is a trespass or a nuisance.²⁶ When someone pollutes your air or water without your consent, they are in the same moral position as if they had punched you in the nose or dumped trash on your front lawn. We respond to polluters morally in the same way that we respond to, say, a battering spouse -- we enjoin them to stop any ongoing wrongdoing and force them to pay for the damage caused by their past violations. Under this view, polluters should pay for costs they impose on others, not to achieve an optimal level of pollution, but to place the burden of the injury caused by pollution on those who create it rather than those who bear it. Alternatively, they should be discouraged from creating pollution in the first place. This view has been formally adopted by the Organization for Economic Cooperation and Development (OECD) nations, including the United States.²⁷ It is also the position of the environmental justice movement²⁸ and much of the environmental community.

This ethical position contrasts with a strain of economic literature deriving from Coase.²⁹ Coase attempted to abstract away from the question of guilt or blame by suggesting that, instead of regarding polluters as creating external costs to downstream individuals by the flow of toxins in the air or water, it is equally valid to treat individuals as injuring upstream polluters by radiating demands for clean water and air. He concludes that, provided bargaining can take place, it is equally efficient to charge the polluter for the injury due to emissions or to allow the downstream individuals to pay the polluter to cut them back. This view of pollution may seem strange, but the argument sounds even stranger if it is extended to other types of injuries. For instance, most of us would reject the idea that we should be indifferent between jailing people who shoot at us and bribing them not to. A value-neutral approach that fails to distinguish injurers from injurees would create an incentive for individuals and businesses to greatly increase the resources they devote to building the capability for injurious activity because they could then sell their forbearance to use that capacity.³⁰

²⁶ See references at note 3, *supra*.

²⁷ OECD, Recommendation of the Council on Implementation of the Polluter-Pays Principle, Recommendation C(74)223, adopted Nov. 14, 1974, reprinted in 14 ILM 234 (1975); see also Sanford E. Gaines, "The Polluter-Pays Principle: From Economic Equity to Environmental Ethos," 26 *Texas International Law Journal* 463-96, 476 (1991).

²⁸ See, e.g. First People of Color Leadership Summit, "Principles of Environmental Justice: A Call to Action" (1991), reprinted in *Toxic News*, Portland, Ore.: National Lawyers Guild (December 1993). See also Douglas A. McWilliams, "Environmental Justice and Industrial Redevelopment: Economics and Equality in Urban Redevelopment," 21 *Ecology Law Quarterly* 705 (1994).

²⁹ Ronald H Coase, "The Problem of Social Cost," *Journal of Law and Economics* 3:1-44 (1960).

³⁰ This argument also has an interesting dynamic aspect. In a Coasian world there is an incentive to invest in research and development in pollution-producing technology -- technology to increase pollution production -- as the business can make money just as easily by selling the agreement not to use pollution-increasing technology as by the selling the agreement to use pollution-decreasing technology. We believe this is not a path society would wish to tread.

When the polluter-pays principle is treated as a moral doctrine, environmental taxes can play a key role in ensuring that the burdens of past and current pollution are fairly distributed. Under this view the guilty polluters (or their beneficiaries, such as stockholders or customers), and not the innocent public, should be required to pay the costs of environmental cleanup and the associated monitoring and compliance costs. Where specific enterprises are responsible for an environmental injury, it is normally best to charge them individually. Where the injury has been committed by a large number of enterprises, some of which may be insolvent or no longer exist, taxes on the entire industry (or sometimes on the customers of an industry) may be the best we can do to achieve a fair distribution of cleanup costs. Similarly, for ongoing pollution that we as a society are unwilling to enjoin because we lack an effective and affordable prevention technology, fairness dictates that cleanup costs, monitoring costs, and other identifiable personal and economic injuries from the pollution should be paid for by the polluter.

Cleanup often takes place many years after the original environmental damage. It is sometimes argued that, given that a polluting industry is competitive, the benefits of a free right to pollute in the past would have been passed on to customers in the form of lower prices. Therefore, the argument runs, imposing a tax on that industry today is unfair, as the industry stockholders reaped no benefits from past pollution.³¹ This argument is asymmetric. If the economic incidence of the benefit of failing to impose the cost of environmental cleanup or injury flows through to the customers of the industry, then the incidence of the burden of imposing the tax will likewise flow through. Granted, those customers may change with time; nevertheless, imposing the charge on the polluting industry is often as close as one can come to a just solution.³² Such rough-justice compromises are not unusual in tax policy.

Taxes motivated by concepts of fairness and justice may have a different rate structure than those dictated by economic efficiency. Efficiency in the neoclassical sense requires that the tax rate be set at the sum of the marginal private injury, measured in dollars; cleanup costs may be above or below that level. When pollution is viewed as an injurious act analogous to a tort, a breach of our individual and collective right to a clean environment, it may be appropriate to require polluters to pay for cleanup even if the costs exceed the "willingness to pay" of the innocent individuals affected. The monetized value of the injury is a floor on the appropriate charge.

This is how we normally treat behavior that violates the rights of others. For instance, we are willing to enjoin a rich husband from beating his estranged and poorer wife, even if the monetized value of the beatings to him exceed her willingness (or ability) to pay to be free from them. If he chooses to ignore these strictures, he may be required to pay punitive damages, contempt fines, and even criminal penalties in addition to the value of the direct damages to her. Similarly, when a tortious injury is so debilitating as to prevent the injured party from working, we require the tortfeasor to pay not only the cost of lost wages, but also an additional sum that represents the value of pain and suffering or the loss of quality of life.³³ Thus a justice-based approach normally provides damages in excess of those provided under a "willingness-to-pay" approach.

³¹ For a proponent of this argument, see Don Fullerton, "Why Have Separate Environmental Taxes?" in James M. Poterba, ed., *Tax Policy and the Economy* 10, Cambridge, Mass.: MIT Press (1996).

³² Fullerton also argues that because many industries purchase the outputs of polluting industries the burden of pollution taxes is not concentrated on polluting industries but is smeared across the entire economy. *Supra* note 31. This is unquestionably true; however, it should be noted that, even after accounting for such smearing, Fullerton's own results showed that the burden of existing environmental taxes on the most-taxed industry (petroleum refining) was more than 40 times the burden on the least-taxed industry (real estate), and about 10 times the burden on the median industry. Because consumers vary considerably, both within and across income classes, in the amount of refined petroleum, real estate, and other high- and low-polluting products they consume, Fullerton's quantitative results would appear not to support his conclusions about the fairness of such taxes.

³³ Dan Dobbs, *Law of Remedies: Damages, Equity and Restitution*, 2nd ed., St. Paul, Minn.: West Publishing (1993); Marilyn Minzer, *Damages in Tort Actions*, New York: Mathew Bender (1982). On damages for pain and suffering, see, e.g., the opinion of Judge Posner in 823 F.2d 194,197 (1987).

The primary expression of the polluter-pays principle through tax policy is a tax or fee used to provide regulation, monitoring, cleanup, and recompense of injured parties. This is the largest class of tax instruments actually adopted by state legislatures: environmental charges earmarked to a dedicated fund. The taxes financing these funds are rarely if ever set to reflect the marginal social damage of pollution, a value that is usually unknown. Earmarked environmental charges are often efficiency-improving compared to a zero tax rate, but efficiency benefits are ancillary to their main purpose, which is to fairly allocate environmental control and remediation costs. It should also be observed that, although environmental taxes rarely account for more than a few percent of product cost, empirical work has suggested that earmarked taxes appear provide a more effective incentive for emission reductions than a strict economic analysis would suggest, perhaps as a result of some educational or signaling effect.³⁴ The number and variety of earmarked environmental charges enacted by the states is discussed in section 4.2 below.

Before turning to examples of dedicated funds in this and succeeding sections, it is worth pointing out that the use of taxes earmarked to funds has drawbacks from the perspective of budget policy. Earmarking restricts the discretion and flexibility of legislators, with respect to both the mix of taxes and the mix of expenditures.³⁵ For this reason it has traditionally been disfavored by budget policy analysts.³⁶ However, it remains necessary to explain why earmarking is so popular. Almost a quarter of state revenues are now earmarked to particular uses.³⁷ A Tax Foundation report³⁸ enumerates several reasons for earmarking, of which three are relevant to environmental taxes and funds:

- earmarking enforces the benefits principle -- that taxation should be proportional to benefits received;
- earmarking ensures continued revenue support to specified programs; and
- earmarking can induce public support for new or increased taxes.

To these three reasons we would add a fourth, which might be called the negative benefits principle:

- earmarking can ensure that taxation is proportional to, or sufficient to remedy, harm caused to the public.

It is easy to exaggerate the degree of inflexibility that earmarking imposes. Legislators are free to adjust the rates of earmarked taxes, change the scope of activities performed by earmarked funds, or change the percentage of revenue from a tax going to earmarked funds at any time. In the environmental context, monitoring and projecting the balance of earmarked funds can be a valuable managerial device, helping the legislature and executive track the effectiveness with which it has implemented the polluter-pays principle.

The single most prevalent variety of environmental charge in the United States today is a levy on toxic or hazardous wastes, linked to some sort of remediation fund. Most states have at least one such tax, and a few states have several. Our survey found 57 taxes of this sort: on average, more than one per state. See section 4.5 below. These taxes are never designed to induce an optimum toxic waste production level. Rather, they are intended to ensure that materials that explode, poison, emit ionizing radiation, or

³⁴ Mikael Skou Andersen, *Governance by Green Taxes: Making Pollution Prevention Pay*, Manchester, U.K.: Manchester University Press (1994); for an especially clear example of pollution reductions due to the noneconomic effects of an environmental tax instrument, see Hoerner, note 74 *infra*.

³⁵ Harold Hovey, "Earmarking Tax Revenues," *State Policy Reports*, Vol. 8, No. 9 (May 1990), p. 6.

³⁶ J. Wilner Sunderson, *Budgetary Methods in National And State Government*, Special Report of the New York State Tax Commission, No. 14, Albany, N.Y.: J.B. Lyon & Co. (1938), pp. 193-236.

³⁷ Artero Perez and Ronald Snell, "Earmarking State Taxes," *State Tax Notes*, Sept. 18, 1995, p. 841.

³⁸ Tax Foundation, *Earmarked State Taxes*, Washington: Tax Foundation (1965).

otherwise cause harm are adequately monitored, carefully transported, and safely disposed of. They pay for regulation and environmental auditing and often act as a remediator of last resort.

A more homely example of asking the polluter to pay is provided by the New Jersey Litter Control Tax and Clean Communities Program. The litter control tax is a small tax (between 0.0225 and 0.03 percent) on manufacturers, wholesalers, distributors, and retailers of "litter-generating products." Litter-generating products are defined as alcoholic beverages and soft drinks, tobacco products, cleaning agents and toiletries, groceries, glass and metal containers, newsprint and magazine stock, household paper products, and motor vehicle tires. Although the tax rate is low, the base is large, and the tax raises in excess of \$10 million per year.

Revenues from the litter control tax fund the Clean Communities Program (CCP). The CCP provides grants to municipalities (80 percent), counties (10 percent), the Division of Parks and Forestry (5 percent), and the Division of Solid Waste (5 percent) for programs of litter cleanup, public education and information, and enforcement of litter-related laws. The program results in annual pickup of over 7,000 tons of recyclable materials and about ten times that much general litter per year. Similar programs have been adopted in Washington and Virginia.

2.3. INSURANCE AND COLLECTIVE RESPONSIBILITY

There are a number of industries that in the current state of knowledge are essential to the operation of our economy, that nonetheless pose substantial environmental risks in their normal operation. Leaks, spills, and accidents are inevitable in any operation, but are of much greater consequence when the substance in question is chlorine gas, crude oil, or radioactive waste. States often wish to assure that should such environmental accidents occur, funds are available to meet the associated damage and cleanup costs. However, the cost of catastrophic accidents or major leaks may be large compared to the ability of individual companies to pay. Some of these problems are addressed through the private insurance market or by requiring companies in environmentally dangerous industries to demonstrate financial responsibility, but these remedies may not be available or adequate.

One of the biggest environmental cleanup problems has consistently been leaks and spills associated with underground and above-ground storage tanks for motor fuels and other petroleum products. The federal government requires that operators of underground storage tanks provide proof of financial liability if a spill should occur, but auditing is spotty and inadequately funded operators remain a problem. Many states have responded by creating leaking tank cleanup funds using charges on fuels or on fuels entered or withdrawn from tanks, or per-tank charges (see section 4.5). One good example is Alabama's Underground Storage Tank Trust Fund (USTF). Revenue for the USTF is provided by a combination of a \$150 per-tank fee and a filling charge collected from the bulk distributor, equal to \$1.50 per 500 gallons added to the tank up to a maximum of \$27 per delivery.

The Alabama fund pays both the cost of cleanup in excess of a \$5,000 deductible and third-party claims. However, several conditions must be met. Cleanup must be done through an approved response action contractor, and the operator must be in compliance with requirements for maintenance, leak detection, and reporting, and must develop a plan for full restoration of the site, including permanent restoration of potable water supplies. These are serious limitations. Because of the absence of leak-detection systems or the presence of unremediated pre-fund leaks 30 to 40 percent of the tanks in the state are not eligible for participation. Auditing of compliance with these conditions and payments from the fund is administered, not by the tax authority, but by the Alabama Department of Environmental Management. The USTF fees bring in about \$10 million per year.³⁹

³⁹ Personal communication, Sonia Masee, Alabama Department of Environmental Management.

One possibly surprising feature of this tax is its popularity with the taxed industry. An industry spokesperson said that there is an 85 to 90 percent approval rating for the fund by the owners of underground storage tanks.⁴⁰ Private insurance for leaking tanks is expensive and difficult to obtain. Without the fund, many smaller operators would not be able to comply with the federal financial responsibility standards and would be forced out of business.⁴¹

Another example of an insurance-oriented tax and fund is the California crude oil assessment fee. California has imposed a 25-cents-per-barrel tax on crude oil entering or leaving the state by ship or pipeline. The tax is allocated to the Offshore Oil Spill Response Fund and assures that oil spills and leaks can be remediated. Use of state funds for remediation does not absolve the shipper from financial responsibility: rather it provides a backup for insolvent transporters and assures that remediation funds will be quickly available. This insurance role is vital given the emergency nature of marine oil spills.

2.4. NATURAL RESOURCES AND ENVIRONMENTAL QUALITY AS A PUBLIC TRUST

In addition to being a potential or actual infringement of our individual rights, environmental degradation and natural resource consumption may infringe on our collective rights as members of a society. (Indeed, some would go farther and assert that we are members of a larger biotic community including animals and plants worthy of protection in their own right.)⁴² Most environmentalists believe that we hold our environmental commons in collective trust for the benefit not of ourselves alone, but also of future generations, and perhaps for the benefit of the larger biotic community as well.⁴³ Our decisions concerning these environmental commons should be based on social values that we hold as a community rather than on our individual economic well-being.⁴⁴ For instance, we might wish to adopt the principles of sustainable development discussed in section 2.9 below, or decide to assure the continuity of scenic or biotic resources fundamental to the character of a region.

Environmental taxes are a way of asserting our common ownership of the environmental commons. Symbolically, morally, and legally, they put the polluter on notice that it is using our common resource at sufferance, and that we can raise the rent on that resource or withdraw our permission to use it at any time. They tell polluters that they have no entitlement to continued environmental depredation and cannot develop one by long usage. Although some environmentalists have opposed pollution taxes on the ground that the purchaser is buying a "right" to pollute, environmental taxes and fees do not constitute permission to pollute, any more than alcohol taxes provide a right to drive drunk or tobacco taxes provide a right to smoke in a hospital waiting room. Instead, like alcohol and tobacco taxes, they are a public toll on a disfavored and regulated activity.

The public trust rationale for environmental taxes can be seen most clearly in the context of state redevelopment trust funds such as those associated with the Montana coal severance tax and miscellaneous mines net proceeds tax. Montana is a state rich in mineral resources, of which the most important economically is coal. Coal is a finite and nonrenewable resource, and coal mining is an activity with heavy environmental and amenity costs to local communities. Mining often leads to a "boom town" type of development, as a mine brings a lot of money to an area until the vein is played out, at which point operations shut down and the residents are left with a greatly diminished economic base. This

⁴⁰ Personal communication, Bart Fletcher, Alabama Oilman's Association.

⁴¹ *Id.* footnote 40.

⁴² See, e.g. Aldo Leopold, *A Sand County Almanac*, New York: Oxford University Press (1966); see also Edith Weiss, "Our Rights and Obligations to the Future Generations for the Environment," 84 *American Journal of International Law* 198 (1990).

⁴³ For an early but highly influential exposition of this idea, see Joseph L. Sax, "The Public Trust Doctrine in Natural Resources Law: Effective Judicial Intervention," 68 *Michigan Law Review* 471 (1970).

⁴⁴ Mark Sagoff, "Should Preferences Count," *Land Economics*, Vol. 70, No. 2 (May 1994); See also M. Sagoff, *The Economy of the Earth: Philosophy, Law and the Environment*, New York: Cambridge University Press (1988).

combination of temporary prosperity with community disruption and environmental and amenity costs has led many citizens of Montana to develop a love/hate relationship with the mining industry.

The Montana Legislature has recognized the exhaustible nature of mineral resources in the state and the negative long-term consequences of excessive reliance on extractive industries as a development base. The state recognizes that, as the ultimate grantor of title to state property, it has an interest in seeing that the state endowment of natural resources is used to benefit the state's residents. It has therefore placed a tax on mineral extraction that is used to provide several kinds of long-term economic and environmental development benefits.

The Montana coal severance tax brings in \$35 to \$40 million a year. By the Montana Constitution,⁴⁵ half of that revenue goes to the Coal Permanent Trust Fund, a fund that is invested for the posterity of Montanans. No withdrawals can be made from this fund without a two-thirds vote of the legislature. It is intended that the fund remain inviolate until the coal industry in the state declines. Roughly another quarter of the revenues goes to the general fund. The remaining quarter is distributed among a variety of funds that make current investments to bolster the long-run viability of the state. These include the Long-Range Building Fund, the Local Impact Fund, the Renewable Resource Loan Fund, the Capital/Arts Trust Fund, and money for parks acquisition.⁴⁶

Another \$3 million to \$3.5 million comes from the resource indemnity and groundwater assessment tax, levied on the gross value of production of mineral resources. Fourteen percent of the revenue from this tax goes to the Groundwater Assessment Account, 10 percent to the Renewable Resource Grant and Loan Program, 30 percent to the Mining Reclamation and Development Grants Account, various small amounts to other purposes, and the remainder -- the bulk of the total revenues -- to the Resource Indemnity Trust Fund (RITF). The RITF is similar in structure and purpose to the Coal Permanent Trust Fund, except that income from the fund may be appropriated and expended once the fund reaches \$10 million, and receipts to the fund may be expended once the fund reaches \$100 million.

2.5. INVESTING IN NATURAL CAPITAL

A state is many things: a history, a group of people, a set of laws. On the physical level, a state is the land and water and air in a bounded territory and the structures and living things that lay on it. These physical things have much to do with whether a state is poor or prosperous, healthy or sickly, in body and spirit. States have a traditional role in maintaining the quality of the physical environment within their borders through judicious investment in public assets. In the early days of our nation when unfettered nature was ubiquitous and the European-derived population was struggling to find a place, that investment took the form of roads, bridges, public buildings, and other human-made structures. But as human presence becomes ubiquitous and our natural heritage is fragmented and destroyed, that heritage of natural resources becomes increasingly precious.⁴⁷ Thus natural as opposed to man-made capital -- the quality of the air we breathe, the preservation of functioning ecosystems, the places of wildness and beauty that refresh our spirits and provide a preserve for the diversity of living things, the purity of our rivers, and lakes and aquifers, and so forth -- becomes an ever more important part of the program of public investment that maintains the quality of our communities.

Tax tools play an important role in maintaining effective programs of investment in natural resources and environmental quality in many states. Tax instruments intended to promote investment in natural capital include natural resource investment funds, often maintained by taxes on those regarded as special beneficiaries of the resource funded. States have also adopted many kinds of tax instruments to provide

⁴⁵ Article IX, section 5.

⁴⁶ Montana Code Ann. sect. 15-35-108.

⁴⁷ See, e.g., AnnMari Jansson, Monica Hammer, Carl Folke, and Robert Costanza, *Investing In Natural Capital: The Ecological Economics Approach to Sustainability*, Washington: Island Press (1994).

incentives for private investment in natural assets. See section 4.7 below for a discussion of a number of tax/fund instruments and tax incentives intended to encourage investment in natural capital.

The success of the Connecticut seed oyster tax demonstrates the appeal of fiscal instruments designed to implement public investment in natural capital. At the turn of the century the Connecticut shoreline off Bridgeport and Stratford was one of the world's great oyster grounds. At their peak, annual harvests reached nearly 2 million bushels. However, by 1970 over-harvesting and pollution had all but eliminated the commercial potential of these once-famous beds. Production had declined to less than 40,000 bushels per year. In essence, oyster harvesters had consumed the stock of natural capital on which they relied for a living.

In 1987, the state imposed a tax on the sale of oysters, with the proceeds going to the production of seed oysters and restoration of the oyster beds through the application of crushed shell. Since that date production of oysters has more than tripled to an annual level of about 700,000 bushels, and employment in oyster harvesting has more than doubled. Connecticut has become the second largest oyster producer in the United States, after Louisiana. The state of Florida has a similar oyster protection tax and fund.

The Connecticut seed oyster tax shares with the Alabama underground storage tank tax discussed in section 2.3 the unusual feature that it is popular with the taxed industry. The tax is seen as providing a benefit to oyster harvesters that is worth what they pay for it.⁴⁸ The seed oyster program benefits the industry as a whole and not just selected firms. Thus it seems unlikely that a private oyster seeding operation could support itself because of the free-rider problem.

Another interesting example of investing in natural capital is provided by several states that have created funds to invest in parks or tourism resources funded by taxes or fees on various beneficiaries. Delaware imposes a travel accommodations tax equal to 1 percent of the rent of hotels, motels, and tourist homes to fund the Beach Preservation and Replenishment Fund. This tax is closely analogous to the seed oyster tax, as beaches are central to Delaware's image as a vacation spot.

Pennsylvania funds the Keystone Recreation, Park and Conservation Fund with a 15 percent share of the state realty transfer tax. Similarly, Tennessee allocates approximately 22 percent of its realty transfer tax revenues to a variety of environmental funds, including the Wetlands Acquisition Fund, the Local Parks Acquisition Fund, and the Agricultural Nonpoint Water Pollution Control Fund. Several other states also fund natural resource enhancement and conservation trusts with real property or property transfer taxes -- see section 4.2.4. It can be argued that these property-related taxes are user charges because economic theory suggests that the value of local public services, including environmental services, is capitalized into land values.⁴⁹

2.6. COMMUNICATING PUBLIC VALUES AND PUBLIC EDUCATION

The typical adult citizen has a more direct, immediate, and frequent contact with the revenue authority than with any other government agency. Far more people read the instructions for preparing an annual tax return than any other government publication. Moreover, even people who hate and fear the tax process are interested in it. The information about public values expressed by the tax code is communicated as nearly universally as a modern government can achieve. This recognition led the great public finance economist Richard Musgrave to suggest that the newly capitalist Russia should adopt an income tax rather than a value added tax as its primary revenue source, even though the latter would be much easier

⁴⁸ Personal communication, Hill Bloom of Tallmadge Brothers, a major shellfish harvester.

⁴⁹ Charles Tiebout, "A Pure Theory of Local Public Expenditure," *Journal of Political Economy* 416 (October 1956); Wallace Oates, "The Effects of Property Taxes and Local Public Spending on Property Values," *Journal of Political Economy* 957 (November 1969).

to administer and harder to evade.⁵⁰ Musgrave argued that the process of filling out an income tax form teaches people what income and profit are - a critical step in the transition from a command to a market economy.

The tax system is not only a reflection of our collective values but also an important device to educate and inculcate taxpayers with important public values. The progressivity of our income tax conveys that we expect our most successful citizens to give back to the community. Tax preferences for health insurance, retirement savings, charitable giving, home ownership, and many others convey to the taxpayer aspects of our national character and our vision of the sort of community we wish to build.

Numerous environmental taxes take advantage of the tax system's educational role. One approach is to combine a modest tax on an environmentally injurious activity with a campaign to educate the relevant population about available alternatives, often funded by the tax. This approach uses the tax system to educate the public about the existence of an environmental problem and to provide an incentive to reduce it. Although the economic incentive that such taxes impose is usually quite small, the educational effect of the tax and related programs is often sufficient to induce significant environmental improvement.

The Iowa Groundwater Protection Act is an innovative program dealing with an emerging area of environmental concern: groundwater polluted by fertilizer and pesticide runoff. In the post- World War II era, pesticide and fertilizer use in Iowa rose rapidly. From 1965 to 1985, the rate of fertilizer application per acre in Iowa more than doubled, from 65 pounds per acre to 145.⁵¹ Most of Iowa's residents drink well water. By 1990, a survey of private wells showed that 18 percent had levels of nitrites -- precursors to carcinogenic nitrosamines -- that exceed federal health advisory levels, and 25 percent showed disturbing levels of pesticide contamination for at least part of the year.

Fertilizer and pesticide runoff is difficult to challenge politically in Iowa, where 90 percent of the state is farmland. In 1987, after a vitriolic public debate, the state enacted taxes on fertilizers and pesticides amounting to 0.3 percent of the value of pesticide sales and 75 cents per ton of fertilizer. These modest taxes were used to create a groundwater protection trust fund, with an annual income of \$2.5 million to \$3.5 million. The fund provides well water testing services and research, education, and demonstration projects on crop management techniques that reduce the need for fertilizer and pesticide applications.

It is not yet clear whether the voluntary approach taken by Iowa will suffice to achieve an adequate level of groundwater protection. The accumulation of pollution in groundwater is a slow, poorly understood, and poorly monitored process. However, in the years since the program was enacted the rate of fertilizer application per acre has not only stopped growing but has steadily declined. Although some other states in the region have also seen declines in fertilizer use, Iowa's rate of decline has been faster than the regional average. Moreover, largely as a result of the well testing program, the existence of a groundwater contamination problem is no longer controversial. This has transformed the debate over measures in response.⁵²

Important educational programs are often integrated with more traditional polluter-pays charges. For example, the New Jersey litter control tax and Clean Communities Program (CCP) discussed in section 2.2 included important components to educate the public and encourage volunteerism, including such popular initiatives as the Adopt-a- Highway program.

⁵⁰ Another reason to prefer an income tax is that value added taxes are generally slightly regressive, while individual income tax systems are generally progressive.

⁵¹ U.S. Department of Agriculture, *Fertilizer Use and Price Statistics*, Washington: U.S. Government Printing Office (November 1992).

⁵² Pamela Wexler, "Iowa's 1987 Groundwater Protection Act" in Robert Gale and Stephen Barg, eds. *Green Budget Reform: An International Casebook of Leading Practices*, London: Earthscan Publications (1995).

A state study of the program found that the CCP is effective, not only in paying for cleanup directly but also in mobilizing community and volunteer efforts to reduce, recycle, and clean up litter.⁵³ Other examples of using the tax system to convey collective value judgments and educate the public include the taxes aimed at promoting institutional change, discussed in section 2.8.2 below.

2.7. ENHANCING REGULATION THROUGH FISCAL INCENTIVES

Many U.S. environmental laws contain clear statements that the ultimate goal of the law is to achieve not some "optimal" level of pollution, but a zero (or harmless) level. However it is often impossible or prohibitively costly to achieve extremely low levels of pollution with current technology. The most common response has been to mandate the use of equipment that meets some version of the "best available technology" standard, even though that approach may be inadequate to achieve a harmless level of emissions.

Environmental taxes can give policy content to the social goal of achieving a zero or harmless level of emissions. Unlike most economists, who usually see taxes as a more efficient alternative to regulation,⁵⁴ environmentalists will typically see taxes as a supplement to a regulatory approach. Technology-based regulations embody our resolve to do the best we can today. Taxes on residual pollution emissions provide an ongoing incentive to develop new methods of production and new technologies that reduce emissions. As such, they can represent the dynamic edge of environmental policy toward regulated pollutants.

It should be recognized that the imposition of regulations on previously unregulated industries will often result in larger reductions in pollution emissions than can be achieved with taxes at politically feasible rates.⁵⁵ Moreover, regulations can address concerns relating to high local or temporary concentrations of pollutants, concerns difficult to meet with simple emission charges. Thus it is often impossible to achieve the desired environmental result by simply replacing regulation with taxes. On the other hand, over time the continued development of pollution prevention and control technology that a tax can stimulate may result in a very large reduction in environmental burden, often at greatly reduced cost.⁵⁶ In the long run, it is probably less important that we achieve the proper "tradeoff" between the environment and the economy at any given moment than that we pursue effective policies to relax the economic constraint, so that our environmental goals can be achieved at progressively lower cost over time. Both taxes on emissions that remain after mandatory controls and tax incentives for investments in new clean technologies (discussed in section 2.8 below), can, when properly integrated with more conventional regulatory approaches, play an important role in policy packages that meet our pressing immediate environmental concerns while placing us on the path to meeting our long-term environmental aspirations.

It is also worth noting that the effectiveness of our environmental policies often hinges less on the strength of our laws than on the quality of their enforcement. Thus, it is of potentially great practical

⁵³ New Jersey Department of Environmental Protection, Division of Solid and Hazardous Waste, New Jersey Clean Communities Program: Report to the Governor and Legislature (March 1995).

⁵⁴ It should be observed that even from a pure neoclassical efficiency perspective, the combination of regulations and taxes can achieve more efficient outcomes than either taken separately. See, e.g., Gunnar S. Eskeland, "A Presumptive Pigouvian Tax: Complementing Regulation to Mimic an Emissions Fee," *World Bank Economic Review* 373 (1994).

⁵⁵ There are exceptions to this. For instance, most of the U.S. reduction in ozone-depleting chemicals appears to be a result of the tax. See, e.g., J. Andrew Hoerner, "Tax Tools for Protecting the Atmosphere: The U.S. Ozone-Depleting Chemicals Tax," in *Green Budget Reform: An International Casebook on Leading Practices*, International Institute for Sustainable Development, ed., Earthscan Press (London 1995).

⁵⁶ See Curtis Moore and Alan Miller, *Green Gold: Japan, Germany, the United States, and the Race For Environmental Technology*, Beacon Press (Boston 1994); Michael E. Porter and Claes van der Linde, "Toward a New Conception of the Environment-Competitiveness Relationship," *Journal of Economic Perspective* (Fall 1995); Howard Geller, John DeCicco, and Steven Nadel, "Structuring an Energy Tax So That Energy Bills Do Not Increase," *American Council for an Energy-Efficient Economy* (Washington, 1993).

significance that the federal and state tax-collecting authorities invariably have enormously greater enforcement resources than the environmental agencies. By adding environmental taxes to the current system of regulation, the probability of apprehending and punishing environmental violators may be considerably increased.

The Minnesota contaminated property tax⁵⁷ presents a good example of integrating tax and regulatory instruments to provide a more effective environmental incentive. Normal principles of real property taxation can create perverse incentives for environmental degradation. Real property taxes are normally assessed based on a percentage of the fair market value of the land and attached structures, excluding legislative carve-outs such as residential homestead exemptions. When land is contaminated with toxic or hazardous wastes, its market value is reduced and may be zero or even negative. Thus, under the usual property tax rules, landowners can reduce their property taxes by contaminating their property, thereby shifting the burden or providing basic county and municipal services such as roads, schools, and police protection onto the backs of other taxpayers.⁵⁸ This rule provides an incentive not only for initial contamination but also to delay cleanup activities as long as possible, as each year of delay is another year of lower property valuation and avoided property tax payments.

Several large taxpayers in Minnesota successfully sought such reductions. In one case, a commercial landowner received a reduction in the assessed value of its property from over \$970,000 to \$100.⁵⁹ In response, outraged legislators enacted the new contamination tax. The tax applies to the "contamination value" of the land, defined as the reduction in the value of the property below its fair market value in an uncontaminated state. If the owner or operator is the responsible party in the sense of the state Superfund law, the rate is the same as the property tax rate and the tax benefit from property contamination is eliminated. If the owner is a nonresponsible party -- for example, a good-faith purchaser without notice of the contamination -- the contamination value tax rate is only 25 percent of the regular property tax rate. It was felt that a property tax reduction was more appropriate for nonresponsible landowners, for whom the reduction in property value due to contamination has essentially the character of a casualty loss.

In addition to the erosion of the local revenue base, the Legislature was concerned about the burden to localities from abandoned contaminated property. Such property reverts to the county, placing the burden of cleanup on the public. The contamination tax was designed to protect local governments by providing an incentive for cleanup. For both responsible and nonresponsible parties, the tax rate is reduced by 50 percent when a plan for cleanup is approved by the Minnesota Pollution Control Agency. For taxpayers who have not adopted an approved cleanup plan, this revenue goes to the localities. Once an approved plan has been adopted, 95 percent of the tax goes to the state. By 1996, two years after the tax became effective, more than half of all property subject to the tax had adopted approved cleanup plans. The tax raised more than half a million dollars in 1996.

Although some companies have an independent obligation under state or federal law to clean up contamination on their property, there is often an incentive to delay, litigate, or minimize the cleanup effort. The tax provides an incentive to voluntarily and expeditiously develop a cleanup plan in cooperation with the responsible regulatory authority. Such innovative efforts to integrate regulatory and tax incentive approaches⁶⁰ offer the potential of combining the best features of regulatory and incentive approaches into policies that are fairer, more effective, and less burdensome than either approach taken alone.

⁵⁷ Minn. Stat. Ann. 270.91 ff.

⁵⁸ Bonnie H. Keen, "Tax Assessment of Contaminated Property: Tax Breaks for Polluters?" 19 Boston College Environmental Affairs Law Review 885 (Summer 1992).

⁵⁹ Westing v. County of Mille Lacs, 1993 WL 35155.

⁶⁰ The Maine Tree Growth Tax Law described in section 2.9 and the Florida advance disposal fee discussed in section 2.8.2 also provide good examples of integrating tax and regulatory approaches.

2.8. PROMOTE NEW, CLEANER WAYS OF DOING BUSINESS

2.8.1. Pushing New Technologies Down the Cost Curve

For a private investor, investment in new industries and technologies can be a chancy proposition. In the early phases of the development of new technologies the risks of failure are great. Moreover, for most manufacturing industries low production volume (scale) and limited experience in production imply high costs and prices. As production and experience grow, cost and price fall. This phenomenon, often referred to as the learning or experience curve, or as learning by doing, is so widespread that it is usually regarded as a sign of a troubled industry when it does not occur.⁶¹ However, if the demand for high-priced early production is too small, an industry can become "locked in" to a high-price, low-volume regime.⁶²

Similarly, much of the benefit of early learning and risk taking cannot be captured by the investor, as innovations can be copied and mobile workers can carry new skills between businesses. In addition, the risk of adopting new technologies is lower for businesses that can observe and learn from the successes and mistakes of others. It is well established that the social returns -- as opposed to the private returns -- resulting from investments in research, development, and young industries are higher than the generally prevailing rate on other investments.⁶³ Thus production of new environmental technologies yields a positive technological externality that provides a benefit to the public, in addition to the reduction in negative pollution externalities usually discussed. Either variety of externality taken alone would imply that investment in new environmental technologies will be below the economically efficient level. When both occur together, the development of environmental technology may be seriously impeded. If society wishes a higher level of environmental technology than is suggested by mere efficiency for any of the reasons discussed in sections 2.2, 2.4, and 2.5, then the investment shortfall will be greater yet.

Many key industries have gone through a period of subsidy on their way to becoming important contributors to the national economy. Without government subsidy it is unlikely that the American subcontinent would have been linked into an integrated market by railway or that the computer era would be well under way. Nuclear power and all the major fossil fuel extraction industries, especially oil production, enjoyed huge subsidies while they were being developed. It is normal for manufacturing operations to enjoy rapidly increasing returns to scale and experience when they are young and small.⁶⁴ Because many environmental industries are immature and much smaller now than they will be at maturity, economies of scale and experience are a potentially important source of cost reduction. Rapidly declining costs imply the potential for expanding the market share of new clean technologies such as solar and wind energy. If the cost of an emerging clean technology can be lowered to a level comparable to that of existing polluting technologies at a feasible scale or experience level, then properly designed public policies can "flip" the clean technology from the low-production, high-cost state to a stable high-production, low-cost state, with corresponding benefit to the environment and the economy.

⁶¹ Kenneth J. Arrow, "The Economic Implications of Learning by Doing," *Review of Economic Studies* 29, June 1962; David C. Mowery and Nathan Rosenberg, *Technology and the Pursuit of Economic Growth*, New York: Cambridge University Press (1989).

⁶² W. Brian Arthur, "Positive Feedbacks in the Economy," *Scientific American*, February 1990.

⁶³ Paul Romer, "Increasing Returns and Long-Run Growth," *Journal of Political Economy* 94, October 1986; and Gene M. Grossman and Elhanan Helpman, *Innovation and Growth In the Global Economy*, Cambridge, Mass.: MIT Press, 1991. For a review, see E. Helpman, "Endogenous Macroeconomic Growth Theory," *European Economic Review* 36, April 1992, pp. 2-3. For evidence that returns to research and development far exceed measured private rates of return, see Zvi Griliches, "The Search for R&D Spillovers," National Bureau of Economic Research Working Paper No. 3768, 1991.

⁶⁴ One reason for declining costs with increased industry scale is that larger industries are more able to support specialized niche service and product industries, such as design services; specialized parts and tools tailored to the industry's needs; and publications and other services that assist in marketing, communication, management, and technical development. Development of specialized service and product industries often significantly reduces an industry's costs and improves its competitive position. See Michael Porter, *The Competitive Advantage of Nations*, New York: Free Press, 1990.

Many states have adopted tax policies designed to help push emerging technologies down the cost curve. The goal of such policies is not to find the optimal balance between the cost of emissions reductions and the benefits of environmental improvements at a given level of technology, but rather to achieve a market transformation that makes clean production cheaper and relaxes the environment/economy tradeoff. States may also wish to take positions of environmental leadership or to position themselves strategically in emerging environmental growth markets.

Tax credits for environmentally benign technologies such as renewable energy also play an important role in facilitating the development of environmental technology. For example, a suite of state and federal tax incentives, together with other promotional policies, has been crucial to the development of renewable energy. A case study of California found that tax incentives were vital to the development of renewables and that for several renewable energy types, including wind, solar, and geothermal, price has dropped rapidly as output expanded.⁶⁵ In the case of wind, price has fallen to a level competitive with conventional fuels in many markets.

2.8.2. Fostering Institutional Change Through Tax Instruments

Achieving environmental quality goals requires many changes in the way we do business. Sometimes that simply means putting a new kind of control device on an existing facility, but often the issue is more about developing new institutions and habits than about purifying a waste stream. For example, to increase recycling we may need to create new systems for collecting and separating wastes, such as deposit/ return systems or source separation by households of municipally collected trash. These collection systems must then be matched with recycling facilities capable of returning the recycle material to usable form.

The move to new ways of doing business may create environmental benefits that are worth the economic cost or it may save money relative to traditional approaches. The costs and benefits, economic and noneconomic, of institutional transformation must be addressed on a case-by-case basis. But regardless, the transition will often require many companies and individuals to simultaneously change how they do business. Such transitions will often involve a role for government, perhaps working in collaboration with industry and consumer groups, in creating new markets or coordinating the transformation of institutions.

One particularly successful example of a market-transforming tax instrument was the Florida advance disposal fee. The advance disposal fee applied an integrated tax and regulatory approach to promoting recycling of disposable containers sold in the consumer market. The state of Florida adopted aggressive recycling goals for consumer containers by media: a 50 percent recycling rate for aluminum cans; likewise for steel cans; 35 percent for glass, 30 percent for paper; and 25 percent for plastic. These targets increased with time. In 1993, the state imposed a 2-cent tax on every consumer container. The 2-cent rate was chosen to be slightly above the estimated cost of recycling at the target rates for all media. Revenues from the tax went to a variety of activities to promote recycling and waste reduction and reduce other environmental impacts.

The most innovative feature of the advance disposal fee was its exemption system. When the containers of a given media type (i.e. aluminum, steel, paper, etc.) meet the state recycling goal for that media, all containers of that type are exempted. In addition, individual businesses can achieve exemption by withdrawing from the waste stream a volume of containers of the media that they produce equal to their own production times the state recycling target for that media.

⁶⁵ Frank Muller, *Tax Credits and the Development of Renewable Energy In California*, in Robert Gale and Stephen Barg, eds., *Green Budget Reform: An International Casebook of Leading Practices*, London: Earthscan Publications (1995).

The advance disposal fee raised \$45 million in 1994, its first full year of operation. In the following year the revenues fell by more than 50 percent as more media achieved their recycling targets.⁶⁶ Two major new recycling facilities were constructed in Florida. Piper Plastic located a multimillion-dollar recycling plant in Orlando, creating 40 new jobs; and Anheuser-Busch has built a glass recycling facility in Lakeland that recycles more than 100,000 tons of glass per year.⁶⁷

The Florida advance disposal fee was intended to create permanent, self-sustaining recycling markets. The fee sunset in 1995 and was not extended. At the time of its expiration, more than 90 percent of taxpayers were exempt due to the success of their industries in meeting the media targets.⁶⁸ The Legislature, satisfied that the fee had achieved its objective in building the recycling market, allowed it to expire. If the state chooses to further increase its recycling targets above the rates achieved by industry in future years, the advance disposal fee is a demonstrated successful program that can readily be revived.

The state of Washington has attempted to deal with severe road congestion problems by encouraging employers to cooperate with employees in finding better ways to commute. The Washington Commuter Ride Share Program business and occupational tax credit served as a key component of that effort. In 1994, Washington created a 50 percent credit for employers against payments to workers for participating in ride-sharing programs. Payments up to \$60 per worker were allowed. To qualify, the ride-share vehicle was required to have at least four occupants. Also, the credit was limited to the employers with at least 100 employees in the eight most congested counties of the state -- employers who were also required by law to develop voluntary commuter plans for their employees. There were 900 such employers. The credit was limited to \$60 per participating employee and \$200,000 per employer. For fiscal 1994-95, \$250,000 in credits were taken. However, all of these credits were taken by only 12 large companies (rising to 21 by the end of calendar 1995).

In 1996, the state greatly expanded the coverage of the credit. The per-employee limit was retained and the per-employer limit was lowered to 100,000, but the geographic restrictions were eliminated and for the first time small employers became eligible. Moreover, while the 50 percent credit was retained for ride-share vehicles with at least four occupants, a new 30 percent credit was made available for a wide range of other transport alternatives. The most popular of these is an employer-provided bus pass.

In 1996, the first year after the expanded program was put into effect, the number of employers claiming the credit increased from 21 to 205. Almost \$1 million in credit was claimed, more than three times the dollars claimed in the preceding calendar year. Employers provided alternative transit benefits to more than 55,000 employees.

The Commuter Ride Share Program helps to create new habits and institutions -- such as employer ride-coordinating systems -- while reducing the number of single-occupancy vehicles on the road. It is strictly voluntary, and is popular with both employers and employees. Although the credit cost the state nearly \$1 million in 1996, it was matched by over \$2 million of employer payments. Washington has concluded that the cost of the credit is a good buy compared with the cost, both to the state and the environment, of meeting the same commuter demand by building more roads. A study commissioned by the Washington State Energy Office found that the cost of a road-building alternative would be more than three times as much, even ignoring the environmental cost of increased pollution.⁶⁹

⁶⁶ Jamie Christoff, Florida Department of Revenue. Personal communication.

⁶⁷ Florida Department of Environmental Protection, Advance Disposal Fee Issue Paper (July 1995).

⁶⁸ Tom Edwards, Florida Department of Revenue. Personal communication.

⁶⁹ Cy Ulborg and Jim McIntyre, Transportation Tax Incentives: Four Options for Employer-Based Transportation Demand Management in Washington, Washington State Energy Office (1995).

2.8.3. Pollution Prevention

In recent years U.S. environmental policy has been undergoing a fundamental paradigm shift. Traditionally, pollution and hazardous waste have been seen as inevitable by-products of production, with a cost of abatement that rises at an increasing rate as standards tighten and more expensive end-of-pipe control equipment is required. The new view holds that we should instead be looking for opportunities to more fundamentally redesign production processes to avoid creating pollution in the first place. A good example of pollution prevention is the elimination of airborne lead pollution from gasoline. Instead of equipping our cars with expensive exhaust lead removal systems, we chose to find relatively nontoxic anti-knock agents to substitute for tetraethyl lead.

Tax and fee instruments, when taken as part of a well- designed package of related measures, can play an important role in advancing the development of the pollution prevention approach to environmental protection. Taxes on emissions can foster a prevention mentality by focusing the attention of businesses on the cost of emissions rather than on the cost of cleanup. And taxes allow businesses the unrestricted choice of technology in achieving emission reductions, including the freedom to adopt the prevention approach.

A leading example of the use of tax instruments to promote pollution prevention is the Minnesota Pollution Prevention Fee and Environmental Fund. Minnesota offers an integrated carrot- and-stick approach combining pollution charges with a variety of education, technical assistance, and incentive programs intended to aid polluting companies in creating and implementing effective pollution prevention plans.

The fee portion of the program is one of the few state charges to use pollution emissions as a tax base. The Superfund Amendment and Reauthorization Act of 1986⁷⁰ (SARA) created a requirement that companies produce a Toxic Release Inventory (TRI) of pollutants listed in U.S.C. Title 42 section 11023(c). The pollution prevention fee imposes a charge of \$150 per chemical released, plus the greater of \$500 or 2 cents per pound of release.

Through the Environmental Fund, the pollution prevention fee is the principal source of revenues for the state's pollution prevention activities. Minnesota has adopted a waste management hierarchy, ranging from disposal at the bottom through incineration, treatment, recycling, and re-use, to reduction in initial generation as the most desirable. Activities of the Environmental Fund include:

- The Pollution Prevention Technical Assistance Program
- Approximately \$150,000/year in pollution prevention project grants, mainly to industry
- The Minnesota Waste Exchange, which helps turn one company's waste into another's raw materials
- A series of pollution prevention conferences
- State review and monitoring of mandatory pollution prevention plans
- The Governor's Award for Excellence in Pollution Prevention

Since its enactment in 1990, the fee has raised approximately \$1 million a year. The fee has twice been expanded by amendment. In 1992 the \$30,000 per-facility cap was eliminated, and in 1993 the number of covered industries was significantly expanded. These expansions have offset the significant decline in state toxic releases to maintain an approximately level revenue stream.

⁷⁰ Pub. L. 99-499 (1986), 42 U.S.C. sec. 9601-75 et al. (Supp. IV 1996).

2.9. THE DRIVE TOWARD A SUSTAINABLE ECONOMY

The United States and world economy of the last 200 years have been characterized by economic growth. Most of us cherish the hope that our descendants will continue to enjoy rising standards of living due to economic growth and development. However, we live on a finite earth. Our human economic system is a part of a larger physical and biological system on which it depends. This larger system imposes constraints on the economy. Some of these constraints take the form of fixed stocks, as of oil. Other resources, such as the ocean fish population, have a sustainable yield. Continued harvesting above the sustainable level depletes the abilities of these resources to renew themselves and can destroy them completely. The limited sustainable productive capacity of the biosphere is mirrored by its limited sustainable absorptive capacity. For instance, the biosphere atmosphere can only absorb a limited amount of carbon dioxide a year without increasing the stock of CO₂ in the air, leading to potentially dangerous global climate change. In many cases today's economy is already consuming natural resources (including absorptive capacity) at rates far in excess of the sustainable level. How are we to integrate this knowledge with our long-term aspirations for a better life for our children?

A long-term economic path is said to be sustainable if it successfully integrates environmental and development goals. The most-cited definition of sustainable development comes from the United Nations' World Commission on Environment and Development: that development is sustainable if it "meets the needs of the present without compromising the ability of future generations to meet their own needs."⁷¹ To achieve sustainable economic development, it is necessary that we re-channel the development of the economy toward those goods and services that make lower demands on the environment and to increase the efficiency with which limited resources are used to meet human needs.

One approach to this problem is to recognize that the resource consumption is the product of economic production and resource requirements per unit of production. Technological progress generally leads to reduced resource requirements per unit of output. If we can decrease resource requirements per unit of output at a faster rate than output is increasing, then the total resource demand falls with time. This is a necessary but not a sufficient condition for sustainability in an ever-growing economy. It is also necessary to develop and phase in efficiency technologies and environmentally- friendly alternatives fast enough to prevent limiting resources from being exhausted or depleted beyond recovery.⁷²

Energy efficiency investment credits provide a clear example of a tax tool aimed at promoting efficiency in resource use. Eight states have adopted such credits. See section 4.3.5 for a discussion. One of the better programs is the Oregon Business Energy Tax Credit Program. Oregon provides a 35 percent credit against investment (spread over a five-year period) for approved energy- efficiency investments.⁷³ To be eligible, projects must produce "substantial" energy savings, defined as 50 percent of the energy used to heat water, 10 percent of the energy used to heat a building, 10 percent of a commercial or industrial process load, or 30 percent of a waste heat stream for heat recovery projects. Applicants must certify that projects meet the substantial savings criteria, subject to engineering audits by the Oregon Department of Energy (ODOE). Project proposals must be approved by the ODOE. Application processing generally takes less than 30 days. The ODOE is authorized to approve up to \$40 million in investments (\$14 million in credits) a year.

This program has been in operation since 1980 and has approved credits for investments amounting to roughly \$500 million. A survey conducted by the Oregon State University Survey Research Center on behalf of the ODOE found that approximately half of the investment projects either would not have gone

⁷¹ World Commission on Environment and Development, *Our Common Future*, Oxford University Press (1987).

⁷² See especially Herman Daly and John Cobb, *For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*, Beacon Press (1989); and Herman E. Daly, *Steady State Economics*, 2nd ed. (1991).

⁷³ O.R.S. 469.185-469.225.

forward without the credit or involved more extensive conservation measures than would have taken place without the credit.

Sustainability requirements apply not only to depletable resources like fossil fuels, but also to renewable resources that require management such as forests, fisheries, and agricultural lands. Tax incentives for sustainable management practices can help to put industries on a sustainable development path. One example of such a credit is the Maine Tree Growth Tax Law.

The tree growth law provides alternative forestland property valuation for forest lots that adopt sustainable management practices. The owner of any parcel of 10 acres or more can apply for alternative valuation equal to 90 percent of the present discounted value of the sustainable wood harvest from the property. This is a "present use" valuation in the sense that the value of the property in alternative uses is not considered. A parcel owner is required to have a forest management and harvest plan including activities to regenerate, improve, and harvest a standing timber crop. The plan must be prepared or certified by a licensed professional forester. The owner must also periodically present a certification by a licensed forester that the harvest does not exceed the scheduled level. In addition to the valuation provisions, there is an income tax credit of up to \$200 for the cost of preparing a management plan. It should be added that some have questioned the environmental benefit from the credit, as the statute defines no standard for sustainability except for the professional judgement of foresters.

Many states have adopted present use valuation for forest, agricultural, or wilderness property. It is often claimed that these provisions promote environmental goals by discouraging residential or commercial development of such properties. However, the environmental benefit from keeping land in a forest or farm state may be small or even negative if the owner follows poor environmental management practices. The Maine Tree Growth Law stands out in requiring sound management practices in order to qualify for tax-favored treatment.

The most ambitious effort by a state to implement the principles of sustainability was the Louisiana Environmental Tax Scorecard.⁷⁴ The scorecard was short-lived, a casualty of a change in administration, lasting only one year. But in that year it demonstrated that a tax instrument integrating environmental and development concerns could have a significant impact on the emissions behavior of firms. The scorecard had five goals:⁷⁵

- to increase environmental compliance;
- to reduce environmental risk;
- to increase economic welfare;
- to improve economic and environmental equity; and
- to shift economic development away from ecologically risky activities.

To understand the scorecard, it is necessary first to understand how it fit into the existing structure of business taxation. Louisiana has business tax rates that are relatively high by the standard of surrounding states, especially the business structures and equipment tax. These higher rates are offset by a very generous system of exemptions intended to attract new investment. The Industrial Property Tax Exemption Program (ITEP) offers a 20-year, 100 percent exemption to new investment.

Louisiana is a relatively poor state. It has also been a pollution haven, with the highest rate of toxic emissions per capita in the United States. Because of the state's economic condition state officials have been very concerned with attracting and retaining job- providing industry. The environmental tax

⁷⁴ For a more detailed historical and policy analysis of the Scorecard, see J. Andrew Hoerner, "The Louisiana Environmental Tax Scorecard," in Robert Gale and Stephen Barg, eds., *Green Budget Reform: An International Casebook of Leading Practices*, London: Earthscan Publications (1995).

⁷⁵ S. Farber, R. Murrow and P. Templet, "A Tax Incentive Tool for Environmental Management: An Environmental Scorecard," *12 Environmental Economics* 183 (1995).

scorecard was designed to provide an incentive for emissions reductions while recognizing the importance of job creation and related concerns.

The scorecard worked by reducing state tax subsidies to facilities with poor environmental records unless they showed exceptional potential for promoting development. When a business applied for a tax exemption under the ITEP, the facility at which the property was to be installed received a score, on a scale from 50 to 100, based on a point system that took into account a variety of environmental and economic factors. The company would then receive a percentage of the tax break it would have received absent the scorecard program, equal to the facility score. So a business with a facility score of 100 would receive its full exemption, while a score of 50 would result in loss of half of the exemption.

The two most important environmental components of the score were the business's history of environmental compliance and a unique indicator, toxic emissions per job. Compliance was measured by a point system based on the history of fines and felony convictions, with greater reductions in score for violations that were more severe and more recent. Toxic emissions were the unweighted sum of a facility's Toxic Chemicals Release Inventory (as mandated by the Federal Superfund Amendment Reauthorization Act), lead emissions, and 10 percent of criteria air pollutants (SO_x, NO_x, volatile organic compounds (VOCs), and particulates smaller than 10 microns). These two criteria each contributed 25 points, so a firm with no environmental fines or convictions and less than 500 pounds of emissions per employee would receive a full 100 score.

The use of the emissions/job ratio is an interesting innovation. The capacity of the environment to absorb pollutants without degradation is limited, and a business that places a stress on the environment that is disproportionate to the number of people it employs limits the potential for employment growth in the rest of the economy. By focusing on lowering the toxic emissions per job, the scorecard created a potential to achieve greater long-term employment growth while retaining acceptable levels of environmental quality.

For businesses with environmental problems, a system of bonus points was available. Points were awarded for recycling (up to 5 points), manufacturing consumer products using Louisiana materials (up to 10 points), creating new jobs in high unemployment areas (up to 15 points), and diversification of the state's industrial base (up to 10 points). Perhaps the most significant of the bonus point categories was the award for five-year emissions reduction plans. Up to 15 points were awarded, one point for each 2 percent per year reduction in emissions below emissions in the year preceding the application. If a facility failed to meet its emissions goals, it would lose all bonus points awarded under this category. Many businesses that initially received low scores responded by filing emissions reduction plans.

It is difficult to fairly assess the performance of the scorecard program based on a single year of operation. However, by the end of the first year of operation 12 businesses had filed emission reduction plans committing to cut emissions by a total of 36 million pounds. This was 8 percent of total emissions in 1991.⁷⁶

Many of the reduction plans committed business to emission cuts that were quite large compared to the size of the potential loss of tax credit. Scores were made public and the high responsiveness was widely attributed to the educational and public relations impact of the scorecard program. The 50 to 100 scale of the scorecard is reminiscent of a school grading system, and a score of 60 is easy to read as a "D" in environmental performance. By providing a single, simple yardstick of environmental performance, the environmental incentive effect of the scorecard was greatly increased.

Creative tax instruments such as the Louisiana and Maine programs described above, if widely adopted, could constitute a major step toward placing the economy on a sustainable path. In the long run, however,

⁷⁶ R.J. Moreau, Louisiana's Environmental Scorecard, Master's Thesis, Institute for Environmental Studies, Louisiana State University (1992).

a more fundamental transformation of the tax code is probably required to provide markets with the necessary incentives to harmonize a growth economy with limits of a finite natural world. Pollution taxes can and should be used to provide such incentives,⁷⁷ together with other measures. By gradually phasing pollution taxes in over a long period of time, we can provide a constantly increasing push away from the consumption of natural resources. This would allow businesses to plan for an orderly transition to a sustainable production pattern, without the catastrophic dislocations that could result if they were put in place all at once. This transformation, referred to as ecological⁷⁸ or environmental tax reform, would place a larger share of the total tax burden on things we wish to discourage, like pollution and natural resource consumption, while relieving the tax burden on labor, education, and other forms of investment in human capital, and clean production. Such environmental tax reform is discussed in section 5.2 below.

3. SURVEY SCOPE AND METHODOLOGY

The purpose of the survey was to identify environmentally motivated tax provisions enacted at the state level. Originally the scope of the study was limited to provisions contained in the tax code or administered by the state revenue agency. As explained below, we ultimately chose to include a selection of environmental fees as well.

Initial data collection was by a survey of the states. Survey instruments were originally mailed to state revenue agencies in all 50 states and the District of Columbia. In states such as California with multiple revenue agencies, a separate survey was mailed to each agency. A series of follow-up phone calls was then made to nonresponding agencies at roughly one month intervals, for six months or until a response was received. Survey responses were ultimately returned from 45 states. Four states⁷⁹ and the District of Columbia did not respond; the New Hampshire agency replied that it would not participate. A copy of the questionnaire is included as Appendix A. (See p. 1230.)

The quality of responses varied widely, from a list of popular names of tax provisions to careful and detailed descriptions. Several states simply returned copies of their tax code. After tabulation of the results, library research was conducted to fill in the missing information about code citation, tax rate, and tax base. In the course of this research, a number of additional provisions were discovered and added. However, no attempt was made to do a section- by-section search of the state codes for missing provisions. After the tabulations and summaries were completed, they were returned to the state revenue agencies for review and any corrections were incorporated into the resulting tables. Approximately 250 environmental tax provisions were identified at this point.⁸⁰

A number of definitional questions arose in the initial design of the survey and subsequently. We generally treat a tax provision as environmentally motivated if it is so identified by our survey respondents, although in a few cases, such as reduced property tax valuation rates for farmland, we regarded the environmental benefit as tenuous and uncertain. Taxes on natural resource consumption such

⁷⁷ Ernst U. von Weizsacker and Jochen Jesinghaus, *Ecological Tax Reform: A Policy Proposal for Sustainable Development*, Zed Books (Atlantic Highlands, N.J.: 1992).

⁷⁸ "Ecological tax reform" is differentiated from the "efficient" pollution taxes often advocated by economists. The rate of ecological taxes is set based on the urgency of the ecological constraint, not by social cost measured by monetary value to a human population. This urgency is a product of how close we are to the limits set by the larger natural system, of the composition and growth of economic output, and of our technical efficiency in using natural resources to produce that output. Ultimately, ecological taxes are a means of providing the economic system with the ecological information it needs to avoid environmental disasters. See von Weizsacker, *id.* at footnote 77. Its effectiveness should be measured in terms of environmental rather than economic goals. Environmental tax reform, as used here, encompasses ecological tax reform, but also includes other shifts toward environmental taxes, including efficiency-based shifts.

⁷⁹ Oklahoma, Nevada, West Virginia, and Colorado.

⁸⁰ J. Andrew Hoerner, "Life and Taxes," *Amicus Journal*, p. 14 (Summer 1995).

as motor fuel taxes or mineral severance taxes are treated as environmental taxes only if they offer some evidence of environmental motive in their design or by revenue earmarking. (A 1993 survey of the tax treatment of energy at the state level was conducted by the Alliance to Save Energy.)⁸¹ Many tax provisions influence economic activities with environmental consequences. Although it would be desirable to identify taxes and tax provisions with major unintended environmental consequences, such an effort is beyond the scope of this study.

As a final crosscheck, a literature search was conducted to identify any missing provisions. Important sources of additional information included a study of environmental finance by the National Governors' Association,⁸² a more recent survey of state water quality finance by the National Conference of State Legislatures,⁸³ a study of environmental taxes in the New England states conducted by the Environmental Law Center of the Vermont Law School,⁸⁴ and another recent effort to list state environmental taxes.⁸⁵ This review turned up a large number of new provisions. We also found in the literature many reported environmental fees that are virtually identical in rate and base to tax measures in our survey but which are neither administered by the taxing authority nor contained in the tax code. At this point we decided to include these fees for completeness. However, it should be noted that the coverage of fees in this paper is limited. We include only those fees that were identified by our literature search⁸⁶ or included in responses to our questionnaire because they were administered by the revenue agency. We excluded fees that appeared to have little environmental implication, such as modest fixed per-facility licensing fees.

One important class of fee instruments is intentionally omitted from coverage: permit fees under Title V of the 1990 Clean Air Act amendments. All or nearly all states have now enacted permit charges as required by the act, ranging from simple per-facility licensing fees to carefully structured systems of emission charges with rates that vary by time, location, and substance. These fees play a critical role in funding state clean air programs. A 1995 study of 13 state programs found that 7 received 40 percent of their funding or more from Title V permitting fees.⁸⁷ These fees were excluded as a result of time and funding constraints. Radian Corp. conducted a survey of fees implemented under the act under contract to Oak Ridge National Labs in 1993.⁸⁸ The Omaha, Neb., Public Works Department has done a more recent survey that covered 29 states and 20 local air quality management districts.⁸⁹ Most state fees are in the range of \$15 to \$35 per ton of criteria pollutant, ranging as high as \$99 (Rhode Island); local fees in nonattainment areas are often higher yet.⁹⁰

⁸¹ Joe W. Loper with Mary Beth Zimmerman, *Energy Policy By Accident*, Alliance to Save Energy: Washington (1994).

⁸² Evelyn Shields, *Funding Environmental Programs: An Examination of Alternatives*, National Governors' Association: Washington (1989).

⁸³ Paul Doyle, *States as Water Quality Financiers: Legislative Options for the 1990s*, National Conference of State Legislatures: Washington (May 1991).

⁸⁴ Janet E. Milne and Susan Hasson, *Environmental Taxes in New England: An Inventory of Environmental Tax and Fee Mechanisms Enacted by the New England States and New York*, Environmental Law Center, Vermont Law School (February 1996).

⁸⁵ Mary Jane Egr, "Politically Correct Taxation: State Environmental and Pollution Control Taxes," *State Tax Notes*, May 6, 1996, p. 1385. Although the Egr survey also identified about 210 provisions, many of these were low fixed fees excluded from coverage in our study. Only about 60 percent of the provisions identified by Egr overlapped with those from our survey.

⁸⁶ We also exclude minor license filing fees and other de minimis fees, which appear to lack environmental significance.

⁸⁷ Tabulated by the author from results reported in Part II of *State and Territorial Air Pollution Program Administrators/ Association of Local Air Pollution Control Officials, Federal Grants to State and Local Air Pollution Control Agencies: An Assessment of Needs*, Washington (September 1995). The STAPPA/ ALAPCO report covered 15 states, but only 13 of these reported state funding breakdowns that showed their Title V fee totals.

⁸⁸ P. Pandullo, G. McCutchen, J. Buzun, and L. Sutton, *Status of Title V Permit Program Development: A State/ Local Agency Survey*, paper presented at the 1993 Annual Meeting of the Air and Waste Management Association (June 1993).

⁸⁹ Chester Black, *Survey of State And Local Agencies' Title V Permit Fees*, Omaha, Neb., Public Works Department, Air Quality Control Division (April 1996).

⁹⁰ Id. Black at footnote 89, STAPPA/ ALAPCO at footnote 87.

The author believes that the listing of provisions here, though the most comprehensive to date, remains incomplete. Our experience of finding new environmental tax provisions at each phase of review suggests that provisions remain to be found in the state tax codes. In addition, many fees and a few taxes are defined not by statute, but by regulations issued under statutory authority. Identifying all such fees would be a major undertaking, though a valuable one. Our counts as given below should be regarded as a sample of perhaps 80 to 90 percent of all state environmental tax measures and a considerably smaller percentage of environmental fees. Fees are identified as such in the tables: taxes have no special identification. Counts of charges by thematic category include both fees and taxes unless otherwise noted.

Finally, it should be noted as regrettable that very few states responded to our questions about the revenue raised or lost through environmental tax provisions, and those that did provided only very sketchy information. Such information as was provided is given in the context of discussion of particular provisions below. The 1989 National Governors' Association study gathered partial information of this sort.⁹¹ Some information about revenue from environmental taxes at the national level is available from the OECD⁹² and the European Union.⁹³

4. SURVEY RESULTS

4.1. OVERVIEW

Our survey instrument inquired about tax provisions in 10 categories. Six of these questions yielded a substantial number of replies. These six questions inquired about (1) taxes with earmarked revenues,⁹⁴ (2) tax benefits for environmentally beneficial activities,⁹⁵ (3) taxes on nonhazardous solid wastes,⁹⁶ (4) taxes on hazardous wastes,⁹⁷ (5) tax measures to promote cleaner transportation alternatives,⁹⁸ and (6) tax measures to promote sustainable agriculture, forestry, or fisheries.⁹⁹ Lists of the provisions given in answer to these six questions are contained in Table 1 (p. 1218).

Four questions did not yield substantial numbers of responses. A question about taxes on pollution emissions into the air or water¹⁰⁰ received no positive responses except for a few states listing their fees for 1990 Clean Air Act Amendments Title V compliance programs. As discussed in Section 2 above, we chose not to include charges under the Clean Air Act Amendments within the scope of this study. In addition, no state responded positively to a question inquiring about environmentally motivated provisions not otherwise categorized¹⁰¹ or about limiting the availability of other tax benefits based on environmental criteria.¹⁰² Finally, a question about valuation of contaminated property and tax treatment

⁹¹ Supra note 82. The results from this survey were also analyzed in Joseph J. Cordes, "State Environmental Taxes and Fees: An Overview," *State Tax Notes*, Jan. 13, 1992, p. 58. Because the National Governors' Association study focused on the funding of environmental protection, it included only taxes and fees earmarked to environmental purposes. Neither charges going to general revenues nor environmentally motivated tax subsidies were covered by the study.

⁹² OECD, *Environmental Taxes in OECD Countries*, Paris (1995).

⁹³ European Environment Agency, *Environmental Taxes: Implementation and Environmental Effectiveness*, Luxembourg: Office for Official Publications of the European Communities (1996).

⁹⁴ Question 2 in the survey. See Appendix A.

⁹⁵ Question 3 in the survey. See Appendix A.

⁹⁶ Question 4 in the survey. See Appendix A.

⁹⁷ Question 5 in the survey. See Appendix A.

⁹⁸ Question 7 in the survey. See Appendix A.

⁹⁹ Question 8 in the survey. See Appendix A.

¹⁰⁰ Question 1 in the survey. See Appendix A.

¹⁰¹ Question 10 in the survey. See Appendix A.

¹⁰² Question 9 in the survey. See Appendix A.

of environmental cleanup costs¹⁰³ garnered only a few responses, which we consolidated with the responses on hazardous waste charges for purposes of this paper.

For a description of the tables and the discussion of survey results, see the "Key to the Tables and Discussion Sections" box (next page).

Measures prescribing special valuation rules for contaminated property for purposes of real property taxes and special treatment of environmental cleanup expenses for income tax purposes are discussed in section 4.5 and shown in detail in Table 5 (p. 1280). Only three such measures were identified by our survey. Our examination of these issues is limited to a preliminary discussion and a description of the statutory provisions identified. Much of the law relative to valuation of contaminated property has developed through administrative and judicial rulings at the state level.¹⁰⁴ Our analysis is limited to statutory rules specific to contamination. Similarly, on the corporate and personal income tax treatment of remediation costs, we examine only statutory exceptions to the general rule that state treatment is slaved to the evolving federal standard. We do not examine the evolving federal standard, on which much ink has already been spilled.¹⁰⁵ More generally, we do not include any state tax preference that derives from federal tax benefits through state adoption of the federal personal or corporate income tax base for the state income tax system.

4.2. TRUST FUND TAXES AND EARMARKED ENVIRONMENTAL CHARGES

4.2.1. Overview

The three most common types of earmarked environmental charges are taxes and fees relating to hazardous waste; charges relating to the import, sale, or storage of petroleum products and other fuels, including tank charges; and charges on the sale or disposal of tires. Of the 211 charges reported in Table 2 (p. 1232), 137 fall into one of these categories. These charges, all of which are also reported in Table 5 on hazardous wastes, are discussed in section 4.5 below. Similarly, the 19 earmarked charges on nonhazardous solid wastes are reported in Table 4 (p. 1277) and discussed in section 4.4, and the nine provisions relating to the promotion of sustainable agriculture, forestry, and fisheries -- provisions cross-listed in Table 7 (p. 1290) -- are discussed in section 4.7. The remaining 41 charges fall broadly into five categories: charges to encourage recycling; severance and similar resource-extraction charges; property-related taxes; and miscellaneous charges difficult to classify.

All the earmarked charges or trust fund taxes in Table 2 are marked with a letter code identifying the category of tax or fee based on both the source and the use of funds. These categories are not always entirely distinct; nonetheless, for purposes of counting and exposition only a single code was assigned to each provision. Codes and categories in Table 2 are as follows: (A) storage tank charges; (B) hazardous waste charges; (C) solid waste charges; (D) petroleum product-related charges; (E) charges related to agriculture, forestry, or fisheries; (F) tire charges; (G) resource and severance taxes; (H) charges to encourage solid waste reduction and recycling; (I) taxes related to property and land use; (J) category eliminated; (K) miscellaneous charges. When provisions in Table 2 are cross-listed in one of Tables 4 through 7, its alphabetic code is given preceded by a "2."

¹⁰³ Question 6 in the survey. See Appendix A.

¹⁰⁴ See, e.g., John Garippa and Seth Davenport, "Environmental Contamination: A Legal Perspective of Its Effects on Property Values," *State Tax Notes*, Jan. 13, 1992, p. 50.

¹⁰⁵ See, e.g., Sanjay Gupta and Howard M. Shanker, "Taxing the Environment," *Tax Notes*, Mar. 17, 1997, p. 1451; George Farrah, ed., *Environmental Tax Handbook: Strategies for Compliance*, BNA Books (1993).

KEY TO THE TABLES AND DISCUSSION SECTIONS

Most of the tax and fee measures identified by this survey fall into one of two broad categories; earmarked or trust fund taxes, with some or all of the revenues going to a specified environmental purpose, often through the mechanism of a special fund; and tax incentives for activities seen as relatively beneficial. We found 211 separate earmarked tax measures. They are summarized in column 2 of Table 1, shown in detail in Table 2, and discussed in section 4.2. We identify 216 tax incentives for environmentally beneficial activities (or activities seen as less harmful than the alternative, such as ride sharing versus single-occupant commuting). These are summarized in column 3 of Table 1, shown in detail in Table 3, and discussed in section 4.3.

The responses to the remaining four questions appear in columns 4 through 7 of Table 1. Most of the responses to these questions are cross-listed in the trust fund taxes or tax incentives categories of columns 2 and 3 of Table 1. For instance, proceeds of the Arkansas solid waste fee shown in column 4 of Table 1 are deposited in the Arkansas Solid Waste Management and Recycling Fund, and so that fee is also listed as an earmarked fee in column 2. For such cross-listed provisions -- i.e., provisions in columns 4 through 7 that are also shown in columns 2 or 3 -- the detailed descriptions are given in Tables 2 and 3 respectively. Therefore, for these provisions only the title of the tax and a cross-reference are given in tables 4 through 7. Provisions in columns 4 through 7 that are not cross-listed in column 2 or 3 -- that we will refer to below as additional provisions -- are described in full in the associated detailed tables, tables 4 through 7.

- Table 4, described in section 4.4, describes charges on nonhazardous solid wastes (Table 1, column 4). We identify 45 nonhazardous waste charges, of which 32 are earmarked for dedicated applications and 14 are additional provisions not included in Table 2.
- Table 5, described in section 4.5, describes charges on hazardous waste generation, transport, storage, or disposal (Table 1, column 5). The table shows 157 such charges, of which 141 are cross-listed in Table 2 and 16 are additional.
- Table 6, described in 4.6, describes 42 tax provisions intended to promote cleaner transportation alternatives, including public transit, ride sharing, and alternative-fueled vehicles (Table 1, column 6). All of these provisions are cross-listed in Table 3 (see p. 1286).
- Tax measures to promote sustainable agriculture, forestry, or fisheries (Table 1, column 7) are discussed in section 4.7 and listed in Table 7. We have identified 46 such provisions, of which 14 are earmarked taxes cross-listed in Table 2, 28 are tax incentives cross-listed in Table 3, and 4 are additional (see p. 1288).

4.2.2. Solid Waste Reduction Funds

The survey identified 19 taxes or fees with dedicated funds intended to encourage recycling or reduction in waste, trash, or litter. There is no sharp line between general trash or litter charges discussed in section 4.4 below and recycling and reduction provisions discussed here, so these two sections should be read together. Recycling and reduction provisions have a wide variety of bases. The degree to which the use of the revenue is tied to the base varies and the relationship is not always close. For example, the Florida battery fee goes into a general Water Quality Assurance Fund. On the other hand, the Connecticut newsprint recycling tax goes to the Municipal Recycling Trust and is devoted primarily to paper recycling.

Four states have litter stream taxes and litter reduction funds. The Ohio and Nebraska litter taxes and funds are similar in broad outline to the New Jersey litter control tax and Clean Communities Program discussed in section 2.6. The Rhode Island charge has a more limited base, applying only to retailers who sell food or beverages for immediate consumption. Three states have recycling assistance fees going to general recycling-promotion funds. The Maine tax applies to a variety of hard-to-dispose-of materials and is described in section 4.4 below. The bases of the Nebraska and Wisconsin taxes are not closely related to waste generation.

Waste reduction charges on specific media include three states with lead-acid battery charges,¹⁰⁶ two states with newsprint paper taxes,¹⁰⁷ two states with beverage container charges,¹⁰⁸ and one state with a "white goods" tax.¹⁰⁹ Connecticut imposes a small fee on tons of solid waste processed by resource recovery facilities. The Florida advance disposal fee discussed in section 2.8.2 is included in this table because it is an excellent model of innovative tax design to promote recycling and waste reduction. However, it should be recalled that the fee has expired.

4.2.3. Resource and Severance Charges

Extractive industries have historically been associated with severe environmental impacts and, except in the case of sustainably managed harvesting, are inevitably associated with depletion of state natural resource stocks. Thus it is not surprising that a number of states have adopted severance taxes or other resource extraction charges as a base for funding environmental activities. Twelve such charges have been adopted by

¹⁰⁶ Connecticut, Florida, and Texas.

¹⁰⁷ Connecticut and North Carolina.

¹⁰⁸ Connecticut and Tennessee.

¹⁰⁹ North Carolina. "White goods" are major appliances such as stoves, refrigerators, washers, and dryers.

Table 1
Summary of Environmental Provisions by Type

Note: Rows do not sum to row totals because provisions may be in more than one column. Columns numbered 2 through 7 correspond to Table 2 through 7, respectively.

State	1. Total Provisions	2. Trust Funds Taxes	3. Tax Incentives	4. Non-hazardous Waste Charges	5. Hazardous Waste Charges	6. Sustainable Transport	7. Natural Resources
Total, All States	462	211	216	45	157	42	46
Alabama	6	3	3	0	2	0	0
Alaska	1	1	0	0	1	0	0
Arizona	13	5	7	0	1	0	2
Arkansas	10	5	4	1	3	1	0
Cal. (F.T.B.)	7	0	7	0	0	3	0
Cal. (B.O.E.)	9	7	2	1	6	1	0
Colorado	4	2	2	1	0	1	0
Connecticut	23	7	12	4	5	5	3
Delaware	8	5	3	1	2	1	2
Florida	9	7	2	1	5	0	2
Georgia	5	2	3	0	2	0	0
Hawaii	6	2	4	1	2	1	0
Idaho	6	2	3	0	3	0	0
Illinois	11	5	6	0	5	2	0
Indiana	10	4	6	1	3	0	3
Iowa	9	4	4	1	3	0	1
Kansas	5	4	1	1	3	0	0
Kentucky	11	3	8	0	3	2	0
Louisiana	8	3	4	0	4	1	1
Maine	15	8	6	1	6	0	5
Maryland	4	3	1	0	2	1	0
Massachusetts	14	0	11	2	0	2	2
Michigan	8	5	3	0	4	0	1
Minnesota	10	7	2	2	6	0	0
Mississippi	5	4	1	1	3	0	0
Missouri	12	11	1	2	6	0	1
Montana	12	5	7	1	1	0	0
Nebraska	9	6	1	1	3	0	1
Nevada	1	0	1	0	0	0	0
New Hampshire	7	4	2	1	4	0	1
New Jersey	14	5	7	2	4	2	2
New Mexico	5	2	2	1	1	1	0
New York	10	2	6	1	2	1	1
North Carolina	10	6	4	2	4	0	2

State	1. Total Provisions	2. Trust Funds Taxes	3. Tax Incentives	4. Non-hazardous Waste Charges	5. Hazardous Waste Charges	6. Sustainable Transport	7. Natural Resources
North Dakota	7	2	5	1	2	1	0
Ohio	10	5	5	2	2	0	0
Oklahoma	9	4	5	0	3	2	0
Oregon	13	3	10	0	3	1	3
Pennsylvania	8	6	2	0	3	1	1
Rhode Island	13	4	6	3	5	0	2
South Carolina	8	2	2	1	4	0	1
South Dakota	9	7	2	0	4	1	0
Tennessee	12	6	5	2	4	0	1
Texas	13	10	2	2	8	0	0
Utah	7	3	4	0	3	2	0
Vermont	6	2	3	1	2	0	2
Virginia	13	3	10	0	2	1	3
Washington	18	8	8	2	2	1	1
West Virginia	5	2	3	0	2	1	0
Wisconsin	12	4	7	1	2	1	2
Wyoming	2	1	1	0	1	0	0

10 states.¹¹⁰ In addition to meeting the usual monitoring and regulation costs, most of these taxes go to land reclamation in the event that a mine or well owner fails to properly restore the land. Often portions of the tax are earmarked to a variety of purposes. See, for example, the discussion of the Montana coal and mineral severance taxes in section 2.4. Nine of the charges apply to mining or oil drilling. Arizona's timber severance tax goes to funds for parks, forestry, and recreation. Two states, Missouri and Virginia, have created mining reclamation funds based on charges against acreage rather than mineral production.

4.2.4. Taxes Related to Property and Land Use

Six states have adopted trust fund taxes related to property or land use. The Pennsylvania and Tennessee property transfer taxes and the Delaware travel accommodations tax are discussed in section 2.5 above. In addition to the travel accommodations tax, Delaware also has a property transfer tax earmarked to the Land and Water Conservation Trust. Similarly, New York earmarks a portion of the revenue from its property transfer tax to the general environmental fund. Missouri earmarks a portion of its tangible personal property tax to environmental purposes.

4.2.5. Miscellaneous Trust Fund Charges

Nine states have imposed trust fund taxes that do not fall clearly into one of the preceding categories. Some of these are charges on an environmentally burdensome activity, industry, or product that provides some particular remedy to that activity, industry, or product. These include utility surcharges in Maryland and Pennsylvania, the former to fund research on utility environmental impacts, and the latter to provide a utility alternative fuels grant program; a Washington wood stove fee to do wood stove environmental and safety education; and a California charge on industries with a history of occupational lead poisoning to do

¹¹⁰ Arkansas, Colorado, Michigan, Missouri, Montana (three provisions), North Dakota, Ohio, South Dakota, Texas, and Virginia.

preventive education. Similarly, South Dakota funds its Water and Environment Fund in part with a tax on the construction of large water projects.

In some cases a tax base related to health or environmental quality was chosen to fund general environmental activities. Examples include general environmental funding from the Washington cigarette tax and a Minnesota vehicle transfer fee. In other cases the linkage between the tax base and the funded activity are tenuous, as in Pennsylvania's use of the capital stock franchise tax to fund hazardous site cleanup. Alabama funds general environmental activities using a commemorative license plate fee.

Oklahoma and South Dakota impose \$10 to \$25 fees on regulated air pollutants, with the revenues going to the Air Quality Subfund and the Environmental Quality Revolving Fund, respectively.

4.3. TAX BENEFITS FOR ENVIRONMENTALLY BENEFICIAL ACTIVITIES

4.3.1. Overview

The tax system has never been and will never be a neutral charge on all human activities. Indeed, such a neutral charge is hard to envision or even define. We do not tax leisure or most home production; we exclude most of the nonprofit sector from most taxes; and we have reduced or zero tax rates on an enormous range of activities that we want to encourage or on which we believe tax burden to be especially onerous, such as food and health care. The tax system reflects our history, public values, and administrative capacity, taxing a broad assortment of income, wealth, and consumption-related bases with many exceptions and special rules, some serving urgent public needs, some the product of special-interest politics or simple folly.

In the tax debate, a rhetoric of neutrality can serve the public interest as a counterbalance to those who seek to identify their private interests with the public interest, narrowing the tax base and thereby leading to higher rates for everyone else. However, such a standard should not be applied to tax provisions that are intended to achieve clearly public goals. Instead, these provisions should be evaluated in the same way that we evaluate public spending: by assessing and balancing the importance of the public end they serve, their effectiveness in promoting that end, and their economic and noneconomic costs, through public debate as mediated by our democratic institutions. Increasingly states are recognizing the task of meeting environmental priorities and goals as worthy of some degree of tax preference. Table 3 (p. 1257) shows 216 tax provisions intended to promote a wide range of environmentally beneficial activities. These include 72 tax incentives for investing in pollution-control equipment; 32 provisions benefiting renewable or alternative energy technologies, with an additional 9 promoting energy conservation; 29 measures designed to stimulate recycling; and 4 incentives for reducing toxic or solid waste. The provisions relating to cleaner transportation -- 25 provisions encouraging alternative motor fuels or clean-burning vehicles and 17 encouraging mass transit, ride sharing, and the like -- are replicated in Table 6 (p. 1286) and discussed in section 4.6. Likewise the 29 provisions relating to land use or to sustainable agriculture, forestry, or fisheries are replicated in Table 7 (p. 1288) and discussed in section 4.7.

All tax incentive provisions in Table 3 are marked with a letter code identifying the category of tax or fee based on the activity promoted. Codes and categories in Table 3 are as follows: (A) exemptions and cost recovery for air and water pollution control equipment and facilities; (B) toxic, solid, and hazardous waste reduction incentives; (C) recycling incentives; (D) incentives for investment in alternative and renewable energy; (E) incentives for energy conservation and environmental technology; (F) incentives for alternative vehicles and fuels; (G) sustainable land use incentives; (H) mass transit and land use incentives. When provisions in Table 3 are cross-listed in one of Tables 4 through 7, its alphabetic code is given preceded by a "3."

Table 3 includes 72 tax incentives for investing in pollution control equipment, discussed in section 4.3.2; 32 provisions benefiting renewable or alternative energy technologies, discussed in section 4.3.3, with an additional 9 promoting energy conservation, discussed in section 4.3.5; and 29 measures designed to stimulate recycling, discussed in section 4.3.4. This section also includes the 4 incentives for reducing toxic or solid waste.

4.3.2. Air and Water Pollution Control Equipment

The most common provision of this type is an exemption for air and water pollution control equipment from any of a wide array of taxes. Twenty-three states exempt air and water pollution control equipment from sales and use taxes.¹¹¹ Other taxes for which full exemptions exist in one or more states include real and personal property taxes, excise taxes, and gross receipts, corporate licensee, and franchise taxes.

The scope of these exemptions, credits, and valuation rules varies considerably. Many states allow all pollution-control equipment: others allow only equipment controlling emissions to a particular medium, such as air or water. Another common limitation is to cover only pollution-control equipment required by federal or state law. This limitation is probably a bad idea from a public policy point of view, as it may exclude equipment used to voluntarily exceed pollution-control standards from coverage of the exemption. Some states cover only pollution-control equipment: others go beyond pollution control to include equipment intended to prevent the creation of pollution through fundamental redesign of manufacturing processes.

It is not clear that exemption of pollution-control equipment from sales and use taxes should be considered a form of tax preference. Sales taxes apply only to final consumption and not to intermediate stages in the manufacturing process. Although the exact boundary between consumption and intermediate use varies considerably by state, most states have a rule exempting manufacturing equipment and raw materials used in manufacturing from sales and use taxation. If pollution control is regarded as a normal part of the manufacturing process, exemption of pollution-control equipment can be regarded as an application of this rule.

In addition to or in place of these exemptions, six states have income tax credits for investments in pollution-control equipment.¹¹² The issues of exemption scope addressed above also apply to credits. For example, the Arizona credit applies only to underground storage tank corrective action, while Connecticut offers a separate corporate income tax credit for industrial waste treatment facilities. New York provides a credit against its franchise tax. Tennessee excludes in-state pollution control property from the in-state property used in formula allocation of franchise tax of multistate firms.

Several states have adopted special valuation rules in addition to or in place of complete exemption, especially in the context of property or ad valorem taxes.¹¹³ Often this rule takes the form of valuing equipment at salvage. Mississippi offers alternative 60-month amortization of pollution control equipment for income tax purposes.

4.3.3. Developing Renewable or Alternative Energy Systems

About half of U.S. states have adopted tax policies to actively promote the adoption of renewable or alternative energy systems. Our survey identified 32 such provisions. Often a single provision applies to multiple energy types. Energy types covered in one or more states include solar systems, active and

¹¹¹ Alabama, Arkansas, California, Connecticut, Georgia, Idaho, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Michigan, Missouri, Nebraska, Ohio, Rhode Island, Tennessee, Texas, Utah, Virginia, Wisconsin, and West Virginia.

¹¹² Arizona, Connecticut, Kentucky, New York, Oregon, and Washington.

¹¹³ Florida, Montana, Tennessee, West Virginia, and Wyoming.

passive, and photovoltaics (solar cells); wind turbines; wood, methane, alcohol, and other biomass; cogeneration and fluidized bed combustion; small-scale hydropower; and geothermal energy. In addition, two states, Connecticut and Massachusetts, offer tax benefits for research into alternative energy systems.

The most important variations in these provisions include: the energy type covered, ranging from single-technology provisions like the Montana wind energy systems credit to provisions that apply to a broad range of technologies; the type of tax containing the incentive (e.g., sales, income) and its form; and the category of eligible taxpayer or of installation site, with the most common distinction being between residential and nonresidential facilities.

The most common technology covered is solar power. Fifteen states¹¹⁴ offer some kind of solar energy incentive, including investment credits, sales and use and franchise tax exemptions, and reduced property valuation. Five states¹¹⁵ offer incentives specific to wind systems, ranging from investment tax credits to sales tax exemptions to special property tax treatment. Four states¹¹⁶ have tax incentives for geothermal systems.

The most common form of incentive is the investment tax credit against personal or corporate income tax or similar taxes. Twelve of the provisions have this form. Eight offer exclusions or alternative valuation for property tax purposes. Most of the rest are exclusions from a variety of taxes, including sales and use, franchise, corporate license, and corporate excise taxes.

Many states offer incentives only to residential property (some limiting coverage to homeowners, others extending it to residential landlords as well), others only to commercial property. In several cases -- e.g., the Oklahoma wind and photovoltaic credit -- similar credits are offered for residential and nonresidential facilities, but with a higher credit rate for residential installations. Washington offers a deduction for cogeneration and renewable facilities to utilities. North Dakota has a credit for industry research on alternative fuels.

4.3.4. Promoting Recycling

Recycling reduces litter and the trash burden on landfills, and may become self-sustaining when necessary markets and collection mechanisms have been built. The most popular approach among the 29 recycling incentives is to provide income tax credits for the purchase of recycling equipment. There are 17 such credits. They vary in rate and scope of coverage. Several states have minimum recycled content requirements to be eligible for their credit, such as Delaware's requirement that 25 percent of the final product be composed of recycled material. Some states specifically include or exclude collection equipment from the scope of coverage: others are silent or ambiguous on this point. Three states¹¹⁷ extend their recycling equipment credits to cover pollution prevention equipment. There are also two additional states -- Oregon and Colorado -- that provide recycling equipment credits only for plastic recycling.

Recycling equipment is sometimes exempted from other taxes as well. Five states¹¹⁸ exempt recycling equipment from sales and use taxes. Rhode Island exempts recycling facilities from property taxation; Wisconsin offers such facilities a reduced rate. Instead of providing a credit, North Carolina allows recycling plant, facilities, and equipment to be expensed.

¹¹⁴ Arizona, California, Connecticut, Illinois, Oklahoma, Oregon, Massachusetts, North Dakota, New York, Rhode Island, South Dakota, Texas, Utah, Virginia, and Washington.

¹¹⁵ Oklahoma, Massachusetts, North Dakota, South Dakota, and Utah.

¹¹⁶ Indiana, Montana, North Dakota, and Oregon.

¹¹⁷ Georgia, New Mexico, and Oklahoma.

¹¹⁸ Kentucky, New Jersey, North Dakota, Minnesota, and South Carolina.

Two provisions did not fit into the preceding categories. California exempts from facility fees underground storage tank owners who have recycled their tanks, and Wisconsin exempts off-road vehicles used exclusively for recycling from the vehicle gross receipts tax.

4.3.5. Energy Conservation Incentives

Given the close relationship between energy efficiency and reductions in many types of environmental and economic costs, it is perhaps surprising that only six states have adopted energy- efficiency incentives (eight provisions). The most interesting and aggressive of these is the Oregon energy conservation facilities credit discussed in section 2.9. Another interesting program is the Connecticut corporate income tax credit for investments in residential energy conservation in units with a high percentage of low-income households. This substantial (60 percent) investment credit addresses the incentive problem often found in low-income rental housing, where neither the landlord nor the tenant may have the incentive to invest in efficiency improvements, even where a good economic payback from the investment exists. Montana and Hawaii also offer income tax investment credits for residences; Montana's extends to other buildings as well. Montana also offers credit unions and banks income tax credits for offering low-interest loans on residential and building conservation projects.

The remaining three incentives in this section are a bit of a grab bag. Virginia offers conservation organizations a sales and use tax exemption. Oregon offers a corporate income tax credit for energy efficiency and environmental research activities. And Oklahoma offers a 50 percent personal and corporate income tax credit against voluntary contributions to the state Energy Conservation Assistance Fund.

4.3.6. Incentives to Reduce Toxic or Solid Waste

Only a few states had adopted tax incentives for reduction of toxic or solid waste other than the recycling incentives previously discussed. (See also the toxic waste taxes with related funds in section 4.5.) These provisions are labeled "B" in the Short Description column of Table 3. Delaware has created an income tax credit for businesses that reduce wastes reported in their toxic waste inventory. This is an innovative concept, but the credit is only \$250 per 10 percent reduction in releases, and so probably has little impact on major polluters. Louisiana has an exemption from its general tax on hazardous waste generation and storage for wastes that have been remediated to a harmless state.

There are also two exemptions to encourage solid waste reduction in addition to the recycling incentives of section 4.3.4: the Hawaii exemption of the gross proceeds of solid waste processing facilities from general excise tax and the Maine income tax credits for equipment used to process, reuse, or recycle solid waste. (See section 4.3.4 for other recycling incentives.)

4.4. TRASH TAXES

In many states the collection and disposal of nonhazardous solid wastes is considered a matter for local government. In addition, collection and disposal of trash, litter, etc. is often financed out of general revenues. Because our survey was limited to environmentally motivated charges at the state level, we probably did not pick up most of the financing of the collection and disposal of nonhazardous wastes. Nonetheless, we identified 45 state tax provisions related to nonhazardous solid wastes.

The most common of these provisions are fees and taxes levied on the disposal of solid waste at dedicated disposal facilities. There are 19 of these funds, labeled 2-B or 2-C in Table 4. Sometimes these fees are on the disposer, sometimes on the facility. The base is usually either tons of material or per- facility. The funds are generally pay for regulation, monitoring, cleanup, and general solid waste management, including groundwater protection. A few of these taxes go to funds with broader environmental purposes.

In addition, we have included in Table 4 charges on general litter production, labeled 2-H. These are charges on litter-stream corporations or on products that often end up as litter, such as bottles and newspapers, again with revenues devoted to funds devoted to various mixes of waste reduction, public education, recycling, and cleanup. There are 10 such charges. They are discussed in more detail in section 4.3.4, together with other waste reduction and recycling provisions.

Finally, there are 14 provisions that are not earmarked to special funds. (In Table 4, these are the provisions that do not have an alphanumeric code in the "Short Description" column.) Except for the absence of earmarking, these charges are quite similar to the earmarked trash charges discussed above. Six of these are general per-ton trash charges; a New Hampshire provision is similar except it applies only to wastes generated out of state. Two are deposit/return systems. The remainder are litter-stream or similar taxes.

4.5. CHARGES RELATING TO HAZARDOUS WASTES

Charges relating to hazardous wastes, including petroleum wastes, or to difficult to dispose of materials such as tires or batteries, is the single largest category of fees or charges we found. The 157 such charges identified by our survey are shown in Table 5.

Most states have some kind of tax or fee on the generation or disposal of hazardous waste per se. These vary considerably in rate, base and structure. They include taxes on generators, transporters, and disposal facility operators. Several states levy charges on particular modes of disposal, such as burial; some modes may receive preferential or zero rates, such as recycling, resale as a feedstock, or treatment sufficient to render the waste harmless. Of the hazardous waste charges, 57 have their revenues dedicated to funds. These provisions are described in Table 2 and their short descriptions in Table 5 are marked "2-D." In addition, four states have hazardous waste charges not dedicated to funds: Connecticut, Iowa, South Carolina, and New York (which has two, a waste generator fee and a waste disposal facility operator fee).

There are 21 charges denominated as storage tank taxes or fees, all having revenues devoted to funds for cleaning up leaky tanks. These charges are marked "2-A" in the Short Description column of Table 5. Most of these charges apply to tanks storing petroleum products. The Arizona, Indiana, and Pennsylvania fees apply to other regulated substances. Tank charges may be on a per-tank basis, sometimes varying with the tank's capacity, or based on the volume or value of withdrawals from or additions to the tank. Petroleum charges are often difficult to distinguish from the tank charges. These 31 provisions are likewise all dedicated to funds except for the Tennessee motor oil fee. Dedicated petroleum charges are marked "2-D." Petroleum charges are often devoted to environmental funds with broader purposes than cleanup of the earth and groundwater around leaking storage tanks, such as prevention, third-party compensation, and oil spill response. Charges on motor oil are often used to encourage recycling, such as the California used-oil recycling and fund fee.

Many states have adopted charges on several kinds of solid waste that present chronic waste disposal problems, such as tires, batteries, and white goods.¹¹⁹ Tire taxes or fees with dedicated revenues have been adopted by 29 states. Tire charges are marked "2-F"; other hard-to-dispose-of solid wastes are marked "2-H." Some of these charges have revenues dedicated to tire disposal funds, others to funds with broader responsibilities for recycling or solid waste disposal. Two states have tire charges that are not earmarked: Rhode Island and South Carolina. Three states¹²⁰ have adopted dedicated lead-acid battery charges; another four¹²¹ have battery charges without earmarking. North Carolina imposes a \$5 charge on each white good purchased in state or purchased out of state and used in the state, with revenues split between general solid waste management and a specific White Goods Management Account. Maine

¹¹⁹ A white good is a major appliance such as a stove, refrigerator or washing machine.

¹²⁰ Connecticut, Florida, and Texas.

¹²¹ Arizona, Arkansas, Rhode Island, and South Carolina.

combines several of these charges in its recycling assistance fees, with charges on batteries, tires, major appliances, major furniture items, mattresses, and bathtubs, again going to a solid waste management account. Recognizing that cars themselves present disposal problems, Minnesota charges a motor vehicle transfer fee with revenues to the general state environmental fund. This provision is marked "2-K" in Table 5.

Severance taxes are treated as hazardous waste charges if and only if their revenues are devoted to hazardous or petroleum waste cleanup. Two taxes meet this criterion: the Michigan oil and gas severance tax and the North Dakota oil extraction tax, both marked "2-G."

Finally, we incorporated into this section three special valuation rules designed to eliminate perverse tax incentives for environmentally damaging activities. The Minnesota contamination tax was discussed at length in section 2.7 above and will not be again described here. Connecticut has simply declared by statute that the assessed value of real property for property tax purposes will not be reduced on account of contamination or pollution. New Jersey has gone furthest in altering normal tax rules to reflect environmental concerns, creating a general denial of the deductibility of a wide class of environmental penalties for income tax purposes.

4.6. FOSTERING CLEANER TRANSPORTATION ALTERNATIVES

Some of the most severe and intractable of the environmental problems the United States faces in the long run are associated with commuter transportation. States have primary responsibility for addressing local transportation issues and are active participants in the efforts to seek solutions for these problems. Our survey identified 42 tax incentives for cleaner transportation alternatives. All of these incentive provisions are cross-listed in Table 2 (and so we do not reproduce the citation, rate, and base). Clean transportation tax incentives fall into two broad categories. The first category consists of incentives for the use of alternative fuels (including electricity) and vehicles that are powered by them. There are 25 such provisions, which are marked "3-F" in the Short Description column of Table 6. The second consists of incentives for mass transit use, van pooling, and similar alternatives to single-occupant vehicles. There are 18 of these provisions.

Most incentives for alternative-fueled vehicles can be further subdivided into two categories: tax incentives for vehicle purchase and reduced motor fuels tax rates on the fuels themselves. Six states¹²² have adopted seven provisions¹²³ giving lower or zero rates for alternative fuels, particularly alcohol and alcohol/gasoline blends (gasohol). Two states make the availability of lower rates depend on other factors. Kentucky exempts liquefied petroleum gas (LPG) if the vehicle has a carburetion system that meets environmental standards. Arkansas offers reduced rates for natural gas, methanol, ethanol, and others, but the rates vary with the number of vehicles powered by that fuel contained in the state.

Eleven states¹²⁴ have adopted 12 provisions¹²⁵ creating tax credits for the purchase of alternatively fueled vehicles against the personal or corporate income tax or other major business taxes such as the gross receipts tax. The credit may be against the entire cost of the vehicle or be limited to the incremental cost of such vehicles due to their use of alternate fuels. Sometimes the credit is limited to the cost of the fuel, engine, and exhaust systems. Many states, such as Oklahoma and Virginia, make the credit available for refueling equipment as well. An additional four states¹²⁶ have adopted sales and use tax exemptions for alternative fueled vehicles or conversion equipment.

¹²² Arkansas, Hawaii, Illinois, Kentucky, Oklahoma, and South Dakota.

¹²³ Illinois has separate provisions for alcohol and gasohol.

¹²⁴ Arizona, California, Colorado, Louisiana, North Dakota, Connecticut, Oklahoma, Oregon, Utah, Virginia, and West Virginia.

¹²⁵ North Dakota has separate provisions for new vehicles and conversion of existing vehicles.

¹²⁶ California, Illinois, New York, and Pennsylvania.

Connecticut allows vehicles fueled by LPG or compressed natural gas to pay a modest flat annual fee instead of fuel taxes. Connecticut exempts alternatively fueled vehicles from its tax on new motor vehicles.

States have adopted an extraordinary variety of approaches to promoting mass transit. This is an area that is ripe for some effort to assess the relative efficacy of differing approaches to a similar end. California and Massachusetts offer income tax credits for the purchase of vanpool vans; three states¹²⁷ offer sales and use, personal property, registration fee, or vehicle excise tax exemptions. California also offers a credit for purchase of vehicles by nonemployer vanpool programs. Wisconsin excludes employer-provided transit passes and vanpooling from the employee's personal income. Four states¹²⁸ offer employer tax credits for either developing an employee commuter transportation plan or for employee participation in an employer carpooling or mass transit arrangement -- New Jersey has both. Three states¹²⁹ exempt high-occupancy vehicles -- sometimes including buses or taxicabs -- from motor fuel taxes. Washington exempts public mass transit from public utility tax.

4.7. PROVISIONS TO PROMOTE SUSTAINABLE AGRICULTURE, FORESTRY, AND FISHERIES

The promotion of sustainable agriculture, forestry, fisheries, or related land use questions through tax policy is an important area that has received insufficient study. Our survey identifies 46 such provisions in Table 7. Of these, 14 are charges associated with earmarked funds, cross-listed from Table 2; 28 are incentive provisions cross-listed from Table 3, and four are non- earmarked charges.

Of the 14 trust fund taxes, four are real or personal property or realty transfer taxes with funds earmarked to improving the environmental quality of the land and associated water. These taxes and the Delaware travel accommodations tax are marked "3-I" and were discussed in section 2.5. Five of the remaining nine trust fund taxes are related to fisheries and all five use the revenues from the tax to make investments in improving the quality of fisheries: the Connecticut and Florida oyster taxes, the Maine quahog tax, the Maine sardine tax, the Washington anadromous game fish tax. The Connecticut oyster tax is also discussed in section 2.5. Of the remaining four, two are lumber taxes and go to funds improving the quality of forests and parks. Finally, Arizona has a pesticide fee that goes to the water quality assurance revolving fund, and Nebraska has fertilizer fees that are rather peculiarly earmarked to promote ethanol production.

Of the 28 incentive provisions (all marked "3-G"), 19 provisions in 13 states¹³⁰ offer preferential treatment under the property tax for some use of property, usually farm, forest, or conservation use. The most common provision is "current use" assessment of the property -- basing the property valuation on its value in current use, rather than on its unrestricted market value. A few states offer complete exemptions from property taxation for certain property uses: Iowa for forest or fruit tree reservations, Rhode Island for tree plantations, Oregon for riparian habitat property, and Wisconsin for forests governed by a forest management plan. Wisconsin imposes a substitute tax on property governed by its Managed Forest Law based on harvested value, thereby achieving an economic effect similar to the Maine managed forest alternative valuation system. Indiana offers participants in its forest management system a lower rate. Other property tax provisions include lower rates for windbreaks and filter strips offered by Indiana, and Vermont's Working Farm Tax Abatement Program.

State officials often report environmental motives for keeping land in farm or timber use, but poorly managed farms or forests are not always positive contributors to environmental quality. Moreover,

¹²⁷ Connecticut, Massachusetts, and Washington. Washington has both a motor vehicle excise and a sales and use exemption.

¹²⁸ Connecticut, Delaware, New Jersey, and Washington.

¹²⁹ Connecticut, Kentucky, and Washington.

¹³⁰ Connecticut, Florida, Indiana, Iowa, Maine, Massachusetts, New Hampshire, New Jersey, New York, Oregon, Rhode Island, Vermont, and Wisconsin.

existing research strongly suggests that simply reducing property tax rates has little impact on saving farm, forest, and open-space land. However, when those reductions are linked to desirable land and resource conservation practices, or to zoning provisions requiring maintenance of the preferred use, they appear to be considerably more effective.¹³¹ Many states could benefit by strengthening the linkage between property tax preferences and the behaviors the preference is intended to encourage.

The remaining nine provisions are mainly income tax credits: for reforestation (North Carolina) or tree growth (Maine); for fish habitat improvement, fish screens, and fishways (Oregon); for conservation tillage equipment, technology to reduce fertilizer and pesticide application levels necessary for agriculture (Virginia); and for agricultural water conservation systems (Arizona). Michigan offers a farmland and open space tax credit based on the amount by which property taxes on such property exceed 7 percent of income. Finally, Virginia offers a sales and use tax exemption for environmental organizations.

5. FRONTIERS OF STATE ENVIRONMENTAL TAXATION

5.1. GREEN TAX PACKAGES

Environmental tax measures at the state level have developed in a highly uneven and haphazard fashion. Until recently this growth was virtually unnoticed and almost completely uncoordinated. As shown in section 4 above, even the states most committed to environmental leadership have adopted only a handful of the wide range of effective measures now available. Although virtually every state has at least a few environmentally motivated tax measures, only a few tax measures have been adopted by more than 25 states, and many innovative and successful measures have been adopted only by one or two states.

It is now clear that appropriately tailored tax instruments can enhance the effectiveness and fairness of most major environmental programs. In this early chaotic phase in the development of environmental taxation, states have an opportunity to reap considerable benefits simply by adopting the best practices from other states. Our hope is that this survey may be helpful in that regard. An examination of provisions adopted by other OECD nations, some of which are comparable in scale to some U.S. states, may also be useful.¹³²

Design of a green tax package might begin with a review of existing environmentally motivated tax provisions in the state, with the goal of bringing them up to national best practice. There are also a number of areas where virtually every state could enhance its economic and environmental welfare through the use of well-designed tax or fee provisions. These areas include cleanup funds for defunct companies and accidental spills or leakages of hazardous wastes including fuels; tax incentives for pollution prevention, recycling, energy efficiency, renewable energy, and other emerging clean technologies; tax tools to promote a gradual shift toward alternative transportation and sustainable agriculture, forestry, and fisheries; and tax incentive provisions integrated with the regulatory systems governing polluting industries. States should also examine existing tax subsidies to polluting industries. Although these subsidies have not been examined here, a recent study by the Friends of the Earth¹³³ has shown that such pollution subsidies are rampant in the federal tax code, and a study by the Alliance to Save Energy¹³⁴ found that 40 states offer preferential tax treatment to energy relative to other consumer

¹³¹ Jane H. Malme, "Preferential Property Tax Treatment of Land, Lincoln Institute of Land Policy Working Paper," Cambridge, Mass.: Lincoln Institute of Land Policy (1993).

¹³² A good place to start such an international review would be the recent reviews of environmental taxes conducted by the OECD, *supra* note 92, and the European Environment Agency, *supra* note 93. The collection of case studies of successful use of tax and fiscal reforms collected by the International Institute for Sustainable Development, *supra* note 55, is also a valuable resource for such a review.

¹³³ Dawn Erlandson, Jessica Few, and Gawain Kripke, *Dirty Little Secrets*, Washington: Friends of the Earth (1995).

¹³⁴ *Id.* footnote 81.

goods. Other studies have also found large subsidies to fossil fuel production.¹³⁵ Elimination of such pollution subsidies would be a desirable part of any effort to make the tax system more environmentally sensitive.

States also have an opportunity to exercise environmental leadership by developing new tax and fiscal instruments to better harmonize environmental and development goals. Environmental taxes are a relatively new tool and we are still learning how to best deploy them. A diversity of state approaches and goals allows the states to act as the "laboratories of democracy," devising new and creative approaches to environmental taxation to better advance national environmental policy. This survey has identified some of the emerging innovative approaches to environmental taxation that can be profitably pursued, but we have faith that further undiscovered innovations remain to be found by inventive policymakers. Such innovation is crucial to meeting the arduous economic and environmental challenges that lie ahead.

State packages need to be tailored to the environmental goals and fiscal system of each individual state. On the environmental side, tax instruments should be coordinated with the state's regulatory system, focused on the state's environmental priorities, and carefully tailored to promote their designated purposes. Often this will involve using tax bases that are more closely linked to environmental outcomes than has been the case heretofore, e.g. more taxes on emissions, releases, and leaks. On the tax policy side, it is important that environmental taxes be within the state's administrative capacity, that they be auditable, and that taxpayer compliance is not unduly burdensome. However, environmental taxes should not be held to an unrealistic standard. All taxes contain ambiguities and impose administrative and compliance burdens, and so will environmental taxes. Any new tax will go through a shakedown period before administrative problems are worked out. Even with mature taxes, such as the income tax, new administrative and compliance issues are always arising. Achieving administrable environmental taxes may involve closer cooperation between revenue agencies and other agencies than is normal. Equipment certification,¹³⁶ release audits,¹³⁷ review of environmental management plans,¹³⁸ and other activities related to monitoring environmental performance may fall more closely within the expertise of agencies more directly concerned with environmental monitoring.

Finally, environmental tax provisions include both those that raise revenue and those that cost money. Thus from a budget perspective green tax packages can be revenue-raising, revenue-losing, or revenue-neutral. It is important to recognize that whether a state is currently in surplus, in deficit, or in balance, green tax packages can be crafted to help the state meet its fiscal goals.

A model of a revenue-neutral green tax package is contained in the federal National Energy Policy Act of 1992.¹³⁹ The act created income tax credits for clean-fueled vehicles and their refueling stations, including electric vehicles; production credits for electricity generated from wind and closed-loop biomass; and excluded utility residential energy conservation subsidies from the income of the recipient. These four provisions cost money. The act also included an increase in the ozone-depleting chemicals (ODC) tax necessitated by the U.S. commitment to accelerated phaseout of substances that destroy stratospheric

¹³⁵ For a good comparison of several alternative estimates of the subsidy to fossil fuels, see Michael Shelby, Robert Shackelton, Malcolm Shealy and Alexander Cristofaro, "The Climate Change Implications of U.S. Energy (and Related) Subsidies," in Organization for Economic Cooperation and Development, *Reforming Energy and Transportation Subsidies*, Paris: OECD (1997).

¹³⁶ E.g. as required for many state solar and renewable energy credits. See section 4.3.3.

¹³⁷ E.g. in the toxic release inventory used as a base by the Minnesota pollution prevention fee discussed in section 2.8.3.

¹³⁸ E.g. in the forest management plans required to receive alternative property valuation under the Maine Tree Growth Law discussed in section 2.9.

¹³⁹ Pub. L. No. 102-486, 106 Stat. Ann. 2776 (1992).

ozone.¹⁴⁰ The revenue from the ODC tax increase fully funded the environmental tax credits and exemption.

Efforts to pass green tax packages are justified in their own right, but they also serve to educate environmental interests about the tax system and tax policymakers about environmental concerns. By building tax interest and capacity in the environmental community and environmental interest and capacity in the tax community, we set the stage for more fundamental environmental tax reform. We now turn to such reform.

5.2. ENVIRONMENTAL TAX REFORM

5.2.1. Introduction

One of the traditional goals of tax policy has been economic neutrality. Taxes are viewed as creating a wedge between the "efficient" market outcome and the actual outcome, discouraging work, investment, and other productive economic activity. Therefore it is often believed that the best we can do is aim for a broad base and a low rate so that the wedge is as low and as uniformly spread as we can manage. In other words, if all a tax system can do is harm, for any given level of revenue we should try to keep the harm as small as possible. Neutrality is the best that we can do. However, environmental taxes do not follow this traditional model. The things that environmental taxes discourage are things we wish to discourage. Environmental taxes do the work of government and improve the efficiency of the economy. They are not neutral. They are better than neutral. As a result, a broad shift toward environmental taxes such as a carbon/energy tax is favored by a substantial majority of economists.¹⁴¹

Environmental tax reform (ETR) is a way of restructuring the tax system so that more of the burden of taxation falls on things we wish to discourage, such as pollution and natural resource consumption, and less falls on things we wish to encourage, such as work and investment. It is an important piece of the larger vision of sustainable development, in which we gradually shift technology and consumption patterns to reduce our reliance on activities that consume scarce natural resources and pollute the environment and replace them with activities that better meet human needs in the long run. A sustainable economy would see increases in activities that serve human needs but impose a low environmental burden. In a sustainable economy, more time and resources would be spent on activities such as education, home and family, art, music, literature, software, sports and fitness, and civic and community participation.

States have an important role to play in the task of reshaping our tax code to place our nation on the path to long-term environmental and social sustainability. Ultimately, environmental tax reform must be pursued on the national level to be fully effective. Because U.S. states have open borders and are integrated into a national market, there is a limit to the ability of states to sustain major differences in resource prices and production technologies. However for many states environmental tax reforms that shift as much as 10 to 20 percent of the tax burden to pollution, natural resource consumption, and other environmentally motivated tax bases would be feasible.

¹⁴⁰ See Elizabeth Cook, ed., *Ozone Protection in the United States: Elements of Success*, Washington: World Resources Institute (1996), Chapter 5, for a discussion of the history of the ozone-depleting chemicals tax.

¹⁴¹ On January 13, 1997, six Nobel Laureates released an Economists' Statement on Climate Policy, stating that: "II. Economics studies have found that there are many potential policies to reduce greenhouse-gas emissions for which the total benefits outweigh the total costs...without harming American living standards, and these measures may in fact improve U.S. productivity in the longer run.

"III. The most efficient approach to slowing climate change is through market-based policies...such as carbon taxes or the auction of emissions permits. The revenues generated from such policies can effectively be used to reduce the deficit or to lower existing taxes." The statement was signed by more than 2,000 economists, the largest number of economists ever to sign on to any public policy declaration.

Environmental taxes generally share two drawbacks. First, like most consumption taxes they are regressive, taking a larger percentage of income from poor and ordinary working families than from wealthier households.¹⁴² To prevent ETR from worsening the distribution of tax burden, it is essential that the revenues be used in a progressive manner, whether through increases in the progressivity of other taxes¹⁴³ or through provision of benefits with progressive impact. Second, environmental taxes on business tend to fall on a small number of pollution or natural-resource intensive industries. This distribution of industrial burden implies that careful attention needs to be given to policies to offset potential competitive burdens. A number of approaches to offsetting competitive burdens are available. Some protection is offered by using some of the revenue to reduce other taxes on business. Other approaches include border adjustments and tax incentives for investments in energy efficiency and renewable energy technologies.¹⁴⁴

The environmental component of virtually every ETR proposal is centered around a tax on energy or fossil fuels. Energy-related taxes are the largest readily identifiable environmental tax base. A preliminary effort to identify a comprehensive environmental tax base including every variety of natural resource throughput, including renewable and nonrenewable resource use and pollution, found that 45 to 55 percent of the revenue came from taxes on energy use.¹⁴⁵ Given that we are a long way from knowing how to properly tax many forms of resource extraction and pollution, energy taxes are going to be the mainstay of large-scale environmental tax reform efforts for the foreseeable future. (Note that states may wish to adopt broad-based carbon or energy taxes for reasons other than environmental tax reform, such as meeting budget shortfalls, rationalizing state energy taxes, or funding environmental priorities.)¹⁴⁶

Energy use is associated with many kinds of environmental impact. Not only are most kinds of air pollution closely related to energy use, but energy conservation often stimulates conservation of other resources as well. For instance, recycling aluminum saves energy, but also reduces the level of mining and pollution from the aluminum production process and cuts solid waste disposal problems at the end of product life. Finally, U.S. energy prices are low by global standards, and energy prices already vary widely across states -- for many energy and customer types, the price in the highest-price states is more than twice price in the lowest-price states. So there is "play" in the system of energy taxes, especially if increases in energy taxes will be used to reduce other taxes or otherwise spent in ways that enhance a state's competitive position.

We discuss briefly three broad approaches to environmental tax reform that we believe could advantageously be pursued by states. These approaches are neither exhaustive of the possibilities of ETR

¹⁴² Organization for Economic Cooperation and Development, *The Distributive Effects of Economic Instruments for Environmental Policy*, Paris: OECD (1994); see also Richard J. Lazarus, "Pursuing Environmental Justice: The Distributional Effects of Environmental Protection," *Northwestern University Law Review* (Spring 1993). On energy taxation, see e.g. James M. Poterba, "Tax Policy to Combat Global Warming," pp. 80-3, in Rudiger Dornbusch and James Poterba, *Global Warming: Economic Policy Responses*, MIT Press, 1991. Poterba takes the view that energy taxes are less regressive than normal comparisons of tax burden with income would suggest. For a contrary view, see Howard Chernick and Andrew Reschovsky, "Is the Gasoline Tax Regressive?" *50 National Tax Journal* 233 (June 1997).

¹⁴³ For discussions of policies to offset increases in regressive excise taxes, see U.S. Congressional Budget Office, *Federal Taxation of Tobacco, Alcoholic Beverages, and Motor Fuels*, Washington: U.S. Government Printing Office (June 1990); and Robert Greenstein and Frederick C. Hutchinson, *Offsetting the Effects of Regressive Tax Increases on Low- and Moderate-Income Households*, Washington: Center on Budget and Policy Priorities (July 1990).

¹⁴⁴ J. Andrew Hoerner, "Alternative Approaches to Offsetting the Competitive Burden of a Carbon/ Energy Tax," ACEEE Working Paper, Washington: American Council for an Energy-Efficient Economy (1998); Frank Muller and J. Andrew Hoerner, "Greening State Energy Taxes: Carbon Taxes for Revenue and the Environment," *Pace Environmental Law Review* V. 12 No. 1 (Fall 1994).

¹⁴⁵ John Duffy, Hey Buddy, Can You Spare a Trillion Dollars: A Preliminary Estimate of Necessary Tax Rates on Throughput to Support a Full Ecological Tax Shift, unpublished manuscript on file with the author (1995).

¹⁴⁶ Muller and Hoerner, id. note 144.

nor mutually exclusive. Instead, they are intended as examples of the elements from which ETR proposals should be built.

5.2.2. Creating Jobs and Promoting Justice

Despite recent upturns, the U.S. economy has been performing poorly in recent decades for average families. Average hourly wages stopped growing in 1973 and have declined with occasional blips since 1978. To some extent, the burden of this decline on households has been offset by the increase in female labor force participation and by longer hours. These offsetting factors held median household income approximately constant from 1973 to 1989. But as female participation rates approach those of males, this offsetting trend has evaporated while the decline in real wages continued. As a result, median family incomes are now below what they were in 1989.¹⁴⁷ Indeed, the typical family is worse off in the late '90s than they were at the end of the '70s.¹⁴⁸

This decline in wages has been accompanied by rapidly increasing income inequality. The United States now has the most unequal distribution of income in the OECD.¹⁴⁹ Inequality has been increasing rapidly even during periods of sustained growth in GNP. The only previous occasion in this century when inequality has increased rapidly during periods of economic recovery was in the decade preceding the Great Depression.¹⁵⁰ One result of this widening inequality is the decline in jobs for the middle class. Reversing the trend of more than a century of social development, the period since 1978 has seen a shrinkage in the middle class, from 75 percent of the population to about 60 percent. This withering of the middle class is caused by a change in available jobs. It is not associated with any identifiable change in the characteristics of the workforce.¹⁵¹

Although these trends have slowed and in some cases reversed themselves since 1993, most Americans have little reason to believe that the future will be substantially better than the past or that their children will be better off than they are. Increasing dispersion of incomes leads to increasing social polarization and a "me first" attitude inimical to the sense of community and social cohesion. And the pervasive sense that our society is not working has led to extraordinary levels of protest voting and a continued potential for serious political instability.

One key goal of ETR is to oppose the trend toward declining wages and increased inequality. True reversal of these trends will require action on a national scale. However, states can use the revenues from environmental taxes to take action to promote jobs, employment, and better income distribution. These more modest efforts can nonetheless provide substantial benefits for a state's citizens while acting as national models and stimulants of national efforts.

By their nature, ETR proposals centered on energy or carbon taxes tend to favor job creation and wage increases. Because the energy industry is one of the most capital- and resource- intensive - - and least labor-intensive -- of all industries, a dollar spent on energy creates fewer jobs than a dollar of virtually any other type of spending. To the extent that a carbon/energy tax, in combination with other programs to foster energy efficiency and renewables, induces energy conservation, the re-spending of energy dollars

¹⁴⁷ Cox, W. Michael and J. Beverly Fox, "What's Happening to Americans' Income?" *The Southwest Economy*, Dallas: Federal Reserve Bank of Dallas (No. 2, 1995).

¹⁴⁸ Lawrence Mishel, Jared Bernstein, and John Stemmata, *The State of Working America*, Armonk, N.Y.: M.E. Sharpe (1997).

¹⁴⁹ Anthony B. Atkinson, Lee Rainwater, and Timothy B. Smeeding, *Income Distribution in OECD Countries: Evidence From the Luxembourg Income Study*, Paris: OECD (1995).

¹⁵⁰ Levy, Frank and Richard J. Murnane, "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations," *J. Econ. Lit.*, Vol. 30 (September 1992).

¹⁵¹ Duncan, Greg J., Timothy M. Smeeding, and William Rodgers. "W(h)ither the Middle Class? A Dynamic View," in *Poverty and Prosperity in the USA in the Late Twentieth Century*, Demetri B. Papadimitriou and Edward Wolff, eds. New York: Macmillan (1992).

on other products and services, whether by states or households, tends to result in net job creation. Except for a few fuel-industry- sponsored studies, simulations of state¹⁵² and national¹⁵³ ETR proposals have tended to find net job creation effects. These effects vary somewhat depending on how the revenues are returned.

States that are net importers of energy are likely to see additional job gains, as for these states an energy/carbon tax functions as a tax on imports. Dollars spent on many products and services are re-spent in the state, creating additional in-state jobs, while dollars spent on energy go largely across the state border and often flow out of the United States altogether. These positive job impacts can be magnified if the energy tax revenues are returned through reduction in taxes on labor, reducing the cost to businesses of hiring new workers and improving the competitiveness of labor-intensive industries. If a tax reform is targeted to improving the economic well-being of working families, it is particularly important that the offsetting tax reductions be sufficiently progressive to overcome the regressivity of the energy tax.

A real-world example of this sort of tax reform at the state level is offered by the proposed Minnesota Economic Efficiency and Pollution Reduction Act. Details of this program continue to evolve, but as of the time of this writing, the act would replace about 15 percent of total state and local tax revenue with a broad- based carbon/energy tax. The revenue would be returned to the taxpayers through reductions in other taxes. One version of the bill used the pollution tax revenue to reduce taxes on all households and business taxes on labor; another version would use the revenue to reduce property taxes and provide a similar tax benefit for renters.

The tax applies to all fossil fuels¹⁵⁴ at a rate proportional to their carbon content. Carbon taxes are a fairly good proxy to a general tax on all types of air pollution from energy use. Electricity is taxed at a rate that depends on the fuel used to produce it. Electricity from coal-fired plants is taxed at 0.361 cents per kWh; gas-fired at 0.157 cents per kWh. Electricity from nuclear energy is taxed at the average fossil rate for the state. Power from wind energy and other renewable sources is exempt. The tax rate on power from an electric utility is based on the average fuel mix used by that utility, including purchased power. Fuels used by electric utilities are exempt from tax. The tax rates on electricity produced from different fuels are approximately equivalent to the tax that the utilities would pay on the fuels themselves.

The revenue is recycled primarily through two major tax cuts. Carbon tax revenues from fuel consumed by businesses -- about 60 percent of the total -- would go to funding a state credit against the employer-paid portion of federal social security (FICA) taxes. Taxes on households would be returned to households in the form of a per-adult refundable tax credit. The combination of these two tax cuts would decrease the cost of Minnesota labor and increase the progressivity of the state tax system.

Although the bulk of the revenue from the carbon tax is returned through the reduction of other taxes, the measure allocates \$125 million -- about 8 percent of the revenue -- for energy efficiency and low-income assistance programs. In one version of the bill, this money was distributed as follows: \$50 million for a revolving loan fund to provide financing for Minnesota businesses to make capital investments for energy efficiency and pollution prevention, \$30 million for transit and transportation programs, \$20 million for low- income weatherization, \$20 million for low-income home energy assistance, and \$5 million for business energy audits.

¹⁵² S. Bernow, M. Fulmer, I. Peters, M. Rush, and D. Smith, *Carbon Taxes With Tax Reductions in Minnesota*, Boston: Tellus Institute (1997); George Bacus, *The Effects of Green Taxes and Carbon Tax Shifting on the State of Minnesota*, Denver: Policy Assessment Corporation (1996); Steve Bernow et al., *Ecological Tax Reform: Carbon Taxes With Tax Reductions in New York* (report, Tellus Institute in conjunction with Pace University Center for Environmental Legal Studies, June 1997).

¹⁵³ Alberto Majocchi, *Review of Empirical Models and Results Related to Eco-Taxes and Employment Effects*, paper presented at the OECD Workshop on Implementation of Environmental Taxes, February 1994.

¹⁵⁴ For coal, the tax is paid by the combuster; for natural gas the tax is paid on first receipt in the state; and for petroleum products, when the fuel is first withdrawn from a terminal or storage facility or otherwise distributed.

Economic assessments of the proposal have suggested that the proposal would not only reduce the tax burden on ordinary working families and the poor, but would also lead to modest increases in employment and real after-tax wages.¹⁵⁵ The Minnesota proposal has received bipartisan support and remains a viable possibility as of this writing.

5.2.3. Investing in Education for Growth

In the long run, the most important basis for state growth and competitiveness is a skilled and educated workforce. Private returns to increases in years of education and investment in schooling are high,¹⁵⁶ and social returns are even higher, as high skill levels appear to enhance the productivity not only of the skilled workers themselves but also of other workers around them.¹⁵⁷ Moreover, the weight of the evidence supports the view that increasing resources to schools, especially in the poorest areas, improves educational outcomes.¹⁵⁸ Investment in education is an important development strategy for states,¹⁵⁹ and states are chronically short of funds to meet education and training goals, especially in poorer school districts.

But investments in education and training are more than a critical economic growth policy. Promoting education and the replacement of polluting and resource-consuming activities with human skills and clean technologies is also one of the most important components of the sustainable development agenda. Part of this process is technical, but part of it is an adjustment of institutions, prices, and funding levels to make investment in human skills and knowledge more attractive and investment in resource consumption less so. To this end, a package linking higher broad-based energy taxes with increases in funding for schools, vocational training, and research is desirable.

The dominant source of school finance in the United States is local property taxes. Many states are reexamining their school funding mechanism as a result of the high level of inequity between rich and poor school districts. In some cases this reexamination has been compelled by state court findings that such systems violate a state right of students to have access to an adequate education. States seeking a new revenue source for education should consider broad-based energy taxes. Replacement of some or all of local property tax revenues for schools with funds from a state energy or carbon tax could help raise the quality of education in poorer districts to adequate levels. This is a highly progressive benefit and could serve in part to offset the regressivity of energy taxes. Such a proposal was actively considered in Vermont in 1997,¹⁶⁰ although the carbon tax was replaced in the final package by a higher gasoline tax.

¹⁵⁵ See references at footnote 152.

¹⁵⁶ David Card and Alan B. Krueger, "School Resources and Student Outcomes: An Overview of the Literature and New Evidence From North and South Carolina," 10 *Journal of Economic Perspectives* 31 ((Fall 1996); Casey B. Mulligan and Xavier Sala-i-Martin, "A Labor- Income-Based Measure of the Value of Human Capital: An Application to the States of the United States," National Bureau of Economic Research Working Paper 5018 (February 1995); Gary S. Becker, *Human Capital: A Theoretical and Empirical Analysis, With Special Reference to Education*, 3rd ed., Chicago: University of Chicago Press (1993).

¹⁵⁷ Robert E. Lucas, "On the Mechanics of Government Planning," 22 *Journal of Monetary Economics* 3 (July 1988); Tor Einarsson and Milton H. Marquis, "Note on Human Capital Externalities," 18 *Journal of Macroeconomics* 341 (Spring 1996); Theodore W. Schultz, "The Economic Importance of Human Capital in Modernization," 1 *Education Economics* 13 (1993).

¹⁵⁸ Card and Krueger, *supra* note 156.

¹⁵⁹ Andrew M. Isserman, "State Economic Development Policy and Practice in the United States: A Survey Article," 16 *International Regional Science Review* 49 (1994).

¹⁶⁰ Note that the incidence of the property tax is controversial. See, e.g., Ronald C. Fisher, *State and Local Public Finance: Institutions, Theory, and Policy*, 2nd ed. Ch. 14, Boston: Irwin (1996). As a result, the distributional impact of a property tax/energy tax shift is uncertain. However, to the extent that state financing of education is used to "level up" the poorest districts, the incidence of the funded benefit is highly progressive.

5.2.4. Energy Efficiency and Technical Progress

Ultimately, households and businesses are concerned with energy bills, not with energy prices. Energy bills are the product of two factors: the price of energy and the amount of energy a firm or household uses. But the energy requirements to produce a product or maintain a family comfortably are not static. In the United States, energy per unit of GNP has been falling consistently for three decades. An increase in energy prices, taken alone, provides an incentive for reduced energy use. This reduction is likely to be small if the energy tax is a stand-alone policy. If, however, part of the revenue is devoted to programs to accelerate the spread and adoption of new energy-efficiency and renewable energy technologies, the reduction in energy requirements is likely to be much greater. If the energy requirements of businesses and households can be cost-effectively reduced by a percentage equal to or greater than the increase in the price caused by the tax, then the burden of the tax can be fully offset.

Are such energy savings available? A large number of engineering studies have found that, by accelerating the spread and adoption of current best-practice technologies, energy use can be reduced by 10 to 30 percent by cost-effective investments in energy-efficiency equipment and measures.¹⁶¹ Moreover, this range of estimates has remained roughly consistent for more than 20 years, despite steady progress in achieving energy-efficiency gains. This is because as we implement energy-efficiency measures we learn more about how to achieve efficiency gains.¹⁶² A study by the American Council for an Energy-Efficient Economy found that, for a national energy tax (the Clinton administration's proposed Btu tax), sufficient efficiency gains to fully offset the burden of energy price increases could be achieved by investing 15 percent of the tax revenue in efficiency programs.¹⁶³ The remaining 85 percent of the revenue, whether used to reduce other taxes or devoted to improving education or other urgent public investment priorities, represents a pure gain to the economy.

Estimates of the impact of state programs promoting investment in energy efficiency technology have generally found that they are net job creators.¹⁶⁴ Energy taxes and energy efficiency programs have positive synergies, as increased energy prices create the desire to achieve efficiency gains, while efficiency programs offer information, capital, and other assistance in satisfying that desire.

Energy efficiency programs can be used to fully or partially address both distributional and competitiveness concerns. As discussed above, energy taxes, like sales taxes and many other state taxes, are regressive. However, there are many well-established programs already in place in the states to reduce the burden of energy taxes on the poor and on middle-class households. If carbon or energy tax increases are coupled with increases in programs like low-income weatherization and utility demand-side management, much if not all of the burden of an energy tax increase on moderate-income households can be eliminated. Similarly, industrial energy efficiency assistance can be used to reduce the energy tax burden on energy-intensive industries. One approach to such assistance is energy efficiency investment credits such as those discussed in section 4.3.5. Using the efficiency approach to offsetting energy tax burdens unites the economic benefit of reduced fuel bills with the environmental benefits of reducing energy-related damages.

¹⁶¹ Intergovernmental Panel on Climate Change Working Group III Second Assessment Report, *The Economic and Social Dimensions of Climate Change* (1996).

¹⁶² Michael Grubb, Thierry Chapuis, and Minh Ha Duong. "The Economics of Changing Course: Implications of Adaptability and Inertia for Optimal Climate Policy," *Energy Policy* 23(4/5):417 (1995).

¹⁶³ Howard Geller, John DeCicco, and Steven Nadel, *Structuring an Energy Tax So That Energy Bills Do Not Increase*, American Council for an Energy-Efficient Economy Research Report, Washington: ACEEE (1993).

¹⁶⁴ S. Laitner, J. DeCicco, N. Elliott, H. Geller, M. Goldberg, R. Mowris, and S. Nadel, *Energy Efficiency and Economic Development in the Midwest*, Washington: American Council for an Energy-Efficient Economy (April 1995); Skip Laitner and Marshal Goldberg, *Colorado's Energy Future: Energy-Efficiency and Renewable Energy Technologies as an Economic Development Strategy*, Washington: Economic Research Associates (April 1996).

6. CONCLUSION

As we approach the close of the 20th century and the dawn of the 21st, it is time to take stock of our environmental and economic policies and ask what has worked, what has not, and how we will have to change in order to meet the challenges ahead. One fundamental conclusion is that we can no longer accept ways of thought or approaches to policy that see the environment and economic development as in opposition. Instead, we must find ways to bring environmental and economic goals into harmony and seek out policies that can promote both: policies for sustainable development. This will require us both to seek out the best of current policies and instruments and to create new ones.

Examination of the 462 tax instruments discussed in this paper shows that environmental tax provisions are used to promote many economic, environmental and social justice goals and embrace a huge range of approaches. We have only scratched the surface of the task of identifying current and new tax approaches to environmental problems. However, it is clear that there are many tax instruments that deserve a place in the class of emerging sustainable development policies.

Regulatory approaches to environmental problems often trace their origins to common-law doctrines that have been evolving for hundreds of years. In contrast, environmental tax instruments are relatively new. We have not yet taken their measure. We are still learning how to design environmental taxes and tax incentives, and many current approaches to environmental taxation will surely be found wanting. But there is a danger in a rush to judgment, in trying to impose a single theoretical paradigm on the immense diversity of emerging instruments. The planting and the gathering must precede the winnowing. Tax measures must be evaluated based on actual experience and in terms of the full range of ends being promoted, rather than being forced into some theoretical bed of Procrustes. In addition, there is a serious need for more studies evaluating the effectiveness of state environmental tax provisions and comparing the merits of alternative approaches.¹⁶⁵

Our economic system often fails to recognize the value¹⁶⁶ of environmental goods and services and the costs that productive activities impose on others. In order to harness the power and creativity of the market into the service of sustainable development and achieve a fair distribution of the costs and benefits associated with environmental improvements, it is necessary to better integrate environmental concerns into market decisions.

Environmental tax instruments offer potentially valuable tools to achieve this end. At the state level, adoption of green tax packages incorporating the best of current national practice would be an important step toward incorporating environmental values into the tax system. Ultimately, a more fundamental environmental tax reform by states and national governments will probably be required on the path to ensuring that our economic system is sustainable for ourselves and our posterity.

¹⁶⁵ J. Andrew Hoerner, "Surveying Environmental Tax Provisions in the States: Rationales and Research Priorities," *National Tax Journal* 1997 Proceedings Volume (forthcoming).

¹⁶⁶ This includes noneconomic values. We do not assume that all values can be monetized.

APPENDIX A

SURVEY INSTRUMENT

This is the full text of the survey instrument used for initial collection of data for this study.

Environmental Tax Questionnaire

The questions below refer to any provisions of the tax code of your state, including but not limited to personal and corporate income, excise, severance, gross receipts, franchise, and real, personal and business property taxes.

Please provide a code or regulation section number or other legal citation for each tax. Feel free to put your answers on separate sheets if the space provided below is insufficient. We would also be very grateful for any other material you might have with respect to any environmental tax provision in your state, such as estimates of the revenue gain or loss from the provision, press coverage, and scholarly or governmental reports or studies.

1. Does your state have any taxes on emissions of pollutants or toxic chemicals into the air or water?
2. Does your state have any taxes the revenues of which are earmarked to environmental purposes?
3. Does your state have any tax credits, any special expensing, depreciation or valuation rules, or any other tax benefits, for environmentally beneficial behavior such as environmental research and development, pollution prevention, recycling, renewable energy or pollution control?
4. Does your state place any tax on the production, transport or disposal of nonhazardous solid waste?
5. Does your state place any tax on the production, transport or disposal of oil, chemicals, pesticides, or hazardous chemical waste, or on materials which present special disposal problems, such as batteries or tires?
6. Does your state have any special laws or rules governing the valuation of real property contaminated with chemical waste or for the tax treatment of environmental cleanup costs?
7. Does your state provide any tax benefits to public transit, ride sharing, alternatively-fueled vehicles, or other transportation alternatives for environmental reasons? Do you have any environmentally-motivated taxes on cars, trucks or planes (excluding ordinary fuel excises without environmental earmarking)?
8. Does your state have any tax provisions intended primarily to promote environmentally sound practices in agriculture or forestry?
9. Does your state limit the availability of tax incentives for economic or community development based on environmental criteria?
10. Does your state have any environmentally motivated tax provisions not described above?
11. Please give the name, mailing address, job title and phone number of everyone who helped respond to this survey.
12. If we wanted further information about environmental taxes in your state, is there anyone else to whom you would recommend that we speak?
13. Is there any person, agency, legislative committee or legislator, or nongovernmental organization in your state that you think would be especially interested in the results of this survey?

TABLE 2

TRUST FUND TAXES AND CHARGES EARMARKED TO ENVIRONMENTAL PURPOSES

Note: Alphabetic codes in parentheses after the Short Description refer to categories of tax instruments described in text and in notes at the end of this table.

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
ALABAMA	<p>1) Underground and Aboveground Storage Tank Trust Fund fees (Underground and Aboveground Storage Tank Trust Fund) (pays for spill response and 3rd party claims) (A)</p> <p>2) Hazardous Waste Operator Fee (Alabama Legacy for Environmental Research Trust, Hazardous Substance Clean-up Fund) (pays for environmental research, and public education) (B)</p> <p>3) Commemorative license tag permit fee (Alabama Environmental Education Management Fund) (K)</p>	<p>1) C.A. sect. 22-35-5</p> <p>2) C.A. sect. 22-30B-1</p> <p>3) C.A. sect. 32-6-150</p>	<p>1) a) underground and aboveground storage tanks</p> <p>b) Invoiced gallons of fuel oil withdrawn from bulk storage for delivery to a tank</p> <p>2) a) Hazardous waste listed in sect.3001 of RCRA and PCB wastes received for disposal (\$500,000 to ALERT Fund and remaining to General Fund).</p> <p>b) Acute hazardous waste in 40 CFR 261.33(e) and having an EPA designation number beginning with the letter "P" except residuals from the incineration of such waste.</p> <p>c) Toxic hazardous waste in 40 CFR 261.33(f) and having an EPA designation number beginning with the letter "U" except residuals from the incineration of such waste.</p> <p>d) All other waste not referenced.</p> <p>e) All waste subject to hazardous waste fees.</p> <p>3) Additional fee for environmental commemorative tag (funds used for environmental education, and improvement and maintenance of environment).</p>	<p>1) a) \$150 per tank</p> <p>b) \$1.50 per 500 gallons to a maximum of \$27.00 per delivery</p> <p>2) a) \$41.60 per ton</p> <p>b) \$62 per ton</p> <p>c) \$25 per ton</p> <p>d) \$11.60 per ton</p> <p>e) \$1.00 per ton</p> <p>3) Driver who wants environmental tag pays additional \$50.00.</p>
ALASKA	Oil Surcharge (Oil and hazardous substance release prevention and response fund) (permissive) (D)	1) Alaska Stat Sec. 43.55.201, 211	1) Barrels of oil produced from each lease or property in the state	1) \$0.02 per barrel of oil
ARIZONA	<p>1) New Motor Vehicle Tire Fee (Waste Tire Fund) (funds county waste management and education programs, and waste disposal facilities) (F)</p> <p>2) Hazardous Waste Fees (Hazardous Waste Management Fund) (B)</p> <p>3) Hazardous Waste Fuel Penalty (Hazardous Waste Management Fund) (B)</p> <p>4) Underground storage tank tax (environmental quality account) (A)</p> <p>5) Pesticide Certification and Registration Fees (Water quality assurance revolving fund) (E)</p>	<p>1) A.R.S. sect. 44-1305</p> <p>2) A.R.S. sect. 49-931</p> <p>3) A.R.S. sect. 49-932</p> <p>4) A.R.S. sect. 28-6001</p> <p>5) A.R.S. sect. 3-351</p>	<p>1) Sales of new motor vehicle tires.</p> <p>2) a) Generator who ships waste off-site except exempt if ships to another site he owns.</p> <p>b) Facilities that dispose of waste. Facilities that are owned by the same person who generated the waste are exempt.</p> <p>c) Generators who retain the waste on-site for disposal or ship off-site to a facility owned by the generator.</p> <p>3) Hazardous waste burned for energy recovery that is not generated by operation of the business of the burner.</p> <p>4) Tax on the operation of underground storage tanks</p>	<p>1) 2% of retail sale price not to exceed \$2 per tire.</p> <p>2) a) \$10 per ton or \$5 per ton if they comply with the Pollution Prevention Planning Requirement.</p> <p>b) \$40 per ton or \$20 per ton if generator complied with the Pollution Prevention Planning Requirement.</p> <p>c) \$4 per ton or \$2 per ton if the generator complied with the Pollution Prevention Planning Requirement.</p> <p>3) 40 cents per gallon</p> <p>4) One cent per gallon of regulated substance</p> <p>5) \$100</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			measured by the quality of regulated substances placed in a tank. 5) Annual fee on all registrants.	
ARKANSAS	<p>1) Petroleum Environmental Assurance Fee (Petroleum Storage Tank Trust Fund) (pays for spill response and 3rd party claims) (D)</p> <p>2) Waste Tire Fee (90% to Waste Tire Grant Fund; 10% to Pollution Control and Ecology Fund) (F)</p> <p>3) Hazardous Waste Permit Fee (Hazardous Waste Permit Fund) (B)</p> <p>4) Severance Tax (State Forestry Fund, State Parks, Recreation, and Travel Commission) (G)</p> <p>5) Solid waste disposal fees (Solid Waste Management and Recycling Fund) (C)</p>	<p>1) Ark. Code. Ann. sec. 8-7-906</p> <p>2) Ark. code Ann. sec. 8-9-404</p> <p>3) Ark. Code Ann. sec. 8-7-226</p> <p>4) Ark Code Ann. secs. 26-58-107, -124</p> <p>5) Ark. Code Ann. sec. 8-6-606</p>	<p>1) Distributors and suppliers of oil pay a when oil is received at marine terminal or at state border</p> <p>2) New vehicle and tire retailers collect the tax from retail customers.</p> <p>3) Hazardous waste permit applications.</p> <p>4) Tax on amount of timber harvested, which is credited to the State Forestry Fund (other severance taxes credited to higher education and the State General Fund)</p> <p>a) Pine timber</p> <p>b) All other timber</p> <p>5) a) Solid Waste Disposed at landfill</p> <p>b) Solid Waste Disposed at private landfill</p>	<p>1) 0.02 cents per gallon, until the trust fund contains \$15 million, at which time the rate will be determined so as to maintain the fund at the \$15 million mark.</p> <p>2) \$1.50 per tire</p> <p>3) Set by regulation.</p> <p>4) a) 17.8 cents per ton</p> <p>b) 12.5 cents per ton</p> <p>5) a) \$1.50 per ton</p> <p>b) \$1 per ton</p>
CAL.(F.T.B.)	None			
CAL.(B.O.E.)	<p>1) Petroleum and Crude Oil Assessment Fee (Offshore Oil Spill Response Fund) (D)</p> <p>2) Underground Storage Tank Cleanup Fee (Underground Storage Tank Cleanup Fund) (A)</p> <p>3) Hazardous Substances Tax (Hazardous Substances Account, Hazardous Waste Control Account, Childhood Lead Poisoning Prevention Account, Occupational Lead Poisoning Prevention Account) (B)</p> <p>4) Used Tire Disposal Fee (California Used-Tire Recycling Fund) (collected by tire retailers) (F)</p> <p>5) Oil Recycling Fee (California Used-Oil Recycling Fund) (D)</p> <p>6) Integrated Waste Management Fee (Integrated Waste Management Fund) (B)</p> <p>7) Occupational Lead Poisoning Fee (Occupational lead poisoning prevention account) (K)</p>	<p>1) Cal. Govt. Code sect. 8670.40 and 8670.48</p> <p>2) Cal. Health & Safety Code sect. 25299.10</p> <p>3) Cal. Rev. and Tax. Code Sections 43051-43057; Cal. Health and Safety Code Sections 25174.1-25174.4, 25205.1-25205.14, 25221, 25343, 429.14, 3727</p> <p>4) Cal. Public Resources Code sect. 42885</p> <p>5) Cal. Rev. and Tax Code sects. 55001-55381; Public Resources Code sect 48600-48691.</p> <p>6) Cal. Rev. and Tax Code sects. 45001-45984; Public Resources Code sect. 48001</p> <p>7) Cal. Health and Safety Code sect. 429.14</p>	<p>1) a) Assessment fee on crude oil or petroleum products received at a marine terminal, shipped by vessel, or transported through a pipeline.</p> <p>b) Response fee on crude oil or petroleum products received at a marine terminal by a vessel or transported through a pipeline.</p> <p>c) crude oil received at a refinery</p> <p>d) crude oil transported by a vessel out of the state</p> <p>e) crude oil transported out of the state by a pipeline</p> <p>2) underground storage tanks that hold petroleum products; paid by tank-owner upon withdrawal of fuel from tank</p> <p>3) a) Hazardous waste submitted for disposal in state or out of state or submitted for treatment out of state.</p> <p>b) Hazardous waste from extraction, beneficiation, and processing of ores and minerals, including phosphate rock and the overburden from the mining of uranium ore.</p> <p>c) Extremely hazardous waste disposed of in-state</p> <p>d) Restricted hazardous waste listed in Cal. Health and Safety Code sect. 25122.7</p> <p>e) Solid waste residue from incineration or dechlorination. This does not apply to any</p>	<p>1) a) 4 cents per barrel</p> <p>b) 25 cents per barrel</p> <p>c) 25 cents per barrel</p> <p>d) 25 cents per barrel</p> <p>e) 25 cents per barrel</p> <p>2) \$0.006 per gallon</p> <p>3) a) 25% of \$107.27 per ton up to 5,000 tons</p> <p>b) 13% of \$107.27 per ton</p> <p>c) 200% of \$107.27 per ton</p> <p>d) 200% of \$107.27 per ton</p> <p>e) 5% of \$107.27 per ton</p> <p>f) 40.4% of \$107.27 per ton</p> <p>g) 25% of the base (currently \$24,161) for a mini-storage facility; the base for a small storage facility. 200% of the base for a large storage facility.</p> <p>h) 50% of the base (currently \$24,161) for a mini-treatment facility; 200% of the base for a small treatment facility; 300% of the base for a large treatment facility</p> <p>i) 10 times the base (currently \$24,161).</p> <p>j) \$7,500 annually for a small facility the first five years; \$15,000 for a medium facility the first five years; \$22,500 for a large facility the first five years; \$4,000 for a small facility after five years; \$8,000 for a medium facility after five years; \$13,500</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			<p>covered waste disposed of out of state.</p> <p>f) Any hazardous waste not previously covered</p> <p>g) Storage facility fees.</p> <p>h) Treatment facility fees.</p> <p>i) Disposal facility fee until closure is approved.</p> <p>j) Postclosure permit fees.</p> <p>k) Facility fees for facilities with standardized permits.</p> <p>l) Generator fees determined by the amount of hazardous waste per year.</p> <p>m) Land disposal permits fees.</p> <p>n) Incinerator permits fees.</p> <p>o) Storage facility permits fees.</p> <p>p) Standardized permit fees.</p> <p>q) Transportable treatment unit permit fees.</p> <p>r) Facility postclosure permit fees</p> <p>s) Transportation of extremely hazardous waste.</p> <p>t) Hazardous or nonhazardous classification requests.</p> <p>u) Owner or operator of a facility or transportable treatment unit operating pursuant to a permit.</p> <p>v) Generators operating under a grant of conditional authorization.</p> <p>w) Hazardous waste zone property or border zone property determination application.</p> <p>x) Preliminary endangerment assessment.</p> <p>y) In addition to fees listed under 1), generator fees per ton of hazardous waste per year.</p> <p>4) Tires for disposal.</p> <p>5) Quarts of lubricating oil sold, transferred, or imported in state</p> <p>6) Amount of all solid waste disposed at each disposal site</p> <p>7) Annual fee on business engaged in industries determined to pose lead poisoning dangers</p>	<p>for a large facility after five years</p> <p>k) \$15,373 annually for a Series A permit; \$7,205 for a Series B permit; \$6,051 for a Series C permit; \$3,025 for a Small Quantity permit.</p> <p>l) 5% of the base (currently \$3,194) for 5 tons or more but less than 25; 40% of the base for 25 tons or more but less than 50; the base for 50 tons or more but less than 250; 5 times the base for 250 tons or more but less than 500; 10 times the base for 500 tons or more but less than 1,000; 15 times the base for 1,000 tons or more but less than 2,000; 20 times the base for 2,000 tons or more.</p> <p>m) \$99,793 for a small facility, \$212,811 for a medium facility; \$365,506 for a large facility</p> <p>n) \$60,115 for a small facility; \$127,447 for a medium facility; \$218,822 for a large facility</p> <p>o) \$20,440 for a small facility; \$37,271 for a medium facility; \$72,140 for a large facility.</p> <p>p) \$30,983 for a Series A permit; \$19,344 for a Series B permit; \$5,155 for a Series C permit.</p> <p>q) \$15,631 for a small unit; \$36,069 for a medium unit; \$72,140 for a large unit.</p> <p>r) \$9,617 for a small facility; \$21,643 for a medium facility; \$36,069 for a large facility</p> <p>s) \$240 per year.</p> <p>t) \$8,828 for a classification and additional \$1,177 per request for the same stream of waste for the same person.</p> <p>u) \$1,202 per reporting period as well as an additional fee of 50% or \$1,140 for the modification of the notification.</p> <p>v) Same as u)</p> <p>w) \$9,019 per application and an additional \$9,019 if a risk assessment is needed.</p> <p>x) \$8,173</p> <p>y) \$6 for 5 tons or more but less than 25; \$55 for 25 tons or more but less than 50; \$138 for 50 tons or more but less than 250; \$689 for 250 tons or more but less than 500; \$1,377 for 500 tons or more but less than 1,000; \$2,065 for 1,000 tons or more but less than 2,000; \$2,754 for more than 2,000 tons.</p> <p>4) 25 cents per tire</p> <p>5) 4 cents per quart or 16 cents for every gallon</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
				6) A quarterly fee of \$1.34 per ton, not to exceed \$1.40 per ton 7) Fees range from \$195 to \$2,232, depending on size of the company
COLORADO	1) Severance tax (state severance tax trust fund) (G) 2) Solid waste facility application fee (solid waste management fund) (C)	1) Colo. Rev. Stat. sect. 39-29-108,-109 2) Colo. Rev Stat. sect. 30-20-103	1) a) Tax levied on gross proceeds from each commercial oil shale facility (First 15,000 tons per day or 10,000 barrels per day of shale oil, whichever is greater, is exempt from tax) (50% credited to State Severance tax trust fund) b) The production of molybdenum, taxed on per ton basis (40% to state severance tax trust fund) c) The production of coal, taxed on a per-ton basis (35% to state severance tax trust fund) d) Tax levied on gross income from mining metallic minerals (first \$11,000,000 is exempt) (50% to uranium mill tailings remedial action program fund; however, once fund reaches 2.5 million dollars the excess funds are transferred to state severance tax trust fund) 2) Paid by prospective owners or operators of solid waste facilities	1) a) 4% of gross proceeds (Commercial oil shale facilities in first year pay 1/4 of tax, in second year pay 1/2 of tax, in third year pay 3/4 of tax, in fourth and each following year pay entire rate) b) 10 cents per ton c) 60 cents per ton d) 2.25 % of gross income 2) \$300 per application
CONNECTICUT	1) Seed oyster tax (Clutch Program Oyster Seeding Fund) (E) 2) Hazardous Waste Generator Assessment (Emergency Spill Relief Fund) (B) 3) Resource recovery facility fee (Solid waste account in Environmental Fund) (H) 4) New vehicle tire tax (Waste tire fund) (F) 5) New battery deposit (H) 6) Beverage container deposit (H) 7) Newsprint recycling tax (Municipal Solid Waste Recycling Trust) (H)	1) C.G.S. sect. 26-237c 2) C.G.S. sect. 22a-132, -451 3) C.G.S. sect. 22a-232, 233 4) C.G.S. sect. 22a-256j 5) C.G.S. sect. 22a-256h 6) C.G.S. sect. 22a-244 7) C.G.S. sect. 22a-256m to -256t-256y to 256ee	1) Retail value of the oysters that have been harvested from state shellfish grounds seeded by the state. 2) Hazardous waste shipped to treatment or disposal facilities located in the state. Exempt from the assessment is any hazardous waste that has been recycled, any residue resulting from the processing or treatment of a hazardous waste at a facility approved in accordance with RCRA as amended, provided such residue is derived from hazardous waste received at the facility under a manifest, and any hazardous waste for which an assessment was paid during the course of handling. 3) Quantity of solid waste processed at the facility 4) New Tires 5) Deposit on all new batteries 6) Deposit on beverage containers 7) Paid by newsprint publishers who fall below the required post-consumer content percentage	1) 10% of value. 2) a) 5 cents per gallon of metal hydroxide sludge from wastewater treatment of electroplating or metal finishing operations and 6 cents per gallon on any other hazardous waste entered on a manifest in gallons; or b) one half of one cent per pound of metal hydroxide sludge from wastewater treatment of electroplating or metal finishing operations, and three-fourths of one cent per pound of any other hazardous waste entered on a manifest in pounds; c) \$10 per cubic yard of metal hydroxide sludge from waste treatment of electroplating or metal finishing operations and \$12 for any other hazardous waste entered on a manifest in cubic yards. 3) \$1 per ton of solid waste 4) \$2 per tire 5) \$5 6) 5 cents 7) \$5 per ton of newsprint that fails to meet the goal
DELAWARE	1) Petroleum Products Gross Receipts Tax (Hazardous Waste Clean-up Fund) (D)	1) 7 Del Code sect. 9113-9114 2) 30 Del. Code	1) Taxable gross receipts derived from the sale of petroleum products 2) Tax on the recording of	1) 0.6% of the taxable gross receipts 2) 2% of the value of the property

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	2) Property Transfer Tax (Land and Water Conservation Trust Fund) (I) 3) Travel accommodations tax (Beach Preservation and Replenishment Fund) (I) 4) Hazardous waste operator fee (hazardous waste management fund) (B) 5) Solid waste user fee (solid waste management fund) (C)	sect. 5421-5425 3) 30 Del. Code sect. 6102 4) Del. Code Ann. tit. 7. sect. 6305 5) Del. Code Ann. tit. 7. sect. 6407	documents transferring property 3) Tax on the rent of hotels, motels, or tourist homes 4) Fees on hazardous waste transporters and owners of treatment, storage, or disposal facilities 5) Solid waste disposed	3) 1% of the total rent 4) Set by regulation; annual fee not to exceed \$10,000 or in the case of small-business concerns not to exceed \$500 5) \$58.50 per ton
FLORIDA	1) Pollutant tax for coastal protection (Coastal Protection Trust Fund) (B) 2) Pollutant tax for water quality (Water Quality Assurance Fund) (B) 3) Pollutant tax for inland protection (Inland Protection Trust Fund) (B) 4) Waste tire fee (Solid Waste Management Trust Fund) (F) 5) Lead-acid battery fee (Water Quality Trust Fund) (H) 6) Advance Disposal Container Fee (Solid Waste Management Trust Fund) (repealed October 1995) (H) 7) Apalachicola Bay Oyster Surcharge (Apalachicola Bay oyster protection fund) (E)	1) F.S. sect. 206.9935(1) 2) F.S. sect. 206.9935(2) 3) F.S. sect. 260.9935(3) 4) F.S. sect. 403.718 5) F.S. sect. 403.7185 6) F.S. sect. 403.7197 7) F.S. 370.07 12A-14, F.A.C.	1) Onetime excise tax for the privilege of producing in, importing into, or causing to be imported into the state pollutants for sale, use, or otherwise. 2) Onetime excise tax on each barrel of pollutant produced in or imported into the state. 3) Onetime excise tax on each barrel of pollutant produced in or imported into the state. 4) A fee on each new motor vehicle tire sold at retail in the state. 5) A fee on each new lead-acid battery sold at retail in the state. 6) Fee for the sale or distribution of sealed glass, plastic, or plastic-coated paper containers. 7) A fee on oysters harvested from Apalachicola Bay.	1) 2 cents per barrel but it can be raised to 10 cents per barrel in the case of catastrophic discharges. If the fund is unable to pay its claims then the fee can be raised to 5 cents per barrel. 2) a) 2.36 cents per gallon of solvents and solvent mixtures; b) 1 cent per gallon of motor oil and other lubricants; c) 2 cents per barrel of petroleum products, pesticides, ammonia, and chlorine; d) If the fund drops to \$3 million or less then the above fees shall be 5.9 cents per gallon, 2.5 cents per gallon, 2 cents per barrel, and 5 cents per barrel, respectively. 3) a) 30 cents per barrel of pollutant if the unobligated balance of the Inland Protection Trust Fund is between \$100 million and \$150 million; b) 60 cents per barrel if the unobligated balance of the fund is above or equal to \$50 million but below \$100 million; and c) 80 cents per barrel if the unobligated balance of the fund is \$50 million or less. 4) \$1 per new tire 5) \$1.50 for each new battery 6) Beginning January 1, 1995, the fee is 2 cents per container. 7) 50 cents per bag.
GEORGIA	1) Environmental assurance fee (Underground Storage Tank Trust Fund) (D) 2) New Tire Fee (Solid Waste Trust Fund) (F)	1) Ga. Code Ann. 12-13-10 2) Ga. Code Ann 12-8-40.1	1) Fee on each gallon of petroleum products imported into the state (Fee collected until the trust fund equals or exceeds \$50 million, at which no environmental assurance fees shall be levied unless the fund equals or falls below \$30 million) 2) New replacement tires sold	1) Not to exceed 1 cent per gallon 2) \$1.00
HAWAII	1) Environmental response revolving fund (D)	1) 10 H.R.S. sect. 128D-2 and	1) Barrels of petroleum products 2) Solid waste disposed within	1) 5 cents per barrel or fraction thereof

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	2) Solid Waste Disposal surcharge (environmental management special fund) (C)	14 H.R.S. sect. 243-3.5 2) H.R.S. 342G-62	the state	2) 25 cents per ton
IDAHO	1) Underground Storage Tank Fees (Petroleum Clean Water Trust Fund) (A) 2) Waste tire fees (waste tire management fund) (F)	1) Idaho Code sect. 41-4908 2) Idaho Code sect. 39-6502	1) a) Fee on underground storage tanks, aboveground storage tanks, farm tanks, or residual tanks b) Fee on heating tanks c) Fee on the delivery or storage of petroleum products 2) A fee for each new tire sold at retail.	1) a) \$25 per tank b) \$5 per tank c) 1 cent per gallon 2) \$1 per tire
ILLINOIS	1) Petroleum sales & use tax (Underground storage tank fund) (A) 2) Used tire fee (Used Tire Management Fund) (F) 3) Hazardous Waste Disposal Fees (Hazardous Waste Fund) (B) 4) Waste disposal site fee (Environmental Protection Permit and Inspection Fund) (B) 5) Low-level radioactive waste fees (Low-level Radioactive Waste Facility Development and Operation Fund) (B)	1) 35 ILCS 505/2a 2) 415 ILCS 5/55.8 3) 415 ILCS 5/22.2 4) 415 ILCS 2/22.8 5) 420 ILCS 20/13	1) Tax on fuel for sale or use 2) A fee for each new motor vehicle tire sold to be deposited in the Used Tire Management Fund 3) a) Waste generated off-site b) Waste generated on-site Underground Disposal sites, based on gallons: c) Less than 10 million gallons d) 10 million-50 million gallons e) Greater than 50 million gallons f) waste disposed at an off-site facility that is not owned or operated by the generator 4) Hazardous waste disposal sites that require a RCRA permit or UIC permit 5) Radioactive waste shipped for storage, treatment, or disposal,	1) 3/10 of a cent per gallon 2) \$1 per tire 3) a) \$18.18 per cubic yard b) \$18.18 per cubic yard c) \$6,000 d) \$15,000 e) \$27,000 f) \$6.06 per cubic yard 4) Annual fee ranges from \$250 to \$35,000 depending on type of disposal facility 5) \$3 per cubic foot
INDIANA	1) Underground Storage Tank Fees (petroleum trust, excess liability and hazardous substances funds) (A) 2) New tire fees (Waste Tire Management Fund) (F) 3) Hazardous Waste Fees (Hazardous Waste Management Fund) (B) 4) Solid Waste Fees (Solid Waste Management Fund) (C)	1) I.C. sect. 13-7-20-32 2) I.C. sect. 13-7-23-10.3 3) I.C. sect. 13-7-16.1 4) I.C. sect. 13-7-16.1 and 13-9.5-5	1) Fee for underground storage tanks. 2) Fee on the sale of new tires, either sold separately or mounted on new vehicles. 3) Fee on the disposal of hazardous waste at a disposal facility. 4) Fee on the disposal of solid waste at a disposal facility	1) \$90 for each petroleum underground storage tank and \$45 for each underground storage tank containing regulated substances other than petroleum. 2) 25 cents per tire 3) \$11.50 per ton 4) 10 cents per ton
IOWA	1) Underground Storage Tank Management Fee (Underground Storage Tank Management Fund) (A) 2) Hazardous waste fees (hazardous substance remedial fund) (B) 3) Household hazardous waste permit fee (groundwater protection fund) (B) 4) Solid waste operator fee (groundwater protection	1) Iowa Code sec. 455B.479 2) Iowa Code sects. 455B.423, .424 3) Iowa Code sect. 455F.7 4) Iowa Code Sect. 455B.310	1) Fee on underground storage tanks 2) a) Hazardous waste transported off generation site b) Hazardous waste disposed of into the land at a disposal facility within the state c) Hazardous waste treated at generation site to render it nonhazardous (Fees listed above shall not be imposed on state institutions, hazardous waste that is reused for energy, hazardous waste that is transformed into	1) \$65 per tank over 1,110 gallons 2) a) \$10 per ton b) \$40 per ton c) \$2 per ton d) \$250 e) \$25 f) \$25 g) \$25 3) \$25

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	fund) (C)		<p>new products, and hazardous waste retrieved as a result of remedial actions at an abandoned waste site) (Fees listed below imposed on a person that is required to obtain an EPA identification number)</p> <p>d) Fee on generators of more than 1,000 kilograms of hazardous waste a month</p> <p>e) Fee on generators of less than 1,000 kilograms of hazardous waste a month</p> <p>f) Fee on hazardous waste transporters</p> <p>g) Fee on operators of hazardous waste treatment, storage, or disposal facilities</p> <p>3) Annual permit fee on retailer selling household hazardous waste</p> <p>4) Solid waste received and disposed of at a solid waste facility,</p>	4) \$4.25 per ton of solid waste
KANSAS	<p>1) Vehicle tire tax (Waste Tire Management Fund) (F)</p> <p>2) Petroleum Production Tax (Environmental Assurance Fund) (D)</p> <p>3) Hazardous waste operator fees (Hazardous waste management fund) (B)</p> <p>4) Solid Waste Tonnage Fee (Solid Waste Management Fund) (C)</p>	<p>1) KSA 65-3424d and KSA 65-3424j</p> <p>2) KSA 65-34,117</p> <p>3) KSA 65-3431</p> <p>4) KSA 65-3415b</p>	<p>1) Excise tax on the retail sale of new tires including new tires mounted on a vehicle sold at retail for the first time.</p> <p>2) A fee on the first selling, offering for sale, using or delivering petroleum products other than aviation fuel, within the state. This includes any petroleum product manufactured in or imported into the state.</p> <p>3) a) Fees to be paid by operators of hazardous waste disposal facilities.</p> <p>b) Fees for the monitoring of hazardous waste; treatment, storage, or disposal facilities during and after operation; monitoring generators of hazardous waste; and monitoring transporters of hazardous waste</p> <p>c) Applications for permits to construct, modify, or operate a hazardous waste facility.</p> <p>d) Fees to be paid by off-site hazardous waste treatment and disposal facilities.</p> <p>4) Solid waste disposed at any solid waste disposal area in the state,</p>	<p>1) 50 cents per tire</p> <p>2) 1 cent per gallon</p> <p>3) a) 1 cent per pound of hazardous waste disposed.</p> <p>b) \$50,000 annually.</p> <p>c) \$175,000 per application.</p> <p>d) 1 cent per pound of hazardous waste treated and \$200,000 per year for any single facility. 1 cent per pound of hazardous waste burned by a facility that recycles and utilizes hazardous waste to recover energy or materials used in the manufacture of a product but not to exceed \$50,000 per year for any facility.</p> <p>4) \$1.50 per ton</p>
KENTUCKY	<p>1) Leaky underground storage tank fee (A)</p> <p>2) Hazardous Waste Management Assessment (hazardous waste management fund) (B)</p> <p>3) Waste Tire Fee (waste tire management fund) (F)</p>	<p>1) KRS 224.60-145</p> <p>2) KRS sect. 224.46-580</p> <p>3) KRS sect. 224.50-822</p>	<p>1) Fee on gasoline and special fuel</p> <p>2) Generators of hazardous waste and transporters of hazardous waste into the state for land disposal or treatment. Hazardous waste treated, detoxified, solidified, neutralized, recycled, incinerated, or disposed of on-site shall only be assessed one-half of the appropriate rate except for recycled waste used in the steel</p>	<p>1) 4/10 of 1 cent per gallon.</p> <p>2) 10 cents per gallon for liquid waste or \$5 per cubic yard for solid waste</p> <p>3) \$1 per tire</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			<p>manufacturing process, which is exempt. Waste subject to regulation under section 402 or 307B of the Clean Air Act shall be exempt.</p> <p>3) Fee on the sale at retail of new motor vehicle tires that have never been placed on a motor vehicle wheel rim; does not include tires placed on a motor vehicle prior to its original sale.</p>	
LOUISIANA	<p>1) Hazardous waste storage and disposal tax (Hazardous Waste Management Fund) (B)</p> <p>2) Oil spill contingency fee (Oil spill contingency fund) (D)</p> <p>3) Waste tire disposal fee (Waste Tire Management Fund) (F)</p>	<p>1) La. Rev. Stat. Ann. sect. 47:823</p> <p>2) La. Rev. Stat. Ann. sect. 30:2485, :2483</p> <p>3) La. Rev. Stat. Ann. sect. 30:2418</p>	<p>1) Tax upon the disposal of any hazardous waste and on hazardous waste stored for more than 90 days for the purpose of eventual incineration at sea. A disposer or generator who voluntarily removes hazardous waste from an inactive or abandoned site or who removes hazardous waste from a site as a result of a remediation or closure plan shall not be subjected to the imposition of this tax when the hazardous waste is disposed of or treated to render it less hazardous. Any waste generated in another state and disposed of in Louisiana shall be subject to the rates of the state in which it was generated so long as those rates are not less than Louisiana's.</p> <p>2) Barrels of oil transferred to or from marine terminal (collected until fund reaches \$10 million, reinstated if fund falls below \$8 million).</p> <p>3) New tires sold</p>	<p>1) a) \$30 per dry weight ton of hazardous waste disposed of on or at the site where the generator produced it;</p> <p>b) \$40 per dry weight ton of hazardous waste disposed of on a site other than the site where the waste was generated;</p> <p>c) \$100 per dry weight ton of extremely hazardous waste disposed.</p> <p>2) Two cents per barrel of crude oil</p> <p>3) \$2 per tire</p>
MAINE	<p>1) Recycling Assistance Fee (Solid Waste Management Fund) (H)</p> <p>2) Underground storage tank registration fee (A)</p> <p>3) Petroleum Products Terminal Tax (Coastal and Inland Surface Cleanup Fund) (D)</p> <p>4) Petroleum Products Transfer Tax (Groundwater Oil Cleanup Fund)(D)</p> <p>5) Hazardous waste operator fee (B)</p> <p>6) Hazardous waste generator fee (Hazardous Waste Fund) (R)</p> <p>7) Sardine Tax (E)</p> <p>8) Quahog tax (Toxin Monitoring Fund) (E)</p>	<p>1) M.R.S.A. tit. 36 ch. 719 and M.R.S.A. tit. 38 ch. 24.</p> <p>2) M.R.S.A. tit 38, sects. 563, 569</p> <p>3) M.R.S.A. tit. 38, sects. 541, 551</p> <p>4) M.R.S.A. tit. 38, sects. 541, 569A</p> <p>5) M.R.S.A. tit. 37-B, sect. 801</p> <p>6) M.R.S.A. tit. 38, sect. 2311</p> <p>7) M.R.S.A. tit. 36, sect. 4691-4699</p> <p>8) M.R.S.A. tit. 36, sect. 4711</p>	<p>1) Fee imposed upon new tires, new lead-acid batteries, major appliances, new major furniture, new mattresses, and new bathtubs. Applied the same way as sales and use tax. Retailers are responsible for collecting and remitting. Also applies to such goods purchased out-of-state for use therein.</p> <p>2) Fee on registration of underground oil storage tanks</p> <p>3) Unrefined crude oil and all other refined oil. (Fee suspended, except to cover administrative costs, when fund reaches \$6 million.)</p> <p>4) Fee assessed on first transfer of the following products on a per-barrel basis (Fee not assessed on petroleum products exported from the state)</p> <p>a) Gasoline</p> <p>b) Refined petroleum products and their by- products, including #2 fuel oil, kerosene, jet fuel, and diesel fuel</p> <p>c) #6 fuel oil</p> <p>5) Paid by operators of hazardous waste facilities (Retail</p>	<p>1) \$1 per tire or lead-acid battery; \$5 per major appliance, major furniture item, bathtub, and mattress.</p> <p>2) \$130</p> <p>3) 4 cents per barrel</p> <p>4) a) 44 cents per barrel</p> <p>b) 25 cents per barrel</p> <p>c) 4 cents per barrel</p> <p>5) a) Fee not to exceed \$50</p> <p>b) set by regulation on a weight basis per chemical</p> <p>6) a) \$100 per facility</p> <p>b) \$50 per facility</p> <p>c) \$50 per extremely hazardous substance reported by the facility</p> <p>d) \$100 per chemical reported.</p> <p>(A company subjected to fees under this section may not be assessed more than \$1,000 per year)</p> <p>7) 30 cents per case of packed sardines is paid by packing facility operator, and 10 cents per</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			marketers of petroleum products, commercial agriculture, and public schools are exempt) a) Registration fee b) Reporting hazardous materials 6) a) Fee on facilities that generate 100 kilograms or more of hazardous waste b) Fee on all other hazardous waste generators c) Fee on all toxic uses except owners and operators of commercial agricultural operations d) All toxic releasers must pay based on chemical emissions 7) Cases of Sardines 8) Bushels of Quahog	case for kippers. 8) \$1.20 per bushel
MARYLAND	1) Utility bill surcharge (Environmental trust fund for research on environmental impacts of utility companies) (K) 2) Waste tire fee (scrap tire fund) (F) 3) Oil Transfer Tax (Maryland Oil Disaster Contingency Fund) (D)	1) Md. Natural Resources Code sect. 3-302 2) Md. Environment Code sect. 9-228(g) 3) Md. Environment Code sect. 4-411	1) Surcharge per kilowatt hour of electric energy generated in the state. 2) Fee on the sale of new tires including tires sold as a part of a new or used vehicle, trailer, farm implement, or other simple machinery. 3) Transfer fee on oil entering or leaving the state.	1) Lesser of \$1,000 per month or the amount of the surcharge per kilowatt hour established by the Public Service Commission times 0.15 mill per kilowatt hour 2) \$1 per tire 3) 3/4 cent per barrel.
MASSACHUSETTS	None			
MICHIGAN	1) Michigan Underground Storage Tank Fee (Underground Storage Tank Fund) (A) 2) Hazardous waste operator fees (Hazardous waste management fund) (B) 3) Hazardous waste permit application fees (B) 4) Hazardous waste transporter license fee (Hazardous waste management fund)(B) 5) Oil and Gas Severance Tax (Orphan Well Fund) (G)	1) MCL 324.21501 et. seq. 2) M.C.L. 324.11108 3) M.C.L. 324.11118 4) M.C.L. 324.11130 5) M.C.L. 205.301	1) Fee on the sale of refined petroleum 2) Quantity of hazardous waste disposed of in a landfill (certain hazardous waste exempted) 3) Permit fees: a) For a landfill, surface impoundment, land treatment, or waste pile facility b) For an incinerator or treatment facility other than a treatment facility listed above c) For a storage facility, other than storage that is associated with treatment or disposal activities that may be regulated under a single permit d) Various other permit application fees 4) a) Business license application fee b) Vehicle license application fee for each vehicle used by the hazardous waste transporter to transport or carry hazardous waste 5) a) Amount of oil produced b) Amount of gas produced (2% of revenue received each year, but not less than \$1 million, is credited to the Orphan Well	1) 7/8 of 1 cent per gallon 2) \$10.00 per ton, \$ 10.00 per cubic yard, or 1/2 cent per pound 3) a) \$9,000.00 b) \$7,200.00 c) \$500.00 d) Ranging from \$40.00 to \$320.00 4) a) \$1,000.00 b) \$ 500.00 5) a) 6.6% of the gross cash market value of the total production of oil b) 5% of the gross cash market value of the total production of gas

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			Fund. If balance exceeds \$3 million, funds revert to the general fund until the balance falls below \$3 million)	
MINNESOTA	<p>1) Solid Waste Landfill Fee (solid waste management fund) (C)</p> <p>2) Solid Waste Collection Fee (solid waste management fund)(C)</p> <p>3) Hazardous Waste Generator Tax (hazardous waste management fund) (B)</p> <p>4) Petroleum tank release cleanup fee (Petroleum tank fund)(A)</p> <p>5) Liquefied Petroleum Gas Operator Fee (Liquefied petroleum gas account, proceeds used to increase energy efficiency and improve weatherization) (D)</p> <p>6) Motor vehicle transfer fee (Motor vehicle transfer account in environmental fund) (K)</p> <p>7) Pollution Prevention Fees (Pollution Prevention Fund) (B)</p>	<p>1) Minn. Stat. sect. 473.843</p> <p>2) Minn. Stat. sect. 116.07</p> <p>3) Minn. Stat. sect. 115B.22</p> <p>4) Minn. Stat. sect. 115C.08</p> <p>5) Minn. Stat. sect. 239.785</p> <p>6) Minn. Stat. sect. 115A.908</p> <p>7) Minn. Stat. sect. 115D.12</p>	<p>1) a) Tax on solid waste facilities that weigh their waste. Waste residue from recycling facilities is exempt.</p> <p>b) Tax on solid waste facilities that measure the volume of the waste. Waste residue from recycling facilities is exempt.</p> <p>2) a) Collection of solid waste from residential customers.</p> <p>b) Collection of solid waste from nonresidential customers.</p> <p>3) Each generator either owes a flat base tax or a quantity tax calculated by how much waste they generate. After determining the applicable base tax and the amount of the quantity tax, the greater of the two amounts is owed by the generator.</p> <p>The tax owed is the greater of the applicable base tax or quantity tax:</p> <p>a) Base tax for large quantity generators of hazardous waste.</p> <p>b) Base tax for small quantity generators of hazardous waste.</p> <p>c) Base tax for very small quantity generators of hazardous waste.</p> <p>d) Quantity tax for generators of hazardous wastes that are hazardous prior to discharge to a publicly owned wastewater treatment works and generators of hazardous waste managed is a hazardous waste fue or using thermal treatment.</p> <p>e) Quantity for generators of hazardous waste using any other method of management not mentioned that is not exempt under the following section.</p> <p>f) Generators of hazardous wastes that are destined for recycling, that are incinerated at a permitted incineration facility in Minnesota, that are either pre-treated to a nonhazardous state prior to discharge to a publicly owned treatment works or treated to a nonhazardous state after treatment in an on-site treatment system if they are in accordance with a national pollution discharge elimination system permit, state disposal system permit, or both, issued by the agency, and generators of hazardous wastes that are neutralized and are not otherwise hazardous waste after neutralizing shall all be exempt from paying taxes on the waste</p>	<p>1) a) \$2 per cubic yard based on equivalent cubic yards of waste accepted.</p> <p>b) \$2 per cubic yard.</p> <p>2) a) \$2 per year</p> <p>b) 12 cents per noncompacted cubic yard.</p> <p>3) a) \$500</p> <p>b) \$200</p> <p>c) \$50 for very small quantity generators who produce more than 100 pounds of hazardous waste per year, but there is no base tax for very small quantity generators who produce 100 pounds or less of hazardous waste per year.</p> <p>d) 1.5 cents per pound of solid or 15 cents per gallon of liquid.</p> <p>e) 3 cents per pound of solid or 30 cents per gallon of liquid.</p> <p>f) N/A</p> <p>4) \$20 per 1,000 gallons of petroleum products, rounded to the nearest 1,000 gallons</p> <p>5) one mill for each gallon of liquefied petroleum dispensed</p> <p>6) \$4</p> <p>7) a) \$150</p> <p>b) the greater of:</p> <p>i) \$500</p> <p>ii) 2 cents per lb. of release</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			<p>4) A fee is imposed on the use of tanks that contain petroleum products</p> <p>5) Liquefied petroleum dispensed in Minnesota and liquefied petroleum gas from a source outside of Minnesota</p> <p>6) Fee on initial registration and each subsequent transfer of title of every motor vehicle weighing over 1,000 pounds</p> <p>7) a) per facility</p> <p style="padding-left: 20px;">b) lbs. of toxic chemicals (as defined in the Toxic Release Inventory) released into the environment</p>	
MISSISSIPPI	<p>1) Non-Hazardous Solid Waste Fee (Non-Hazardous Solid Waste Fund) (C)</p> <p>2) Hazardous Waste Disposal Fee (Hazardous Waste Disposal Fund) (B)</p> <p>3) New Tire Fee (F)</p> <p>4) Environmental Protection Fee on Motor Fuels (Groundwater Protection Trust) Miss. Code Ann. 49-17-407 (D)</p>	<p>1) Miss. Code sect. 17-17-219</p> <p>2) Miss. Code sect. 17-17-53</p> <p>3) Miss. Code sect. 17-17-423</p> <p>4) Miss. Code Ann. sect. 49-17-407</p>	<p>1) Nonhazardous solid waste disposed of by landfill or incineration.</p> <p>2) a) Generators of hazardous waste disposing of their waste within the state or any hazardous waste generated and stored for one year or more in the state.</p> <p style="padding-left: 20px;">b) Hazardous waste generated and treated in the state and hazardous waste generated and stored for less than a year in the state.</p> <p style="padding-left: 20px;">c) Hazardous waste generated outside the state and brought to a hazardous waste management facility within the state.</p> <p>3) Fee for the sale of new motor vehicle tires at retail.</p> <p>4) Fee levied on motor fuel on a per-gallon basis (fee imposed until fund reaches \$10 million, reinstated once fund falls below \$6 million)</p>	<p>1) \$1 per ton</p> <p>2) a) \$10 per ton</p> <p style="padding-left: 20px;">b) \$2 per ton</p> <p style="padding-left: 20px;">c) Equal to whatever amount the state in which the hazardous waste was generated assesses but no less than the fees charged by Mississippi.</p> <p>3) \$1 per new tire</p> <p>4) Four-tenths of 1 cent per gallon</p>
MISSOURI	<p>1) Underground Storage Tank Fees (Underground Storage Tank Fund)(A)</p> <p>2) Tangible Personal Property Sales Tax (Soil and Water Conservation Program) (I)</p> <p>3) Strip-, Surface-, Gravel-, and Coal-mining Permit Fees (Land Reclamation Program)(G)</p> <p>4) Water Pollution Source Permit Fees (Water Pollution Program) (E)</p> <p>5) Hazardous waste generator fee (Hazardous Waste Fund)(B)</p> <p>6) Hazardous waste land disposal fee (Hazardous Waste Recycling Fund) (B)</p> <p>7) Hazardous waste category tax (Solid Waste Management Fund)(B) (Each of the preceding three taxes are applied</p>	<p>1) a) RSMo 319.129</p> <p>b) RSMo 319.123</p> <p>2) Missouri Const. Art. 4, sect. 47(a)</p> <p>3) a) RSMo 444.540(2)</p> <p style="padding-left: 20px;">b) RSMo 444.772(4)</p> <p style="padding-left: 20px;">c) RSMo 444.772(4)</p> <p style="padding-left: 20px;">d) RSMo 444.820(1)</p> <p style="padding-left: 20px;">e) RSMo 444.370</p> <p>4) RSMo 644.052(2)</p> <p>5) RSMo 260.380</p> <p>6) RSMo</p>	<p>1) a) Underground storage tank insurance fee</p> <p style="padding-left: 20px;">b) Underground storage tank regulation fee</p> <p>2) a) Parks and soils sales tax upon the sale of tangible personal property</p> <p style="padding-left: 20px;">b) tax on the storing, using, or consuming of tangible personal property</p> <p>3) a) Strip mining permit</p> <p style="padding-left: 20px;">b) Surface mining permit</p> <p style="padding-left: 20px;">c) Gravel mining permit</p> <p style="padding-left: 20px;">d) Surface coal mining permit</p> <p style="padding-left: 20px;">e) Facility or metallic minerals waste management area</p> <p>4) a) operating permit fee based on population equivalent or facility output</p> <p style="padding-left: 20px;">b) Construction permit fee based on the type on construction being done</p>	<p>1) a) \$100 per tank, onetime fee</p> <p style="padding-left: 20px;">b) \$15 per tank per year assessed on a rotating basis during a five-year period</p> <p>2) a) additional 1/10 of 1 percent tax</p> <p style="padding-left: 20px;">b) additional 1/10 of 1 percent tax</p> <p>3) a) \$350 plus an acreage fee of \$35 for each acre affected</p> <p style="padding-left: 20px;">b) Same as a) plus an annual fee of \$40 for each site listed on the operator's permit</p> <p style="padding-left: 20px;">c) \$100 plus an acreage fee of \$35 for each acre of land to be affected</p> <p style="padding-left: 20px;">d) \$100 plus an acreage fee of \$35 for each acre of the permit area</p> <p style="padding-left: 20px;">e) Processing fee of \$10,000 and an annual fee of \$7,500 per facility</p> <p>4) a) As little as \$15 and not</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	<p>individually and are cumulative.)</p> <p>8) Infectious Waste Incinerator Fee (Infectious Waste Incinerator Inspection Fund)(B)</p> <p>9) Scrap Tire fee (F)</p> <p>10) Solid waste disposal tax (Solid waste management program) (C)</p> <p>11) Solid waste facility fee (Solid waste management program) (C)</p>	<p>260.475</p> <p>7) RSMo 260.479</p> <p>8) a) RSMo 260.203(8)</p> <p>b) RSMo 260.203(13)</p> <p>9) RSMo 260.273</p> <p>10) RSMo 260.330</p> <p>11) RSMo 260.205(6)</p>	<p>5) Hazardous waste generated. No fee for generators of less than 10 tons annually.</p> <p>6) a) Hazardous waste that is discharged, deposited, dumped or placed into or on the soil as a final action. No fee for generators of less than 10 tons annually.</p> <p>b) Land disposal fee for all other hazardous waste transported off-site. No fee for generator of less than 10 tons annually.</p> <p>7) Generators are divided into 5 categories, 1 being the largest generators and 5 being the smallest. Within each of these categories it is divided into 2 subdivisions, A and B. Subdivision A includes waste that is placed in a hazardous waste disposal facility or that is stored for more than 180 days. Subdivision B contains all other waste produced.</p> <p>8)a) Each ton of infectious waste delivered to an infectious waste processing facility</p> <p>b) Infectious waste incinerator inspection fee</p> <p>9) Retail sales of motor vehicle or trailer tires</p> <p>10) Tonnage disposed of in sanitary landfills and demolition landfills,</p> <p>11) a) Solid waste processing facility application fee</p> <p>b) Solid waste disposal facility application fee</p>	<p>more than \$6,000</p> <p>b) As little as \$50 and not more than \$1,500</p> <p>5) Not to exceed \$1 per ton and no more than \$10,000 by any one generator annually.</p> <p>6) a)\$25 per ton annually</p> <p>b) \$2 per ton annually</p> <p>7) a) In category 1 Subdivision A owes \$50,000 while Subdivision B owes \$25,000.</p> <p>b) In category 2, Subdivision A: \$30,000, Subdivision B: \$15,000.</p> <p>c) In category 3, Subdivision A: \$20,000, Subdivision B: \$10,000.</p> <p>d) In category 4, Subdivision A: \$10,000, Subdivision B: \$5,000.</p> <p>e) In category 5, Subdivision A: \$1,000, Subdivision B: \$500.</p> <p>8) a) \$2/ton, plus 10% of gross charges assessed by processing facility for wastes transported over 300 miles.</p> <p>b) Fee not to exceed lesser of cost of inspection or \$10,000 per facility.</p> <p>9) 50 cents per tire</p> <p>10) a) \$1.64 per ton or its volumetric equivalent of solid waste accepted at each sanitary landfill</p> <p>b) \$1.09 per ton or its volumetric equivalent of solid waste accepted at each demolition landfill per facility</p> <p>11) a) \$1,000 fee plus reimburse the dept. for reasonable costs of application evaluation up to \$4,000.</p> <p>b) \$2,000 plus reimburse the dept. for reasonable costs of application evaluation up to \$8,000.</p>
MONTANA	<p>1) Coal severance tax (Renewable resource development trust fund, conservation district special revenue fund) (G)</p> <p>2) Class-II Injection Well Operating Fee (injection well regulatory account) (G)</p> <p>3) Tax on Mineral Production (Resources Indemnity Trust Fund) (G)</p> <p>4) Hazardous Waste Fee (Special State Revenue Fund) (B)</p> <p>5) Solid Waste Management Fees (Solid Waste Management Account) (C)</p>	<p>1) Mont. Code Ann. 15-35-108</p> <p>2) Mont. Code Ann. sect. 82-11-137</p> <p>3) Mont. Code Ann. sect. 15-38-104</p> <p>4) Mont. Code Ann. sect. 75-10-433</p> <p>5) Mont. Code Ann. sect. 75-10-115</p>	<p>1) a) Surfaced mined coal with under 7,000 Btu per pound</p> <p>b) Surfaced mined coal with over 7,000 Btu per pound</p> <p>c) Underground mined coal with under 7,000 Btu pound</p> <p>d) Underground mined coal with over 7,000 Btu pound (Person not liable for 50,000 tons of coal produced in a calendar year, except if more than 50,000 tons are produced, then the person is liable for all coal produced in excess of 20,000 tons) (8.36% of tax credited to state special revenue fund for local impacts and conservation districts)</p> <p>2) Paid by owners or operators of</p>	<p>1) a) 10% of value</p> <p>b) 15% of value</p> <p>c) 3% of value</p> <p>d) 4% of value</p> <p>2) Annual operating fee not to exceed \$300 per injection well</p> <p>3) a) \$25</p> <p>b) 0.4% of gross value of product in excess of \$625</p> <p>c) 4% of gross value of product in excess of \$6,250</p> <p>d) 2% of gross value of product in excess of \$1,250</p> <p>e) 10% of gross value of product in excess of \$250</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			class II injection wells 3) a) Annual tax per person engaged in mining, extracting, or producing a mineral b) On production of Talc c) On production of Coal d) On production of Vermiculite e) On production of Limestone (45% of tax to Resource Indemnity Trust Fund) 4) Hazardous waste received at a site for disposal 5) Solid Waste Facilities: a) Capacity of more than 25,000 tons b) Capacity of more than 5,000 tons, less than 25,000 c) Capacity of less than 5,000 tons	4) \$4 to 18 per ton, depending on type of hazardous waste 5) a) \$3,500 b) \$3,000 c) \$2,500
NEBRASKA	1) Waste Reduction and Recycling Fee (Waste Reduction and Recycling Incentive Fund) (H) 2) Tire Fee (Waste Reduction and Recycling Fund) (F) 3) Fertilizer Fee (Ethanol Production Incentive Fund) (E) 4) Litter Fee (Litter Reduction and Recycling Fund) (H) 5) Petroleum Release Remedial Action Fee (Petroleum Release Remedial Action Collection Fund) (D) 6) Petroleum Products and Hazardous Substances Storage and Handling Fee (Petroleum Products and Hazardous Substances Storage and Handling Fund) (D)	1) Neb. Rev. Stat. sect. 81-15.160; 15.161; 15.163; 15.164; 15.165 2) Neb. Rev. Stat. sect. 81-15.162 3) Neb. Rev. Stat. sect. 77-4401 4) Neb. Rev. Stat. sect. 81-155 5) Neb. Rev. Stat. sect. 66-1521 6) Neb. Rev. Stat. sect. 81-15-120	1) Tax on businesses engaged in the retail sales of tangible personal property of \$30,000 or more. 2) New tires sold for vehicles 3) Fee on the gross tonnage from the sale, use, or other consumption of commercial fertilizer. 4) Gross proceeds of products manufactured, the sales of which are consummated within the state, including byproducts. Farm products are exempt. 5) Petroleum-based fuel 6) Those with farm or residential tanks used for storing heating oil must pay registration fee	1) \$25 per business 2) \$1.00 per tire 3) \$4 per ton 4) \$175 for each \$1 million in gross proceeds. Businesses selling less than \$1 million are exempt 5) Three-tenths of 1 cent per gallon on motor fuels, one-tenth of 1 cent on petroleum other than such motor fuels. 6) \$5
NEVADA	None			
NEW HAMPSHIRE	1) Automotive Oil Fee (Hazardous waste cleanup fund) (D) 2) Hazardous waste generator fee (Hazardous waste cleanup fund) (B) 3) Gas and diesel products transportation fee (Oil Discharge and Disposal Cleanup Fund)(D) 4) Heating Fuel Storage Fee (Fuel Oil Discharge Cleanup Fund) (A)	1) N.H. Rev. Stat. Ann. sect. 147-B:12 2) N.H. Rev. Stat. Ann. sect. 147-B:2,-B:3 3) N.H. Rev. Stat. Ann. sect. 146-D:3 4) N.H. Rev. Stat. Ann. sect. 146-E:3	1) Imported automotive oil 2) Paid by those who generate 300 kilograms or more of unrecycled hazardous waste over a three-month period 3) Imported gas and diesel products 4) Stored heating fuel oil products	1) A fee of \$0.04 per gallon of automotive oil 2) Fee no more than \$0.66 per kilogram; minimum fee of \$50 per quarter for those generators that qualify for fee 3) 15 cents/gallon 4) 0.2 cents/gallon
NEW JERSEY	1) Hazardous Substances Spill Compensation Tax	1) NJSA sects. 54:48-4.1, 58:10-	1) a) Tax on transfer of	1) a) \$0.0150 per barrel

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	<p>(Spill Compensation Fund) (B)</p> <p>2) Hazardous Waste Facilities Tax (hazardous waste management fund) (B)</p> <p>3) Sanitary Landfill Facility Taxes (Sanitary Landfill Contingency Fund) (pays all direct and indirect damages resulting from the operation or closure of a landfill facility) (C)</p> <p>a) Recycling Tax</p> <p>b) Closure Tax</p> <p>c) Solid Waste Services Tax</p> <p>d) Resource Recovery Investment Tax</p> <p>e) Solid Waste Importation Tax</p> <p>f) Host Community Benefits Tax</p> <p>4) Litter Tax (Clean Communities Account) (H)</p> <p>5) Underground storage tank registration fee (Underground storage tank fund) (A)</p>	<p>23.11 b,h</p> <p>2) NJSA sects. 13:1E-49 to 91</p> <p>3) NJSA sect. 13:1E-28, 28.1, 28.2; 13:1E-137-76, 13:1E-104.5, 54:48-4.1</p> <p>4) N.J. Rev. Stat. Sect. 13:1E-99.1, .2</p> <p>5) N.J. Rev. Stat. Sect. 58: 10A-31, -36</p>	<p>hazardous substances</p> <p>b) Transfers of hazardous substances other than petroleum or petroleum products</p> <p>c) Transfers of hazardous substances other than petroleum or petroleum products that contain precious metals to be recycled, refined, or re-refined</p> <p>d) Tax upon barrels of petroleum or petroleum products in the event of a major discharge.</p> <p>2) Tax on major hazardous waste disposal facilities</p> <p>3) Owners and operators of solid waste facilities pay the corresponding rate, per ton of solid waste and per gallon of liquid waste</p> <p>4) Manufacturers, wholesalers, and distributors of food and beverage containers, tobacco products, groceries, sundries, paper, and vehicle tires pay 0.0225% of taxable sales of those products</p> <p>5) May be imposed on the owner of a facility that has two or more tanks used to store heating oil, where no tank has a capacity of more than 2,000 gallons</p>	<p>b) The greater of \$0.0150 per barrel or 1% of the fair market value plus \$0.0025 per barrel.</p> <p>c) \$0.0150 per barrel</p> <p>d) \$0.04 per barrel</p> <p>2) 5% of the previous year's gross receipts</p> <p>3) a) \$1.50 per ton of solid waste accepted for disposal or transfer. Expired 12-31-96.</p> <p>b) 50 cents per ton of solid, and 0.2 cents per gallon of liquid, waste accepted for disposal</p> <p>c) 50 cents (in 1984) per ton of solid, and 0.2 cents per gallon of liquid, waste accepted for disposal: with the solid waste rate increasing by 5 cents each year after 1984. (1994 rate = 95 cents per ton)</p> <p>d) \$4 per ton of solid waste, and 0.4 cents per gallon of liquid waste. (However, counties may adjust the rates up to \$10 for solids and 4 cents for liquids.) Expired 12-31-95.</p> <p>e) \$16 per ton of solid waste</p> <p>f) \$1 per ton of disposed solids, 50 cents per ton of transferred solids</p> <p>4) 0.0225% of taxable sales of listed products</p> <p>5) Fee may not exceed \$100</p>
NEW MEXICO	<p>1) Underground storage tank fund (A)</p> <p>2) Oil and Gas Conservation Tax (Oil and Gas Reclamation Fund) (D)</p>	<p>1) N.M.S. sect. 74-6B-9</p> <p>2) N.M.S. Ann. sect 7-30-4</p>	<p>1) Underground storage tanks</p> <p>2) Sold products from oil, natural gas, liquid hydrocarbons, carbon dioxide, uranium, coal, or geothermal energy interests</p>	<p>1) \$100 annually</p> <p>2) Nineteen one-hundredths of 1 percent of the taxable value of sold products (Once balance in the Oil and Gas Reclamation Fund reaches \$1 million, then the rate shall be eighteen one-hundredths of 1 percent of the taxable value)</p>
NEW YORK	<p>1) Realty Transfer Tax (Environmental Protection Fund) (portion earmarked for environmental fund varies from year to year) (I)</p> <p>2) Hazardous waste generator and operator fees (Hazardous Waste Remedial Fund) (B)</p>	<p>1) New York Tax Law sect. 1402, 1402-a, and 1421</p> <p>2) NY ECL Law sect. 27-0923</p>	<p>1) tax upon the transfer of deeds conveying real property with a value over \$500 and a tax upon the consideration for residences selling for \$1 million or more.</p> <p>2) Forms of disposal</p> <p>a) Landfill</p> <p>b) Incineration (off-site)</p> <p>c) Incineration (on-site)</p> <p>d) Other</p>	<p>1) \$2 for each \$500 worth of real estate. For the fiscal year beginning April 1, 1995, the earmarked amount is \$43.5 million and for the fiscal year beginning April 1, 1996, the amount is \$87 million.</p> <p>2) a) \$27 per ton</p> <p>b) \$9 per ton</p> <p>c) \$2 per ton</p> <p>d) \$16 per ton (Operators pay the same rates on waste that was not subject to the generator tax.)</p>
NORTH CAROLINA	<p>1) Newsprint producers license tax (Solid Waste Management Fund) (H)</p>	<p>1) N.C.G.S. sect. 105-102.6</p> <p>2) N.C.G.S. sect.</p>	<p>1) Producers of newsprint publications pay a tax on the amount used of nonrecycled paper that is in excess of</p>	<p>1) \$15 per ton of the amount of unrecycled paper used in excess of the applicable statutory limit</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	<p>2) White Goods Disposal Tax (5% of net proceeds to Solid Waste Management Trust Fund; 20% of net proceeds to White Goods Management Account; 75% of net proceeds to local governments, only to be used for solid waste management projects) (H)</p> <p>3) Gasoline Excise Tax (tax revenue distributed as follows: 19/32 to the Commercial Leaking Petroleum Underground Storage Tank Cleanup Fund; 3/32 to the Noncommercial Leaking Petroleum Underground Storage Tank Cleanup Fund; and 5/16 to the Water and Air Quality Account. The rest to non-environmental uses.) (D)</p> <p>4) Scrap Tire Disposal Tax (Tire Disposal Management Fund) (F)</p> <p>5) Primary Forest Product Assessment Act (E)</p> <p>6) Hazardous Waste Generator Fees (Hazardous waste management account) (B)</p>	<p>105-187.20-.24</p> <p>3) N.C.G.S. sect. 105-445</p> <p>4) N.C.G.S. sect. 105.187.15-19</p> <p>5) N.C.G.S. sect. 113A-192.194</p> <p>6) N.C.G.S. sect. 130 A-294.1</p>	<p>statutory limits.</p> <p>2) Privilege tax and excise taxes on each new white good sold: e.g. refrigerators, washing machines, stoves</p> <p>3) Excise tax on gasoline.</p> <p>4) Privilege tax imposed on each new tire sold. Exempt from this are bicycle tires and other tires for vehicles propelled by human power, recapped tires, and tires sold for placement on newly manufactured vehicles.</p> <p>5) Lumber producers pay an assessment on volume of lumber produced</p> <p>a) Per thousand board feet of softwood sawtimber, veneer logs and bolts, and all other softwood products normally measured in board feet</p> <p>b) Per thousand board feet of hardwood and bald cypress sawtimber, veneer, and all other hardwood and bald cypress products normally measured in board feet</p> <p>c) Per cord of softwood pulpwood and other softwood products normally measured in cords</p> <p>d) Per cord of hardwood pulpwood and other hardwood and bald cypress products normally measured in cords</p> <p>6) Hazardous waste generators</p> <p>a) Greater than or equal to 1,000 kilograms/month</p> <p>b) Between 100 and 1,000 kilograms/month</p> <p>c) Less than 100 kilograms/month</p>	<p>(for 1995, 75%).</p> <p>2) a) \$5-per-unit privilege tax paid by retailer if sold in state; \$5-per-unit excise tax on goods bought outside the state.</p> <p>b) \$10 per unit for each tax if the unit contains chlorofluorocarbon refrigerants.</p> <p>3) 1/2 cent per gallon.</p> <p>4) 2% of the cost of the tire for tires with a bead diameter of less than 20 inches and 1% for tires with a bead diameter of at least 20 inches.</p> <p>5) a) 50 cents per thousand board feet</p> <p>b) 40 cents per thousand board feet</p> <p>c) 20 cents per cord</p> <p>d) 12 cents per cord</p> <p>6) a) \$500 plus 50 cents/ton</p> <p>b) \$25</p> <p>c) none</p>
NORTH DAKOTA	<p>1) Oil extraction tax (10% of the revenue shared between Water Pipeline Sinking Fund and Resources Trust Fund) (G)</p> <p>2) Waste Collection Surcharge (Solid Waste Management Fund) (C)</p>	<p>1) N.D.C.C. sect. 57-51.1</p> <p>2) N.D.C.C. sect. 23-29-07.3</p>	<p>1) Excise tax upon the extraction of oil from the earth.</p> <p>2) a) Municipal waste generated by a single residence, multiple residence of not more than 3 units, bunkhouse, crew quarters, campground, or picnic ground.</p> <p>b) Municipal waste generated by commercial accounts</p> <p>c) Multiple unit commercial accounts</p>	<p>1) 6.5% of the gross value at the well of the oil extracted, 4% if the well was drilled and completed after April 27, 1987</p> <p>2) a) 20 cents per account per month</p> <p>b) 20 cents per month when the collection fee is not more than \$10; 75 cents per month when the collection fee is more than \$10 but not more than \$50; \$1.50 per month when the collection fee is more than \$50 but not more than \$100; \$3.00 per month when the collection fee is more than \$100 but not more than \$500; and 1% of the gross receipts per month when the collection fee is more than \$500</p> <p>c) 20 cents per unit or the applicable rate under b), whichever is higher.</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
OHIO	<p>1) Natural Resources Severance Tax (Defaulted Areas Fund, Coal Mining Reclamation and Administration Reserve Fund, Reclamation Supplemental Forfeiture Fund, Oil and Gas Well-plugging Fund) (to fund the coal mining and reclamation regulatory program, to meet the environment and resource management needs of the state, and to reclaim land affected by mining) (G)</p> <p>2) Replacement Tire Tax (Scrap Tire Management Fund)(F)</p> <p>3) Corporate Franchise Tax on Litter (solid waste management fund)(H)</p> <p>4) Hazardous waste fees (B)</p> <p>5) Solid Waste Fees (C)</p>	<p>1) O.R.C.A. sect. 5749.02</p> <p>2) O.R.C.A. sect. 3734.90.1</p> <p>3) O.R.C.A. sect. 573.065</p> <p>4) Ohio Rev. Code Ann. sect. 3734.18</p> <p>5) Ohio Rev. Code Ann. sect. 3734.57</p>	<p>1) a) Tax on coal</p> <p>b) Tax on salt</p> <p>c) Tax on limestone or dolomite</p> <p>d) Tax on sand or gravel</p> <p>e) Tax on oil</p> <p>f) Tax on gas</p> <p>g) Tax on clay, sandstone, or conglomerate, shale, gypsum, or quartzite</p> <p>2) Tax on each wholesale distributor of tires as well as each retail dealer who acquires tires from a person who is not registered as a wholesale distributor.</p> <p>3) Corporate franchise tax on litter-stream corporations, for such items as beverage containers, packaging, and take-out food.</p> <p>4) a) Fee levied on hazardous waste disposed of by deep well injection</p> <p>b) Fee levied on hazardous waste disposed of by land application or landfilling</p> <p>5) Fees collected on the disposal of solid waste</p>	<p>1) a) 9 cents per ton</p> <p>b) 4 cents per ton</p> <p>c) 2 cents per ton</p> <p>d) 2 cents per ton</p> <p>e) 10 cents per ton</p> <p>f) 2.5 cents per ton</p> <p>g) 1 cent per ton</p> <p>2) 50 cents per tire</p> <p>3) Percentage of stock share value, depending on size of corporation</p> <p>4) a) \$4.50 per ton (Maximum annual fee for over one hundred thousand tons is \$100,000)</p> <p>b) \$9 per ton (Maximum annual fee for over one hundred thousand tons is \$50,000) (Maximum annual fee of facility that disposes one hundred thousand tons or less is \$25,000)</p> <p>5) \$1 per ton (a municipal corporation or township may levy a fee of no more that 25 cents to defray costs of maintaining facilities)</p>
OKLAHOMA	<p>1) Underground storage tank regulation fee (underground storage tank regulation revolving fund)(A)</p> <p>2) Hazardous waste fees (hazardous waste fund)(B)</p> <p>3) Waste Tire Recycling Fee (Waste Tire Recycling Indemnity Fund) (F)</p> <p>4) Air Quality Control Fees (Environmental Quality Revolving Fund)(K),</p>	<p>1) Okla. Stat. Tit. 17. sects. 308, 315, 405</p> <p>2) Okla. Stat. Tit. 27A, sects. 2-7-121, -304</p> <p>3) Okla. Stat. Tit. 27A, sect. 2-11-403</p> <p>4) Okla. Stat. Tit. 27A, sects. 2-5-113</p>	<p>1) Fee assessed upon each owner or operator of an underground storage tank system for petroleum products</p> <p>2) a) Hazardous waste generated within the state for on-site or off-site storage, treatment or land disposal</p> <p>b) Hazardous waste generated within the state, or elsewhere in the case of regeneration, for off-site recycling</p> <p>c) Hazardous waste generated within the state for on-site or off-site underground injection</p> <p>3) New tires sold</p> <p>4) Regulated air contaminants</p>	<p>1) No more than \$25 per tank</p> <p>2) a) \$9 per ton</p> <p>b) \$4 per ton</p> <p>c) 3 cents per gallon</p> <p>3) \$1 per new tire</p> <p>4) \$10 per ton, could rise to as much as \$25 per ton depending on regulations</p>
OREGON	<p>1) Petroleum product delivery and withdrawal tax (Oil, Hazardous Material, and Hazardous Substance Emergency Response Program)(D)</p> <p>2) Replacement tire fee (F)</p> <p>3) Hazardous Waste Fees (B)</p>	<p>1) ORS sect. 465.104 and 465.106</p> <p>2) Or. Rev. Stat. sect. 466.785, .791</p> <p>3) Or. Rev. Stat. sect. 459.509, .775</p> <p>4) Or. Rev. Stat. sect. 466.165</p>	<p>1) a) Fee on withdrawal of petroleum product from a bulk facility</p> <p>b) Fee for delivery of petroleum products into a storage tank</p> <p>2) Fee on replacement tire</p> <p>3) Paid by generators, transporters, and operators of hazardous waste facilities on a per-ton basis</p>	<p>1) a) \$10</p> <p>b) \$10 per delivery</p> <p>2) \$1 per tire sold</p> <p>3) \$20 per ton of hazardous waste as well as \$10 per ton after March 31, 1993 (fees taken together)</p>
PENNSYLVANIA	<p>1) Capital Stock Franchise Tax (Hazardous Sites Cleanup Fund)(K)</p> <p>2) Utility Tax (Alternative</p>	<p>1) 72 P.S. sect. 7602.3</p> <p>2) 75 P.S. sect. 7202</p>	<p>1) The capital stock franchise tax imposed by 72 P.S. 7602</p> <p>2) 0.25 mills of the utility gross receipts taxed under 72 P.S.</p>	<p>1) 0.5 mills out of the 12.75 mills imposed</p> <p>2) 30 mills tax due upon each dollar of the state taxable value</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	<p>Fuels Incentive Grant Fund) (gross receipts tax on utility companies) (K)</p> <p>3) Realty Transfer Tax (15% to Keystone Recreation, Park, and Conservation Fund) (I)</p> <p>4) Hazardous Material Fees (Hazardous Material Response Fund) (B)</p> <p>5) New tire fee (Public Transportation Assistance Fund) (F)</p> <p>6) Underground Storage Tank Fees (Underground Storage Tank Identification Fund) (A)</p>	<p>3) 32 P.S. sect. 2011</p> <p>4) 35 P.S. sect. 6022.207</p> <p>5) 72 P.S. sect. 9301</p> <p>6) 35 P.S. sect. 6021.704</p>	<p>sect. 8102-A</p> <p>3) 15% of the state realty transfer tax revenue.</p> <p>4) Annual fee for certain hazardous waste:</p> <p>a) chemicals required on inventory form</p> <p>b) toxic chemicals required on release form with Dept. of Labor and Industry</p> <p>c) Additional fee on manufacturing, using, or storing extremely hazardous substances in excess of certain threshold</p> <p>5) New tires sold</p> <p>6) a) annual fee per regulated tank</p> <p>b) gallons of regulated substances entering a regulated tank</p> <p>c) Heating oil or diesel fuel products stored in regulated tanks,</p>	<p>of its utility realty at the end of the preceding calendar year.</p> <p>3) 1% of the value of the real estate transferred.</p> <p>4) a) \$10 per chemical</p> <p>b) \$250 per chemical</p> <p>c) \$100</p> <p>5) \$1 per tire</p> <p>6) a) \$100</p> <p>b) 2 cents per gallon</p> <p>d) 15 cents per gallon</p>
RHODE ISLAND	<p>1) Litter Control-Participation Permit Fee (Ocean State Cleanup and Recovery Program) (H)</p> <p>2) Hard-to-dispose-material tax (Hard-to-dispose Materials Account) (B)</p> <p>3) Retail tire fee (Tire Site Remediation Act) (F)</p> <p>4) Motor Fuel Tax (Underground Storage Tank Financial Responsibility Fund) (D)</p>	<p>1) R.I.G.L. sect. 44-44</p> <p>2) R.I.G.L. sect. 44-44-3.7</p> <p>3) R.I.G.L. sect. 23-63-4.3</p> <p>4) R.I.G.L. sects. 46-12.9-1 et seq.</p>	<p>1) Retailers who sell food or beverages for immediate consumption pay.</p> <p>2) Wholesaler collects from retailer for the following items sold to retailer:</p> <p>a) Lubricating oils</p> <p>b) Antifreeze</p> <p>c) Organic solvents</p> <p>d) Tires</p> <p>e) New motor vehicles</p> <p>3) Fee upon tires sold at retail.</p> <p>4) Gallons of material stored in underground storage tanks</p>	<p>1) Percentage of retailer's gross receipts, as follows:</p> <p>a) \$0 - 49,999 pays \$25</p> <p>b) \$50,000 - 99,999 pays \$35</p> <p>c) \$100,000 - 399,999 pays \$75</p> <p>d) \$400,000 - 999,999 pays \$100</p> <p>e) \$1,000,000 - pays \$125 per million or fraction thereof</p> <p>2) a) 5 cents per quart or 5.3 cents per liter</p> <p>b) 10 cents per gallon or 2.64 cents per liter</p> <p>c) 0.0025 cents per gallon or 0.00066 cents per liter</p> <p>d) 50 cents per tire</p> <p>e) \$3 per vehicle</p> <p>3) 75 cents per vehicle tire</p> <p>4) 1 cent per gallon</p>
SOUTH CAROLINA	<p>1) Lumber Tax (Forest Renewal Fund) (E)</p> <p>2) Used oil fee (Petroleum Fund for Recycling)(D)</p>	<p>1) S.C.C.A. sect. 48-30-40</p> <p>2) S.C. Code Ann. sect. 44-96-160</p>	<p>1) a) Softwood, sawtimber and all other softwood products normally measured in board feet.</p> <p>b) Hardwood and other hardwood products normally measured in board feet.</p> <p>c) Softwood pulpwood and other softwood products normally measured in cords.</p> <p>d) Hardwood pulpwood and other hardwood products normally measured in cords.</p> <p>2) Motor oil or similar lubricants sold at wholesale (a motor carrier that purchases lubricating oils not</p>	<p>1) a) 50 cents per thousand board feet.</p> <p>b) 25 cents per thousand board feet</p> <p>c) 20 cents per cord.</p> <p>d) 7 cents per cord.</p> <p>2) 8 cents for each gallon</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			for resale used in its fleet is exempt from the fee).	
SOUTH DAKOTA	<p>1) Mineral Severance Tax (Environment and Natural Resources Fee Fund)(G)</p> <p>2) Water Projects Excise Tax (Water and Environment Fund)(K)</p> <p>3) Tire Solid Water Management Fee (Water and Environment Fund)(F)</p> <p>4) Petroleum Release Compensation and Tank Inspection Fee (Petroleum Release Compensation Fund)(A)</p> <p>5) Air Pollution Control Fees (Air Quality Subfund)(K)</p> <p>6) Hazardous waste reporting fee (SARA fee subfund)(B)</p> <p>7) Toxic Release Fees (SARA Toxic Emergency Response Fund)(B)</p>	<p>1) S.D. Codified Laws Ann. sect. 1-40-30</p> <p>2) S.D. Codified Laws Ann. sect. 10-46B-17</p> <p>3) S.D. Codified Laws Ann. sect. 34A-6-83</p> <p>4) S.D. Codified Laws Ann. sect. 34A-13-20</p> <p>5) S.D. Codified Laws Ann. sect. 34A-1-58</p> <p>6) S.D. Codified Laws Ann. sect. 1-50-9</p> <p>7) S.D. Codified Laws Ann. sect. 1-50-8</p>	<p>1) Tax on the severance of energy minerals</p> <p>2) Excise taxes on the construction of water development projects included in the state water resources management system whose cost exceeds the sum of \$20 million.</p> <p>3) Fee for tires on motor vehicles registered and licensed in the state.</p> <p>4) Fee imposed upon any petroleum products received in the state by a licensed distributor</p> <p>5) Regulated air pollutants</p> <p>6) Total amount of chemicals released to the air, land, water, and off-site facilities</p> <p>7)a) Number of chemicals on mixtures reported under SARA Title III Sect. 312.</p> <p>b) lbs. of toxic chemical release reported under SARA Title III Sect. 313 (Toxic Release Inventory)</p>	<p>1) Two and four tenths mills of the taxable value of any energy minerals severed and saved.</p> <p>2) a) 2% of gross receipts of the contractors.</p> <p>b) 2% of the gross receipts of any person engaged in the business of realty improvements who makes an improvement without a contract who then sells the property within four years.</p> <p>c) 2% of the fair market value of the improvement upon any person who builds a building for the purpose of leasing it with a value over \$100,000.</p> <p>d) 1.5% tax on gross receipts of all contractors and subcontractors subject to tax under chapters 10-28, 10-33, 10-34, 10-35, 10-36, or 10-36A, of any municipal utility or telephone company subject to chapters 9-39, 9-41, 9-47, or 9-48 or any rural water system.</p> <p>3) 25 cents per tire not to exceed \$1 per vehicle.</p> <p>4) \$10 per 1,000 gallons of petroleum</p> <p>5) Not to exceed \$25 per ton</p> <p>6) Fees range from \$250 to \$3,000, depending on the amount of chemicals released.</p> <p>7)a) 1-3 chemicals - \$50, 4-9 chemicals - \$100, 10-18 chemicals - \$200, 19 or more - \$300.</p> <p>b) graduated scale from \$250 for less than 10,000 lbs. to \$3,000 for 1,000,000 lbs. or more</p>
TENNESSEE	<p>1) Petroleum underground storage tank fee (Petroleum Underground Storage Tank Fund)(A)</p> <p>2) Beverage container tax (Trash prevention and collection fund) (H)</p> <p>3) Realty transfer tax (Wetlands acquisition fund, local parks acquisition fund, agricultural non-point water pollution control fund, and the state lands acquisition fund)(I)</p> <p>4) New Tire Tax (Waste Tire Management Fund)(F)</p> <p>5) Solid Waste Surcharge (Solid Waste Management Fund)(C)</p> <p>6) Hazardous waste generator fees (remedial action fund)(B)</p>	<p>1) TCA 68-215-109 and 68-215-110</p> <p>2) TCA 57-5-201 and 67-4-402</p> <p>3) TCA 67-4-409</p> <p>4) TCA 67-4-1603</p> <p>5) TCA 68-211-835(d)</p> <p>6) TCA 68-212-203</p>	<p>1) a) Fee per underground storage tank</p> <p>b) Environmental assurance fee on each gallon of petroleum products imported into the state and petroleum products manufactured in the state</p> <p>2) a) Tax on the storing, selling, distributing, or manufacturing of beer or other beverages described in the section</p> <p>b) Tax on anyone manufacturing or producing and selling bottled soft drinks and a person importing or causing to be imported bottled soft drinks</p> <p>3) Tax on all transfers of realty</p> <p>4) Tax on sales of new tires</p> <p>5) Municipal solid waste received at all solid waste disposal facilities or incinerators</p> <p>6) a) Amount of hazardous waste</p>	<p>1) a) \$125 per tank</p> <p>b) 4/10 of 1 cent per gallon</p> <p>2) a) 50 cents of the \$3.90 tax per barrel gets deposited in the fund</p> <p>b) 0.4% of the 1.9% tax on the gross receipts of bottlers gets deposited in the fund.</p> <p>3) 8 cents of the 37-cents-per \$100 realty transfer tax is allocated among the funds.</p> <p>4) \$1.00 per tire</p> <p>5) 85 cents per ton</p> <p>6) a) 17 cents per kilogram increasing to 20 cents per kilogram (Maximum annual fee \$18,000 increasing to \$22,000 over next two years)</p> <p>b) \$7 per ton</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			generated b) Amount of hazardous waste shipped off-site	
TEXAS	1) Waste tire recycling fee (Waste Tire Recycling Fund) (F) 2) Hazardous waste generation fee (Hazardous and Solid Waste Remediation Fund) (B) 3) Hazardous waste facility fee (Hazardous and Solid Waste Facilities Fund) (B) 4) Hazardous Waste Management Fee (Hazardous and Solid Waste Management Fee) (B) 5) Lead-acid battery fees (Hazardous and Solid Waste Remediation Fund) (H) 6) Automotive oil fee (Used Oil Recycling Fund) (D) 7) Petroleum product delivery fee (Hazardous and Solid Waste Remediation Fund) (D) 8) Oil and gas drilling fees (Oil Field Cleanup Fund) (G) 9) Coastal Protection Fee (Coastal Protection Fund) (D) 10) Solid waste disposal and transportation fees (Solid waste remediation fund, solid waste fees fund) (C)	1) Tex. Health and Safety Code sect. 361.472 2) Tex. Health and Safety Code sect. 361.134 3) Tex. Health and Safety Code sect. 361.135 4) Tex. Health and Safety Code sect. 361.136 5) Tex. Health and Safety Code sect. 361.138 6) Tex. Health and Safety Code sect. 371.062 7) Tex. Water Code sect. 26.3574 8) Natural Resources Code sect. 91.111 9) Natural Resources Code sect. 40.001 10) Tex. Health and Safety Code Ann sect. 361.013	1) Fee for tires sold not for resale. Bicycle tires are exempt. 2) Generator fee for hazardous waste. Wastewater containing hazardous wastes that are designated as hazardous, and are rendered non-hazardous by neutralization or other treatment on-site in totally enclosed treatment facilities or wastewater treatment units, are exempt from this assessment. 3) Fee on any person who holds one or more permits for the management of hazardous waste or is operating a waste management unit to process, store, or dispose of hazardous waste during any part of the year. 4) Fee on the owner or operator of a waste storage, processing, or disposal facility for hazardous waste managed on-site. 5) a) Lead-acid battery with a capacity less than 12 volts. b) Lead-acid battery with a capacity of 12 or more volts. 6) Fee for the first sale of automotive oil and the importation of automotive oil. 7) Fee on the delivery of a petroleum product on withdrawal from bulk of that product: a) Fee for delivery into a cargo tank having a capacity for less than 2,500 gallons. b) Fee for delivery into a cargo tank with a capacity of 2,500 gallons or more but less than 5,000 gallons. c) Fee for delivery into a cargo tank with a capacity of 5,000 gallons or more but less than 8,000 gallons. d) Fee for delivery into a cargo tank with a capacity of 8,000 gallons or more but less than 10,000 gallons e) Fee for each increment of 5,000 gallons or any part thereof delivered into a cargo tank having a capacity of 10,000 gallons or more. 8) Various regulatory, permit application and other fees are levied on oil and gas drilling (fees listed below are credited to the Oil Field Cleanup Fund) a) Fee on barrels of crude oil produced in the state b) Fee on each thousand cubic feet of gas initially produced and	1) a) \$2 for each new tire that has a rim diameter of 12 inches but less than 17.5 inches b) \$3.50 for tires with rim diameters 17.5 inches but less than 25 inches c) \$2 for any motorcycle tire 2) Annual fee may not be less than \$50 and may not be more than \$50,000. 3) Not less than \$250 per facility and not to exceed \$25,000. 4) Fee based on the total weight or volume of a waste other than wastes that are disposed of in an injection well. Fee shall not exceed \$40 per ton for wastes generated in the state that are landfilled. 5) a) \$2 per battery b) \$3 per battery 6) 2 cents per quart or 8 cents per gallon of automotive oil. 7) a) \$12.50 b) \$25 c) \$37.50 d) \$50 e) \$25 fee 8) a) five-sixteenths of 1 cent on each barrel b) one-thirteenth of 1 cent for each thousand cubic feet c) \$100 9) 2 cents per barrel until the fund contains \$25 million 10) a) \$1.25 per ton received for disposal at a municipal solid waste landfill b) Not less than \$25 or more than \$500

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			<p>saved in the state</p> <p>c) Fee for reissued Certificate of Compliance (Fees collected until fund reaches \$10 million, reinstated once fund reaches \$6 million)</p> <p>9) Oil received at marine terminal</p> <p>10) a) Fee charged on all solid waste that is disposed of within this state</p> <p>b) Annual registration fee on transporter of municipal solid waste based on volume, type, or both.</p>	
UTAH	<p>1) Petroleum Storage Tank Fee (Petroleum Storage Tank Fund) (A)</p> <p>2) Gasoline Surcharge (Used Oil Collection Administration Account) (D)</p> <p>3) Waste Tire Recycling Tax (Waste Tire Recycling Expendable Trust Fund) (F)</p>	<p>1) U.C.A. sect. 19-6-411</p> <p>2) U.C.A. sect. 19-6-714</p> <p>3) U.C.A. sect. 26-32a-104</p>	<p>1) a) Tanks with an annual throughput rate of 400,000 gallons or less.</p> <p>b) Tanks with an annual throughput rate of more than 400,000 gallons.</p> <p>c) Tanks in a facility that does not report its throughput rate within 30 days after it is requested.</p> <p>d) Underground storage tank installation companies that have installed 15 or fewer tanks within 12 months preceding the due date.</p> <p>e) Tank installation companies that have installed 16 or more tanks within the preceding 12 months of the due date.</p> <p>f) Fee to be paid prior to completion of tank installation.</p> <p>2) Fee upon the first sale of lubricating oil.</p> <p>3) Recycling fee for each new tire sold at retail.</p>	<p>1) a) \$50 per tank</p> <p>b) \$150 per tank</p> <p>c) \$175 per tank</p> <p>d) \$2,000 per tank</p> <p>e) \$4,000 per tank</p> <p>f) \$200 per tank</p> <p>2) 4 cents per quart or 16 cents per gallon</p> <p>3) \$1 for each tire with a rim diameter up to and including 24.5 inches, single or dual bead capacity.</p>
VERMONT	<p>1) Hazardous Waste Generator Fees (Environmental Contingency Fund) (B)</p> <p>2) Low-level radioactive wastes fees (Low-level radioactive waste fund) (B)</p>	<p>1) V.S.A. tit. 32 sect. 10103 and V.S.A. tit. 10 sect. 1283</p> <p>2) V.S.A. tit. 10 sect. 7013</p>	<p>1) a) Hazardous wastes destined to be reclaimed, recycled, or recovered for a beneficial purpose.</p> <p>b) Hazardous wastes destined for long-term storage.</p> <p>c) Hazardous wastes destined for land disposal or land treatment.</p> <p>d) Hazardous waste destined for treatment other than that specified in b) and c).</p> <p>e) The preceding taxes do not apply to hazardous waste that is generated as a result of any action taken under section 1283 of title 10, hazardous wastes that meet applicable pretreatment standards or compliance schedules and are discharged to a public sewerage treatment works, hazardous wastes that are destined for treatment in an on-site wastewater treatment unit to produce a material that is not hazardous before entering a</p>	<p>1) a) 11 cents per gallon of liquid or 1.4 cents per pound of solid.</p> <p>b) 33 cents per gallon of liquid or 4.2 cents per pound of solid.</p> <p>c) 44 cents per gallon of liquid or 5.6 cents per pound of solid.</p> <p>d) 22 cents per gallon of liquid or 2.8 cents per pound of solid.</p> <p>e) N/A</p> <p>2) \$10 per cubic foot</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			<p>public sewer system or waters of the state, and the tax does not apply to any residue of treatment that is a hazardous waste, or hazardous wastes generated by a person who generated an average of less than 220 pounds of hazardous waste per month per site or 2.2 pounds of acutely hazardous waste per month per site during a calendar quarter.</p> <p>2) Low-level radioactive waste generated in the state</p>	
VIRGINIA	<p>1) Petroleum Storage Tank Fee (Petroleum Storage Tank Fund) (A)</p> <p>2) Tire Tax (Waste Tire Management Fund) (F)</p> <p>3) Mining reclamation tax (Abandoned mine reclamation fund) (G)</p>	<p>1) V.C.A. 62.1-44.34:13</p> <p>2) V.C.A. sect. 58.1-641</p> <p>3) Va. Code Ann. sect. 45.1-261, -270.4</p>	<p>1) fee on motor fuel, aviation motor fuel, special fuels, #2 fuel oil, and kerosene</p> <p>2) Fee on the retail sale of new tires.</p> <p>3) A tax levied upon the production of coal by operators participating in the Abandoned Mine Reclamation Fund under issued permits</p> <p>a) Coal produced by a surface mining operation</p> <p>b) Coal produced by a deep mining operation</p> <p>c) Coal processed or loaded by preparation or loading facilities,</p>	<p>1) 1/5 of 1 cent per gallon</p> <p>2) 50 cents per tire.</p> <p>3) a) 4 cents per clean ton of coal produced</p> <p>b) 3 cents per clean ton of coal produced</p> <p>c) 1.5 cents per clean ton of coal</p>
WASHINGTON	<p>1) Cigarette Tax (Water quality account) (K)</p> <p>2) Anadromous Game Fish Tax (Wildlife fund) (E)</p> <p>3) Solid Fuel Burning Devices Fee (Wood stove education and enforcement account) (K)</p> <p>4) Petroleum Products Delivery Fee (Oil spill response fund) (D)</p> <p>5) Petroleum Products Tax (Underground storage tank program) (expired on 6-1-95) (D)</p> <p>6) Hazardous Waste Generator Fees (Waste reduction program) (B)</p> <p>7) Pollution Tax (Toxic Control Account) (B)</p> <p>8) Vehicle Tire Recycling Tax (Vehicle tire recycling account) (F)</p>	<p>1) RCW 82.24.027 and 82.26.025</p> <p>2) RCW 82.27.020 and 82.27.070</p> <p>3) RCW 70.94.483</p> <p>4) RCW 82.23B.020</p> <p>5) RCW 82.23A.020</p> <p>6) RCW 70.95E.020</p> <p>7) RCW 82.21.030</p> <p>8) Wash Rev. Code sect. 70.95.510</p>	<p>1) a) Tax on the sale, use, consumption, handling, possession, or distribution of cigarettes.</p> <p>b) Tax on the sale, use, consumption, handling, or distribution of all tobacco products including cigarettes.</p> <p>c) Tax on the sale or use of articles of tangible personal property that are to become active ingredients or components of new or existing water pollution control facilities and activities.</p> <p>2) Tax on various species of fish, but only the portion of tax on anadromous game fish is earmarked.</p> <p>3) Fee for solid-fuel-burning devices.</p> <p>4) a) Oil spill response tax on receipt of crude oil or petroleum products at a marine terminal by means of a waterborne vessel or barge.</p> <p>b) Oil spill administration tax on receipt of crude oil or petroleum products at a marine terminal by means of a waterborne vessel or barge.</p> <p>5) Tax on petroleum products.</p> <p>6)a) Fee for generation of hazardous waste --now administered by Dept. of Ecology.</p> <p>b) Fee on hazardous waste</p>	<p>1) a) 4 mills per cigarette</p> <p>b) 16 and three-fourths percent of wholesale price.</p> <p>c) Sales tax is 6.5 percent of selling price, and use tax is the value of the article used times 6.5 percent.</p> <p>2) Value of the food fish multiplied by 5.25%</p> <p>3) \$30</p> <p>4) a) 2 cents per barrel</p> <p>b) 3 cents per barrel</p> <p>5) 0.5% of the wholesale value</p> <p>6) a) \$35 annually</p> <p>b) not to exceed \$10,000 annually</p> <p>c) not to exceed \$50</p> <p>7) 0.7% multiplied by the wholesale value of the substance</p> <p>8) \$1 per tire</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			<p>generators and hazardous waste users. Facilities that generate less than 2,640 pounds of hazardous waste per site in the previous calendar year are exempt.</p> <p>c) Tax on facilities that generate 2,640 pounds but not more than 4,000 pounds per site in the previous calendar year.</p> <p>7) Tax on the privilege of possession of hazardous substances.</p> <p>8) New tires sold</p>	
WEST VIRGINIA	<p>1) Hazardous waste permit application fee (Hazardous waste management fund) (B)</p> <p>2) Hazardous waste facility siting fee (Hazardous waste facility siting fund) (B)</p>	<p>1) W. Va. Code sect. 22-18-22</p> <p>2) W. Va. Code sect. 22C-5-6</p>	<p>1) a) Landfills that handle less than 1,000 tons per year</p> <p>b) Landfills which handle more than 1,000 tons per year</p> <p>2) Fee on applicant of certificate of site approval</p>	<p>1) a) \$15,000</p> <p>b) \$25,000</p> <p>2) \$60,000</p>
WISCONSIN	<p>1) Temporary Recycling Surcharge (Recycling Management Fund) (proceeds used to finance recycling and waste reduction grants to local governments and businesses) (H)</p> <p>2) Tire recovery fee (Tire Waste Program Fund) (F)</p> <p>3) Hazardous Waste Generator Fee (Environmental fund for environmental repair) (B)</p> <p>4) Solid Waste Capacity Fee (The environmental fund) (C)</p>	<p>1) Wis. Stat. s. 77.92; 77.97; Wis. Stat. s. 25.49</p> <p>2) Wis. Stat. s. 342.14(1m)</p> <p>3) Wis. Stat. sect. 144-442</p> <p>4) Wis. Stat. sect. 144.4412</p>	<p>1) a) Surcharge on corporations</p> <p>b) Surcharge on nonfarm proprietorships, partnerships, and limited liability companies. Nonfarm proprietorships and partnerships with gross receipts less than \$4,000 and noncorporate farms with net farm profits less than \$1,000 are exempt.</p> <p>2) Fee on each tire normally used on the vehicle during its operation on the highways plus the number of spare tires with which the vehicle is normally equipped.</p> <p>3) a) Base fee on hazardous waste generators</p> <p>b) hazardous waste generated</p> <p>4) waste generated outside of the state</p>	<p>1) a) 5.5% of gross corporate income and franchise tax liability. There is a minimum surcharge of \$25 and a maximum of \$9,800.</p> <p>b) 0.4345% of net Wisconsin business income. There is a minimum surcharge of \$25 and a maximum of \$9,800.</p> <p>2) \$2 per tire.</p> <p>3) a) \$125</p> <p>b) \$12 per ton</p> <p>4) \$2 to \$18 per ton, depending upon the per capita solid waste disposal and incineration capacity of the state where the waste was generated.</p>
WYOMING	Fuel Tax (Corrective action account of the state highway fund) (D)	W.S. 39-6-215 and 39-6-914	<p>a) Tax on gasoline used, sold, or distributed in the state. Gasoline exported or sold for exportation and gasoline brought into the state in the fuel tank of a motor vehicle in an amount not exceeding 30 gallons or 50 gallons by a common carrier of passengers is exempt.</p> <p>b) Tax on special fuels used, sold, or distributed for sale. Special fuels exported from the state are exempt.</p>	<p>a) 1 cent per gallon</p> <p>b) 1 cent per gallon</p>
<p>Key to alphabetic charges in the Short Description column: (A) storage tank charges; (B) hazardous waste charges; (C) solid waste charges; (D) petroleum product-related charges; (E) charges related to agriculture, forestry, or fisheries; (F) tire charges; (G) resource and severance taxes; (H) charges to encourage solid waste reduction and recycling; (I) taxes related to property and land use; (J) (category eliminated); (K) miscellaneous charges.</p>				

TABLE 3
ENVIRONMENTALLY MOTIVATED TAX INCENTIVES

Note: Alphabetic codes in parentheses after the Short Description refer to categories of tax instruments described in text and in notes at the end of this table.

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
ALABAMA	1) Air and water pollution control property tax exemption (A) 2) Air and water pollution control corporate income tax deductions (A) 3) Air and water pollution control sales & use tax exemptions (A)	1) C.A. sect. 40-9-1(20) 2) C.A. sect. 40-18-35(a)(13) 3) C.A. sect. 40-23-4(16), & 40-23-62(18)	1) Exempts all devices, facilities or structures, and all identifiable components thereof or materials therein, acquired or constructed primarily for the control, reduction or elimination of air or water pollution, from ad valorem taxation (general property tax). 2) Allows itemized deductions from corporate income tax or amortization of all amounts invested during the taxable year in all devices, facilities or structures and all identifiable components thereof or materials for therein, used, acquired, or constructed primarily for the control, reduction, or elimination of air or water pollution. 3)(a) Sales tax exemption from the gross proceeds from the sale of all devices or facilities, and all identifiable components thereof or materials used therein, acquired for the control of air or water pollution. (b) Use tax exemption for the storage, use, or consumption of all devices or facilities used or placed in operation primarily for the control of air or water pollution.	1) N/A 2) N/A 3) N/A
ALASKA	None			
ARIZONA	1) Recycling equipment income tax credit (C) 2) Environmental technology income tax credit (C) 3) Pollution control income tax credit (applies to real or personal property that controls pollution) (A) 4) Solar energy device personal income tax credit (residences) (D) 5) Alternative-fuel vehicles and refueling station income tax credit (F) 6) Agricultural water conservation system income tax credit (E) 7) Credit for corrective action costs for underground storage tanks (A)	1) A.R.S. sect. 43-1076 and 43-1164 2) A.R.S. sect. 43-1080 and 43-1169 3) A.R.S. sect. 43-1081 and 43-1170 4) A.R.S. sect. 43-1083 5) A.R.S. sect. 43-1086 and 43-1174; A.R.S. sect. 43-1026 and 43-1128.01 6) A.R.S. sect. 43-1084 and A.R.S. sect. 43-1172 7) A.R.S. sect. 43-1085	1) Income tax credit to businesses and individuals who acquire and place in service recycling equipment. 2) Income tax credit for expenses incurred in constructing a qualified environmental technology manufacturing, producing, or processing facility. 3) Income tax credit for the purchase of real or personal property to control or prevent pollution. Begins December 31, 1994. 4) Income tax credit for the installation of a solar energy device in the taxpayer's residence. Begins December 31, 1994. 5) Subtraction or tax credit to corporation or individuals for alternative fuel vehicle purchase or conversion and the purchase and/or installation of refueling equipment. The vehicle must be	1) The lesser of 10% of the equipment costs \$5,000, or 25% of the current year's tax liability. 2) 10% of amount spent for construction not to exceed 75% of the current taxable year's tax liability. 3) 10% of the purchase price. The maximum for 1995 and 1996 is \$750,000 and for years after 1996 the maximum is \$500,000. 4) 25% of the purchase price. The maximum credit may not exceed \$1,000. 5) a) credit of \$1,000 per purchase or conversion for 1994-1996. b) credit of \$500 per purchase or conversion for 1997. c) credit of \$250 per purchase or conversion for 1998. d) subtraction of 25% of the purchase price for a new

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			<p>used in the state and the refueling equipment must be installed on property in the state. For each subtraction the taxpayer must allocate and apply one-third of the subtraction to each of the three consecutive taxable years beginning with the taxable year the vehicle or equipment was purchased or converted. Individual taxpayers only are also allowed to subtract 50% of the interest paid or accrued during the taxable year for the purchase of a new alternative fuel vehicle or the conversion of a conventional fuel vehicle to operate as an alternative fuel vehicle for noncommercial personal use.</p> <p>6) Income tax credit to corporations or individuals for the purchase and installation of an agricultural water conservation system.</p> <p>7) a credit is allowed against taxes imposed for expenses incurred by an individual who is not responsible for a corrective action as an owner of an underground storage tank.</p>	<p>alternative-fuel vehicle for one or more vehicles but cannot exceed \$10,000 (\$5,000 for corporations) for each vehicle.</p> <p>e) subtraction equal to the cost of conversion of a conventional vehicle to operate as an alternative-fuel vehicle but cannot exceed \$5,000 (\$3,000 for corporations) for each vehicle</p> <p>f) subtraction for the purchase of refueling equipment but not to exceed \$5,000</p> <p>6) 75% of the qualifying expenses are credited</p> <p>7) 10% of total amount spent for the corrective action</p>
<p>ARKANSAS</p>	<p>1) Alternative-fuel vehicles fuel tax reduction (F)</p> <p>2) Recycling tax credit for businesses that buy recycling equipment for their own use (C)</p> <p>3) Pollution control equipment gross receipts tax exemption (A)</p> <p>4) Pollution control equipment sales & use tax exemption (A)</p>	<p>1) Ark. Stat. Ann. sect. 26-62-209</p> <p>2) Ark. Stat. Ann. sect. 26-51-506</p> <p>3) Ark. Stat. Ann. sect. 26-52-402</p> <p>4) Ark. Stat Ann. sect. 26-53-114</p>	<p>1) Fuel tax rate is lower for natural gas fuels, methanol, denatured ethanol, and others</p> <p>2) Income tax credit for businesses that buy recycling equipment for their own use.</p> <p>3) Air and water pollution control equipment required by state law</p> <p>4) Air and water pollution control equipment required by law,</p>	<p>1) The tax rate for gasoline and diesel fuel is 18.5 cents/gal. The tax rate for alternative fuels is adjusted dependent upon the number of registered alternative fuel vehicles in the state:</p> <p>a) 5 cents/gal. if the number of registered alternative fuel vehicles in the state is less than 1,000;</p> <p>b) 8.5 cents/gal. if the number of registered vehicles is greater than or equal to 1,000 but less than 1,500;</p> <p>c) 10.5 cents/gal. if the number of registered vehicles is greater than or equal to 1,500 but less than 2,000;</p> <p>d) 12.5 cents/gal. if the number of registered vehicles is greater than or equal to 2,000 but less than 2,500;</p> <p>e) 14.5 cents/gal. if the number of registered vehicles is greater than or equal to 2,500 but less than 3,000, and</p> <p>f) 16.5 cents/gal if the number of registered vehicles is greater than or equal to 3,000.</p> <p>2) 30% of the cost of recycling equipment</p> <p>3) N/A</p> <p>4) N/A</p>
<p>CAL.(F.T.B.)</p>	<p>1) Commercial solar energy system personal income tax</p>	<p>1) Cal. Rev. and Tax. Code sect.</p>	<p>1) Personal income tax credit on the cost of installation of a solar energy system credit for a</p>	<p>1) 10% of the cost</p> <p>2) Credit equal to the sales/use</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	credit for businesses (D) 2) Air and water pollution control equipment sales tax credit (A) 3) Recycling equipment personal income tax credit for business (C) 4) Recycling investments personal income tax credit (C) 5) Low-emission vehicles income tax credit (F) 6) Employer-sponsored vanpool corporate income tax credit (H) 7) Non-employer-sponsored vanpool personal income tax credit (H)	17052.5 2) Cal. Rev. and Tax. Code sect. 17052.13 3) Cal. Rev. and Tax. Code sect. 17052.14 4) Cal. Rev. and Tax Code sect. 17053.49 5) Cal. Rev. and Tax Code sect. 17052.11 and 23603 6) Cal. Rev. and Tax. Code sect. 27053 and 23605 7) Cal. Rev. and Tax. Code sect. 17053.1	system designed to produce electricity in excess of 30 watts per device. 2) Sales/use tax credit for the costs of machinery and machinery parts used for the production of renewable energy resources or air or water pollution control mechanisms if it is used in a program area or enterprise zone. 3) Personal income tax credit for recycling equipment and machinery. 4) Personal income tax credit for investment in manufacturing equipment used for recycling. 5) Credit on the cost for low-emission vehicles and low-emission conversion devices. Credit is limited to \$1,000 per passenger vehicle and \$3,500 for vehicles exceeding 5,750 pounds. 6) Credit on the cost of shuttle buses, motor pools, and expenses of an employer-sponsored ride sharing incentive program 7) Credit for costs of participating in the program.	tax paid. 3) 40% of the cost. 4) 6% of the cost. 5) 55% of the cost. 6) For individuals 20% of the cost. 7) 40% of the cost.
CAL.(B.O.E.)	1) Low-emission vehicle sales tax exemption (F) 2) Facility fee exemption from underground storage tank owners who recycle their tanks (C)	1) Cal. Rev. and Tax. Code sect. 6356.5 2) Cal. Health and Safety Code sect. 25205.12	1) Exemption from tax for incremental costs of the sale of, and the storage, use, or other consumption in California of new low- emission motor vehicles. 2) There is no facility fee for an authorized recycler of underground storage tanks.	1) N/A 2) N/A
COLORADO	1) Tax credit for purchase of business vehicles using alternative fuel (F) 2) Personal & corporate income tax credit for investment in technologies for recycling plastics (C)	1) C.R.S. sect. 39-22-516 2) C.R.S. sect. 39-22-114.5, 39-22-309	1) Tax credit for purchase of business vehicles using alternative fuels 2) Tax credit for rent, wages, supplies, consumable tools, equipment, test inventory, and utilities used for new plastic recycling technology in the state	1) 5% of purchase price 2) Credit equal to 20% of expenditures, not to exceed \$2,000
CONNECTICUT	1) Corporate income tax credit for construction or expansion of air pollution abatement facilities (A) 2) Corporate income tax credit for construction or expansion of industrial waste treatment facilities (A) 3) waste treatment or air pollution control facilities sales tax exemption (A) 4) Property tax exemption for active/passive solar and cogeneration systems (D) 5) Corporate franchise tax exemption for companies engaged in research and development of alternative	1) C.G.S. 12-217c 2) C.G.S. 12-217d 3) G.C.S. 12-412(21) and (22) 4) C.G.S. 12-81 (56), (57), (62), (63) 5) C.G.S. 12-214(a)(7) 6) C.G.S. 12-635 7) C.G.S. 12-412(67), (68), and (69) 8) C.G.S. 12-2171	1) Corporate income tax credit based on expenditures paid or incurred for the construction, rebuilding, acquisition, or expansion of facilities for the treatment of industrial waste and air pollution abatement facilities. 2) Corporate income tax credit based on expenditures paid or incurred for the construction, rebuilding, acquisition, or expansion of facilities for the treatment of industrial waste. 3) Sales tax exemption for personal property incorporated into or used in waste treatment or air pollution control facilities. 4) Property tax exemption for active/passive solar and cogeneration systems.	1) 5% of the amount of the expenditures. 2) 5% of the amount of the expenditures. 3) N/A 4) N/A 5) N/A 6) Not to exceed 60% of the total amount of money invested. 7) N/A 8) 10% of the amount of expenditures. 9) N/A 10) N/A 11) Credit equal to 50% of total

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	<p>energy systems (D)</p> <p>6) Corporate income tax credit for investment in energy conservation projects (E)</p> <p>7) Exemption from new motor vehicle tax for alternatively fueled vehicles (F)</p> <p>8) Clean alternative-fuel vehicles corporate income tax credit (50% of costs for equipment and conversion, includes electricity-powered vehicles) (F)</p> <p>9) Property tax exemption for employer-owned vanpool vans (H)</p> <p>10) Exemption from gas tax for high-occupancy vehicles used in commuter-transportation cooperatives (H)</p> <p>11) Corporate tax credit for employers who develop commuter- transportation plans for their employees (H)</p> <p>12) Farm, forest, and open-space current use assessment and contaminated-property valuation (G)</p>	<p>9) C.G.S. 12-81e</p> <p>10) C.G.S. 12-459(11)</p> <p>11) C.G.S. 12-217s</p> <p>12) C.G.S. 12-63, -107a to 107e, -504a to 504e</p>	<p>5) Full exemption from corporate franchise tax for companies for which 75% of gross revenues come from projects that develop alternative energy systems.</p> <p>6) A credit against the corporation business tax based on the amount invested in programs created for energy conservation projects directed toward properties occupied by persons at least 75% of whom are at an income level not exceeding 150% of the poverty level.</p> <p>7) Sales tax exemption for new motor vehicles powered by clean alternative fuel or electricity and associated equipment.</p> <p>8) Credit on expenditures for the purchase and installation of equipment incorporated into or used in a CNG filling or electric recharging station for vehicles powered by clean alternative fuel, the purchase of conversion equipment for converting vehicles to the use of clean alternative fuel, and the incremental cost of purchasing a vehicle that is exclusively powered by clean alternative fuel.</p> <p>9) Any vans owned by an employer, regional ride-sharing organization, or a dealer providing vans under lease for such purposes are exempt from state property taxes.</p> <p>10) A corporation or an employee of a corporation or of the United States, this state, or a municipality of this state, when such fuel is used in a high-occupancy commuter vehicle that seats 10 but not more than 15 passengers to and from work daily is eligible for a refund.</p> <p>11) A credit against the corporation business tax is given based on the amount spent by such corporation for the direct costs of transportation management programs and related services. (The total amount of credits shall not exceed \$1.5 million)</p> <p>12) a) Preferential tax treatment is afforded farm, forest, and open-space lands for the purpose of encouraging the preservation of property by ensuring against the conversion of such land to more intensive uses as a result of higher property tax assessments.</p> <p>b) Property assessors shall not reduce the value of any property due to any polluted or environmentally hazardous condition caused by owner.</p>	<p>money spent.</p> <p>12) N/A</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
DELAWARE	<p>1) Toxic waste reduction income tax credit for business that reduce the amount of toxic waste reported in the toxic release inventory (B)</p> <p>2) Recycling employment income tax credit for manufacturers for whom 25% of the raw materials are recycled (C)</p> <p>3) Income tax deduction for employer-subsidized car-pooling or mass transit (Travelink Program) (H)</p>	<p>1) Del. Code tit. 30, sect. 2041-2042</p> <p>2) Del. Code tit 30, sect. 2043-2044</p> <p>3) Del. Code tit. 30, sect. 2030</p>	<p>1) a) Manufacturers that reduce 20% or more of the weight of wastes reported on the Toxic Release Inventory compared with such amount reported for the immediately preceding 12 months.</p> <p>b) Manufacturers that reduce 50% or more of the weight of other wastes compared with such amount reported for the immediately preceding 12 months. 2a) Taxpayers who are in the business of processing raw materials removed from the solid waste stream for resale as raw materials.</p> <p>b) Taxpayers in the business of collecting materials for recycling and distributing recycled materials.</p> <p>3) Employers who participate in a certified Travelink program</p>	<p>1a) \$250 for each full 10% of waste reduction.</p> <p>b) \$250 for each full 10% of waste reduction</p> <p>2) a) \$500 multiplied by the number that is the difference between the number of qualified employees employed by the taxpayer on the last business day of the taxable year and the number of qualified employees, if any, that were employed by the taxpayer on July 1, 1984.</p> <p>b) Same as a).</p> <p>3) Certified Travelink registrants multiplied by \$250.</p>
FLORIDA	<p>1) Pollution control equipment property tax valuation (A)</p> <p>2) Property tax valuation of conservation easement (G)</p>	<p>1) F.S. 193.621</p> <p>2) F.S. 193.501</p>	<p>1) Pollution control equipment excluding sewer systems valued at salvage</p> <p>2) Property subject to conservation easements lasting 10 or more years valued based on current use</p>	<p>1) N/A</p> <p>2) N/A</p>
GEORGIA	<p>1) Recycling facilities and pollution prevention machinery personal income tax credit (C)</p> <p>2) Pollution control equipment sales and use tax exemption (A)</p> <p>3) Pollution control equipment property tax exemption (A)</p>	<p>1) Ga. Code Ann. 48-7-40.4</p> <p>2) Ga. Code Ann. 48-8-3</p> <p>3) Ga. Code Ann. 48-5-41</p>	<p>1) Personal income tax credit for investment in recycling machinery or equipment, a recycling manufacturing facility, pollution control or prevention facility, or conversion from defense to domestic production.</p> <p>2) Pollution control facilities used to combat air and water pollution are exempt from sales and use tax.</p> <p>3) Pollution control equipment is not subject to state property tax.</p>	<p>1) The amount of such credit shall be equal to 3% of the qualified investment.</p> <p>2) N/A</p> <p>3) N/A</p>
HAWAII	<p>1) Energy conservation income tax credit (E)</p> <p>2) Air pollution control facility general excise tax exemption (A)</p> <p>3) Solid waste facility general excise tax exemption (B)</p> <p>4) Alcohol fuel excise tax exemption (F)</p>	<p>1) H.R.S. sect. 235-12</p> <p>2) H.R.S. sect. 237-27.5</p> <p>3) H.R.S. sect. 237-27.6</p> <p>4) H.R.S. 237-27.1</p>	<p>1) a) Tax credit for alternative energy systems installed before 1990.</p> <p>b) Tax credit for wind systems installed after December 31, 1989.</p> <p>c) Tax credit for single families who install a solar energy system after December 31, 1989.</p> <p>d) Tax credit for multi-unit buildings that install a solar energy system after December 31, 1989.</p> <p>e) Tax credit for hotels that install a solar energy system after December 31, 1989.</p> <p>f) Tax credit for single families who install a heat pump after December 31, 1989.</p> <p>g) Tax credit for multi-unit buildings that install a heat pump</p>	<p>1) a) 10% of the actual cost.</p> <p>b) 20% of the total costs.</p> <p>c) The lesser of 35% of the costs or \$1,750.</p> <p>d) The lesser of 35% of the cost of \$350 per building.</p> <p>e) 35% of the costs.</p> <p>f) The lesser of 20% of the costs or \$400.</p> <p>g) The lesser of 20% of the costs or \$200 per building.</p> <p>h) 20% of the costs.</p> <p>i) 50% of the costs.</p> <p>2) N/A</p> <p>3) N/A</p> <p>4) N/A</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			<p>after December 31, 1989.</p> <p>h) Tax credit for hotels that install a heat pump after December 31, 1989.</p> <p>i) Tax credit for the installation of ice storage systems after December 31, 1989.</p> <p>2) Exemption from the general excise tax of all gross proceeds arising from the construction, reconstruction, creation, operation, use, or maintenance of an air pollution control facility.</p> <p>3) Exemption from the general excise tax of all gross proceeds of anyone who operates a solid waste processing, disposal, or electric generating facility.</p> <p>4) Exemption from the general excise tax for all gross proceeds arising from the sale of alcohol fuels for consumption or use by the purchaser and not for resale.</p>	
IDAHO	<p>1) Post-consumer waste or post-industrial waste recycling- equipment tax credit (C)</p> <p>2) Pollution control equipment sales tax exemption (A)</p> <p>3) Water or air pollution control facility tax exemption (A)</p>	<p>1) Idaho Code sect. 63-3029D</p> <p>2) Idaho Code sect. 63-3622</p> <p>x3) Idaho Code sect. 63-105T</p>	<p>1) Equipment used by taxpayers to manufacture products using 90% post-consumer waste or postindustrial waste.</p> <p>2) Sales tax exemption for pollution control equipment to meet air and water quality standards of the federal government.</p> <p>3) Property tax exemption for facilities, installations, machinery or equipment designed, installed, and utilized in the elimination, control, or prevention of air and water pollution.</p>	<p>1) 20% of costs of purchasing equipment but not to exceed \$ 30,000 per year.</p> <p>2) N/A</p> <p>3) N/A</p>
ILLINOIS	<p>1) Pollution control facility sales tax exemption (A)</p> <p>2) Low SO2 emission coal-fueled devices sales tax exemption (A)</p> <p>3) Tangible personal property sales tax exemption (A)</p> <p>4) Solar energy improvements alternate valuation for property tax purposes (D)</p> <p>5) Gasohol sales tax exemption (F)</p> <p>6) Ethyl alcohol sales tax exemption (F)</p>	<p>1) 35 ILCS 120/1a</p> <p>2) 35 ILCS 200/11-35 et. seq.</p> <p>3) 35 ILCS 120/1e</p> <p>4) 35 ILCS 200/10-10</p> <p>5) 35 ILCS 120/2-10</p> <p>6) 35 ILCS 120/2-5(3)</p>	<p>1) Sales tax exemption on the sale or purchase of pollution control facilities.</p> <p>2) Sales tax exemption on the sale or purchase of low-sulfur-dioxide-emission coal-fueled devices.</p> <p>3) Sales tax exemption on tangible personal property used or consumed in manufacturing or in the operation of a pollution control facility located in an enterprise zone.</p> <p>4) There is an alternate valuation of solar energy improvements for property tax determination.</p> <p>5) Sales tax exemption on gasohol receipts.</p> <p>6) Sales tax exemption on equipment sold as a unit or kit for production of ethyl alcohol for use as a motor fuel.</p>	<p>1) N/A</p> <p>2) N/A</p> <p>3) N/A</p> <p>4) The lesser of the value with conventional heating and cooling systems or with the solar improvements.</p> <p>5) 30% of receipts</p> <p>6) N/A</p>
INDIANA	<p>1) Lower property tax rate for land that is part of the Classified Forest Program (G)</p> <p>2) Lower property tax rate for land classified as a filter</p>	<p>1) IC 6-1.1-6-14</p> <p>2) IC 6-1.1-6.7-9</p> <p>3) IC 6.1.1-6.2-9</p> <p>4) IC 6-1.1-12-34</p>	<p>1) General property tax for land that is classified as native forestland or as a forest plantation.</p> <p>2) General property tax for land that is classified as a filter strip.</p>	<p>1) \$1 per acre</p> <p>2) \$1 per acre</p> <p>3) \$1 per acre</p> <p>4) The assessed value of the real</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	strip (G) 3) Lower property tax rate for land classified as a windbreak (G) 4) Geothermal heating or cooling devices property tax exemption (D) 5) Pollution control facilities sales and use tax exemption (A) 6) Industrial waste control facilities property tax exemption (A)	5) IC 6-2.5-5-30 6) IC 1-10-10	3) General property tax for land that is classified as a wind break. 4) Owner of real property or mobile home that is equipped with a geothermal energy heating or cooling device gets a property tax exemption. 5) Pollution control facilities are exempt from sales and use tax. 6) Industrial waste control facilities are exempt from property tax.	property or mobile home with the device minus the assessed value of the real property or mobile home without the device. 5) N/A 6) N/A
IOWA	1) Pollution control equipment property tax exemption (A) 2) Pollution control equipment sales tax exemption (A) 3) Methane gas conversion property tax exemption (D) 4) Forest or fruit-tree reservation property tax exemption for land set aside to contain only forest or fruit trees (G)	1) Iowa Code sect. 455B and 427.1(32) 2) Iowa Code sect. 422.45(27) 3) Iowa Code sect. 427.1(43) 4) Iowa Code sect. 427.C.1	1) Property tax exemption for pollution control equipment and equipment used in recycling paper, paperboard, and plastic into new materials. 2) Pollution control equipment used in manufacturing is exempt from the sales and use tax if it is subject to the property tax. 3) Property used to convert methane gas as a by-product or waste decomposition to energy is exempt from property taxes. 4) There is a property tax exemption for any land set up as a forest or fruit-tree reservation.	1) N/A 2) N/A 3) N/A 4) N/A
KANSAS	Recycling equipment income tax credit (C)	K.S.A. 79-32, 192	Spending on equipment used to produce products consisting of at least 25% post-consumer waste (including wastes used to produce energy used in manufacturing). Equipment must be located in-state. Excludes equipment used in transport and collection of waste.	20%
KENTUCKY	1) Pollution control facility corporate license tax exemption (A) 2) Recycling equipment personal income tax credit (C) 3) Pollution control facility sales and use tax exemption (A) 4) Recycling equipment sales and use tax exemption (C) 5) Alcohol production or fluidized bed energy production facility corporate license tax exemption (D) 6) (a) Alcohol production facility sales and use tax exemption b) Fluidized bed energy production facility sales and use tax exemption (D) 7) Environmentally friendly carburation systems motor fuels tax exemption (F)	1) K.R.S. sect. 141.120(8)(a) and sect. 136.070(3)(b) 2) K.R.S. sect. 141.390 3) K.R.S. sect. 139.480(12) 4) K.R.S. sect. 139.480(23) 5) K.R.S. sect. 136.070(1) 6) K.R.S. sect. 139.480(18) and sect. 139.480(20) 7) K.R.S. sect. 234.321 8) K.R.S. sect. 138.446	1) Property certified as pollution control facility is excluded from the property factor for purposes of determining the factor for apportioning income in corporate license and income tax determination. 2) Credit against the income tax for recycling or composting equipment. 3) Sales and use tax exempts property that has been certified as a pollution control facility. 4) An exemption from the sales and use tax is available for machinery or equipment used primarily for recycling purposes. 5) Any property that has been certified as an alcohol production facility or property or facility that has been certified as a fluidized bed energy production facility is exempt from the corporation license tax. 6) Sales and use tax exempts any property certified as an alcohol production facility and/or	1) N/A 2) 50% of the costs. 3) N/A 4) N/A 5) N/A 6) N/A 7) N/A 8) N/A 9) 7/9 of the amount paid in taxes.

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	8) Bus and taxi motor fuel tax refunds (H)		for the fluidized bed combustion unit. 7) Exemption from the motor fuels tax for liquefied petroleum gas motor fuel if the carburation systems have been approved as environmentally friendly. 8) Buses and taxis are entitled to a partial refund of their motor fuel taxes	
LOUISIANA	1) Pollution control devices exemption from sales & use taxes (A) 2) Hazardous waste disposal tax exemption for remediation of hazardous waste. (B) 3) Alternative-fuel vehicles tax credit (F) 4) Recycling equipment credit (C)	1) L.R.S. 47:301(10)(L) and 47:6005 2) L.R.S. 47:822 3) L.R.S. 287 757 4) L.R.S. 47:6005	1) Qualified pollution control devices are exempt from sales and use taxes. 2) Remediation of hazardous waste is exempt from the hazardous waste disposal and storage tax. 3) Credit for investment in qualified clean-fuel- burning property, such as clean-burning automobiles. 4) Credit for investing in recycling equipment.	1) N/A 2) N/A 3) Credit for 20% of 10% the total cost of property or \$1,500, whichever is lower. 4) Credit for 20% of recycling equipment costs, less any other credits that are claimed.
MAINE	1) Water and air pollution control facilities sales tax exemption (A) 2) Property tax exemption for air or water pollution control facilities (A) 3) Solid waste reduction investment tax credit against income tax (B) 4) Forest Management Planning Income Credit (G) 5) Farm and Open Space Tax Law (G) 6) Alternative forestland property valuation (G)	1) M.R.S.A. tit. 36, sect. 1760.29-30 2) M.R.S.A. tit. 36, sects. 655(1)(N), 656(1)(e) 3) M.R.S.A. tit. 36, sect. 5219-D 4) M.R.S.A. tit. 36, sect. 5219-C 5) M.R.S.A. tit. 36, sect. 1108 & 1106-A 6) M.R.S.A. tit. 36, sect. 574-B	1) Sale of any water pollution control facility or air pollution control facility is exempt from the sales tax. 2) Air and water pollution control facilities are exempt from the property tax. 3) Income tax credit for any waste reduction, reuse, or recycling equipment used exclusively in the implementation of a solid waste program. 4) Once every 10 years, an individual is allowed a credit against the tax otherwise due. 5) Farmlands and open- space land valued based on current use. 6) Taxpayer may elect to value forestland with an approved management and harvest plan based on the present value of sustainable wood yield.	1) N/A 2) N/A 3) Taxpayer may choose one of the following credits: a) The credit allowed for equipment used to manage the taxpayer's own waste is 25% of the total original basis of the equipment for federal income tax purposes after adjustments (investment credit base). b) The credit allowed for equipment used to manage the collection and processing of waste generated by parties other than the taxpayer is 20% of the investment credit base of the equipment. c) The credit allowed for equipment used to convert waste into a feedstock that can substitute for virgin materials in a manufacturing process is 30% of the investment credit base of the equipment. 4) The leaser of \$200 or the individual's cost for having a forest management and harvest plan developed for a parcel of forest land greater than 10 acres. 5) After a 100% valuation of the land is made each municipal assessor shall adjust the assessment per acre for farmland for their jurisdiction by whatever ratio is then being applied. 6) N/A
MARYLAND	Clean-burning fuel machinery and equipment sales and use tax exemption (F)	Maryland rev. stat. sect. 11-226	Clean-burning-fuel machinery and equipment for motor vehicles is exempt from sales and use taxes	N/A

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
MASSACHUSETTS	<p>1) Alternative energy patent individual income deduction (D)</p> <p>2) Alternative energy corporate excise tax deductions (D)</p> <p>3) Alternative energy patent exclusion from corporate income tax (D)</p> <p>4) Residential renewable energy system personal income tax credit for active and passive solar, wind, etc. (D)</p> <p>5) Property tax exemption for active and passive solar and wind systems (D)</p> <p>6) Alternative energy sources sales tax exemption (D)</p> <p>7) Alternative energy patent exclusion from personal income tax (D)</p> <p>8) Corporate income excise tax credit for vanpool expenses (H)</p> <p>9) Vehicle-registration fee exemption for corporate vanpool vehicles (H)</p> <p>10) Property tax exemption for air, water, and industrial waste pollution control facilities (A)</p> <p>11) Current Use Assessment for forest, farm, and recreational land (G)</p>	<p>1) M.G.L. ch. 62, 2(a)(2)(G)</p> <p>2) M.G.L. ch. 63, sect. 38H</p> <p>3) M.G.L. ch. 63, sect. 30.3</p> <p>4) M.G.L. ch. 62, sect. 6(d)</p> <p>5) M.G.L. ch. 59, 5(45)</p> <p>6) M.G.L. ch. 64H, sect. 6(dd)</p> <p>7) M.G.L. ch. 62, sect. 2(a)(2)(G)</p> <p>8) M.G.L. ch. 63, sect. 31E</p> <p>9) M.G.L. ch. 63, 31F</p> <p>10) M.G.L. ch. 59, 4 cl. 44</p> <p>11) M.G.L. chs. 59, 61, 61A, 61B</p>	<p>1) Any income received from an approved patent shall be deducted from personal income tax.</p> <p>2) There is a deduction from net income for solar and wind power expenditures for corporate excise tax purposes.</p> <p>3) There is an exclusion for income from conservation/alternate energy patents for corporate excise tax purposes.</p> <p>4) Personal income tax credit for active and passive solar or wind energy equipment properly used in the principal residence.</p> <p>5) Passive solar and wind systems are exempt from the state property tax.</p> <p>6) Sales tax exemption for solar power, wind power, and heat pump equipment.</p> <p>7) There is an exclusion for income from energy conservation/alternative energy patents for personal income tax purposes.</p> <p>8) Excise tax credit against the costs incurred for the purchase of company shuttle vans</p> <p>9) Corporate vanpool vehicles are exempt from the state vehicle- registration fee.</p> <p>10) Air, water, and industrial waste pollution control facilities are exempt from the state property tax.</p> <p>11) Assessed property value is based on current rather than highest and best use for forest, farm, and recreational land for property tax purposes</p>	<p>1) Income received from patent</p> <p>2) Cost of expenditures</p> <p>3) N/A</p> <p>4) The lesser of 15% of costs or \$1,000</p> <p>5) N/A</p> <p>6) N/A</p> <p>7) N/A</p> <p>8) 30% of the costs</p> <p>9) N/A</p> <p>10) N/A</p> <p>11) N/A</p>
MICHIGAN	<p>1) Farmland and open space preservation credit (G)</p> <p>2) Air and water pollution control equipment real & personal property tax exemptions (A)</p> <p>3) Air and water pollution control equipment sales & use property tax exemptions (A)</p>	<p>1) M.C.L. 554.710</p> <p>2) M.C.L. 5903(1), 3704(1)</p> <p>3) M.C.L. 5903(2), 3704(2)</p>	<p>1) Income tax credits for owners of farmland who agree not to develop their land. It is determined using the property tax on land and the structures used in the farming operation, including the homestead, restricted by development rights</p> <p>2) Air and water pollution control equipment exempt from real & personal property taxes</p> <p>3) Air and water pollution control equipment exempt from sales and use tax</p>	<p>1) A credit against state income tax liability for the amount by which these property taxes exceed 7% of the household income</p> <p>2) N/A</p> <p>3) N/A</p>
MINNESOTA	<p>1) Pollution control facilities property tax exemption (A)</p> <p>2) Solid waste recycling sales and use exemption (C)</p>	<p>1) Minn. Stat. sect. 272.02</p> <p>2) Minn. Stat. sect. 297A.25</p>	<p>1) Pollution control facilities are exempt from state property tax</p> <p>2) Construction materials are exempt from sales and use tax if they are used to construct a new facility that reduces the flow of solid</p>	<p>1) N/A</p> <p>2) N/A</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			waste	
MISSISSIPPI	Alternative 5-year amortization for environmental control facilities (A)	Miss. Code Ann. 27-7-17	Taxpayer may elect 60-month amortization of pollution or environmental control facilities	N/A
MISSOURI	Air and water pollution control sales and use tax exemptions (A)	R.S. Mo. sect. 144.030.2(14) and (15)	Sales and use tax exemption for machinery, equipment, appliances, and devices purchased or leased and used for the purpose of preventing, abating, or monitoring air or water pollution.	N/A
MONTANA	<p>1) Reclaimable material income tax credit (C)</p> <p>2) Residential energy conservation investments personal income tax deduction (E)</p> <p>3) Residential energy-conserving expenditures personal income tax credit (E)</p> <p>4) Residential geothermal system installation personal income tax credit (D)</p> <p>5) Residential nonfossil energy generation personal income tax credit (D)</p> <p>6) Wind energy generation system income tax credit (D)</p> <p>7) Pollution control facilities pay a lower assessed value (A)</p>	<p>1) M.C.A. sect. 15-32-601 through 15-32-611</p> <p>2) M.C.A. sect. 15-32-103 and 15-32-107</p> <p>3) M.C.A. sect. 15-32-109</p> <p>4) M.C.A. sect. 15-32-115</p> <p>5) M.C.A. sect. 15-32-201</p> <p>6) M.C.A. sect. 15-32-401</p> <p>7) M.C.A. sect. 15-6-135</p>	<p>1) a) Credit against individual income taxes and/or corporate income or license tax for the equipment used to collect and process reclaimable material.</p> <p>b) Deduction for taxpayers who purchase a product made from reclaimed materials.</p> <p>2) a) Deduction from income for energy conservation investment in residence.</p> <p>b) Deduction from income for energy conservation investment in building other than residence.</p> <p>c) Tax credit to banks or utilities that provide low- interest loans for the installation of energy conservation materials.</p> <p>3) a) Credit for individuals against income tax liability for energy-conserving expenditures in their residence.</p> <p>b) Credit for the expenditures in a building other than a residence.</p> <p>4) Tax credit against income tax liability for individuals who install a geothermal system in their residence.</p> <p>5) a) Credit for installation of energy system using low-emission wood or biomass combustion device defined in 15-32-102(6)(a) against individual income tax liability.</p> <p>b) Credit for installation of an energy system using low emission wood or biomass combustion devices defined in 15-32- 102(6)(b).</p> <p>6) Credit for investments of \$5,000 or more for systems that generate wind power against individual income taxes and/or corporate income or license taxes.</p> <p>7) Qualifying pollution reduction facilities pay a property tax rate lower than most business property.</p>	<p>1) a) 25% of the cost of the equipment.</p> <p>b) 5% of the cost of the product.</p> <p>2) a) 100% of the first \$1,000, 50% of the next \$1,000, 25% of the next \$1,000, and 10% of the next \$1,000.</p> <p>b) 100% of the first \$2,000 expended, 50% of the next \$2,000, 25% of the next \$2,000, and 10% of the next \$2,000.</p> <p>c) Credit in the amount of the difference between the interest received from the low loan rate given and the interest that would have been received at the prevailing average interest rate.</p> <p>3) a) The lesser of \$150 or 5% of the expenditures.</p> <p>b) The lesser of \$300 or 5% of the expenditures.</p> <p>4) For installation costs up to \$250 per year for 4 years.</p> <p>5) a) 20% of the first \$1,000 and 10% of the next \$3,000.</p> <p>b) 10% of the first \$1,000 and 5% of the next \$3,000.</p> <p>6) 35% of the eligible costs.</p> <p>7) 3%</p>
NEBRASKA	Air or water pollution control facility sales tax refund (A)	N.R.S. sect. 77-27,149 to 77-	A refund is provided for sales or use tax paid on materials	N/A

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
		27,155	incorporated into an air or water pollution control facility	
NEWHAMPSHIRE	<p>1) Property tax exemption for air and water pollution control facilities (A)</p> <p>2) Current Use Assessment (G)</p>	<p>1) N.H. Rev. Stat. Ann. sect. 72:12-1</p> <p>2) N.H. Rev. Stat Ann. sects. 75:1-19, sect. 79-A:1 et seq.</p>	<p>1) Air and water pollution control facilities are exempt from the state property tax</p> <p>2) Assessed property value is based on current rather than highest and best use for open space, farmland, forestland, wetlands, recreational land, floodplain, wild land, and other unproductive land</p>	<p>1) N/A</p> <p>2) N/A</p>
NEWJERSEY	<p>1) Recycling equipment and solar energy devices sales tax exemption (C)</p> <p>2) Recycling equipment corporate income tax credit (C)</p> <p>3) Air or water pollution equipment property tax exemption (A)</p> <p>4) Corporate business tax credit for expenses for commuter transportation benefits (H)</p> <p>5) Personal income tax exclusions for employer-provided commuter mass-transit benefits (H)</p> <p>6) Current Use Valuation (G)</p> <p>7) Green Acres Exemption Law (property tax exemption for land devoted to conservation or recreation) (G)</p>	<p>1) N.J.S.A. 54:32B-8.36 and 54:10A-5.3</p> <p>2) N.J.S.A. 54:10A-5.3</p> <p>3) N.J.S.A. 54:4-3.56</p> <p>4) N.J.S.A. 27:26A-15</p> <p>5) N.J.S.A. 54A:6-23</p> <p>6) N.J.S.A. 54:4-23.2</p> <p>7) N.J.S.A. 54:4-3.60 et. seq.</p>	<p>1) Sales tax exemption for recycling equipment and solar energy devices.</p> <p>2) Corporation business tax credit for the purchase of recycling equipment.</p> <p>3) Property tax exemption for air or water pollution equipment.</p> <p>4) Employers are allowed a credit against the corporation business tax for commuter transportation benefits provided to the employees.</p> <p>5) Gross (personal) income tax exclusion for employer-provided commuter transportation benefits.</p> <p>6) Limits the value of land for property tax purposes which has been actively devoted to agricultural or horticulture use for at least 2 years to current use value.</p> <p>7) Property tax exemption for land used exclusively for conservation or recreation purposes.</p>	<p>1) N/A</p> <p>2) Credit is 50% of the cost of the equipment less the amount of any loan received.</p> <p>3) N/A</p> <p>4) 5% of the cost of commuter transportation benefits.</p> <p>5) N/A</p> <p>6) N/A</p> <p>7) N/A</p>
NEVADA	Air and water pollution control facilities exempt from property tax (A)	Nev. Rev. Stat. sect. 361.077	Air and water pollution control facilities are not subjected to state property tax	N/A
NEWMEXICO	<p>1) Income tax investment credit for recycling facilities (C)</p> <p>2) Flat tax for LPG/CNG vehicles (F)</p>	<p>1) N.M.S. sect. 7-9A-1 through 7-9A-9</p> <p>2) N.M.S. 7-16A-7</p>	<p>1) Cost of manufacturing facilities processing recyclable materials.</p> <p>2) Owners of LPG/CNG vehicles that do not weigh over 26,000 pounds can pay an annual flat tax rather than the gasoline tax.</p>	<p>1) 5%</p> <p>2) a) \$75 for vehicles 8,000 pounds or less.</p> <p>b) \$150 for vehicles from 8,001 pounds to 16,000 pounds.</p> <p>c) \$375 for vehicles from 16,001 pounds to 26,000 pounds.</p>
NEWYORK	<p>1) Pollution control investment personal income tax credit (A)</p> <p>2) Pollution control investment and retail enterprise franchise tax credit (A)</p> <p>3) Property tax exemption for air and water pollution control facilities (A)</p> <p>4) Alternative-fuel vehicles and conversion sales tax</p>	<p>1) N.Y. Tax law sect. 606(a)2A</p> <p>2) N.Y. Tax law sect. 210(12)(b)</p> <p>3) N.Y. Real Prop. Tax Law 477-477a</p> <p>4) N.Y. Tax Law sect. 1115(p)</p> <p>5) N.Y. Real Prop. Tax Law</p>	<p>1) Investment tax credit for property used for pollution control purposes and waste treatment facilities.</p> <p>2) Investment tax credit for the construction, reconstruction, erection, or improvement of pollution control, waste treatment, and acid rain facilities.</p> <p>3) Exemption from property taxes for air pollution control facilities and industrial waste treatment</p>	<p>1) 4% of the cost of the property or 7% of the cost if the property is used for research and development.</p> <p>2) 5% with respect to the first \$350 million of the cost of the property less the amount of the nonqualified resource financing to the extent that the financing would be excludable from the credit base; 4% to any amount over \$350 million, 9% for any property used for research and</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	<p>exemption (F)</p> <p>5) Property tax exemption for appreciated value of real property due to solar or wind systems (D)</p> <p>6) Current Use Assessment for forest and farmland (G)</p>	<p>sect. 487</p> <p>6) N.Y. Real Prop. Tax Law 480-a; N.Y. Agric. & Mkts. Law 304-a, 305</p>	<p>facilities.</p> <p>4) Exemption for portion of receipts from the retail sales of new alternative-fuel vehicles that is attributable to the incremental cost of such vehicles.</p> <p>5) Real property that includes a solar or wind energy system shall be exempt from taxation to the extent of any increase in the value of the property due to the inclusion of such systems.</p> <p>6) Assessed property value is based on current rather than highest and best use for forest and farm land for purposes of the state property tax.</p>	<p>development.</p> <p>3) N/A</p> <p>4) N/A</p> <p>5) N/A</p> <p>6) Forestland is exempted for up to 80% of its value, or the difference between the latest state equalization rate and the assessed value multiplied by \$40 per acre.</p>
NORTH CAROLINA	<p>1) Air cleaning devices, waste treatment facilities, and recycling facilities corporate income tax deductions (A)</p> <p>2) Air and water pollution property tax exemptions (A)</p> <p>3) Corporate income tax deduction for recycling plants, facilities, and/or equipment (C)</p> <p>4) Corporate income tax deduction for reforestation (G)</p>	<p>1) N.C.G.S. sect. 105-130.10</p> <p>2) N.C.G.S. sect. 105-275</p> <p>3) N.C.G.S. sect. 105-130.5(6)</p> <p>4) N.C.G.S. sect. 105-130.5(12)</p>	<p>1) In lieu of depreciation, corporations can make deductions for the amortization over 60 months of air cleaning devices, waste treatment facilities, and recycling facilities.</p> <p>2) Property used for air cleaning or waste disposal or to abate, reduce, or prevent the pollution of air or water is excluded from the tax base.</p> <p>3) Amortization in excess of depreciation allowed under the state tax code on the cost of any sewage or waste treatment plant, facilities or equipment used for purposes of recycling or resource recovery of or from solid waste, or for purposes of reducing the volume of hazardous waste.</p> <p>4) Deduction of reasonable expenses in excess of that provided under the state tax code, paid for reforestation and cultivation of commercially grown trees. The deduction is allowed only for corporations in which the owners are natural persons actively engaged in commercial growing of trees.</p>	<p>1) N/A</p> <p>2) N/A</p> <p>3) N/A</p> <p>4) N/A</p>
NORTH DAKOTA	<p>1) Pollution abatement installations property tax exemption (A)</p> <p>2) Recycling equipment sales & use tax exemption (C)</p> <p>3) Corporate income tax credits and property tax exemption for geothermal, solar, or wind energy systems (D)</p> <p>4) Alternative-fuel research corporate income tax credit (D)</p> <p>5) Alternative-fuel vehicle conversion equipment income tax credit (F)</p>	<p>1) N.D.C.C. sect. 57-02-08</p> <p>2) N.D.C.C. sect. 57-39.2-04.3</p> <p>3) a) N.D.C.C. sect. 57-38-01-.8</p> <p>b) N.D.C.C. sect. 57-02-08</p> <p>4) N.D.C.C. sect. 57-38-30.4</p> <p>5) N.D.C.C. sect. 57-38-29</p>	<p>1) Property tax exemption for value added by pollution abatement installations.</p> <p>2) Sales tax exemption for recycling machinery and equipment in new or expanding recycling facilities.</p> <p>3) a) Corporate income tax credit for installation of geothermal, solar, or wind energy devices.</p> <p>b) Five-year property tax exemption for value added by solar, geothermal or wind energy devices.</p> <p>4) Corporate income tax credit for alternate fuel research.</p> <p>5) Corporate income tax credit for alternative fuel motor vehicle conversion equipment.</p>	<p>1) N/A</p> <p>2) N/A</p> <p>3) a) 5% of costs.</p> <p>b) N/A</p> <p>4) 8% of the first \$1.5 million of qualified research expenses for the taxable year in excess of the base period research expenses. 4% of all qualified research expenses more than \$1.5 million in excess of base period research expenses.</p> <p>5) 10% of the cost up to a maximum of \$200 or \$500 depending on gross vehicle weight.</p>
OHIO	<p>1) Pollution control</p>	<p>1) O.R.C. sect.</p>	<p>1) Pollution control equipment is</p>	<p>1) N/A</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	<p>equipment property exclusion for franchise tax income allocation (A)</p> <p>2) Air & noise pollution control equipment tangible property tax exemption (A)</p> <p>3) Air & water pollution control equipment real property tax exemption (A)</p> <p>4) Air & water pollution control equipment corporate franchise tax exemption (A)</p> <p>5) Air & water pollution control equipment sales & use tax exemption (A)</p>	<p>5733.05</p> <p>2) O.R.C. sect. 5709.25</p> <p>3) O.R.C. sect. 5709.25</p> <p>4) O.R.C. sect. 5709.25</p> <p>5) O.R.C. sect. 5709.25</p>	<p>excluded from instate property for purposes of formula allocation of national income for the corporate franchise tax, and sales and use tax.</p> <p>2) Pollution control equipment is exempted from tangible property tax</p> <p>3) Pollution control equipment exempted from real property tax</p> <p>4) Pollution control equipment exempted from franchise tax</p> <p>5) Pollution control equipment exempted from sales & use tax</p>	<p>2) N/A</p> <p>3) N/A</p> <p>4) N/A</p> <p>5) N/A</p>
OKLAHOMA	<p>1) Wind & photovoltaic income tax credit (D)</p> <p>2) Recycling facility income tax credit (C)</p> <p>3) Clean fuel & electric motor vehicle income tax credit (F)</p> <p>4) Alcohol motor fuels tax exemption (F)</p> <p>5) Energy conservation contribution income tax credit (E)</p>	<p>1) Okla. Stat. Tit. 68. sect. 2357.32</p> <p>2) Okla. Stat. Tit. 68. sect. 2357.59</p> <p>3) Okla. Stat. Tit. 68. sect. 2357.22</p> <p>4) Okla. Stat. Tit. 68. sect. 1359</p> <p>5) Okla. Stat. Tit. 68. sect. 2357.6</p>	<p>1) a) The cost of equipment construction and installation of a wind or photovoltaic system installed on residential property, excluding rebates and similar payments</p> <p>b) The cost of equipment construction and installation of a wind or photovoltaic system installed on nonresidential property, excluding rebates and similar payments. For both the residential and nonresidential credit, systems must be certified and must carry at least a three-year warranty.</p> <p>2) Investment cost of a recycling facility, including land, buildings, and equipment. A qualified facility must: (1) produce a product 90% of which consists of recycled materials; (2) cost at least \$20,000 and employ at least 75 people; (3) construction must have begun before Jan. 1, 2000.</p> <p>3) The cost of (a) equipment to modify a vehicle to run on methanol or 85% methanol blends, natural gas, or 50% natural gas blends; LNG or LPG; or for a new vehicle running on these fuels, the cost of the storage, fuel delivery & exhaust systems. The cost of electric vehicles "attributable to the propulsion of the vehicle by electricity." The cost of fueling station equipment used exclusively for these fuels.</p> <p>b) If no credit claimed under (a), the total value of a motor vehicle equipped with one of these fuel systems.</p> <p>4) Alcohol sold and used for blending with taxed motor fuels exempt from motor fuel tax</p> <p>5) Personal or corporate contributions to the state Energy Conservation Assistance Fund.</p>	<p>1.a) for 1993-94, 40%; for 1995 and subsequent, 30%, but not to exceed \$25,000</p> <p>b) for 1993-94, 30%; for 1995 and subsequent, 20%, but not to exceed \$150,000</p> <p>2) 15%</p> <p>3) a) 50%</p> <p>b) the lesser of 10% or \$1,500</p> <p>4) N/A</p> <p>5) 50%</p>
OREGON	1) Pollution control facility	1) O.R.S. sect.	1) Income tax credit for pollution	1) The lesser of tax liability of the

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	credit (A) 2) Plastics recycling credit (C) 3) Energy conservation facilities credit (E) 4) Geothermal heating system credit (D) 5) Alternative energy device credit (D) 6) Fish habitat improvement credit (G) 7) Fish screening credit (G) 8) Qualified research activities credit (E) 9) Business energy tax credit for alternative-fuel vehicles and fueling stations, vanpool vans, and telecommuting equipment (F) 10) Riparian habitat property tax exemption (G)	315.304 2) O.R.S. sect. 315.324 3) O.R.S. sect. 315.354 4) O.R.S. sect. 316.086 5) O.R.S. sect. 316.116 6) O.R.S. sect. 315.134 7) O.R.S. sect. 315.138 8) O.R.S. sect. 317.152 9) O.R.S. sect. 469.185-469.225 10) O.R.S. sect. 308.793	control facilities. 2) Income tax credit for plastics recycling. 3) Income tax credit for energy conservation facilities. 4) Income tax credit for geothermal heating systems. 5) Income tax credit for alternative energy devices. 6) Income tax credit for fish habitat improvement. 7) Income tax credit for fish screening. 8) Income tax credit for qualified research activities. 9) Tax credit on the Oregon business income tax for alternative- fuel vehicles for fleets, for alternative-fuel fueling stations, for vans used for vanpools, and for telecommuting equipment. 10) For the protection of the soil, water, fish and wildlife resources, riparian lands are exempt from property taxes.	taxpayer or 1/2 of the certified cost of the facility multiplied by the certified percentage allocable to pollution control, divided by the number of years of the facility's useful life. 2) For five years, the lesser of the tax liability or 10% of the certified cost of taxpayer's investment. 3) First two years, 10% of the certified cost of the facility not to exceed the taxpayer liability, and the next three years, 5% of the certified cost not to exceed taxpayer liability, and the next three years 5% of the certified cost not to exceed the taxpayer liability; total not to exceed 35% of the certified cost of the facility. 4) The lesser of 25% of the actual cost of connecting to geothermal heating systems or \$1,000. 5) a) For residences, the lesser of \$1,500 or the first-year energy yield in kilowatt hours per year multiplied by 60 cents per dwelling. b) For pools, spas, and hot tubs, the lesser of 50% of the cost of the device or the first year's energy yield in kilowatt hours per year multiplied by 15 cents up to \$1,500. 6) 25% of the certified cost of the fish habitat improvement project. 7) 50% of the net certified costs of installing a fish screening device, bypass device or fishway not to exceed \$5,000 per device. 8) 5% credit against taxes otherwise due. 9) 35% tax credit. 10) N/A
PENNSYLVANIA	1) Pollution control franchise tax exemption (A) 2) Zero-emission vehicles sales and use tax credit (F)	1) 72 P.S. sect. 7602.1 2) 72 P.S. sect. 7204	1) An exemption for tangible property used for pollution control or abatement is available under the capital stock/franchise tax. 2) Exemption of zero- emission vehicles from sales and use tax to the extent that the purchase price of such vehicles is higher than the average retail price of comparable combustion-engine vehicles.	1) N/A 2) N/A
RHODEISLAND	1) Air and water pollution control equipment sales and use tax exemption (A) 2) Air and water pollution control facilities property tax exemption (A) 3) Hazardous waste recycling facility property tax exemption (C)	1) R.I.G.L. sect. 44-18-30 2) R.I.G.L. sect. 44-3-3(21) 3) R.I.G.L. sect. 44-3-3(26) 4) R.I.G.L. sect. 44-3-3(24)	1) Sales and use tax exemption for air and water pollution control equipment for incorporation into or use and consumed directly in the operation of a facility 2) Air and water pollution control facilities are exempt from the state property tax 3) Hazardous waste recycling	1) N/A 2) N/A 3) N/A 4) N/A 5) N/A 6) N/A

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	<p>4) Property tax exemption for solar, wind, and cogeneration systems (D)</p> <p>5) Current Use Assessment (G)</p> <p>6) Property tax exemption for tree plantations (G)</p>	<p>5) R.I.G.L. sects. 44-5-12, -39 & 44-27-1 to -13</p> <p>6) R.I.G.L. sect. 44-3-8</p>	<p>facilities are exempt from the state property tax</p> <p>4) Solar, wind, and cogeneration systems are exempt from the state property tax</p> <p>5) Assessed property value is based on current rather than highest and best use for farm, open space, and forestland</p> <p>6) Tree plantations are exempt from the state property tax</p>	
SOUTH CAROLINA	<p>1) Pollution control equipment property, sales, and use tax exemptions (A)</p> <p>2) Recycling property sales & use tax exemption (C)</p>	<p>1) S.C.C.A. sect. 12-37-220</p> <p>2) S.C.C.A. sect. 12-36-2120</p>	<p>1) There is a property tax exemption and a sales or use tax exemption for pollution control equipment.</p> <p>2) Qualified recycling equipment is exempt from the state sales tax.</p>	<p>1) N/A</p> <p>2) N/A</p>
SOUTH DAKOTA	<p>1) Renewable resource energy property tax system credit (D)</p> <p>2) Lower fuel tax on alternative fuels (F)</p>	<p>1) S.D.C.L. sect. 10-6-35.12 and 10-6-35.13</p> <p>2) S.D.C.L. 0-47A-57</p>	<p>1) An owner of any real property is entitled to a property tax assessment credit if the owner attaches or includes a renewable resource energy system as a part of an improvement to real property for either residential or commercial applications.</p> <p>2) Tax on alternative fuels (E-85, E-95, and CNG) and ethanol is lower than gasoline tax.</p>	<p>1) a) Residential application: Sum equal to the assessed value of the property with the system minus the assessed value without the system.</p> <p>b) Commercial application 50% of the actual installed cost of the system.</p> <p>2) 6 cents per gallon for alternative fuels and 16 cents per gallon of ethanol. These taxes are lower than those imposed on petroleum and diesel gasoline.</p>
TENNESSEE	<p>1) Special valuation for pollution control equipment for ad valorem tax purposes (A)</p> <p>2) Pollution control facilities sales and use tax exemption (A)</p> <p>3) Air or water pollution control supplies sales and use tax exemption (A)</p> <p>4) Pollution control sales or use tax credit for income tax purposes (A)</p> <p>5) Pollution control equipment franchise tax exemption (A)</p>	<p>1) T.C.A. sect. 67-5-604</p> <p>2) T.C.A. sect. 67-6-102(12)(iv)</p> <p>3) T.C.A. sect. 67-6-329(a)(24)</p> <p>4) T.C.A. sect. 67-6-346</p> <p>5) T.C.A. sect. 67-4-906</p>	<p>1) Pollution control equipment shall, for the purpose of ad valorem taxation, receive a special value.</p> <p>2) Air, water, and toxic waste pollution control facilities are included in the industrial machinery exemption.</p> <p>3) Chemicals and supplies used in air or water pollution control are exempt</p> <p>4) There is a credit of the sales and use tax paid with respect to any pollution control to come into compliance with federal, state, or local law or regulation.</p> <p>5) Pollution control equipment is exempt from the franchise tax.</p>	<p>1) The value is the salvage value, not to exceed 5% of the cost.</p> <p>2) N/A</p> <p>3) N/A</p> <p>4) 100% credit of the sales and use tax.</p> <p>5) N/A</p>
TEXAS	<p>1) Solar energy corporate franchise tax exemption (D)</p> <p>2) Pollution control equipment sales & use tax exemption (A)</p>	<p>1) Tex. Tax Code sect. 171.056 and 171.107</p> <p>2) Tex. Tax Code sect. 151.318</p>	<p>1) Franchise tax exemption for solar energy.</p> <p>2) Manufacturing sales tax exemption on pollution control equipment</p>	<p>1) N/A</p> <p>2) N/A</p>
UTAH	<p>1) Pollution control equipment sales & use tax exemption (A)</p> <p>2) Energy systems income tax credit for active or passive solar, wind, and hydro systems installed in residential or commercial units (D)</p>	<p>1) U.C.A. sect. 59-12- 104(11)</p> <p>2) U.C.A. 59-10-601-602</p> <p>3) U.C.A. sect. 59-13-304(2)</p> <p>4) U.C.A. sect.</p>	<p>1) There is a sales tax exemption on pollution control equipment.</p> <p>2) Income tax credit for a taxpayer who purchases and completes or participates in the financing of a residential energy system to supply all or part of the energy to the residential unit.</p>	<p>1) N/A</p> <p>2) 25% of the costs of the energy system, including installation costs, up to \$1,500.</p> <p>3) \$36 per year for vehicles 733,000 pounds or less and \$70 per year for any vehicle over 733,000 pounds.</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	<p>3) Flat motor-fuel tax rate for nongasoline/clean-diesel-fueled vehicles (F)</p> <p>4) Cleaner-burning-fuel sales tax credit (F)</p>	59-7-605(2)	<p>3) Flat tax for nongasoline/clean-diesel-fueled vehicles rather than the 19-cents-per-gallon motor fuel tax rate.</p> <p>4) Credit against the Gross Receipts Tax against the purchase of a new motor vehicle that is fueled by propane, compressed natural gas, or electricity.</p>	4) 20% up to a maximum of \$500 per vehicle.
VERMONT	<p>1) (a) Property tax exemption for air pollution control facilities (b) Property tax exemption for water pollution control facilities (A)</p> <p>2) Current Use Assessment (G)</p> <p>3) Working farm tax abatement program (G)</p>	<p>1) (a) Vt. Stat. Ann. tit. 10, sect. 570 (b) Vt. Stat. Ann. tit. 32 sec. 3802</p> <p>2) Vt. Stat. Ann. tit. 32 sec. 3751-3763</p> <p>3) Vt. Stat. Ann. tit. 32 sects. 3764-3775</p>	<p>1) (a) Approved air pollution treatment facilities shall be exempted from real and personal property taxation (b) Facilities exclusively installed and operated for the abatement of water pollution are exempted from real and personal property taxes</p> <p>2) Assessed property value is based on current rather than highest and best use for qualifying forest and farmlands</p> <p>3) farms that qualify are exempt from the property tax, except for that owed on land enrolled for municipal services</p>	<p>1)(a) N/A (b) N/A</p> <p>2) N/A</p> <p>3) N/A</p>
VIRGINIA	<p>1) Renewable energy income tax credit (D)</p> <p>2) Recycling income tax credit (C)</p> <p>3) Pollution control equipment sales and use tax exemption (A)</p> <p>4) Manufacturing sales and use tax exemption (C)</p> <p>5) Mining reclamation sales and use tax exemption (G)</p> <p>6) Conservation sales and use tax exemption (E)</p> <p>7) Ecological exemption from the sales and use tax (G)</p> <p>8) Clean-fuel-vehicle corporate income tax credit for purchase of such vehicles and installation or purchase of refueling stations (F)</p> <p>9) Conservation tillage equipment income tax credit for such equipment used in agricultural production (G)</p> <p>10) Advanced technology pesticide and fertilizer income tax credit for technologies that reduce the amounts of pesticide and fertilizer needed in agricultural production (G)</p>	<p>1) V.C.A. sect. 58.1-431</p> <p>2) V.C.A. sect. 58.1-338 and 58.1-445.1</p> <p>3) V.C.A. sect. 58.1-609.3(1)</p> <p>4) V.C.A. sect. 58.1-609.3(b)</p> <p>5) V.C.A. sect. 58.1-609.3(b)</p> <p>6) V.C.A. sect. 58.1-609.8(x)</p> <p>7) V.C.A. sect. 58.1-609.9(i)</p> <p>8) V.C.A. sect. 58.1-438.1</p> <p>9) V.C.A. sect. 58.1-432</p> <p>10) V.C.A. sect. 58.1-436</p>	<p>1) An income tax credit is available for a portion of renewable energy source expenditures.</p> <p>2) An income tax credit for machinery and equipment used to manufacture, process, compound, or produce items of tangible personal property from recyclable materials for sale.</p> <p>3) An exemption from the retail sales and use tax for equipment and facilities, for the purpose of abating, preventing, or controlling water or atmospheric pollution or contamination.</p> <p>4) An exemption from the retail sales and use tax for machinery, equipment and power used by industrial recyclers.</p> <p>5) An exemption from the retail sales and use tax for tangible personal property used in the restoration and conversion of mined land.</p> <p>6) An exemption from the retail sales and use tax available to nonprofit organizations organized for the purpose of promoting and supporting conservation and environmental issues.</p> <p>7) An exemption from the retail sales and use tax available to organizations devoted to preserving ecologically significant areas in order to safeguard endangered species and natural habitats.</p> <p>8) Corporate income tax credit for the purchase of clean-fuel vehicles and certain refueling</p>	<p>1) 20% of the expenditures not to exceed \$1,000 for a renewable energy source expenditure.</p> <p>2) 10% of the purchase price.</p> <p>3) N/A</p> <p>4) N/A</p> <p>5) N/A</p> <p>6) N/A</p> <p>7) N/A</p> <p>8) 10% of the deduction allowed for the purchase of alternative-fuel vehicles under sect. 179A of the IRC.</p> <p>9) 25% of the expenditures not to exceed \$2,500.</p> <p>10) 25% of expenditures not to exceed \$3,750.</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
			<p>properties.</p> <p>9) Income tax credit based on expenditures for the purchase of conservation tillage equipment used in agriculture production.</p> <p>10) Income tax credit based on expenditures for the purchase of equipment that has been certified to provide more precise pesticide and fertilizer application.</p>	
WASHINGTON	<p>1) Pollution control facility public utility and income tax credits (A)</p> <p>2) Utility tax deduction for cogeneration facilities and renewable energy resources (D)</p> <p>3) Cogeneration facility sales tax exemption (D)</p> <p>4) Commuter ride-sharing program business and occupation tax credit (H)</p> <p>5) Ride-sharing vehicles motor vehicle excise tax exemption (H)</p> <p>6) Ride-sharing vehicles sales and use tax exemption (H)</p> <p>7) Motor vehicle fuel tax exemption for urban transportation systems (H)</p> <p>8) Public utility tax exemption for metropolitan municipal corporations' expenditures on mass transit (H)</p>	<p>1) R.C.W. sect. 82.12.020</p> <p>2) R.C.W. sect. 82.16.055</p> <p>3) R.C.W. sect. 82.60</p> <p>4) R.C.W. 82.04.4453 and 82.16.048</p> <p>5) R.C.W. 82.44.015</p> <p>6) R.C.W. 82.08.0287 and R.C.W. 82.12.0282</p> <p>7) R.C.W. 82.36.275 and R.C.W. 82.38.080</p> <p>8) R.C.W. 35.58.560</p>	<p>1) A credit against state business and occupation and public utility taxes for firms that invest in upgrading pollution control equipment. No new credits were allowed after 1981 but existing credits were allowed to remain.</p> <p>2) Public utility tax deduction for income derived from operation of cogeneration facilities and expenditures for renewable energy resources.</p> <p>3) Sales tax exemption for cost of construction of cogeneration facilities located in economically depressed areas.</p> <p>4) Payments to employees for participating in commuter ride-sharing programs.</p> <p>5) Exemption from motor vehicle excise tax for ride-sharing programs.</p> <p>6) Exemption from retail sales and use tax for ride-sharing programs.</p> <p>7) Motor vehicle fuel tax exemption for urban transportation systems.</p> <p>8) This is a credit to offset any amount of public utility tax imposed for metropolitan municipal corporation expenditures on transit.</p>	<p>1) 2% of the cost of the facility the first year and it is cumulative for each year after. It may not go above 50% of the yearly tax or 50% of the cost of the facility.</p> <p>2) Full deduction for income derived from operation of cogeneration facilities and expenditures for renewable resources. Costs may be deducted for up to 30 years.</p> <p>3) N/A</p> <p>4) Per employee, lesser of 50% of amount paid to employee or \$60</p> <p>5) N/A</p> <p>6) N/A</p> <p>7) N/A</p> <p>8) 100% of tax</p>
WEST VIRGINIA	<p>1) alternative-fuel motor vehicles tax credit (F)</p> <p>2) Property tax breaks for pollution control facilities (A)</p> <p>3) Pollution control property and services sales & use tax exemption (A)</p>	<p>1) W.V.C. sect. 11-6D-5</p> <p>2) W.V.C. sect. 11-6A-3</p> <p>3) W.V.C. sect. 11-15-2</p>	<p>1) Credit against tax to encourage people to buy alternative- fueled vehicles.</p> <p>2) Pollution control facilities are taxed at the salvage value for purposes of real & personal property tax.</p> <p>3) Property or services used in "pollution control or environmental quality or protection activity"</p>	<p>1) Size of credit ranges from \$3,750 to \$50,000, depending on the size of the vehicle and the number of people it seats</p> <p>2) N/A</p> <p>3) N/A</p>
WISCONSIN	<p>1) Industrial waste treatment property tax exemption (A)</p> <p>2) Secondary containment structures property tax exemption (A)</p> <p>3) Waste treatment plant sales tax exemption (A)</p> <p>4) Waste reduction or recycling equipment property tax exemption (C)</p>	<p>1) Wis. Stat. s. 70.11(21)</p> <p>2) Wis. Stat. s. 70.11(15m)</p> <p>3) Wis. Stat. s. 77.54(26)</p> <p>4) Wis. Stat. s. 77.54(26m)</p> <p>5) Wis. Stat. s. 77.11</p>	<p>1) A property tax exemption for property purchased or constructed as a facility for the treatment of industrial wastes or air contaminants.</p> <p>2) A property tax exemption for secondary containment structures used to prevent the leakage of liquid fertilizer or pesticides.</p> <p>3) A sales tax exemption for sales of tangible personal</p>	<p>1) N/A</p> <p>2) N/A</p> <p>3) N/A</p> <p>4) N/A</p> <p>5) N/A</p> <p>6) 85 cents per acre for land open to public access and \$1.15 per acre for land closed to public access.</p>

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	5) Employer-provided transit passes and vanpooling vehicle personal income tax exclusions (H) 6) Wisconsin Managed Forest Law property tax exemption for forestland governed by a forest management plan (G) 7) Recycling vehicle gross receipts tax exemption (C)	6) Wis. Stat. s. 77.80, 77.91 7) Wis. Stat. Ann. 77.54	property that becomes part of a waste treatment plant qualifying for the property tax exemption or that becomes a part of a waste treatment facility of the state or any of its political subdivisions. This exemption also applies to replacement parts and to chemicals and supplies used in operation of a waste treatment facility. 4) A sales tax exemption for machinery and equipment, including parts, used exclusively and directly in waste reduction or recycling. 5) The value of employer-provided transit passes and vanpooling in an employer-provided vehicle are excluded from gross income to the same extent these are excluded from federal gross income. 6) Owners of 10 or more contiguous forest acres may enter into a 25- or 50-year forest management plan. This land is exempt from property taxation but must pay the municipality an annual acreage share which is computed at 5 year intervals. 7) Motor vehicles not licensed for highway use & used exclusively in operations to reduce, re-use, recycle, compost or recover energy from solid waste, including garbage, sludge, and agricultural & industrial waste.	7) N/A
WYOMING	Pollution control equipment property tax exemption (A)	W.S. 39-1-201(a) and W.S. 35-11-1103	Pollution control equipment is exempt from ad valorem taxes.	N/A
Key to alphabetic charges in the Short Description column: A) exemptions and cost recovery for air and water pollution control equipment and facilities; (B) toxic, solid, and hazardous waste reduction incentives; (C) recycling incentives; (D) incentives for investment in alternative and renewable energy; (E) incentives for energy conservation and environmental technology; (F) incentives for alternative vehicles and fuels; (G) sustainable land use incentives; (H) mass transit and land use incentives				

TABLE 4

TRASH TAXES AND CHARGES RELATING TO NONHAZARDOUS SOLID WASTE

Provisions described in Table 2 and 3 are designated by alphanumeric codes in parentheses at the end of short description. The numeral refers to the table where it is described, and the letter is the same as the alphabetic code from the table designated by the numeral.

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
ALABAMA	None			
ALASKA	None			
ARIZONA	None			
ARKANSAS	Solid Waste Disposal Fee (2-C)			
CAL.(F.T.B.)	None			
CAL.(B.O.E.)	Integrated Waste Management Fee (2-B)			
COLORADO	Solid Waste Facility Application Fee (2-C)			
CONNECTICUT	1) Solid waste facility operator tax 2) Resource recovery facility fee (2-H) 3) Beverage container deposit (2-H) 4) Newsprint recycling tax (2-H)	1) CGSA 22a-220b	1) Paid by solid waste facility operators directly to the municipality	1) 50 cents per ton
DELAWARE	Solid waste user fee (2-C)			
FLORIDA	Advance disposal container fee (2-H)			
GEORGIA	None			
HAWAII	1) Solid waste disposal surcharge (2-C)			
IDAHO	None			
ILLINOIS	None			
INDIANA	Solid Waste Fee (2-C)			
IOWA	1) Solid waste operator fee (2-C)			
KANSAS	Solid waste tonnage fee (C-16)			
KENTUCKY	None			
LOUISIANA	None			
MAINE	1) Recycling Assistance Fee (2-H)			
MARYLAND	None			
MASSACHUSETTS	1) Solid waste landfill and resource recovery facility tax 2) Beverage container deposit	1) M.G.L. Ann. ch. 16. sec. 24A 2) M.G.L. Ann. ch. 94; sects. 321-325.	1) Paid by operators on a per-ton basis to the municipality 2) Paid by consumer, refunded upon return of empty container	1) \$1 per ton 2) 5 cents per container
MICHIGAN	None			

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
MINNESOTA	1) Solid waste Landfill Fee (2-C) 2) Solid Waste Collection Fee (2-C) MISSISSIPPI Non-hazardous solid waste fee (2-C)			
MISSOURI	1) Solid waste disposal tax (Solid Waste Programs) (2-C) 2) Solid waste facility fee (Solid Waste Management Program) (2-C)			
MONTANA	Solid Waste Management Fee (2-C)			
NEBRASKA	Litter fee	Neb. Rev. Stat. sect. 51-1559	Gross proceeds of products manufactured and the sales of which are consummated within the state, including byproducts. Gross proceeds of the sales of any animal, bird, or insect, or the milk, eggs, wool, fur, meat, honey, or any other substance obtained therefrom if the person performs only the growing or raising function of such animal, bird, or insect are exempt.	\$175 for each \$1 million in gross proceeds.
NEVADA	None			
NEWHAMPSHIRE	Solid waste transporter disposal tax	N.H. Rev. Stat. Ann. sect. 149-M:3(IV)(b)	Collected from out-of-state transporter upon disposal at an in- state facility	\$1 per ton
NEWJERSEY	1) Sanitary Landfill Facility Taxes (2-C) 2) Litter Control Tax,	2) N.J.S.A. sect. 13.1E-99.1	2) Manufacturers, wholesalers, distributors, and retailers of litter-generating products sold in the state pay. Specifically enumerated: alcohol and beer containers, cigarette and tobacco products, food, groceries, paper containers, and plastic containers. 3)	2) a) Manufacturers, wholesalers, and distributors pay 0.03% of taxable sales of the enumerated products. b) Retailers pay 0.0225% of taxable sales of the enumerated products.
NEWMEXICO	Solid waste assessment fee	N.M.S. 74-9-37	Transporters of solid waste for disposal.	To be set by the Environmental Protection Board.
NEWYORK	Beverage Container Tax	New York Tax Law Art. 18-A sect. 446(1)	Tax on non-refillable carbonated soft-drink, mineral water, and soda water containers holding 3.8 liters or 1 gallon or less of fluid. Not earmarked.	2 cents per container
NORTHCAROLINA	1) Newsprint Producers License Tax (2-H) 2) White Goods Disposal Tax (2-H)			

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
NORTHDAKOTA	Waste collection surcharge (2-C)			
OHIO	1) Litter Tax (2-H) 2) Solid Waste Fee (2-C)			
OKLAHOMA	None			
OREGON	None			
PENNSYLVANIA	None			
RHODEISLAND	1) Litter Participation Fee (2-H) 2) Beverage Container Tax 3) Hard-To-Dispose Material Tax (2-B)	2) R.I.G.L. sect. 44-44	2) Wholesaler pays on soft drink, bottled water, beer, and other malt beverages sold to a retailer in the state.	2) 4 cents per case
SOUTHCAROLINA	White Goods Disposal Fee	S.C.C.A. sect. 44-96-160	Fee for white goods delivered by wholesalers to licensed retail merchants, jobbers, dealers, or other wholesalers for resale in the state.	\$2 for each white good
SOUTHDAKOTA	None			
TENNESSEE	1) Solid waste surcharge (2-C) 2) Beverage container tax (2-H)			
TEXAS	1) Garbage and rubbish collection tax 2) Solid Waste disposal and transportation fee(2-C)	1) Tax Codesect. 151.0101, 151.0048, and 151.051	1) Tax on the removal or collection of garbage, rubbish or other solid waste.	1) 6.25% of the sales price of the service.
UTAH	None			
VERMONT	Solid waste tax	32 VSA sect. 5952	Waste delivered for disposal to a facility, waste delivered to a transfer facility for shipment to a treatment or disposal facility located outside the state, or waste shipped to a disposal or treatment facility outside the state, without having been delivered to a transfer facility located in the state.	a) \$2.40 per cubic yard. b) \$6.00 per ton.
VIRGINIA	None			
WASHINGTON	1) Litter assessment 2) Refuse collection tax	1) RCW 70.93.120 2) RCW 82.12.020	1) The value of products manufactured and sold within the state and the value of wholesale and retail sales. 2) Each person using the solid waste services of a solid waste collection business.	1) 0.015% 2) 3.6% of the consideration charged for the services.
WESTVIRGINIA	None			
WISCONSIN	Solid Waste Capacity Fee (2-C)			
WYOMING	None			

TABLE 5
HAZARDOUS WASTE TAXES AND CHARGES

Provisions described in Tables 2 and 3 are designated by alphanumeric codes in parentheses at the end of short description. The numeral refers to the table where it is described, and the letter is the same as the alphabetic code from the table designated by the numeral.

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
ALABAMA	1) Underground storage tank fee (2-A) 2) Hazardous Waste Operator Fees (2-B)			
ALASKA	1) Oil Surcharge (2-D)			
ARIZONA	1) Hazardous waste generator and operator fees (2-B) 2) Hazardous Waste Fuel Penalty (2-B) 3) New motor vehicle tire fee (2-F) 4) Underground storage tank tax (2-A) 5) Lead-acid battery fee	5) A.R.S. sect. 44-1323	5) New lead-acid batteries	5) \$5 per battery
ARKANSAS	1) Underground storage tank fee (2D) 2) Waste Tire Fee (2-B) 3) Lead-acid battery fee	3) Ark Stat. Ann. sect. 8-9-303	3) New lead-acid batteries	3) \$10 per battery
CAL(F.T.B.)	None			
CAL(B.O.E.)	1) Hazardous Substances Tax (2-B) 2) Used Tire Disposal Fee (2-F) 3) Oil Recycling Fee (2-D) 4) Petroleum and Crude Oil Assessment Fee (2-D) 5) Underground storage tank fee (2-A) 6) Integrated Waste Management Fee (2-B)			
COLORADO	None			
CONNECTICUT	1) Hazardous Waste Generator Assessment (2-B) 2) Hazardous waste operator fee 3) Higher valuation for contaminated property 4) New vehicle tire tax (2-F) 5) New battery deposit (2-H)	2) Conn. Gen. Stat. Sec. 22a-128 3) Conn. Gen. Stat. Sec. 12-63e	2) a) Cubic yard of hazardous waste received b) Payment in an amount determined by the level of quarterly receipts i) Over (0 not exceeding \$1,250,000 ii) Over \$1,250,000 not exceeding \$2,500,000 iii) Over \$2,500,000 3) Assessed property value cannot be reduced due to any polluted or environmentally hazardous conditions existing on such a property,	2) a) \$3.50 per cubic yard b) i) 10% of gross receipts ii) 5% of gross receipts iii) 2.5% of gross receipts 3) N/A
DELAWARE	1) Petroleum Product Gross Receipts Tax (2-D) 2) Toxic waste reduction income tax credit for businesses that reduce amount of toxic waste reported in toxic			

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	release inventory (3- B)			
FLORIDA	1) Pollutant tax for coastal protection (2-B) 2) Pollutant tax for water quality (2-B) 3) Pollutant tax for inland protection (2-B) 4) Waste tire fee (2-F) 5) Lead-acid battery fees (2-H)			
GEORGIA	Environmental Assurance Fee (2-D)			
HAWAII	1) Environmental Response Revolving Fund (2-D)			
IDAHO	1) Waste tire fees (2-F) 2) Lead-acid battery fee 3) Underground storage tank fee (2-A)	2) Idaho Code sect. 39- 700.3	2) A returnable deposit for each new lead-acid battery sold (not earmarked)	2) \$5 per battery but if a used lead-acid battery is returned with the receipt within 30 days of its purchase the fee will be refunded.
ILLINOIS	1) Used tire fee (2-F) 2) Underground storage tank fee (2-A) 3) Hazardous waste disposal site fee (2-B) 4) Hazardous waste disposal fee (2-B) 5) Low-level radioactive waste fees (2-B)			
INDIANA	1) Hazardous Waste Disposal Tax (2-B) 2) New Tire Fees (2-F) 3) Underground storage tank fee (2-A)			
IOWA	1) Underground storage tank fee (2-A) 2) Hazardous waste fees 3) Household Hazardous Waste Permit Fee (2-B)	2) Iowa Code sect. 455B.455	2) Surcharge tax is imposed on the fee for land burial of a hazardous waste	2) 2%
KANSAS	1) Vehicle Tire Tax (2-F) 2) Petroleum Production Tax (2-D) 3) Hazardous Waste Fees (2-B)			
KENTUCKY	1) Hazardous waste management assessment (2-B) 2) Waste tire fee (2-F) 3) Leaky underground storage tank fee (2-A)			
LOUISIANA	1) Hazardous waste storage and disposal tax (2-B) 2) Hazardous waste disposal tax exemption for remediation of hazardous waste (3-B) 3) Waste tire tax (2-F) 4) Oil Spell Contingency Fee (2-D)			
MAINE	1) Recycling Assistance Fee (2-H) 2) Underground storage tank registration fee (2-A) 3) Petroleum Products Terminal Tax (2-D)			

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	4) Hazardous waste operator fee (2-B) 5) Hazardous waste generator fee (2-B) 6) Petroleum Products Transfer Tax (2-D)			
MARYLAND	1) Oil Transfer Tax (2-D) 2) Waste tire fee (2-F)			
MASSACHUSETTS	None			
MICHIGAN	1) Underground storage tank fee (2-A) 2) Hazardous waste permit and operator fees (2-B) 3) Hazardous waste transporter license fee (2-B) 4) Oil and Gas Severance Tax (2-G)			
MINNESOTA	1) Hazardous Waste Generator Tax (2-B) 2) Petroleum tank release cleanup fee (2-A) 3) Liquefied Petroleum Gas Operator Fee (2-D) 4) Contamination Tax 5) Motor Vehicle Transfer Fee (2-K) 6) Pollution Prevention Fees (Pollution Prevention Fund) (2-B)	4) M.S. 270.91-270.9H	4) The tax is based on the reduction in market value which was granted for property tax purposes.	4) a) Responsible parties who have no cleanup plan owe an amount equal to the reduced value of the property (contamination value) multiplied by the property tax class rate for property. b) Non-responsible parties or asbestos contaminants with no cleanup plan owe the contamination value multiplied by 25% of the property tax class rate for property. c) Responsible parties with an approved cleanup plan owe the contamination value multiplied by 50% of the property tax class rate for the property. d) Non-responsible parties with an approved cleanup plan owe the contamination value multiplied by 12.5% of the property tax class rate for the property. e) No tax if the cleanup is done.
MISSISSIPPI	1) Hazardous waste disposal fee (2-B) 2) New tire fee (2-F) 3) Environmental Protection Fee on Motor Fuels (2-D)			
MISSOURI	1) Hazardous waste generator fee (Hazardous Waste Fund) (2-B) 2) Hazardous waste land disposal fee (Hazardous Waste Recycling Fund) (2-B) 3) Hazardous waste category tax (Solid Waste Management Fund) (2-B) (Each of the preceding three taxes are applied individually and are cumulative), 4) Infectious Waste Incinerator Fee (Infectious Waste Incinerator Inspection Fund) (2-B) 5) Scrap Tire Fee (Solid Waste			

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	Management Fund) (2-F) 6) Underground Storage Tank Fees (2-A)			
MONTANA	Hazardous waste fees (2-B)			
NEBRASKA	1) Tire Fee (2-F) 2) Petroleum Release Remedial Action Fee (2-D) 3) Petroleum Products and Hazardous Substances Storage and Handling Fee (2-D)			
NEVADA	None			
NEWHAMPSHIRE	1) Automotive Oil Fee (2-D) 2) Hazardous waste generator fee (2-B) 3) Gas and diesel products transportation fee (2-D) 4) Heating Fuel Storage Fee (2-A)			
NEWJERSEY	1) Corporate business tax deduction prohibition 2) Hazardous Substances Spill Compensation Tax (2-B) 3) Hazardous Waste Facilities Tax (2-B) 4) Underground storage tank registration fee (2-A)	1) N.J.S.A. 54:10A-4(k)(2)(G)(1) & (2)	1) Businesses are prohibited from deducting environmental penalties from their corporate business taxes.	1) N/A
NEWMEXICO	Oil and Gas Conservation Tax (2-D)			
NEWYORK	1) Hazardous waste program fees. These are applied individually and are cumulative. 2) Hazardous waste generator and operator fee (Hazardous Waste Remedial Fund) (2-B)	1) N.Y. Env't. Conserv. Law Sect. 72-0402	1) a) Fee on generators of 15 tons or more of hazardous waste per year but less than or equal to 100 tons per year. b) Fee on generators of more than 100 tons per year but less than or equal to 500 tons per year. c) Fee on generators of more than 500 tons per year but less than or equal to 1,000 tons. d) Fee on generators of more than 1,000 tons per year. e) Fee on generators of 15 tons or more per year of hazardous wastewater in addition to the fees for hazardous waste.	1) a) \$1,000 b) \$6,000 c) \$20,000 d) \$40,000 e) \$3,000
NORTHCAROLINA	1) Scrap tire disposal tax (2-F) 2) White Goods Disposal Tax (2-H) 3) Hazardous waste generator fee (2-B) 4) Gas Excise Tax (2-D)			
NORTHDAKOTA	1) Oil extraction tax (2-G) 2) Waste Collection Surcharge (2-C)			

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
OHIO	1) Replacement tire tax (2-F) 2) Hazardous waste fee (2-B)			
OKLAHOMA	1) Underground storage tank regulation fee (2-A) 2) Hazardous waste fees (2-B) 3) Waste tire recycling fee (2-F)			
OREGON	1) Petroleum product delivery and withdrawal tax (2-D) 2) Replacement tire fee (2-F) 3) Hazardous Waste Permit Fee (2-B)			
PENNSYLVANIA	1) Hazardous Material Fees (2-B) 2) New Tire Fee (2-F) 3) Underground Storage Fees (2-A)			
RHODEISLAND	1) Hard-to-dispose-material tax (2-B) 2) Retail tire fee (2-F) 3) Deposit-refund for new batteries 4) Deposit-refund for vehicle tires 5) Motor Fuel Tax (2-D)	3) R.I. Gen. Laws sec. 23-60-1 4) R.I. Gen. Laws sec. 23-63-4-9	3) Every vehicle battery sold in the state applies only to batteries of six volts or more 4) Every tire sold in the state refunded upon trade-in of used tire,	3) \$5 4) \$5
SOUTHCAROLINA	1) Hazardous waste fees 2) Waste tire fee 3) Lead-acid battery fee 4) Used oil fee (2-D)	1) S.C.C.A. sect. 44-56-170 2) S.C.C.A. sect. 44-96-170 3) S.C.C.A. sect. 44-96-180	1) a) Fee for the land disposal of hazardous waste. b) Fee for the incineration of hazardous waste. c) Fee for hazardous waste in excess of 50 tons remaining in storage at the end of the reporting period. 2) Fee for every new tire sold whether it is mounted by the seller or not. 3) Fee for every lead-acid battery sold whether the battery is installed by the seller or not.	1) a) \$34 per ton for hazardous waste generated in the state. If the waste was generated out-of-state then the fee is equal to the amount imposed by the state in which it was generated b) \$10 per ton c) \$1 per ton 2) \$2 per tire 3) \$2 per battery
SOUTHDAKOTA	1) Tire Solid Waste Management Fee (2-F) 2) Petroleum Release Compensation and Tank Inspection Fee (2-A) 3) Hazardous Waste Reporting Fee (2-B) 4) Toxic Release Fees (2-B)			
TENNESSEE	1) New tire fee (2-F) 2) Automotive oil fee 3) Hazardous waste generator fee (2-B) 4) Petroleum Underground Storage Tank Fee (2-A)	2) T.C.A. sect. 68-211-1006	2) Fee on the distribution of automotive oil.	2) 2 cents per quart
TEXAS	1) Waste tire recycling fee (2-F) 2-3) Hazardous waste generator and facility fees (2-B) 4) Hazardous waste management fee(2-B)			

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	5) Lead-acid battery fee (2-H) 6) Automotive oil fee (2-D) 7) Petroleum product delivery fee (2-D) 8) Coastal Protection Fee (2-D)			
UTAH	1) Gas Surcharge (Oil recycling fee) (2-D) 2) Waste Tire Recycling Tax (2-F) 3) Petroleum Storage Tank Fee (2-A)			
VERMONT	1) Hazardous Waste Generator Fees (2-B) 2) Low-level radioactive waste fees (2-B)			
VIRGINIA	1) New Tire Tax (2-F) 2) Petroleum Storage Tank Fee (2-A)			
WASHINGTON	1) Pollution tax (2-B) 2) Vehicle Tire Recycling Tax (2-F) 3) Petroleum Products Delivery Fee (2-D) 4) Petroleum Products Tax (2-D)			
WESTVIRGINIA	1) Hazardous waste generator fee (2-B) 2) Hazardous waste facility siting fee (2-B)			
WISCONSIN	1) Tire recovery fee (2-F) 2) Hazardous waste generator fees (2-F)			
WYOMING	Fuel Tax (2-D)			

TABLE 6
TAX INCENTIVES FOR SUSTAINABLE TRANSPORTATION ALTERNATIVES
Provisions described in Tables 2 and 3 are designated by alphanumeric codes in parentheses at the end of the short description. The numeral refers to the table where it is described, and the letter is the same as the alphabetic code from the table designated by the numeral.

STATE	SHORT DESCRIPTION
ALABAMA	None
ALASKA	None
ARIZONA	Alternative-fuel vehicles and refueling station tax credit (3-F)
ARKANSAS	Alternative-fuels credit (3-F)
CAL.(F.T.B.)	1) Low-emission vehicles income tax credit (3-F) 2) Employer-sponsored vanpool corporate income tax credit (3-H) 3) Non-employer-sponsored vanpool credit (3-H)
CAL.(B.O.E.)	Low-emission vehicle sales tax exemption (3-F)
COLORADO	Tax credit for purchase of business vehicles using alternative- fuels (3-F)
CONNECTICUT	1) Alternative-Fuel Vehicle Corporate Tax Credit (3-F) 2) Alternative-Fuel Vehicle Sales Tax Exemption (3-F) 3) Property tax exemption for employer-owned vanpool vans (3-H) 4) Exemption from gas tax for high-occupancy vehicles used in commuter-transportation cooperatives (3-H) 5) Corporate tax credit for employers who develop commuter- transportation plans for their employees (3-H)
DELAWARE	Income tax deductions for employer-subsidized car-pooling or mass transit (Travelink program) (3-H)
FLORIDA	None
GEORGIA	None
HAWAII	Alcohol fuel excise tax exemption (3-F)
IDAHO	None
ILLINOIS	1) Gasohol sales tax exemption (3-F) 2) Ethyl alcohol sales tax exemption (3-F)
INDIANA	None
IOWA	None
KANSAS	None
KENTUCKY	1) Environmentally friendly carburation systems motor fuel tax exemption (3-F) 2) Bus and taxi motor fuel tax refunds (3-H)
LOUISIANA	Alternative-fuel vehicle conversion equipment income tax credit (3-F)
MAINE	None
MARYLAND	Clean-burning fuel equipment exempt from sales and use tax (3-F)
MASSACHUSETTS	1) Corporate excise tax credit for vanpool expenses (3-H) 2) Vehicle registration exemption for corporate vanpool vehicles (3-H)
MICHIGAN	None
MINNESOTA	None
MISSISSIPPI	None
MISSOURI	None
MONTANA	None

STATE	SHORT DESCRIPTION
NEBRASKA	None
NEVADA	None
NEWHAMPSHIRE	None
NEWJERSEY	1) Corporate business tax credit for commuter transportation benefits (3-H) 2) Personal income tax exclusions to increase the use of mass transit (3-H)
NEWMEXICO	Flat tax for LPG/CNG vehicles (3-F)
NEWYORK	Alternative-fuel vehicles sales tax exemption (3-F)
NORTHCAROLINA	None
NORTHDAKOTA	Alternative-fuel vehicle income tax credit (3-F)
OHIO	None
OKLAHOMA	1) Alternative-fuel vehicles and refueling station income tax credit (3-F) 2) Alcohol fuel excise tax exemption (3-F)
OREGON	Business energy tax credit for alternative-fuel vehicles and fueling stations, vanpool vans, and telecommuting equipment (3-F)
PENNSYLVANIA	Zero-emission vehicles sales and use tax exemption (3-F)
RHODEISLAND	None
SOUTHCAROLINA	None
SOUTHDAKOTA	Lower fuel tax on alternative fuels (3-F)
TENNESSEE	None
TEXAS	None
UTAH	1) Flat tax rate for non-gasoline clean-diesel-fueled vehicles (3-F) 2) Cleaner-burning-fuels vehicle gross receipts tax credit (3-F)
VERMONT	None
VIRGINIA	Clean-fuel vehicle corporate income tax credit for purchase of such vehicles and installation or purchase of refueling stations (3- F)
WASHINGTON	1) Commuter ride-sharing program tax credit (3-H) 2) Ride-sharing vehicles motor vehicle excise tax exemption (3- H) 3) Ride-sharing vehicles sales and use tax exemption (3-H) 4) Motor vehicle fuel tax exemption (3-H) 5) Public utility tax deduction (3-H)
WEST VIRGINIA	Alternative-fuel vehicles tax credit (3-F)
WISCONSIN	Employer-provided transit passes and vanpooling vehicle tax credits (3-H)
WYOMING	None

TABLE 7
TAX PROVISIONS TO PROMOTE SUSTAINABLE AGRICULTURE, FORESTRY, OR FISHERIES
Provisions described in Tables 2 and 3 are designated by alphanumeric codes in parentheses at the end of short description. The numeral refers to the table where it is described, and the letter is the same as the alphabetic code from the table designated by the numeral.

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
ALABAMA	None			
ALASKA	None			
ARIZONA	1) Pesticide Certification and Registration Fees (2-E) 2) Agricultural water conservation system tax credit (3-G)			
ARKANSAS	None			
CAL.(F.T.B.)	None			
CAL.(B.O.E.)	None			
COLORADO	None			
CONNECTICUT	1) Seed oyster tax for the shellfish fund (2-E) 2) Timber yield tax 3) Current Use Assessment (3-G)	2) Conn. Gen. Stat. Sec. 12-96 to 12-102	2) Paid by timber producers	2) 2%-10% of the value of the timber extricated depending on the age of the tree
DELAWARE	1) Property Transfer Tax (2-I) 2) Travel accommodations tax (2-I)			
FLORIDA	Apalachicola Bay Oyster Surcharge (2-E) Present Use Value for Conservation Easements (3-G)			
GEORGIA	None			
HAWAII	None			
IDAHO	None			
ILLINOIS	None			
INDIANA	1) Classified forest program (3-G) 2) Assessment of filter strips (3-G) 3) Assessments for windbreaks (3-G) These taxes are lower than the general property tax on other types of property.			
IOWA	Forest or fruit-tree reservation tax exemption (3-G)			
KANSAS	None			
KENTUCKY	None			
LOUISIANA	Acreage tax on forests and cut-over lands	L.R.S.A. Const. Art. 9 sect. 8	Forests and cut-over lands	Not to exceed 2 cents per acre
MAINE	1) Tree Growth Tax (alternative forestland property valuation) (3-G) 2) Forest Management Plan Income Tax Credit (3-G)			

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	3) Sardine Tax (2-E) 4) Quahog Tax (2-E) 5) Farmland Current Use Assessment (3-G)			
MARYLAND	None			
MASSACHUSETTS	1) Timber tax 2) Current Use Assessment (3-G)	1) Mass. Gen. Laws Ann. chs. 59, 61, 61A, 61B	1) Value of timber harvested	1) 8% of stumpage value
MICHIGAN	Farmland and open space preservation credit (3-G)			
MINNESOTA	None			
MISSISSIPPI	None			
MISSOURI	Tangible Personal Property Sales Tax (Soil and Water Conservation Program) (2-I)			
MONTANA	None			
NEBRASKA	Fertilizer fee (2-E)			
NEW HAMPSHIRE	Current Use Assessment (3-G)			
NEW JERSEY	1) Current Use Assessment (Farmland Assessment Act of 1964) (3-G) 2) Green Acres Exemption Law (3-G)			
NEWMEXICO	None			
NEW YORK	Current Use Assessment (3-G)			
NORTH CAROLINA	1) Primary Forest Product Assessment Act (2-E) 2) Corporate income tax deduction for reforestation (3-G)			
NORTH DAKOTA	None			
OHIO	None			
OKLAHOMA	None			
OREGON	1) Riparian habitat property tax exemption (3-G) 2) Fish habitat improvement income tax credit (3-G) 3) Fish screening income tax credit (3-G)			
PENNSYLVANIA	Realty Transfer Tax (15% to Keystone Recreation Park, and Conservation Fund) (2-I)			
RHODE ISLAND	1) Current Use Assessment (3-G) 2) Property tax exemption for tree plantations (3-G)			
SOUTH CAROLINA	Lumber tax (Forest renewal fund) (2-E)			
SOUTH DAKOTA	None			
TENNESSEE	Realty transfer tax (2-I)			
TEXAS	None			
UTAH	None			
VERMONT	1) Current Use Assessment (3-G)			

STATE	SHORT DESCRIPTION	CITATION	TAX BASE	TAX RATE
	2) Working Farm Tax Abatement (3-G)			
VIRGINIA	1) Conservation tillage equipment credit (3-G) 2) Advanced technology pesticide and fertilizer credit (3-G) 3) Ecology Organizations Sales and Use Tax Exemption (3-G) WASHINGTON Anadromous Game Fish Tax (Wildlife fund) (2-E)			
WESTVIRGINIA	None			
WISCONSIN	1) Wisconsin managed forest law tax 2) Managed Forest Property Tax Exemption (3-G)	1) Wis. Stat. s. 77.80-77.91	1) The state imposes a tax upon merchantable timber at the time of harvest.	1) 5% of the harvest value.
WYOMING	None			