



TAX REFORM

THAT
Agrees With Vermont



The Vermont Fair Tax Coalition

Friends of the Earth

Vermont Businesses for Social Responsibility - Research and Education Foundation

Vermont Natural Resources Council

Vermont Public Interest Research Group

November 2005



TAX REFORM THAT

Agrees With Vermont



Written by

BRENDA HAUSAUER

for

The Vermont Fair Tax Coalition



November 2005

The Vermont Fair Tax Coalition

**with assistance on the second edition from Gary Flomenhoff and his students in the
"Green Taxes and Public Finance in Vermont" class, University of Vermont, Fall 2004;
Evangelos Germeles;**

**Stephen Holmes, Vermont Natural Resources Council;
Andrew Hudson, Vermont Public Interest Research Group;
Scudder Parker, Vermont Businesses for Social Responsibility**

This report is available on the Internet at www.vnrc.org. Related information from the class that assisted in the re-writing of this report, including spreadsheets of all the tax revenues and a vision of how Vermont could shift all its taxes, is available at www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395.

The Vermont Fair Tax Coalition was founded in 1998 by Friends of the Earth, Vermont Businesses for Social Responsibility - Research and Education Foundation, the Vermont Natural Resources Council, and the Vermont Public Interest Research Group, who joined together to focus on reforms to the Vermont tax system to encourage a stronger economy, fairer tax system, and healthier environment. The Coalition believes that the concept of tax shifting is an important tool in promoting a vigorous, fairer, and environmentally sustainable economy.

The Coalition explores and promotes reforms that eliminate subsidies for environmentally destructive activities, reduce regressive and distorting taxes, and increase taxes on pollution and waste.

This report was made possible by the generous support of the Merck Family Fund. The first edition of this report was also made possible by W. Alton Jones Foundation, Energy Foundation, Nathan Cummings Foundation, the Rockefeller Family Fund, and the Surdna Foundation.

First edition printed March 1999; second printing January 2000; second edition November 2005.

Printed on 100% post-consumer recycled paper



TABLE OF CONTENTS

Executive Summary 3

I. The Tax Shifting Concept

Taxes and Essential Services 8
Taxes as Public Policy Instruments 8
The Tax Shifting Concept 9
A More Efficient Economy 9
A Healthier Environment 10
A Fairer Tax System 10
A More Efficient Tax System 11
How to Start a Tax Shift 11

II. Tax Shifting Options for Vermont

Taxes to Reduce or Eliminate 13
Property Tax 13
Sales Tax 14
Personal Income Tax 15
Payroll Tax 15

Taxes to Create or Increase 16
Energy and Air Pollution 16
Motor Fuel Tax 17
Motor Vehicle Feebate 18
Sales Tax on Fuel 21
Carbon Tax 22
Water Pollution 25
Pesticide and Fertilizer Tax 25
Solid Waste 27
Solid Waste Tax/Variable Pricing Program 27
Deposit/Refund Program for
Beverage Containers 28
Land Use 29
Land Value Tax 29
Energy Efficiency 31
The Energy Efficiency Utility/
Societal Benefits Charge 31
Transmission and Distribution Least Cost
Planning Option 32

Performance Based Regulation Option 32
Product Efficiency Feebate 32
Tax Credit Options 33
Nuclear Waste Tax 33

Where to Start 35

**III. An Inventory of Vermont's
Environmental Taxes, Fees, and Incentives**

Energy-Related Taxes and Fees 36
Fuel Gross Receipts Tax 36
Heating Oil Tax 37
Electric Energy Tax 37
Utilities Gross Receipts Tax 37
Sales Tax on Commercial Energy Use 38
Motor Fuel Taxes and Fees 38
Motor Vehicle Purchase and Use Tax 39
Motor Vehicle Registration Fees 39

Air and Water Pollution Taxes and Fees 40
Air Contaminant Emissions Fee 40
Water Discharge Fee 40
Stormwater Fee 40

Waste Taxes, Fees, and Incentives 41
Solid Waste Tax 41
Hazardous Waste Tax
Deposit/Refund for Beverage Containers 41
Petroleum Cleanup Fee and
Tank Assessment Fee 41

Land-Related Taxes, Fees, and Incentives 42
Use Value Appraisal (Current Use) for
Agricultural and Forest Land 42
Capital Gains Tax on Speculative Land Sales 43
Property Transfer Tax 43

Endnotes 44



Executive Summary

The Tax Shifting Concept

The topic of taxes has the power to produce blank stares and yawns, as well as impassioned emotions, complaints, and arguments. Many individuals and businesses believe taxes are too high and too complicated, and that nothing can be done to change them. But there's a good reason to overcome the boredom, set aside preconceived ideas, and reconsider just how taxes work and how they could work better.

Our taxes fund many programs that we benefit from every day, including education, government services, and Social Security. As the levels of the taxes imposed increase, taxes tend to discourage the activities or forms of ownership taxed. Taxes on wages discourage employment, and taxes on air pollution discourage activities that pollute the air. But some activities are worth discouraging more than others. Federal, state, and local governments raise most revenue through a combination of income, property, sales, and payroll taxes. These taxes can discourage activities most of us believe are good for society, however: earning income, owning property, purchasing goods, and being employed.

Tax shifting is about reducing the burden of these taxes, and shifting the tax burden to activities society wants to discourage. Tax shifting is not about raising or lowering taxes overall. Instead, it should be revenue-neutral; it should reduce some taxes by the same amount that it increases other taxes. In this way, the power of taxes is used to improve the public good instead of work against it, with lasting benefits for our economy, environment, and all members of society.

This concept is inherently different than some other proposals that have sought to

simplify the tax code. Examples include creating a 'flat tax' on income, or relying more heavily on sales taxes to raise necessary revenues. These proposals are regressive tax shifts, rather than progressive ones. Flattening the income tax would disproportionately benefit the wealthiest wage-earners, while low-income Vermonters would be squeezed from two ends: paying higher taxes (presuming the flat percentages was set at a median level of income) and loss of access to public services that are often their only access to health care, child care and other services.

While tax shifting can be applied to a variety of social needs and ills, it is the goal of this report to discuss environmental tax shifts. This is in part because we believe the environment is a consistently undervalued economic resource. It is also in part because shifting taxes from production to pollution is an effective and elegant way to keep business costs low while encouraging behavior that is good for society as a whole. Finally, the environment in Vermont is not only an important resource to preserve for moral and aesthetic reasons, but a key part of our economic development strategy. Businesses and workers often settle in Vermont because of our beautiful scenery, working landscape and wild character. Protecting these resources is therefore not only a sound economic and environmental strategy, but also a plan for building our economy and job base. We therefore considered five primary factors in looking at potential tax shifts.

- ◆ **Economy:** Does the tax discourage or encourage job creation, enterprise, and other societal benefits? Does it help to reflect the full costs of under-priced products? Or does it cause distorted incentives in the economy?

A tax shift can be designed to strengthen the economy, clean up the environment, make our tax system fairer for low-income wage-earners, and encourage efficient investment.



- ◆ **Environment:** Does the tax discourage or encourage conserving resources and reducing pollution?
- ◆ **Equity:** Does the tax require polluters to pay their fair share? Is the tax assessed on people in proportion to their ability to pay, or does it create a greater hardship for lower-income people than for higher-income?
- ◆ **Efficiency:** Does the tax raise up-front costs, but deliver equal or greater savings later on? Or better, can the tax encourage investment in sustainable systems while discouraging waste?
- ◆ **Alternatives:** Does the tax directly or indirectly help support alternative approaches to solving environmental problems?

TAXES TO REDUCE OR ELIMINATE

PROPERTY TAX

Vermont's high property taxes have a number of disadvantages. First, they increase the costs of home ownership and rental housing. Second, they are only partly based on peoples' ability to pay, requiring low- and middle-income families to pay a proportionately larger part of their income on property taxes. Finally, a significant portion of Vermont's property taxes fund road construction and maintenance, inappropriately embedding some of the costs of vehicle use into land ownership.

Vermont's property tax is a good candidate for a tax reduction, in conjunction with expanded rebates to renters and low and moderate income-earners. In addition, Vermont should consider eliminating the portion of property taxes that funds road construction and maintenance.

SALES TAX

Sales taxes also produce some problems. People with lower incomes pay a much larger proportion of their income in sales taxes than higher-income wage-earners. In addition,

some goods with large negative environmental impacts are exempt from the sales tax in Vermont, including energy used for transportation, residential, and industrial purposes, and pesticides and fertilizers used for farming. Our sales tax also encourages people to make purchases in New Hampshire, which has no sales tax, and through mail-order catalogues.

Vermont should consider reducing its sales tax rate across the board, and exempting some additional items from the sales tax. For example, eliminating or reducing the tax in designated downtowns and village centers, and possibly in growth centers depending on how they are defined, would give a boost to the state's fragile downtown economies and spur commerce in appropriate locations. The state also should consider removing the sales tax exemption on energy use, and pesticides and fertilizer used for farming.

PERSONAL INCOME TAX

Personal income taxes are more progressive than many other types of taxes, but they still place a substantial relative burden on low-income wage-earners. A significant number of families in Vermont earn less than a livable wage, and these families should not be required to give up part of their earnings to income taxes. In addition, income taxes make it more difficult for other families with low- and middle-incomes to make ends meet. These families already pay property, sales, payroll, and federal income taxes, and need the remainder of their paychecks to purchase basic necessities.

Vermont should consider eliminating personal income taxes for people earning less than a livable wage, reducing them substantially for other low-income and middle-income wage-earners, and expanding the Earned Income Tax Credit that benefits low-income wage-earners.

PAYROLL TAX

Payroll taxes are collected by the federal and state government, and include Social Security, Medicare, and unemployment insurance. Workers pay 7.65% of their paychecks for Social Security and Medicare,



and employers must match these payments and pay for unemployment insurance. And, the Vermonters who are self-employed pay 15.3% of their wages in payroll taxes.

Payroll taxes have a number of disadvantages. They increase labor costs, which discourages businesses from hiring new employees. They are also very regressive; Social Security taxes are collected only on the first \$90,000 of wages, ensuring that low-income and middle-income wage-earners pay a larger portion of their salaries in payroll taxes than those who earn the most.

Payroll taxes paid by businesses could be reduced in order to encourage businesses to create more jobs. Payroll taxes are collected by the federal government, but Vermont could simulate a payroll tax reduction by offering businesses a credit on their state corporate taxes in proportion to the amount of annual payroll taxes they paid. As with the income tax, payroll taxes paid by employees could be eliminated completely for people earning less than a livable wage. At the same time, the Social Security tax exemption for money earned after the first \$90,000 could be eliminated.

TAXES TO INCREASE OR CREATE

Taxes can work for us rather than against us. They can strengthen our economy and clean up our environment. And, they can do so equitably for those who pollute, for those who don't, and for our lower-income citizens. The following options are examples of taxes that Vermont could institute or increase, while decreasing some of the taxes described above, to keep the tax shift revenue-neutral.

MOTOR FUEL TAX

- ◆ Place an additional tax on motor fuels of 4 or 5 cents per gallon, and use the revenue to create stable funding for public transit, reduce property taxes, and expand the renters' rebate.

MOTOR VEHICLE FEEBATE

- ◆ Assess a fee on new car purchases that

have poor fuel economy ratings and give a rebate for new car purchases that have good fuel economy ratings.

SALES TAX ON FUEL

- ◆ Place a sales tax of 6% on gasoline and fuels used for residential purposes. Continue to exempt fuels in the industrial and farming sectors from the sales tax. With the money raised, reduce the property tax; expand the renters' rebate; and contribute additional funds to the Low Income Heating Energy Assistance Program and the Weatherization Assistance Fund.

CARBON TAX

- ◆ Assess a carbon tax on fossil fuels used in Vermont, exempting fuels used in the industrial and farm sectors and wood energy use. Eliminate the current gasoline tax, diesel tax, sales tax on commercial energy, utilities gross receipts tax, and fuel gross receipts tax. Return the remaining revenues to the residential and commercial sectors, and provide funding for public transportation and alternative and low-emission vehicles.

PESTICIDE AND FERTILIZER TAX

- ◆ Introduce a system of pesticide and fertilizer taxes in the state over a period of several years. Continue the initiative started in 2002 with the removal of the sales tax exemption on non-agricultural uses of pesticides and fertilizers. As a next step, remove Vermont's 6% sales tax exemption on pesticides and fertilizers used for farming. At the same time, provide tax credits to farmers, and financial subsidies and technical assistance to help farmers move toward low-impact and organic farming.

SOLID WASTE TAX / VARIABLE PRICING PROGRAM

- ◆ Increase the solid waste tax to provide a stronger incentive to reduce waste. At the same time, require municipalities and waste haulers to institute pay-as-you-throw pricing for residential custom-



ers, in which customers pay based on the amount of trash they discard. Provide revenues to subsidize recycling, composting, and other programs that help people reduce waste.

BOTTLE BILL FOR BEVERAGE CONTAINERS

- ◆ Expand Vermont's current deposit/refund program to cover all non-carbonated beverage containers, increase the deposit amount to 10 cents per bottle, and consider instituting similar programs on other types of standard food packages.

LAND VALUE TAX

- ◆ Pass state legislation that would enable cities and towns in Vermont to use land value taxation in their downtown cores if they choose. Allow cities to determine the proportion of the property tax that will be raised from land values and the proportion raised from buildings and improvements.

WHERE TO START

Vermont has already undertaken some small but noteworthy tax shifts and related programs. In 1997, the state shifted a portion of education funding from Vermont's high property tax to a collection of other taxes, including the gasoline tax and the motor vehicle purchase and use tax. (Changes in 2004 removed the gasoline tax contribution to education but enlarged the motor vehicle purchase and use tax's contribution.) In 1999 the Vermont Legislature and the Department of Public Service had the foresight to create an innovative program for delivering efficiency services to all Vermonters called Efficiency Vermont (EVT). EVT is the nation's first energy efficiency utility; funded by a societal benefits charge, the program's sole mission is to lower the electricity bills of Vermonters. The societal benefits charge shifts costs from more expensive electric power generation to cheaper efficiency improvements. Also in 2002 the Legislature eliminated the sales tax exemption on pesticides and fertilizers for non-farmers, ending an environmentally

damaging and unfair tax exemption. While these shifts represent steps in the right direction, there is much more that can be done to significantly reduce energy use and pollution, protect the environment, and distribute taxes more fairly.

There are a multitude of good options for additional tax shifts in Vermont. A few are outlined above, and there are many other possibilities. In any form, a tax shift works by decreasing some taxes, while increasing others in a revenue-neutral manner.

Options that decrease property taxes would be highly visible and would have widespread appeal and benefits. Sales tax reductions are attractive, but not as visible as reduced property taxes. Reducing payroll taxes paid by businesses is a very advantageous option, because it would encourage job creation and wage increases, and improve progressivity. Finally, options that eliminate or reduce personal income taxes for Vermonters with low and middle incomes are an excellent way to compensate for the regressive nature of our tax system.

Increasing taxes on energy use would have the biggest impact on improving economic efficiency and human and environmental health in Vermont. Other taxes, such as those related to solid waste disposal, are attractive because they are manageable, predictable, and there is widespread experience with them. Whatever the form of Vermont's next tax shift, it should be sensibly sized, easy to understand, easy to administer, highly visible, and very beneficial for Vermont.

Tax shifting is a smart way to harness the power of the economy to work for us rather than against us. If we do it wisely, tax shifts will strengthen our economy, make our environment more beautiful and healthy, preserve our social goods, and keep taxes fair and efficient for all Vermonters.



The chapters ahead include the following information:

Chapter 1: The Tax Shifting Concept

Chapter 1 gives a brief introduction to tax shifting, how it relates to broader tax policy, and how it can benefit the economy, the environment, and all members of society.

Chapter 2: Tax Shifting Options for Vermont

Chapter 2 outlines a number of tax shifting options for Vermont. First, taxes that could be reduced or eliminated are discussed, including property, sales, personal income, and payroll taxes. Second, taxes that could be created or

increased are outlined. These include energy, air pollution, water pollution, waste, and land use taxes. A brief conclusion describing some ways to get started with tax shifting closes out the chapter.

Chapter 3: An Inventory of Vermont's Environmental Taxes, Fees, and Incentives

Chapter 3 summarizes Vermont's current environmental taxes, fees, and incentives, including taxes related to energy, air and water pollution, waste, and land use. The summary of each tax includes a brief description of the tax, an explanation of how the tax revenue is used, and a list of the revenue collected from the tax between 2000 and 2004.



Chapter 1

The Tax Shifting Concept

TAXES AND ESSENTIAL SERVICES

At its best, taxation is the way governments fund the creation of “public goods and essential services.”

Taxation’s purpose is to provide fair and consistent revenues for critical investments like: public education, safety and protection, transportation, public infrastructure, and the other services we count on to create opportunity, health, and the societal framework in which we live, work and conduct our business.

Taxation should serve a government that is committed to creating the structures that give people opportunity, preserve their rights, and protect the health of our communities and the environment.

The design of a tax policy that supports these purposes needs to have the following essential features:

- Taxes should be “fair.” Taken together, they should reflect the ability of those taxed to pay. All taxes may not be “progressive,” but overall the tax burden should generally correlate to the resources available of those taxed.
- Taxes should, in general, be levied at moderate rates on all the various forms of wealth. If this does not happen, tax policy tends to create incentives for wealth to “migrate” to the non-taxed forms of wealth.
- Taxes should be balanced and stable to provide secure funding of essential services so that changes in the economy are moderated, and there is relative consistency in funding.

- Taxes should be (in general) as administratively simple and enforceable as possible.
- Taxes should be levied in a manner that is attuned to, but not controlled by, “border” and “competitive” effects. In other words, a very high tax on one form of transaction or wealth in Vermont could change behavior because we are a small state, and business could migrate to other states.
- In some instances, taxes can be designed to fund “special purpose” functions. A tax, often related to purchase or use, is directed to establish a special “fund” related to that area of activity. For example, in Vermont we have created special funds for Fish and Wildlife, petroleum cleanup, Weatherization funding, Housing and Conservation, and many others. These special funds are sometimes criticized for fragmenting the overall taxing and appropriations effort. On the other hand, they have been very successful in consistently funding valuable public benefits.

TAXES AS PUBLIC POLICY INSTRUMENTS

Whether we like it or not the ability to tax becomes intertwined with governmental policy in many ways. Tax policy is constantly used as a policy tool to “promote” or “discourage” various forms of activity. Depletion allowances for oil and gas drilling, tax credits for business investment, deductibility for home mortgage interest expense, sales tax exemptions for thirty-plus kinds of transactions in Vermont and literally thousands of other tax policy incentives pervade our tax law. At the Federal level,



tax cuts in the personal and corporate income taxes have seriously distorted our tax system away from the principles of tax fairness and moderate taxation of wealth in all its forms.

Some of these “policy features” of our tax law may be consistent with the broad public interest; some are not. When we talk about tax policy, we may want to start with the relatively clear principles outlined in this chapter, but when we look at our tax code, we find hundreds of exceptions. We need to be aware of these exceptions as we discuss the concept of “tax shifting.”

THE TAX SHIFTING CONCEPT

The concept of “tax shifting” is an attempt to bring some consistency to the widespread practice of using taxes to shape public policy. Tax shifting strategies may be designed to overcome some of the distortions that have found their way into the tax system, or they may draw on some of the successful experience with creating “special purpose” taxes and funds.

Taxes tend to discourage the activities that are taxed. For example, taxes on wages, if excessive, discourage employment. Taxes on air pollution discourage activities that pollute the air. But clearly some activities are worth discouraging more than others. Our current federal and state tax systems raise most revenue through a combination of income, property, sales, and payroll taxes. These taxes, however, if not in balance, can discourage activities most of us believe are good for society. Meanwhile, most of the taxes we place on activities we do want to discourage raise painfully little revenue and have only a modest impact.

Tax shifting strategies consider reducing taxes on activities society wants to encourage, while placing taxes instead on the activities we want to discourage. Tax shifting is not about raising taxes overall. The government still would collect the same amount of revenue, but revenues would come from taxes on activities we want to reduce.

A tax shift can be accomplished in a number of ways. To encourage socially beneficial activities, we can start by reducing or lessening the regressivity of property, sales, personal income, and payroll taxes. Or, we can use the revenue from new taxes to offer incentives for socially beneficial activities. For example, we can give people rebates for purchasing energy-efficient products and saving energy, or we can offer farm and forest landowners lower property taxes for preserving our rural working landscape. Tax credits, tax exemptions, rebates, and other incentives are all useful tools.

At the same time, we can discourage socially harmful activities by taxing or placing fees on activities that harm the public good. For example, we can tax toxic air emissions, polluting water discharges, and the generation of solid and hazardous waste. We can protect finite natural resources, such as our drinking water supply, by placing a tax on its use.

Such tax shifts will re-orient the way we produce and consume goods. The power of taxes can be used to improve the public good instead of work against it, with lasting benefits for our economy, environment, and all members of society.

A MORE EFFICIENT ECONOMY

Tax shifts can increase the efficiency of our economy in a number of ways. Currently, many of our taxes and the design of many of our fee and rate structures have distorting impacts. For example, utility rates used to be designed to promote increased consumption. The so-called “declining block rates” were supposed to provide a benefit to large users. Instead they tended to reward wasteful consumption and promote inefficiency—while ignoring the costs (to the utility system and the environment) of increased usage and pollution.

Another distortion in our economy results from the fact that many goods are under-priced in the marketplace - their prices do not include all the social and environmental costs of their production, use, and disposal. For

Our current federal and state tax systems raise most revenue through a combination of income, property, sales, and payroll taxes. These taxes, however, effectively discourage activities most of us believe are good for society.



example, the price of gasoline doesn't include the costs of human health problems resulting from gasoline's polluting air emissions, the costs of maintaining a military presence in the Middle East to protect oil interests, or even the full costs of maintaining our road system. If the full costs were included in the price of gasoline, more consumers would make fuel-efficient choices - some would purchase fuel-efficient cars, carpool more often, and live closer to their places of work. Economic efficiency would improve because consumers and manufacturers would make choices based on price signals that more accurately reflect reality. A tax shift is an excellent way to start including the real costs of under-priced goods into prices.

...today's problems are increasingly caused by the cumulative impact of the small-scale activities of everyone. Tax shifting is an ideal way to address this trend.

A HEALTHIER ENVIRONMENT

Many of our everyday activities have far-reaching, yet subtle impacts on the environment. For example, commuting to work, as many Vermonters do, adds more carbon dioxide to the atmosphere, hastening global climate change; adds more toxic fumes to the air, worsening respiratory problems and compromising the health of some ecosystems; adds more oil to the roads, which eventually runs off into groundwater; and depletes more of our finite oil resource. In and of themselves, most of our everyday activities have insignificant impacts - but the cumulative impact of many people doing the same thing is a different story. While many of the biggest environmental problems in the past were caused by a few big polluters, today's problems are increasingly caused by the cumulative impact of the small-scale activities of everyone.

Tax shifting is an ideal way to address this trend. Tax shifting benefits the environment by placing substantial taxes, not token taxes, on pollution and resource depletion. As outlined above, the taxes would serve to correct the failure of the market to include environmental and social costs into prices. The result of such taxes is that wasteful and polluting businesses and individuals work harder to reduce pollution, save energy, and conserve resources because they get a direct

benefit through lower taxes. In addition, cleaner technologies would be relatively less expensive.

A FAIRER TAX SYSTEM

When polluters pay for their polluting activities through taxes or other means, individuals who don't pollute are treated fairly. But currently, society or certain individuals effectively subsidize many of polluters' activities. For example, when waste haulers charge the same monthly rate for all residential customers, the people who generate small amounts of garbage pay the same as those who generate large amounts. A tax shift could make polluters pay their fair share for their polluting activities, resulting in a more just society for everyone.

In addition, tax shifting gives more control to individuals and businesses to make decisions that can reduce their taxes. Pollution limits, regulations, and other restrictions can be successful in reducing pollution and resource use, but these methods are often inflexible. Taxing pollution and resource use allows individuals and businesses to make their own decisions about when reductions in the taxed activities are cost-effective.

Many of our current taxes impact low-income wage-earners to a greater degree than Vermonters with high-incomes. For example, the Vermont sales tax requires people with low-incomes to pay a greater percentage of their income for each product purchased compared to people with high-incomes. Some proposed tax shifts continue this unfair trend, while others provide ways to lessen the impact for low-income wage-earners. If done wisely, tax shifting can make our tax system fairer for Vermonters with low incomes.

In a similar vein, concerns over the balance of the total tax system, and the competitive disadvantages of extreme tax shifts should inform the design of specific tax shift policies.

Tax shifts of some forms will be more effective at the national level than at the



local or state level. But there are still many effective strategies that can implement the goals of societal least cost through tax policy.

One effective strategy that has been used in Vermont is to levy a very small tax that avoids creating competitive disadvantage problems, and use it to fund an alternative that directly benefits consumers. The 0.5 percent tax on domestic fossil fuels funds the weatherization program that makes low-income Vermont homes more energy-efficient. Progressivity is enhanced because bills are dramatically reduced for the poorest Vermonters; competitive disadvantage is avoided because the tax is so small; and yet least cost principles are implemented because an effective capacity to provide efficiency to low income Vermonters is enhanced. Environmental benefits are provided because fuel consumption is significantly reduced. The economy is strengthened because fewer dollars flow out of state; and the demand for public subsidies for winter heating is at least stabilized if not reduced.

A MORE EFFICIENT TAX SYSTEM

Tax shifting is a way to make our tax system more efficient. The tax shifting concept is based on the principle that “societal least cost analysis” (or “Least Cost Integrated Planning;” LCIP) should inform government taxing and spending policy. LCIP was used starting in the 1980s as a way to analyze the total “costs” of providing electricity (for instance, a huge new nuclear plant) compared to other options (efficiency and smaller-scale distributed generation). LCIP proposed that alternatives should be compared over their full “life-cycle” (the duration of the project, and the costs during its lifetime); that environmental costs and benefits should be considered; and that total costs to all parties (not just the utility or the consumer) should be accounted for.

LCIP is a way of thinking about the major costs and investments in modern society that is uniquely appropriate to government. Government should be funding and supporting investment in the basic infrastructure that

makes modern life possible, but it should also be aware that it is often such investments that contribute to other “problems” that government is asked to address later through its ability to tax and spend. For example, our government has created a unique highway transportation system in this country, but that system is also one of the major sources of pollution and greenhouse gas emissions -- a problem on which government is expected to spend a growing portion of its resources.

LCIP is a tool for analyzing current tax and expenditure policies to see if there is a way to promote alternatives that will provide effective options at lower total public, private, and environmental costs. Tax shifting is an effective option for implementing least cost strategies. With tax shifting, taxing activities society wants to discourage can reduce the underlying destructive activity and either fund the remediation or reduce other tax burdens.

The principles of tax shifting can also be applied to the design of fees and rates for various special purpose funds, and for important sectors of the economy such as solid waste disposal and the structure of utility rates and charges. Tax shifting principles, in coordination with the principles of LCIP can be effectively applied to these portions of the economy as well.

HOW TO START A TAX SHIFT

Tax shifting is not a new idea. Several European countries, including Germany, Sweden, the Netherlands, Spain, and others, have undertaken tax shifts on a large scale already. But North America has not yet followed that trend. Tax shifts in the U.S. have only occurred on a very small scale.

Vermont places various taxes and fees on environmentally and socially harmful activities, as Chapter 3 illustrates. Most of these taxes are modest. However, a small tax shift occurred in Vermont in 1997. The state shifted a portion of education funding from Vermont’s high property tax to a collection of other taxes, including the gasoline tax and the

Our small scale, our tradition of independence and innovation, and our history of preserving environmental and social goods make Vermont the perfect place to begin a tax shift.



motor vehicle purchase and use tax. (Changes in 2004 removed the gasoline tax contribution to education but enlarged the motor vehicle purchase and use tax's contribution.) In 1999 the Vermont Legislature and the DPS had the foresight to create an innovative program for delivering efficiency services to all Vermonters called Efficiency Vermont (EVT). EVT is the nation's first energy efficiency utility; funded by a societal benefits charge the program's sole mission is to lower the electricity bills of Vermonters. The program has gone on to win awards from the Kennedy School of Government and is now emulated by other state programs in the northeast and nationwide. Most recently, in 2005 the legislature voted to remove the cap on EVT's funding, paving the way for the program to continue providing services at an increased, or at least proportional, rate. Also the Legislature in

2002 eliminated the sales tax exemption on pesticides and fertilizers for non-farmers, ending an environmentally damaging and unfair tax exemption. While these shifts represent steps in the right direction, they are not enough by themselves to significantly reduce energy use and air and water pollution.

Nonetheless, Vermont has many of the building blocks in place for a larger tax shift. As Chapter 2 illustrates, Vermont could improve or enlarge some of our tax mechanisms that already exist, add a few more, and decrease the taxes that benefit society to move toward a significant tax shift. Our small scale, our tradition of independence and innovation, and our history of preserving environmental and social goods make Vermont the perfect place to begin a tax shift.



Chapter 2

Tax Shifting Options for Vermont

In order to undertake a tax shift in Vermont, we must reduce some taxes, while raising others, all in a revenue-neutral manner.

There are some taxes that work against us by distorting economic efficiency, polluting the environment, wasting natural resources, unfairly taxing some sectors of society, or allowing inefficiency. Other taxes could help us by doing the opposite.

We can evaluate whether a tax is one we need or don't need by asking the following questions about it.

- **Economy:** Does the tax discourage or encourage job creation, enterprise, and other societal benefits? Does it help to reflect the full costs of under-priced products? Or does the tax cause distorted incentives in the economy?
- **Environment:** Does the tax discourage or encourage conserving resources and reducing pollution?
- **Equity:** Does the tax require polluters to pay their fair share? Is the tax assessed on people in proportion to their ability to pay, or does it create a greater hardship for lower-income people than for higher-income people?
- **Efficiency:** Does the tax raise the up-front cost, but deliver savings through efficiency later on? Or better, can the tax encourage investment in local and sustainable systems while discouraging waste?
- **Alternatives:** Does the tax directly or indirectly help support alternative

approaches to solving environmental problems?

Using these criteria, we can see that property taxes, sales taxes, personal income taxes, and payroll taxes work against our goals and would be good candidates to reduce or eliminate. At the same time, energy taxes, air and water pollution taxes, waste taxes, some land use taxes, and energy efficiency measures could be increased or created. Vermont could craft many different types of tax shifts by combining tax reductions with corresponding tax increases on any of the above-mentioned taxes. The following sections explore these ideas.

TAXES TO REDUCE OR ELIMINATE

Some taxes work against social goals. Property taxes, for example, may have worked well centuries ago, when most of the people who owned property were wealthy and could more easily afford to pay taxes. However, property taxes, like some other taxes described below, have become outdated, and need to be re-examined and revised to better promote social goals.

Property Tax

Vermont historically has raised a greater percentage of state and local taxes through property taxes than the rest of the nation. In 2004, Vermont raised \$998 million through property taxes to fund schools, local government services, and local road construction and maintenance¹. By comparison, Vermont raised \$896 million the same year through personal and corporate income taxes, sales and use taxes, meals

Vermont historically has raised a greater percentage of state and local taxes through property taxes than the rest of the nation.



and rooms taxes, cigarette taxes, and all the other taxes that go into the state's general fund². Relying on property taxes to fund such a substantial portion of the government's activities has caused repeated calls for property tax reform.

Vermont's high property taxes work against us in several ways. They increase the costs of home ownership and rental housing. In addition, property taxes are not primarily based on peoples' ability to pay. The method of collecting property taxes earmarked for statewide education now is more income-sensitive as a result of reforms to education funding. But, even with the reforms in place, families with low and middle incomes pay a proportionately larger part of their income on property taxes than higher-income families. This makes home ownership difficult for low-income wage-earners, some retired people, and those whose incomes decline over time.

Most of our property taxes fund education and local government services, but some of the taxes fund local road construction and maintenance. If driving-related costs such as road construction and maintenance were entirely funded through motor fuel taxes instead of property taxes, drivers would get more accurate price signals about the full costs of driving.

Vermont should consider substantially reducing property taxes, while expanding rebates to renters and removing the portion of property taxes that fund road construction and maintenance. In addition, Vermont's downtowns could benefit from changing the current property tax to a land value tax (see Land Value Tax section below).

Sales Tax

Vermont's 6% sales and use tax raised about \$256 million in 2004, accounting for about 29% of the state's general fund revenues. Local options taxes raised \$5.5 million in 2004³. Vermont exempts many items from the sales tax, including energy used for residential and industrial purposes, gasoline and diesel, food, agricultural feed and seed,

pesticides and fertilizers used for farming, recycled construction materials, manufacturing machinery and equipment, prescription and non-prescription drugs and medications, and others.

The sales tax produces a number of problems and distorting influences. Sales taxes stunt economic activity, and people with lower incomes pay a much larger proportion of their income in sales taxes than people with higher incomes. Removing the sales tax on specific items could work toward certain social goals. For example, removing the sales tax on items sold in downtown centers could help preserve the economic activity in Vermont's historic downtowns, and provide an incentive for businesses to refurbish existing structures instead of encouraging sprawl through the construction of new malls and large retail stores outside our existing downtowns.

In addition, some goods with large, negative environmental impacts are exempt from the sales tax in Vermont, including pesticides and fertilizers used for farming, and energy used for transportation, residential, and industrial purposes. While much of the energy used for transportation and residential purposes is a necessity for everyone, exempting energy from the sales tax makes an environmentally harmful product relatively cheap. This, in turn, causes people to use more energy than they otherwise would. Instead of exempting environmentally harmful but necessary items from the sales tax, it is wiser to apply the standard sales tax rate to these items and, to maintain fairness, assist low-income wage-earners with paying the tax. For example, rebates or special programs (such as the Weatherization Assistance Program) can be offered to low-income wage-earners. Or, more sustainable energy systems such as wood heating can be offered to low-income wage-earners at a dramatically discounted cost. Or, a sales tax exemption could be placed on an initial, fixed amount of energy used by each Vermonter to ensure everyone has access to a basic amount of "necessary" energy. This amount of tax-free fuel could be set quite high initially and gradually ramped down to encourage continuing investments in

Vermont exempts many items from the sales tax, including energy used for residential and industrial purposes, gasoline and diesel, food, agricultural feed and seed, pesticides and fertilizers used for farming, recycled construction materials, manufacturing machinery and equipment, prescription and non-prescription drugs and medications, and others.



efficiency.

Vermont's sales tax also encourages people to purchase products in New Hampshire, which has no sales tax, and through catalogues. Although Vermonters technically are required to pay our tax on items bought in other states, in practice the tax usually is not paid.

Vermont should consider reducing its sales tax rate and eliminating the tax completely on necessity items that do not cause large negative environmental impacts. Energy, pesticides and fertilizers used for farming, and other items with large environmental impacts should not be exempted from the sales tax.

Personal Income Tax

Vermont raised \$430 million from personal income taxes in 2004, providing 48% of the state's general fund revenues⁴.

While personal income taxes are more progressive than many other types of taxes, they still place a substantial relative burden on Vermonters with low incomes. Studies have found that a significant number of families in Vermont earn less than a livable wage. These Vermonters, who don't earn enough to meet their families' basic needs, should not be required to give up even more of their earnings to income taxes.

Personal income taxes also make it more difficult for families with low and middle incomes to make ends meet. Many families find it necessary to have two wage-earners, or one wage-earner with two jobs, in order to earn more than a livable wage and fulfill the family's needs. These families already pay property, sales, payroll, and federal income taxes, and need the remainder of their paychecks to purchase basic necessities.

Vermont should consider eliminating personal income taxes for people earning less than a livable wage, reducing them substantially for other low-income and middle-income wage-earners, and expanding the Earned Income Tax Credit that benefits low-income wage-earners. Eliminating the state personal

income tax for the 52% of Vermont income tax filers who report income less than \$30,000 would cost the state only \$20 million. Eliminating the tax for the 71% of filers who earn less than \$50,000 would cost about \$72 million (both using 2002 figures)⁵. Replacing this revenue could be made up with increases in energy or other taxes.

Payroll Tax

Payroll taxes are taxes paid by individuals and businesses to the federal and state governments for Social Security, Medicare, and unemployment insurance. Employees pay 7.65% of their paychecks for Social Security and Medicare, and employers must match these payments and pay for unemployment insurance. And, the Vermonters who are self-employed pay both the employee and employer portions of the tax (15.3% of their wages)⁶. During the past several decades, Congress has legislated a fundamental shift from income taxes to payroll taxes. Payroll taxes accounted for 12 percent of total federal revenues in 1960, and in 2000 they accounted for 33 percent⁷.

Payroll taxes have a number of disadvantages. They increase labor costs, which discourage businesses from hiring new employees. They are regressive, and hit low-income wage-earners, self-employed workers, and small businesses especially hard. For example, a person earning \$15,000 in wages has little or no income tax liability, but pays \$1,147 in Social Security and Medicare taxes, an amount matched by the employer. If self-employed, the same person pays \$2,295. An employee who earns \$30,000 and her employer together pay \$4,590. This tax burden is imposed on a wage level barely above that considered a livable wage in the state for an individual, and below that for even a small family⁸.

Employers pay more than one-half of the payroll tax, but this tax burden ultimately is paid by workers in the form of lower wages and unemployment. In addition, Social Security taxes are collected only on the first \$90,000 of pay, ensuring that low-income and middle-income wage-earners pay a larger

Studies have found that a significant number of families in Vermont earn less than a livable wage.



portion of their salaries in payroll taxes than those who earn the most.

Payroll taxes paid by businesses could be substantially reduced to encourage businesses to create more jobs and to create a more progressive tax system. Payroll taxes are collected by the federal government, but Vermont could simulate a payroll tax reduction by offering businesses a credit on their state corporate income taxes in proportion to the amount of annual payroll taxes they paid. As with the personal income tax, Vermont should consider eliminating payroll taxes paid by employees for people earning less than a livable wage, or sending them a refund of payroll taxes paid.

would reduce our energy use, and with it, the negative economic and environmental impacts, they also would make those who pollute most pay their fair share of the costs pollution creates.

Vermonters' energy use is quite different from that of the rest of the country. Due partly to the rural nature of our state, we use the greatest amount of our energy for transportation purposes; close to 50% of Vermont's total energy use in 2003 was for transportation. All residential uses of energy, including space heating, water heating, lighting, and other electrical uses accounted for about 37% of our total energy use in 2003. The remainder of our energy use was split between commercial and industrial sectors with commercial energy use representing the majority.⁹ About 70% of Vermont's energy use is fueled by products derived from oil: gasoline, diesel, fuel oil, and propane. The state uses relatively small amounts of natural gas and wood. Seventy percent of Vermont's electrical power is supplied by just two sources: Vermont Yankee Nuclear Plant and Hydro-Quebec. Neither of these sources is renewable as defined by Vermont law, but both are in significant danger of ending their power supply relationship with Vermont: in 2012 Vermont Yankee's license expires and the Hydro-Quebec contracts phase out over several years around the same time ending by roughly 2015. At present less than 12% of our electric energy needs are produced by renewable generating options.¹⁰

Because Vermont has a relatively small industrial sector, our energy use and the pollution that accompanies it come mostly from widely dispersed sources that are difficult to control through traditional regulations. Currently, traditional regulations attach costs to many of the larger, business-related sources of energy use and air pollution, but not to the more widely dispersed sources. Enlarging our energy and air pollution taxes to cover these widely dispersed sources would improve the fairness of our tax system.

These details of our energy use show where our greatest opportunities lie for reducing energy use and pollution. Fuels derived from

Vermonters' energy use is quite different from that of the rest of the country. Due partly to the rural nature of our state, we use the greatest amount of our energy for transportation purposes; close to 50% of Vermont's total energy use in 2003 was for transportation.

TAXES TO CREATE OR INCREASE

Taxes can work for us rather than against us. They can strengthen our economy and clean up our environment. And, they can do so equitably for those who pollute, for those who don't, and for our lower-income wage-earners. The following options are examples of taxes that Vermont could institute or increase, while decreasing the taxes described above, all in a revenue-neutral manner.

Energy and Air Pollution

Significant energy taxes would have the largest impact of any type of tax on cleaning up the environment, on correcting distorting economic impacts, on spending less money on out-of-state fuels, on reducing pollution-related health care costs, and on making polluters pay for their polluting activities. Energy use causes most of Vermont's air pollution, including emissions that cause serious respiratory health problems and global climate change. Energy use also causes much of our water pollution, due to oil runoff into lakes, rivers, and groundwater. In addition, energy is one of our most under-priced commodities, causing significant distorting impacts on the economy. Because most of the fuel Vermont uses is derived from oil, most of the \$1.4 billion we spend annually on energy leaves the state, resulting in an extensive drain on the statewide economy. Taxes on energy not only



oil, especially gasoline, account for most of our energy use and have very negative impacts on air quality, human health and the environment. Therefore, taxes that encourage gasoline conservation have the biggest potential for positive impacts in Vermont, and they should be our first priority. Taxes that encourage other forms of energy conservation also should be high priorities (see the Energy Efficiency section later in this chapter). The following four tax options work toward these goals.

MOTOR FUEL TAX

A motor fuel tax is an energy tax on the consumption of motor fuels, and it is usually measured in dollars per gallon of gasoline or diesel. Currently, Vermont's motor fuel taxes cover only some of the costs of building and maintaining roads and a very small portion of the environmental damage caused by driving. Raising motor fuel taxes would discourage the air and water pollution caused by driving, and encourage carpooling, driving efficient vehicles, commuting shorter distances to work, expanding public transit use and availability, and other environmentally beneficial measures.

Motor fuel taxes are commonly used by states and the federal government to raise some of the revenue needed to build and maintain roads. However in Vermont, substantial amounts of the revenue used to build and maintain roads come from property taxes and vehicle registration fees. Shifting these revenues away from property taxes and registration fees onto a motor fuel tax would incorporate more of the true costs of driving into the prices drivers pay.

Property taxes in Vermont fund about 20% of road construction and maintenance costs. Revenues from the state gasoline and diesel taxes contribute 19%, while state vehicle registration fees contribute another 25%.¹¹ The remainder of the revenues are raised from federal motor vehicle taxes and user fees, appropriations from the state's general fund, and other minor sources of funding.

In addition to road construction and maintenance, there are many other costs of driving that are not included in gasoline prices. For example, a substantial amount of the work of Vermont's local police and fire departments is directly related to transportation, in the form of emergency responses to vehicle accidents, vehicle fires, and traffic and parking problems.¹² But virtually none of the transportation-related work of local police and fire departments is funded through motor fuel taxes. Other costs not included in motor fuel prices are health costs from air pollution, costs to reduce the impacts of global climate change, cleanup costs from polluted runoff into Vermont's waters, accident and noise costs, military costs to protect foreign oil interests, the cost of maintaining the Strategic Petroleum Reserve, and lost tax revenues from oil companies' subsidies. There are on-going attempts to quantify the transportation costs not borne directly by the users; for example, a study of the Twin Cities, Minnesota region found that costs of congestion, crashes, air pollution, noise, fires and robberies, and petroleum consumption in 1998 were between \$285 to \$2,000 per person.¹³

Vermont's vehicle registration fees are used to pay for road construction and maintenance. However, registration fees represent some of the fixed costs of driving - costs that don't vary with the number of miles driven. If these registration costs were reduced or eliminated, and the revenue were raised through motor fuel taxes instead, we would encourage conservation, efficiency, and public transportation, without increasing total costs.

Drivers in Vermont pay 20 cents per gallon of gasoline and 26 cents per gallon of diesel in state motor fuel taxes and fees. The majority of the revenues raised from these taxes fund road construction and maintenance, thereby encouraging more driving. In 1997, Vermont raised the gasoline tax rate by four cents per gallon and the motor vehicle purchase and use tax by 1% in order to offset property tax reductions that fund education. Although small, this was Vermont's first significant tax shift. However due to changes from Act 68 starting in 2004, the revenue from the gasoline

In Vermont, substantial amounts of the revenue used to build and maintain roads come from property taxes and vehicle registration fees.



tax that funded education now funds transportation, and a larger portion of the motor vehicle purchase and use tax (1/3 instead of 1/6) now funds education.

While the carbon tax discussed below represents “the polluter pays” principle, the tax increases suggested here for motor fuels more closely approximate “the user pays” principle. Because Vermont’s current motor fuel taxes don’t even cover current road construction and maintenance costs, the user (the driver) does not pay for the immediate, direct costs of driving. Increasing the motor fuel tax further in the ways suggested here begins to shift those direct costs to the user.

How a motor fuel tax works

Motor fuel taxes usually are paid by fuel distributors, who pass the cost along to consumers. Because a motor fuel tax is already in place, it is not difficult to implement an increase in the tax rate.

Motor fuel taxes in other places

In 2003 the average state gasoline tax rate was 20.3 cents per gallon, and the average state diesel tax rate was 20.47 cents per gallon. Drivers in Vermont pay 20 cents per gallon of gasoline and 26 cents per gallon of diesel in state motor fuel taxes and fees. All of the New England states except New Hampshire have higher gasoline tax rates than Vermont. Rates range from 21 cents to 30 cents per gallon.¹⁴ Vermont could raise gasoline taxes and still remain within the range of New England tax rates.

Compared to other western industrialized nations, the U.S. has by far the lowest motor fuel prices and taxes. In late April 2005, the U.S. gasoline price was \$2.43 per gallon, while the price in the United Kingdom was \$6.20 and in Germany was \$5.83.¹⁵ As we might expect from such relatively low tax rates, the average American also uses more gallons of gasoline per year than people in other industrialized countries.

Motor fuel tax option for Vermont

- Place an additional tax on motor fuels of 4 or 5 cents per gallon (which would raise \$14 million or \$17.5 million respectively). A car-owner who drives 15,000 miles per year and gets 20 miles per gallon would pay only \$30 to \$38 more per year with this tax.
- * Use a small portion of the money raised to create stable funding for public transit. With the rest of the money, reduce property taxes and expand the renters’ rebate. Alternatively, reduce vehicle registration fees for cars, while continuing to assess registration fees on the heaviest vehicles that cause the most damage to roads.

MOTOR VEHICLE FEEBATE

A motor vehicle feebate program places a fee on purchases of inefficient vehicles, and gives a rebate for purchases of efficient vehicles. Because each new car purchased commits Vermont to many years of future energy use and emissions, we can create a cleaner and healthier environment and more efficient economy by encouraging people to buy efficient cars and discouraging them from buying inefficient ones.

A feebate program is a significant way to improve Vermont’s air quality. The average car emits one-third a ton of hydrocarbons, carbon monoxide, and oxides of nitrogen per year, and five or six tons of carbon dioxide emissions per year.¹⁶ The cumulative impact of the emissions from the 516,000 motor vehicles registered in Vermont is quite large.¹⁷ Moreover, emissions from motor vehicles are dispersed throughout the state, making them difficult to control. Setting air emissions standards for cars and trucks is one way to control these emissions. Tax mechanisms such as a feebate program are another way.

Feebate programs are appropriate because the average efficiency level of all the vehicles in use is declining. This is due largely to the phenomenal growth in market share of sport utility vehicles, vans, mini-vans, and

All of the New England states except New Hampshire have higher gasoline tax rates than Vermont.



pickup trucks during the past two decades. In 2004 these vehicles, called light trucks, accounted for a record 55% of vehicle sales in the U.S.¹⁸ In Vermont, 41% of all registered motor vehicles in 2003 were light trucks.¹⁹ In general, the fuel efficiency of light trucks is much worse than that of passenger cars. The city-driving fuel economy of 2005 sport utility vehicles ranges from 10 to 24 miles per gallon, that of vans and mini-vans ranges from 13 to 20 miles per gallon; and that of pickup trucks ranges from 9 to 24 miles per gallon.²⁰ Overall, average fuel economy for 2004 light trucks was 17.9 miles per gallon, compared to 24.6 miles per gallon for cars.²¹

Currently, the federal government assesses a fee, called a gas guzzler tax, on passenger cars that have combined city/highway fuel economy ratings of less than 22.5 miles per gallon. The tax ranges from \$1,000 to \$7,700 per vehicle, and is paid mostly by manufacturers of luxury sedans and high-performance sports cars.²² However, light trucks are exempted from this tax. Because most light trucks are gas guzzlers, and because they now are used as automobiles by most drivers, their exemption from the federal tax represents a loophole that should be closed. One estimate found that automakers avoided paying \$10.6 billion in gas guzzler taxes for 1999-model light trucks.²³

Gasoline prices have increased dramatically overall since early 2004; regular grade gasoline in the U.S. was about \$1.50 per gallon in January 2004, compared to \$2.10 per gallon in late March 2005.²⁴ However, the share of light truck sales (as a percent of the total) increased in 2004, despite the rising gasoline prices.²⁵ It remains to be seen whether gasoline prices will impact the sales of light trucks over the longer term. Analyses in March 2005 found that full-size SUVs and large pickups lost market share during the previous two months, while fuel-efficient compact cars gained market share.²⁶ Crossover vehicles, which have similarities to SUVs but are smaller and more fuel efficient, are also becoming more popular, and could be the fastest growing segment of car sales in 2005.²⁷

A feebate program not only sends a more accurate price signal about the full costs of driving to consumers when they purchase cars, it also encourages automobile manufacturers to increase the efficiency levels of their vehicles. In addition, a feebate program generally does not impact lower-income people, because most do not purchase new cars, and those who do tend to purchase smaller, cheaper, more efficient cars. A feebate program penalizes those who can afford it most — people who purchase expensive, large, luxury, and high-performance automobiles.

The average car emits one-third a ton of hydrocarbons, carbon monoxide, and oxides of nitrogen per year, and five or six tons of carbon dioxide emissions per year.

WHAT ARE CAFÉ STANDARDS?

The gas guzzler tax is not the only measure that can improve vehicle fuel economy. In 1975, Congress instituted the National Corporate Average Fuel Economy (CAFÉ) standards, which require auto manufacturers to maintain average fuel economies on their fleets, or pay large fines. The standards are 27.5 miles per gallon for passenger cars, and (until 2004) 20.7 miles per gallon for light trucks; these standards had not increased significantly since the early 1980s. However, the National Highway Traffic Safety Administration, which sets the standards, established small increases in light truck CAFÉ standards

starting with model year 2005 (21.0 mpg) through 2007 (22.2 mpg). In addition, it began a longer-term review of light truck CAFÉ standards, with the goal of issuing a final rule in 2006 that would establish new standards for vehicles in the 2008 model year. What makes a vehicle a car or a light truck is a major part of the review. In recent years, “crossover” models, based on car platforms, have qualified as light trucks to help manufacturers meet the CAFÉ standards for light trucks. Also under review is a provision that exempts some larger light trucks from the standards.²⁸



How a feebate program works

Under a feebate program, a fee is assessed on new purchases of inefficient vehicles, while a rebate is given to purchases of more efficient vehicles. Feebate programs can be revenue-neutral; the revenues collected from the fees can equal the revenues given for rebates. Alternatively, feebate programs can be designed to collect more revenues than are given in rebates, providing a funding source for the government. Feebate programs can apply only to new vehicle purchases, or new and used vehicle purchases. When programs apply to used vehicles, they usually do not apply to vehicles manufactured before the feebate program was started.

Almost all inefficient vehicles are expensive, while almost all efficient vehicles are much less expensive.

The fuel efficiency of vehicles can be determined in a variety of ways. Perhaps the most obvious way is to use the combined city/highway fuel economy rating determined by the EPA for each car. However, feebate programs also can use vehicle weight, engine size, or carbon dioxide emissions per mile as the determinant for fuel efficiency. Feebate programs can be structured to achieve varying efficiency goals. For example, a feebate program could be structured initially to place a fee only on a small percentage of the most inefficient vehicles.

One option states can use to implement a feebate program is to institute a sliding-scale sales tax. Vermont assesses a motor vehicle purchase tax of 6% on new car purchases, in place of a sales tax. That tax could be changed to a sliding-scale tax of 0% to 12%. Purchases of the most polluting vehicles would be taxed at 12%, while purchases of the most efficient cars would not be taxed at all. Purchases of average vehicles would be charged the same 6% rate they currently are charged. Under this type of feebate program, consumers aren't actually given rebates; instead, rebates are offered in the form of lower sales taxes.

This is an attractive option, because the mechanism for collecting the motor vehicle purchase and use tax already is in place, and because rebates do not have to be returned to consumers. In addition, this type of program

could be structured so that the cost of most vehicles would remain the same or decline, and only the cost of the most inefficient vehicles would increase. Almost all inefficient vehicles are expensive, while almost all efficient vehicles are much less expensive. Thus, when a 12% tax is assessed on one \$30,000 inefficient vehicle, the revenue can offset rebates for four efficient vehicles that cost \$15,000.

Feebates in other places

There are a number of other countries that implement feebate programs, including Germany, Austria, Denmark, and Ontario, Canada.

Feebate options for Vermont

- Design a feebate program for Vermont, in which residents who purchase new inefficient cars and light trucks or register inefficient cars and light trucks in the state for the first time must pay an extra fee, while residents who purchase or register efficient vehicles get a rebate.
- Determine the tax rate of each vehicle purchase by the efficiency of the vehicle, as measured by the EPA combined city/highway fuel economy rating, or by a surrogate, such as the vehicle weight, engine size, or carbon dioxide emissions per mile emitted by the vehicle.
- Design the feebate program to be revenue-neutral, raising the same amount of revenue as the current motor vehicle purchase and use tax raises.
- Structure the program so that the cost of most vehicles (about 70%-80%), including the tax, remains the same or decreases, while only the cost of the most inefficient vehicles increases. For example if a sliding-scale tax of 0% to 12% were used, a sport utility vehicle that costs \$35,000 and has a fuel economy rating of 14 miles per gallon, might have a tax rate of 12%, or \$2,100 more than would normally be paid at the current 6% rate. A car which



costs \$13,000 and has a fuel economy rating of 28 miles per gallon, might have a rate of 3%, or \$390 less than would normally be paid at the current 6% rate.

- Exempt agricultural vehicles, school buses, trailers, and commercial timber-related and construction-related vehicles for small businesses from any motor vehicle tax greater than 6%.

SALES TAX ON FUEL

Vermont's general sales tax of 6% applies to most products sold at the retail level. However, some products are exempted, such as food, agricultural feed and seed, prescription drugs, and strangely enough, most fuels. Currently, only fuels sold to commercial establishments are subject to the sales tax. Fuels used in the residential, industrial, and farm sectors are exempt from the tax, as are all motor vehicle fuels.

These sales tax exemptions are in place for various reasons. The residential energy exemption was introduced to compensate for the energy price shocks of the 1970s. The sales tax on industrial fuels was phased out in the 1990s to increase the competitiveness of Vermont-made products. Motor fuels have always been exempt from the sales tax.²⁹

The estimated lost revenue from Vermont's energy sales tax exemptions is significant. For example, the state loses about \$38 million annually by exempting gasoline from the sales tax. (By comparison, the state raises \$317 million from the sales and use tax.³⁰) As a result, one of Vermont's largest retail sectors – energy sales – does not support state services.

Vermont's sales tax exemptions on fuel work directly against economic and environmental goals. The exemptions result in a tax break for the two activities that cause the most energy use and air pollution in Vermont: driving and heating homes. Sales tax exemptions make it cheaper to waste energy and pollute, and more expensive to make efficiency improvements. And because most products except food are taxed in Vermont,

sales tax exemptions on fuel lower the relative costs of energy, making energy-intensive options less expensive than they otherwise would be and distorting the efficiency of the marketplace.

How a fuel sales tax works

A sales tax on fuels works the same way as our sales tax on other products. The tax is assessed on the cost of fuel at the time of its final sale.

Some have argued that we should not place a sales tax on motor fuels, because there already are state and federal taxes on motor fuels. However, motor fuels taxes cover part of the costs of building and maintaining roads and other transportation projects, and in this sense, are "user fees." Motor fuel tax revenues do not contribute to the state's general fund, as sales tax revenues do.

Some states assess the sales tax on motor fuels on the fuel cost before state and federal motor fuel taxes are assessed. Other states assess sales taxes after the motor fuel taxes are assessed. When a sales tax is applied to the full sales price of motor fuels, it effectively taxes our use of roads, paying for the costs we generate by using the roads.

Removing the sales tax exemptions on fuels used for residential purposes could negatively impact Vermonters with low incomes by increasing the costs of essential items. As a result, extra measures to compensate low-income wage-earners should be introduced when a residential fuel sales tax exemption is removed. For example, an initial, fixed amount of electricity and heating fuel could be exempt from the sales tax for all Vermonters. Because many Vermonters with low-incomes also have inefficient homes and appliances, this policy would work best when combined with a very strong weatherization assistance program for people with low incomes.

Fuel sales taxes in other places

A number of states place sales taxes on motor fuels, as the table above illustrates.

Vermont's general sales tax of 6% applies to most products sold at the retail level. However, some products are exempted, such as food, agricultural feed and seed, prescription drugs, and strangely enough, most fuels.



Sales Tax Rates on Motor Fuels in Selected States³¹

Connecticut	5% gross earnings tax
Georgia	3% "second motor fuel" tax + 1% sales tax
Hawaii	4% sales tax
Indiana	5% sales tax
Maryland	5% sales tax on fuels not taxable under state motor fuel tax laws
Massachusetts	5% sales tax on fuels not taxable under volume tax laws
Texas	6.25% sales tax on fuels not taxed or exempted under other laws

Fuel sales tax option for Vermont

- Place a sales tax of 6% on gasoline and fuels used for residential purposes. Taxing gasoline would raise \$38 million per year, and taxing residential fuels would raise \$33 million per year,³² for a total of \$71 million. Continue to exempt fuels used for industrial purposes from the sales tax, to avoid competitiveness issues. Or, assess the sales tax on fuels used in the industrial sector at a lower rate. Continue to exempt fuels used for farming from the sales tax, to help preserve Vermont's agricultural sector.
- With the money raised, reduce the property tax; expand the renters' rebate; and contribute additional funds to the Low Income Heating Energy Assistance Program and the Weatherization Assistance Fund.

CARBON TAX

A carbon tax is an energy tax placed on the carbon content of fuels, and usually is measured in dollars per ton of carbon contained in each fuel or dollars per ton of carbon dioxide emissions. A carbon tax discourages fossil fuel energy use and its corresponding carbon dioxide emissions that lead to global climate change.

Global climate change, or global warming, refers to the warming of the earth and the accompanying climate changes caused by the "greenhouse effect." When gases such as carbon dioxide trap and absorb heat in the earth's atmosphere that otherwise would have

radiated into space, a greenhouse effect occurs, thereby warming the earth.

Many gases that cause the greenhouse effect occur naturally and have helped to make the earth a habitable environment. However, human activities, especially fossil fuel use, have substantially increased the amounts of greenhouse gases in the atmosphere. The Bush Administration commissioned a study by the National Academy of Science four years ago, which concluded that climate change is already occurring, and that human emissions of greenhouse gases are the primary culprit behind the warming. This report was only one of many reports written in the U.S. and abroad that confirms that if substantial action to reduce greenhouse gas emissions is not taken soon, our society may face drastic impacts on our economy, public health, and way of life.

Predictions by the Intergovernmental Panel on Climate Change and other scientific bodies warn that global warming may radically change the earth's climate and produce unpredictable effects in local temperature ranges, precipitation patterns, sea levels, and the incidence of extreme weather events such as floods, droughts, fires, and heat outbreaks. In addition, global climate change may have severe impacts on all natural ecosystems, agriculture, forestry, coastal communities, water resources, urban infrastructure, and many other aspects of human life. Future generations likely will face enormous costs in coping with the impacts of such a quickly changing climate. Vermont's ecosystems and economy have already experienced changes, such as a decrease in average snowfall since the 1950s, and more erratic and later foliage

Human activities, especially fossil fuel use, have substantially increased the amounts of greenhouse gases in the atmosphere.



and maple syrup seasons. In the future, we are likely to face many uncertain impacts, including impacts to our agricultural and dairy sectors, sugaring operations, ski areas, and other tourist-related businesses.

With global climate change already underway, and with current energy use committing the earth to further warming, it is important to begin to limit the impacts now through measures such as a carbon tax. Fossil fuel combustion emits several gases that contribute to global climate change, but carbon dioxide emissions are by far the most serious because these emissions are the greatest.

Carbon dioxide is emitted from cars, trucks, and other vehicles, as well as oil-fueled, propane-fueled, and natural gas-fueled furnaces, boilers, water heaters, stoves, clothes dryers, and manufacturing equipment. Coal, oil, and gas electric generating plants also emit carbon dioxide. Because it is emitted from many dispersed sources, carbon dioxide emissions are difficult to control through regulations. A carbon tax is a more appropriate mechanism and is one of the most effective ways to discourage carbon dioxide emissions and energy use, encourage conservation and efficiency, and encourage switches to fuels with lower carbon content (such as natural gas) or no carbon content (such as wind power).

Greenhouse gas emissions in Vermont

Vermonters emitted about 1.84 million MTCE (metric tons of carbon equivalent) of greenhouse gases in 2001 from energy use.³³ Vermont's 2001 greenhouse gas emissions, excluding the electric power sector, were 23 percent above the 1990 levels. A recent report found that consumption of gasoline, diesel, heating oil, natural gas, and coal-fired and natural gas-fired electric power have all increased since 2001 in New England, with a parallel increase in emissions.³⁴

The state may be headed for an increase in greenhouse gas emissions from the electric power sector in the next 10 years, due to the expiration of power from state's two largest sources. In 2015, the state's contract will expire

with Hydro Quebec, which currently supplies about 30 percent of the state's electricity; whether the contract will be renewed, and at what level, remains uncertain. Additionally, the operating license on Vermont's Yankee nuclear reactor expires in 2012; for environmental, public health, and safety reasons, state officials should support its on-schedule retirement.³⁵ Replacing these major power sources without causing a jump in greenhouse gas emissions will be a challenge.

Transportation is the most significant source of greenhouse gas emissions in Vermont, accounting for about 55% of emissions.³⁶ Average Vermont drivers travel 17,000 miles each year in their cars, emitting about 6.8 tons of carbon dioxide per car per year.³⁷

How a carbon tax works

A carbon tax usually is assessed as dollars per ton of carbon contained in each fuel, or dollars per ton of carbon dioxide emissions. Since the carbon contents and carbon dioxide emissions of fuels are known, possible tax rates for various fuels are easily calculated.

Various rates for carbon taxes have been widely debated. In the early 1990s, the federal government estimated that a carbon tax of around \$100 per ton of carbon would stabilize the nation's carbon dioxide emissions at their 1990 levels by 2000, a goal of the 1992 Earth Summit. The Vermont Department of Public Service estimated that in order to meet the same goal in Vermont, a much higher tax rate would be necessary, due to Vermont's small use of fossil fuels for electricity and lack of transportation alternatives. Lower tax rates also have been discussed. Although these numbers are out-of-date, the state estimated that a tax rate of \$50 per ton of carbon (if instituted in 1997) would raise around \$107 million in 2000 and reduce greenhouse gas emissions by about 215,000 tons compared to current practices.³⁸ More recent discussion by the Regional Greenhouse Gas Initiative, a working group launched by New York Governor Pataki, may end up recommending forgoing a carbon tax of any kind in favor of a northeastern regional cap. All of

Vermont's 2001 greenhouse gas emissions, excluding the electric power sector, were 23 percent above the 1990 levels. A recent report found that consumption of gasoline, diesel, heating oil, natural gas, and coal-fired and natural gas-fired electric power have all increased since 2001 in New England, with a parallel increase in emissions.



these strategies have relative strengths and weaknesses, but it is our conclusion that an active carbon tax is the most effective way to encourage efficiency of fuel use, protect the environment, and grow our economy.

The most efficient way to administer a carbon tax is to assess the tax on fuels as close as possible to the point at which they enter the state's economy. For example, the tax would be assessed when each fuel is purchased by businesses or individuals for use or resale within Vermont. This collection method would minimize the number of tax collection points.

Although wood emits carbon dioxide when burned, if wood is harvested sustainably, new tree growth recaptures as much carbon as is lost through burning.

A tax on electricity generated from nuclear sources should also be combined with a carbon tax. While nuclear energy does not emit carbon dioxide, it does produce radioactive waste - a dangerous pollutant that remains hazardous to humans and the environment for millions of years. Nuclear energy often is taxed at the same rate as an oil-fueled or coal-fueled electricity plant to represent the comparatively high environmental costs of nuclear power. Large hydropower generating facilities also could be taxed because of their negative impacts on rivers, surrounding lands, and local populations.

Fuels used for manufacturing often are exempted from some or all of the carbon tax burden. Because most industries compete nationally and globally, a localized carbon tax can limit industries' competitiveness, encouraging them to relocate. Until the entire nation and other industrialized countries levy a carbon tax on industry, calls to exempt the industrial sector from localized carbon taxes will continue.

In addition, wood energy use can be exempted from the tax. Although wood emits carbon dioxide when burned, if wood is harvested sustainably, new tree growth recaptures as much carbon as is lost through burning.

Carbon taxes in other places

Eight European countries enacted carbon taxes in the 1990s (Denmark, Finland, Germany, Italy, Netherlands, Norway, Slovenia, Sweden), and England followed in 2002. France, Belgium, and Luxembourg currently are considering carbon taxes, as is the European Union collectively. Most of the countries with carbon taxes continue to exempt industry from carbon taxation. In Finland, which has the highest carbon tax in Europe, carbon dioxide emissions fell by 7% between 1990 and 1998. Sweden saw a 9% reduction in carbon dioxide emissions between 1991 and 1994.³⁹ In the developing world, Costa Rica has enacted a 15% tax on fossil fuels. The revenues raised fund a program that encourages private landowners to adopt practices that increase the sequestration of carbon dioxide.⁴⁰

There are no true carbon taxes in the U.S., but New Jersey has undertaken an initiative that resembles partial carbon taxation. In 2001, New Jersey enacted a "social benefit charge" attached to every utility bill at a rate of \$.026 per kilowatt hour. It is estimated that this "mini carbon tax" will generate \$358 million each year in state revenues. Seventy-five percent of the revenues are earmarked "to help buy down the cost of energy efficiency and to transform the marketplace for energy efficiency." The remaining revenues are used to create a Renewable Energy Fund to assist the development of solar, wind, and fuel cell development and to "buy down the cost of these technologies and assist in market transformation."⁴¹

Carbon tax option for Vermont

- Assess a carbon tax on fossil fuels used in Vermont. In addition, assess a tax on nuclear energy and large-scale hydroelectric power, to eliminate their comparative advantage under a carbon tax. A recent report estimates that a \$100 per ton carbon tax would have raised \$216.2 million in 2004. If an accompanying tax of \$0.0084 per kilowatt hour were placed on nuclear and large hydropower, revenues



raised would have been \$364.5 million in 2004.⁴²

- Exempt fuels used in the industrial sector from the carbon tax, as is done in Europe, to avoid competitiveness issues. Or, assess the carbon tax on fuels used in the industrial sector at a lower rate.
- Exempt fuels used for farming from the carbon tax, to help preserve Vermont's agricultural sector.
- Exempt wood energy use from the carbon tax.
- Eliminate the current gasoline tax, diesel tax, sales tax on commercial energy, utilities gross receipts tax, and fuel gross receipts tax. These taxes amounted to \$116.1 million in 2004.⁴³
- Spend the remaining revenues (\$100.1 million, or \$248.4 million if nuclear and large hydro are taxed) in the following ways:
 - 1) **Residential sector:** Provide a yearly flat refund to all Vermont households; or eliminate the state income tax on all Vermonters earning less than \$50,000 per year; or increase funding of the Weatherization Assistance Program and the Low Income Heating Energy Assistance Program; or some combination of the above options.
 - 2) **Commercial sector:** Provide a yearly refund to all Vermont businesses in the commercial sector, calculated as a percentage of the company's yearly FICA/Medicare payments to the federal government; or eliminate corporate income taxes, which amounted to \$31.3 million in 2004; or provide funding to improve energy efficiency in commercial establishments; or some combination of the above options.
 - 3) **Transportation sector:** Provide funding for public transportation and alternative and low-emission vehicles.

Water Pollution

Clean lakes and rivers are essential for environmental health, and safe drinking water is critical for good human health. Water pollution occurs when pollutants run off directly into lakes and rivers, or enter the groundwater and eventually contaminate drinking water sources.

Vermont's water pollution, like our air pollution, is increasingly the result of many small, widely scattered sources, such as pesticide and fertilizer runoff from farm land, road salt and oil runoff from developed land, failed septic systems, and leaking underground oil storage tanks. Vermont has made some progress on controlling water pollution from large sources, but has not made enough progress on reducing pollution from these smaller, scattered sources.

Vermont currently assesses fees on pollutants discharged directly into waters. However, the fees collect only a small amount of money each year, and do not cover smaller, widely scattered polluters. Additional taxes are an excellent method of including some of the human and environmental costs of water pollution into the prices of these dispersed, polluting activities. Vermont already assesses a one-cent-per-gallon tax on gasoline and diesel for cleaning up leaking oil storage tanks. Higher motor fuel taxes would help to include some of the costs of water pollution, as well as other costs, into the price of motor fuels (see the section on motor fuel taxes). A pesticide and fertilizer tax, which also would help protect our water quality, is described below.

PESTICIDE AND FERTILIZER TAX

Taxes placed on pesticides and fertilizers help protect human and environmental health that can decline from polluted surface water and groundwater. In addition, such taxes include some of the costs of water pollution into the prices of pesticides and fertilizers. One estimate places the environmental and social costs of pesticide use in the U.S. at \$10 billion per year.⁴⁴

Vermont's water pollution, like our air pollution, is increasingly the result of many small, widely scattered sources ...



In fiscal year 2003, Vermonters used about 36,000 tons of fertilizer, with the highest levels of use in the agricultural Addison and Franklin counties.⁴⁵ Commercial pesticide applicators in Vermont used about 561,000 pounds of active pesticide ingredients in 2003; by poundage of active ingredients, the largest three areas of application were in cooling waters or other waters used in industrial processing, around human dwellings, commercial establishments, or institutions⁴⁶ (62%); corn crops (29%), and golf courses (5%).⁴⁷

How a pesticide and fertilizer tax works

Pesticide and fertilizer taxes can be assessed as a percentage of wholesale or retail sale prices. Alternatively, they can be assessed as a per pound tax on the nitrogen content of fertilizers and on the active ingredients in pesticides. Other options include taxes levied at the point of manufacture; registration fees for products, manufacturers, or retailers; dealer licensing; permit and certification fees for applicators; and inspection fees.

Currently, Vermont levies fertilizer product registration fees, company license and application fees for pesticide dealers, fertilizer tonnage tax, and pesticide product registration fees; the latter of these raises about 78% of the total \$932,000 raised annually by all of these fees.⁴⁹

In 2002, a Vermont sales tax exemption on pesticides and fertilizers for non-farming was removed. However, Vermont still exempts all pesticides and fertilizers used “directly in the production for sale of tangible personal property on farms” from the 6% sales tax. Removing these exemptions would be a good next step in including some of the costs of fertilizer and pesticide use into their prices.

Pesticide and fertilizer taxes in other places

Iowa and California have instituted pesticide and fertilizer taxes. Pesticides in California are taxed at 2.1% of wholesale value.⁵⁰ Iowa introduced a system of pesticide and fertilizer taxes in 1987 to protect groundwater. Iowa’s system established a scheme to raise revenue in three ways: pesticide manufacturing registration fees, pesticide dealer licensing fees, and fertilizer taxes.⁵¹ Several European countries also use pesticide taxes, including Sweden, Belgium, Norway, Finland, and Denmark.⁵² In Denmark, for example, a program started in 1986 reduced pesticide use by more than 50 percent within 10 years.⁵³

Fertilizer use on farms is one of the primary sources of Vermont’s phosphorus discharges.

The pollutant with the most damaging impact to Vermont’s surface waters is phosphorus, which encourages excessive plant and algae growth that kills fish and other life forms. Virtually all of Vermont’s streams and lakes are at risk from phosphorus discharges. Lakes Champlain and Memphremagog are particularly vulnerable to phosphorus discharges because more than one-half of the state’s land area drains into them, including most of our prime agricultural lands and many of our settled areas. Fertilizer use on farms is one of the primary sources of Vermont’s phosphorus discharges.

Groundwater also can be contaminated from pesticide and fertilizer runoff, which is an important concern in rural areas where people get their water from wells. Vermont’s Pesticide and Groundwater Monitoring Program has tested wells adjacent to agricultural land for the presence of pesticides and fertilizers since 1986. The major focus of the program is on testing groundwater for corn herbicides because, with the exception of chemicals used for cooling towers and water treatment, corn herbicides are used more than any other group of pesticides. The program also tests surface and groundwater near other types of land use where pesticides and fertilizers are used, including large farms, golf courses, and along highways, electric power lines, and railroads. As of 2002, 1,215 wells have been tested. Of the wells tested since 1998, 23% tested positive for a level of nitrates (coming from fertilizer use) that requires corrective action. Based on the current sampling results, only 4% of the wells showed traces of herbicides.⁴⁸



Pesticide and fertilizer tax option for Vermont

- Gradually introduce a system of pesticide and fertilizer taxes in the state over a period of several years. As a next step, remove Vermont's 6% sales tax exemption on pesticides and fertilizers used for farming.
- Provide substantial tax credits to farmers.
- In conjunction with these tax policies, provide financial subsidies and technical assistance to help farmers move toward low-impact and organic farming.

Solid Waste

Higher taxes on the solid waste we generate would be a powerful mechanism for reducing waste and resource use in Vermont. Every discarded item required energy and natural resources to produce it. Low-cost solid waste disposal simply encourages more energy and natural resources to be used because more items are discarded. In addition, solid waste disposal can contaminate groundwater and surface waters, use up valuable land, and place additional burdens on future generations who must live with landfills that continue to pollute groundwater.

Vermont generates less hazardous waste than most states, because our industrial sector is relatively small. However, we generate about the same amount of solid waste per capita as the rest of the country — about 3.4 pounds per person every day.

High taxes on waste disposal would encourage innovation and thrift as individuals and businesses found ways to reduce their own waste. Such taxes would be most effective if complementary programs were undertaken at the same time to reduce illegal dumping and help people reduce their waste through composting and recycling. In addition, Vermont's deposit/refund program for beverage containers has been very successful in diverting a substantial waste stream from our landfills. Adding beverage containers that currently are exempted to that program, and

increasing the deposit on each container could result in even more waste being reused and recycled. While a deposit/refund program is not identical to a tax, it functions much like a tax for consumers who don't collect the refund.

SOLID WASTE TAX/ VARIABLE PRICING PROGRAM

Taxing solid waste based on its weight or volume and ensuring that taxpayers can reduce their tax payment through conservation has good potential to reduce our solid waste stream, conserve resources, and reduce the costs of human and environmental health problems.

Vermont currently assesses a tax on solid waste generated in the state, paid by operators of solid waste facilities and waste transfer facilities. The tax raised about \$3.2 million in 2004, and the funds are earmarked for solid waste management activities. Some Vermont municipalities and cooperatives also charge a per capita or a per ton waste tax on top of the state tax. The two permitted lined landfills in Vermont are projected to reach capacity in about seven years at current rates of fill.⁵⁴

Taxes are effective at reducing undesirable activities only when the tax rates are set high enough to influence behavior and when the taxpayers can reduce their tax payment by changing their activities. Thus, solid waste tax policies should ensure that consumers pay in proportion to the amount of waste they generate.

The solid waste disposal rates paid by most businesses are based on the volume or weight of the waste they generate, or the frequency of their trash pickup. However, the same is not true of the rates paid by many residential customers. A growing number of communities around the country base residential waste disposal rates on the number of trash bags discarded or the size of their trash can. Called pay-as-you-throw (PAYT) programs, these pricing schemes are not only fairer — people pay only for the waste they discard — they encourage more people to reduce their waste. According to the EPA, pay-as-you-throw

We generate about the same amount of solid waste per capita as the rest of the country — about 3.4 pounds per person every day.



programs have expanded rapidly — from 1,800 communities in 1980 to more than 6,000 today. A study in 1999 found that 88 Vermont municipalities used PAYT programs.⁵⁵ PAYT is one of the tools being promoted in Vermont's current Solid Waste Plan.⁵⁶

How solid waste taxes and pay-as-you-throw programs work

Solid waste taxes often are assessed on waste haulers, who generally pass the costs on to their customers. Alternatively, sales taxes can be placed on garbage pickup services.

An estimated 90%-95% of the containers available for refund were returned in 2000 in Vermont.

Most pay-as-you-throw programs for residential customers in the U.S. charge people for each bag or can of waste they generate. Many communities distribute distinctively marked cans or bags. Others use stickers or tags, which residents affix to the bags or cans they set out for collection. A few communities bill customers based on the weight of their trash.

Solid waste taxes and pay-as-you-throw programs in other places

Many states and countries assess some type of solid waste taxes. European countries have been especially successful in reducing waste with these taxes. In the U.S., many communities use pay-as-you-throw programs with success. For example, in Williamsburg, Iowa, residential waste fell from 20 tons per day to 7 tons per day after PAYT was implemented. Falmouth, Maine enacted a pay-per-bag program in 1992, and reduced the solid waste disposed by 900 tons per year, saving the town \$50,000 in landfill tipping fees. In Gainesville, Florida, residents were able to choose three trash cart sizes at different monthly rates, starting in 1994. One year later, the waste disposed in the city fell by 4,000 tons, and the waste that was recycled increased by 25%.⁵⁷

Solid waste tax option for Vermont

- Increase the solid waste tax to raise more revenue and provide a stronger disincentive to create waste.

- Require municipalities and waste haulers to institute pay-as-you-throw pricing for residential customers and to continue using variable pricing for commercial customers.
- In conjunction with these tax policies, provide revenues to subsidize recycling, composting, and other programs that help people reduce waste.

DEPOSIT/REFUND PROGRAM FOR BEVERAGE CONTAINERS

Vermont currently requires a five-cent deposit to be placed on the sale of many beverage containers, and the deposit is refunded to consumers when the empty containers are returned to a redemption center or retailer. The law was enacted in 1972 and expanded in 1987. An estimated 90%-95% of the containers available for refund were returned in 2000 in Vermont.⁵⁸ Improving this program by closing a loophole would result in even more recycling and waste reduction.

Currently, the five-cent deposit is required on the sale of glass, metal, paper, or plastic containers of beer, malt beverages, mineral waters, mixed wine drinks, soda water, and carbonated soft drinks. However, juice, teas, sports drinks, and bottled water are exempted from the program — such bottled drinks were not widely available when Vermont's bottle bill was enacted.

However, these drinks now account for a significant portion of all beverages sold and their sales are projected to continue to increase. The biggest growth in bottled beverages currently is bottled water; total bottles of water sold in the U.S. jumped from 3.3 billion in 1997 to 15 billion in 2002.⁵⁹

Including these beverages in the deposit/refund program would be administratively simple and would easily improve Vermont's recycling rates, reduce resource use, and save landfill space.

Increasing the deposit from 5 cents to 10 cents on most beverages has been proposed as well. Vermont Senator Jim Jeffords introduced



a national “Beverage Producer Responsibility Act” in November 2003, that would have: expanded container deposit legislation to include wine, liquor, juice, teas, sports drinks, and bottled water; established a 10-cent deposit on every container; allowed the deposit value to rise with inflation; and required that every beverage brand owner achieve a national 80% recycling rate for their beverage containers. The Container Recycling Institute estimates that an 80% national recycling rate for beverage containers would save the equivalent of more than 40 million barrels of oil a year.⁶⁰

How a deposit/refund program works

The mechanics of Vermont’s deposit/refund program are described in Chapter 3. Adding new beverage containers to the program or increasing the deposit would not change these procedures.

Deposit/refund programs in other places

Eleven states currently have deposit/refund programs. Maine, California, and Hawaii’s laws cover beverages such as juice, sports drinks, teas, and bottled water.⁶¹ After implementing bottle bills, seven states reported a reduction of beverage container litter ranging from 70 to 83 percent, and a reduction in total litter ranging from 30 to 47 percent. High recycling rates were also achieved.⁶²

Deposit/refund program option for Vermont

- Expand Vermont’s current deposit/refund program to cover all non-carbonated beverage containers except milk containers and containers made primarily of paper.
- Increase Vermont’s deposit on most beverages from five cents to ten cents.
- Consider instituting a deposit/refund program on other types of standard food packages.

Land Use

Sprawl is threatening to change the state’s traditional rural landscape, our sense of community, and the vitality of our downtowns. Vermont has preserved many of its compact villages and towns, but in many parts of the state, pressures to develop outside the downtown centers are strong. Vermont could harness taxes to help reverse this trend.

Exempting downtowns from Vermont’s sales tax is one mechanism that could help preserve the economic activity in our historic downtowns.

There are a variety of other ways taxes could be used to improve our land use. The current capital gains tax on speculative land sales could be increased. The capital gains tax rate could be lowered for socially beneficial land use transactions. Assessing property taxes in downtown centers based on the value of land rather than the value of buildings and improvements is discussed below.

LAND VALUE TAX

A property tax is actually two taxes rolled into one: a tax on the value of the land, and a tax on the value of buildings and other improvements. A land value tax is a property tax that falls only or mostly on the value of the land, instead of on the value of the buildings and improvements. This taxation arrangement encourages compact development and improvements on valuable land. If used carefully, a land value tax can decrease sprawl, preserve open space, and encourage compact development in our downtowns, ensuring their economic viability.

Land value taxation is not a new idea; classical economists in the early 1800s were land value tax enthusiasts, and economists today continue to discuss the idea. Land value taxation has been attractive to many economists because, in theory, it should cause no distortions in economic decision-making.

Land receives its value based on its location. Land values rise when new amenities such

Pressures to develop outside the downtown centers are strong.



as a park or library are built nearby; when new infrastructure, such as a road or sewer line, is built nearby; and when neighborhoods become more popular, safe, or change in other ways. The factors that determine land values are generally beyond the control of property owners.

If Vermont communities decreased their taxes on building values and increased their taxes on land values in their downtown centers, property owners would have incentives to build on, maintain, and improve their properties. Tax rates can be set so that most property owners would have to build on, maintain, or improve their buildings in order to pay their taxes. This, in turn, would promote compact development and more efficient use of infrastructure such as roads and sewers. Property owners who had improved their buildings in the past would be in a favorable position, while those who had let their buildings deteriorate would be encouraged to make improvements or sell the property.

Taxing land values instead of building values in Vermont's downtowns could create pressure to develop important green space in our downtowns. Thus, policies that permanently protect green space valued by the community should be undertaken in conjunction with land value taxation schemes. Other protection measures also may be required with land value taxes, such as building height limitations and careful zoning district boundaries. Implementing a land value tax outside downtown centers would be more complicated and would require careful consideration; additional protection measures likely would be needed.

How a land value tax works

A land value tax falls only or mostly on the value of the land, instead of on the value of the buildings and improvements. Communities usually have jurisdiction over the administration of the tax. Land value taxes can be phased-in gradually and can be revenue neutral or revenue-positive.

Land value taxes in other places

Pennsylvania has pioneered the use of the land value tax in the U.S. The state empowers cities and boroughs to decrease their taxes on buildings and increase their taxes on land if they choose. Currently, 18 cities use this approach, including communities of varying sizes. Communities determine the ratio at which they tax land in comparison to buildings. The land value tax has helped to revitalize some of Pennsylvania's cities.⁶³

Land value taxation is more widely used in other countries, including Denmark, South Africa, and some parts of Australia. More than 700 cities worldwide use a system where land is taxed at a higher rate than improvements.

Denmark began assessing the national property tax on the value of the land only in 1844. The land value tax was abolished and replaced with a flat rate tax on land and improvements in 1903, but farmers, who were hurt by the change, lobbied for a return to the land value tax. The tax on improvements was never removed entirely, but today all cities in Denmark use a graded property tax. South Africa started using land value taxation in 1914. By the 1980s, more than one-half of its largest cities used land value taxes. In Australia, taxes are levied on the "unimproved value" of each land parcel; the tax is only applicable to urban areas. Canada introduced land value taxation in its four western provinces in 1903 in an effort to discourage speculation and encourage construction. Today, all the cities in these four provinces either exempt improvements when assessing property taxes, or tax improvements at a lower rate than land.⁶⁴

Land value tax option for Vermont

- As a first step, based on the recommendations of the January 15, 2002, Downtown Task Force Report, the 2002 General Assembly passed Act 114. This Act required the Legislative Council and the Joint Fiscal Office, with the assistance of the Agency of Administration and the Department of Taxes, to study the feasi-



bility of a land value, split-rate or two-tier tax system that would allow municipalities to levy in any year separate and different rates of taxation on land and buildings in designated downtowns. The analysis evaluated the impacts on state and local revenues and state policy objectives, including preservation of downtowns. The study was to be submitted to the Senate Committee on Finance and the House Committee on Commerce by January 15, 2003. This study should be used to form the basis for state enabling legislation, that would allow cities and towns to use land value taxation if they choose.

- Allow cities to determine the proportion of the property tax that will be raised from land values and the proportion raised from buildings and improvements.

Energy Efficiency

The production and use of energy is one of the greatest threats to Vermont's environment today. Both the production of electricity, and its use in everything from lighting to motors has a significant inefficiency or "waste" associated with it. More broadly, pollution in any form can be understood as waste: the result of an incomplete or unsustainable action that generates, in addition to its primary purpose, products that provide no benefit, or actually harm society or the economy. Whether that waste is spent nuclear fuel, water pollution, or carbon dioxide, the result is that society must expend limited resources to "clean up" this waste rather than investing it back into the production of things society wants. If we understand energy policy from this perspective it becomes clear that one of the most effective uses of a "tax shift" can be to help decrease waste in our economy by encouraging efficiency.

We have already discussed addressing inefficiency in our economy by using tax shifts to create more accurate price signals on the costs of transportation, heating and other applications. But Vermont can also benefit from 'raising the floor' on our total efficiency

by using the tax code and the pricing structure of monopoly regulated energy businesses to provide incentives for efficiency and conservation and discourage waste.

THE ENERGY EFFICIENCY UTILITY/ SOCIETAL BENEFITS CHARGE

Recognizing the benefits of efficiency, in 1999 the legislature and Vermont Department of Public Service ("DPS") created the Energy Efficiency Utility ("EEU") program, which is funded by a 'societal benefits charge' ("SBC"). The SBC functions like a tax on electricity, charging a fraction of a cent on each watt of electricity to pay for the EEU's total budget, which is presently capped at \$17.5 million. In return, the EEU contractor supplies efficiency services to all Vermonters, stimulating investments in efficiency in buildings appliances and equipment that lower the state's total electric bill and save Vermonters money.

The cheapest and cleanest way to meet electricity demand in Vermont today is through efficiency. Efficiency Vermont (EVT), the state's current EEU contractor, consistently supplies efficiency services at a cost of 2.9 cents/Kilowatt hour. This is compared to the roughly 6-8 cents/KWh that it costs to purchase electricity from the market. In addition, this is electricity never used, so it does not generate greenhouse gases (GHGs), nuclear waste, air toxics or other pollution. Between 2000 and 2003 EVT saved Vermonters 156 Megawatt hours, or just less than 3%, of their current electricity energy use. EVT reports over 58 thousand MWh of annual efficiency savings for 2004. By 2020, even at current low rates of investment it is likely that EVT's efforts could meet 15% of Vermont's electric energy needs.

Increased Societal Benefits Charge option for Vermont

If we assume an annual rate of growth in electric consumption of 1.5%, then over the next 15 years, Vermont's electricity demand will increase from roughly 6,000 Gigawatt hours, to 7,600 GWh, a 27% increase, far outpacing the EEU's ability to meet our needs.

One of the most effective uses of a "tax shift" can be to help decrease waste in our economy by encouraging efficiency.



But with appropriate investment Vermont could come very close to holding its actual energy consumption at current levels. To do so the state will need to gradually ramp up the funding for the EEU, likely doubling the EVT budget from approximately \$16 million a year to \$32 million a year during the next 10-15 years.

Vermont's 2005 omnibus renewable energy law approved removing the "cap" on what can be raised through the SBC to fund efficiency programs. Starting in the summer of 2005, a series of workshops were convened at the Public Service Board in order to determine the appropriate increase in efficiency investment. A ruling on this tax shift by the Public Service Board is expected in summer of 2006.

TRANSMISSION AND DISTRIBUTION LEAST COST PLANNING OPTION

A troubling feature of the system that funds major expansions of the regional transmission system is that there is region-wide "sharing" or "socialization" of the costs of investment in "poles and wires" that would improve electric system reliability. There is not, however, a policy of sharing the costs of less environmentally damaging alternatives to building transmission lines. This financing structure virtually ensures that in every situation the choice will be to "build" poles and wires, rather than to invest in efficiency and distributed small-scale generation that might make them unnecessary. Some of these issues were addressed in the renewable energy legislation that passed during the 2005 session.

The bill requires the state of Vermont to lobby the regional authority, ISO New England, to allow for socialization of costs for more creative reliability measures other than construction of transmission lines. Another provision in the legislation now requires utilities to consider least cost planning for transmission projects. Changing the current system to provide "equal-opportunity" funding is completely consistent with the principles of tax shifting, and could have a dramatic impact on the environmental profile of New England's electric supply mix.

PERFORMANCE BASED REGULATION OPTION

As rates have been set for gas and electric utilities, they gained significantly more income to improve their profitability by selling more electricity. This perhaps unintended "incentive" directly contradicted the utility mandate to find the "least-cost" way to provide customers with energy services. A proposal to adopt a different system of regulation, one that would reward them for helping customers reduce usage, was included in the 2005 renewable energy law. This significant shift in the ratemaking system dovetails well with the "tax shift" concept.

PRODUCT EFFICIENCY FEEBATE

In addition to funding programs to 'mine inefficiency,' as the EEU does, the state can use both regulation and the tax code to encourage efficiency in common appliances. The simplest way to do this is by imposing efficiency standards that "push" product design to new levels of energy efficiency. While codes and standards are not an obvious example of a "tax shift" strategy, they do effectively "internalize" the costs of pollution, by slightly increasing initial product cost. That increase in cost is more than offset by the savings in reduced energy consumption the consumer experiences in using the product over its lifetime.

In the alternative, a tax or fee system can be used more visibly to increase the cost of inefficient technologies or products, and decrease the cost of more efficient ones. Just like an automobile feebate can encourage efficiency in car shopping, an appliance feebate can encourage efficiency as consumers shop for appliances ranging from air conditioners to ovens. This strategy is also attractive because while the state can set minimum efficiency standards for some common appliances such as torchiere lamps and cable boxes, federal law may pre-empt state efficiency standards, but not taxes or feebates on other products like air conditioners.



Product efficiency feebate option for Vermont

Vermont could easily commission a survey of the most energy intensive appliances on the market, including air conditioners, refrigerators, clothes-dryers and others, and then establish a sliding scale feebate where less efficient models are charged a higher sales tax and more efficient models are charged less. This program could be used as a complement to, or in lieu of, rebates for efficient products that are currently offered by the EEU, thus potentially freeing up more of the EEU resources to focus on other efficiency programs. Finally, if the program were structured so that the most efficient products could be bought without sales tax in Vermont many retailers would gain an advantage over New York state retailers for sale of such products, and would become competitive again with New Hampshire retailers.

Tax holiday for efficient appliances option for Vermont

One proposal the legislature should consider is a limited “tax holiday” for very efficient appliances such as air conditioners. For a limited period of time (one month) these super-efficient products would be exempt from the sales tax, and such an exemption, in combination with an EVT rebate would encourage vendor promotions and ensure a high stocking level for the efficient products.

TAX CREDIT OPTIONS

Two examples of how Vermont might use tax credits to promote efficiency also deserve consideration.

Vermont should provide a tax credit for the construction (or retrofit) of industrial and commercial buildings that attain a very high level of energy efficiency—in the range of 30-40% better than conventional energy usage. This would reward building owners with a lifetime of lower bills, improve the overall state energy profile, encourage growth in the industries that design and build such buildings, and reduce pollution.

A tax credit could be provided to employers who provided an “energy efficiency benefit” (“EEB”) to their employees. Under such a system a business offers employees a “one time” benefit of (for instance) \$500 to finance an audit and investment in efficiency in their homes. Employees would have to spend at least an additional \$500-\$1000 in efficiency investments. The credit offered would be (for instance) one half of the company contribution. In this manner a public expenditure of \$250 would be multiplied at least four times. The business has in effect “paid” the employee far more than the direct \$500 contribution, because the employee will save on energy bills for years. The local economy would benefit from new jobs created to install the efficiency measures; fossil fuel dependency and emissions would be reduced.

Nuclear waste tax

Nuclear power produces one of the most toxic wastes known to human kind. Nuclear waste is lethal in incredibly small amounts for thousands of years. No safe and effective way to store this waste has been devised after 50 years of effort. Uranium must be energy intensively mined and then enriched, requiring significant energy input before the fuel is even useful. Once nuclear fuel is created, great care and expense must be taken to transport it safely from the enrichment site to Vermont’s reactor. Once there the fuel produces a tremendous amount of energy per pound of fuel, but the plutonium “waste” has been incorporated into the cycle of energy production. Although just over half of the electricity generated by Vermont’s nuclear power station, Vermont Yankee, stays in Vermont, at present all of the high-level waste the plant has ever generated (roughly 2800 fuel rods) is still in the state. This waste represents a clear public health and safety risk to the people of Vermont. Were the spent fuel to catch fire, the ensuing cloud of radioactive smoke could render all of Vermont, as well as huge stretches of neighboring states and Canada uninhabitable for decades.

The state can use both regulation and the tax code to encourage efficiency in common appliances.



NUCLEAR WASTE TAX OPTION FOR VERMONT

It is appropriate and reasonable for the legislature to enact a significant annual tax on each spent fuel rod stored in the state. By taxing high-level waste, the legislature would use the tax code to provide an incentive for phasing out one of Vermont's least sustainable energy supplies. At a minimum the tax would help accelerate waste removal from a site that was never intended to be a long-term waste storage facility. If the legislature were then to channel this revenue into a dedicated fund for renewable energy and energy efficiency investments, the tax would serve a dual purpose of encouraging sustainable energy development even as it discouraged the creation of dangerous waste.

To ensure that the money is used effectively, the legislature should direct that the revenue from the tax on spent fuel be used for some or all of the following purposes:

- Expansion of Efficiency Vermont services to cover thermal efficiency (for un-regulated fossil fuels) and on-site generation of electricity that uses the "waste" heat from combustion to meet heating and cooling loads (known as combined heat and power applications).
- Aggressive development and promotion of wood chip and pellet heating systems in Vermont in medium-sized community energy systems that distribute heat to multiple buildings and generate electricity as well.
- Stable funding for small-scale renewable energy incentive programs to promote solar photovoltaic, solar thermal, and small wind applications.
- An aggressive program to promote residential efficiency through improved insulation, air sealing, and other improvements.

- Promotion of farm methane generating systems that facilitate better manure management, reduce greenhouse gasses, and improve farm economics.

The Legislature took a step in the right direction in 2005 when it passed legislation which permits Vermont Yankee to seek permission from the Public Service Board to store spent nuclear fuel in "dry casks." (Vermont Yankee is owned by Entergy Nuclear, a Louisiana-based company that owns power generating stations in many states and abroad.)

A portion of the dry cask bill requires Entergy to pay \$2.5 million per year into a renewable energy development fund in exchange for being allowed to store waste in dry casks. Though these funds are small in absolute terms, they represent a significant increase in funds available for renewable energy development in Vermont. Invested well, those funds can help create alternative sources of renewable energy that will strengthen Vermont's bargaining position when it comes time for renewal of Hydro Quebec contracts and replacement of Vermont Yankee power when the license expires in 2012.

The agreement also directs the Public Service Board to play a significant role in determining appropriate measures to protect public health and the environment in their permitting process. Taxing this dangerous pollution in order to fund the development of renewable energy would help advance the tax-shifting concept overall.

Payment into the fund is contingent on the approval of a recently proposed "uprate" in power production at Vermont Yankee that is currently under review by state and federal regulators. An "uprate" would allow Vermont Yankee to increase their power output 20 percent beyond what they are currently legally allowed to produce.

By taxing high-level waste, the legislature would use the tax code to provide an incentive for phasing out one of Vermont's least sustainable energy supplies.



WHERE TO START

Vermont can begin a small tax shift in a variety of ways.

Decreasing property taxes further would be highly visible, would have widespread appeal, and would benefit both families and businesses. Reducing the sales tax is attractive because the tax impacts low-income wage-earners disproportionately, but reduced payments from a lower sales tax aren't as visible as reduced property taxes. On the other hand, eliminating the sales tax in downtowns would be a large enough reduction to be visible, and downtown economies would get a significant boost. Reducing payroll taxes paid by businesses is very desirable, because it would create an upward spiral for full employment in the economy. Finally, eliminating the income tax for Vermonters who earn less than a livable wage is an excellent way to address the regressive nature of our current and future tax systems.

Increasing taxes on energy use would have the biggest impact on improving economic efficiency and human and environmental health. While some of the energy taxes described above are regressive, measures that counteract this flaw could accompany the taxes. Solid waste taxes, variable pricing on solid waste disposal, and expanded deposit/refund systems are attractive because they are manageable, predictable, and there is widespread experience with them in Vermont and the U.S. Whatever the form of Vermont's next tax shift, it should be sensibly sized, easy to understand, easy to administer, highly visible, and very beneficial for Vermont. There are a multitude of good options for specific tax shifts in Vermont.

Tax shifting is a smart way to harness the power of the economy to work for us rather than against us. If we do it wisely, tax shifts will strengthen our economy, make our environment more beautiful and healthy, preserve our social goods, and keep taxes fair and efficient for all Vermonters.



Chapter 3

Vermont's Environmental Taxes, Revenues and Expenditures

Currently, Vermont places a variety of taxes and fees on socially and environmentally harmful activities, and uses incentives and other mechanisms to encourage beneficial activities. Some of the state's taxes have been in place for some time while others are more recent. Most of the taxes raise modest amounts of revenue. Many of the tax rates, such as those for air contaminant emissions and water discharge fees, are too small to effectively discourage pollution. Some of the revenues from these taxes are re-invested in pollution cleanup, monitoring, or energy-saving programs or cover the costs of administering permit programs and state regulations. Others are deposited into the general fund.

In addition to the taxes and fees described below, there are a host of permits and licenses which carry fees that the state requires to protect environmental quality, including stream alteration permits, sludge facility certifications, product registration fees for items containing pesticides, and many others.

The federal income taxation scheme also will carry over to state tax liability, because state taxation is often based on the amount of federal taxable income. Thus, federal deductions for hybrid vehicles would also be recognized for purposes of state income taxation.

Since 1997, fiscal pressures on both the State and Federal governments have increased dramatically. Vermont has used revenue from various environmental taxes, fees, and

licensing to move towards compliance with both federal and state standards. Vermont has made great progress, but it has, along with many other states, been facing a problem: revenues from these environmental and particularly transportation and energy related taxes are sorely needed to shore up the general fund.

Given the current fiscal realities, pressures for tax reform, and the public perception that there are perhaps more important problems—national security, crime, education and social welfare programs—it is unclear whether Vermont might divert more of its environmental taxation and revenue scheme into the general fund. It is clear that these taxes will increasingly play a very important role in funding Vermont's current system of environmental planning, regulation, monitoring and remediation. It is also clear that state governments often divert funds away from the pressing problems for which they were originally raised and appropriated.

ENERGY-RELATED TAXES AND FEES

Fuel Gross Receipts Tax⁶⁵

Vermont places a 0.5% gross receipts tax on the retail sale of heating oil, kerosene, propane, natural gas, electricity, and coal when the seller receives more than \$10,000 per year for the sale of such fuels. The tax will be collected through June 2008, when it expires. Some fuel sellers are eligible for rebates of this tax.



Revenues from this tax provide funds for the state's Weatherization Assistance Program, which helps low-income Vermonters weatherize their homes in order to reduce their energy bills. Vermonters earning 150% or less of poverty level income are eligible for the program. Between 1980 and 2001 this fund helped Vermonters weatherize 33,594 homes.⁶⁶ The fuel gross receipts tax was instituted in 1990 in order to provide a stable funding source for the program in the face of diminishing federal support.⁶⁷ The gross receipts tax is the largest funding source for the Weatherization Assistance Program; in 2001, the tax provided about 81% of the program's funds.⁶⁸

Under the program, progressivity is enhanced because bills are dramatically reduced for the poorest Vermonters; competitive disadvantage is avoided because the tax is so small; and yet least cost principles are implemented because an effective capacity to provide efficiency to low income Vermonters is enhanced. Environmental benefits are provided because fuel consumption is significantly reduced. The economy is strengthened because fewer dollars flow out of state; and the demand for public subsidies for winter heating is at least stabilized if not reduced.

The program is a stunningly successful case study in effective tax shifting. A very small tax increase on energy consumption (much of it fossil fuel) funds a program to build the "alternative" capacity to deliver efficiency services that improve the economy, provide savings and comfort, and reduce emissions.

Revenues collected from the fuel gross receipts tax⁶⁹

2000	\$4,660,257
2001	\$4,919,472
2002	\$4,732,476
2003	\$5,195,947
2004	\$5,532,603

Heating Oil Tax⁷⁰

A new heating oil tax was enacted starting July 1, 2004, levied separately from the fuel gross receipts tax. The heating oil tax is one-half cent per gallon of heating oil or kerosene, and is paid by retail sellers receiving more than \$10,000 per year in sales for these fuels. The tax is set to expire in April 2008.

Revenue from this tax is deposited into the Petroleum Cleanup Fund, which funds the restoration and cleanup of soil and groundwater contaminated by the release of petroleum from underground storage tanks and pays third-party claims for compensation.⁷¹

Electric Energy Tax⁷²

Vermont levies an annual tax on electric generating plants constructed after 1965 with a generating capacity of 200,000 kilowatts or more over a 3-year average. The tax is \$2 million for plants with less than 2,300,000 megawatt hours, and a higher graduated tax for plants producing more megawatt hours. In addition, the same plants pay an education property tax of \$1.465 million for plants producing less than 2,300,000 megawatt hours over a 3-year average, with a similar higher graduated tax for more megawatt hours.

Revenues collected from electric energy tax⁷³

2000	\$5,927,676
2001	\$3,117,905
2002	\$2,809,859
2003	\$2,577,328
2004	\$2,767,228

Utilities Gross Receipts Tax⁷⁴

Cooperative, municipal, and privately owned companies that generate, distribute, sell, or transmit electric energy in Vermont are taxed annually at a rate of 0.5% of their gross operating revenue. Gas utilities are taxed annually at a rate of 0.3% of their gross operating revenue.



Revenues of this tax fund the activities of the Vermont Public Service Board and the Vermont Department of Public Service. The Board is Vermont’s quasi-judicial body that makes decisions related to regulated utilities and companies, including electric, gas, water, phone, and cable companies and utilities. The Department acts as a consumer advocate in cases before the Board, undertakes energy and telecommunications planning efforts and energy efficiency activities, and oversees regulations related to utility systems.

Revenues collected from utilities gross receipts tax⁷⁵

2000	\$5,013,416
2001	\$5,315,430
2002	\$5,536,710
2003	\$5,585,151
2004	\$5,669,316

Sales Tax on Commercial Energy Use

There is a 6% sales tax on electricity, natural gas, fuel oil, propane, and wood that is sold to commercial establishments in Vermont. When any of the above fuels are used in motor vehicles, this tax does not apply.

The sales tax applies to most products sold in Vermont, but it does not apply to energy used in the residential, industrial, and farm sectors. In addition, the sales tax does not apply to motor vehicle fuels, or to the sale of motor vehicles.⁷⁶ However, a motor vehicle purchase and use tax does apply to the sale of

motor vehicles (see description under “Motor Vehicle Purchase and Use Tax”).

Revenues from this tax are deposited into the state’s general fund.

Estimated Revenues from Sales Tax on Commercial Energy

2000	\$12,010,000
2001	\$12,800,000
2002	\$13,500,000
2003	\$14,200,000
2004	\$15,000,000

Motor Fuel Taxes and Fees⁷⁷

Gasoline is taxed at 20 cents per gallon in Vermont, which includes a one-cent per gallon Petroleum Cleanup Fee (see “Petroleum Cleanup Fee” section). Diesel fuel is taxed at 26 cents per gallon, including one cent per gallon for the Petroleum Cleanup Fee. There are several exemptions to the diesel tax.

In addition to gasoline and diesel taxes, there are a number of other taxes placed on transportation fuels and infrastructure, including railroad fuel, aviation jet fuel, aviation gasoline, and railroad property.⁷⁸

Most of the revenues from the gasoline and diesel tax go to the transportation fund, which provides money for road construction, maintenance, and other transportation projects. The gasoline tax rate was raised in 1997 from 15 cents per gallon to 19 cents per gallon in order to offset property tax reductions that

Revenues collected from gasoline tax, by destination⁷⁹

Fiscal Year	Transportation Fund	Fish and Wildlife Fund	Education Fund	DUI Enforcement Fund	Total
2000	\$52,800,000	\$1,300,000	\$10,300,000	\$1,300,000	\$65,700,000
2001	\$52,500,000	\$1,300,000	\$10,500,000	\$1,300,000	\$65,600,000
2002	\$52,600,000	\$1,300,000	\$10,500,000	\$1,300,000	\$65,700,000
2003	\$52,600,000	\$1,300,000	\$10,800,000	\$1,300,000	\$66,000,000
2004	\$54,300,000	\$1,300,000	\$10,800,000	\$1,400,000	\$67,800,000



fund education. However due to changes from Act 68 starting in 2004, the revenue from the gasoline tax that funded education now will fund transportation.

Vermont also levies a petroleum distributor license fee. A distributor is classified as wholesaler or retailer who imports motor fuel.

Revenues collected from diesel tax⁸⁰

2000	\$14,900,000
2001	\$17,800,000
2002	\$16,600,000
2003	\$16,400,000
2004	\$18,000,000

Revenues collected from Petroleum Distributor License Fee

2000	\$3,500,000
2001	\$3,500,000
2002	\$3,500,000
2003	\$3,500,000
2004	\$3,600,000

Motor Vehicle Purchase and Use Tax⁸¹

There is a motor vehicle purchase tax assessed on Vermont residents who purchase a motor vehicle. The tax is assessed in place of a sales tax on motor vehicles. The tax rate is six percent of the taxable cost of the vehicle. For trucks weighing 10,100 pounds or more, the maximum tax is \$1,100.

Revenues collected from motor vehicle purchase and use tax, by destination⁸²

Fiscal Year	Transportation Fund	Education Fund	Total
2000	\$57,900,000	\$11,600,000	\$69,500,000
2001	\$62,300,000	\$12,400,000	\$74,700,000
2002	\$67,700,000	\$13,200,000	\$80,900,000
2003	\$68,700,000	\$13,400,000	\$82,100,000
2004	\$71,900,000	\$14,300,000	\$86,200,000

When a purchase tax is not paid (for example, when a vehicle is purchased out-of-state), there is a motor vehicle use tax assessed at the same rates and with the same rules as the purchase tax. The tax is assessed when a vehicle is first registered, or when the vehicle registration is transferred.

There also is a titling tax levied in cases where no purchase or use tax applies. The titling tax is assessed at the same rates and with the same rules as the purchase tax and is paid at the time of obtaining a certificate of title to the vehicle.

There are a number of exemptions to this tax.

The motor vehicle purchase and use tax was last changed in 1997 when the rate was increased from 5% to 6% to provide funds for education. Starting in 2004, the revenue from the gasoline tax that funded education will fund transportation, and a larger portion of the motor vehicle purchase and use tax (1/3 instead of 1/6) will fund education.

Motor vehicle registration fees

Vermonters pay annual motor vehicle registration fees for all motorized vehicles. There is a flat fee of \$50 for automobiles. Registration fees for trucks are based on their loaded weight and type of fuel used. For example, an owner of a gas or diesel truck weighing 17,000 pounds when loaded would pay \$286.⁸³

Motor vehicle registration fees fund the Department of Motor Vehicles and transportation projects. Vermonters often may support special efforts, such as the conservation license plate.



AIR AND WATER POLLUTION TAXES AND FEES

Air Contaminant Emissions Fee⁸⁴

Vermont levies annual registration fees on air emissions of sulfur dioxide, particulate matter, carbon monoxide, nitrogen oxides, and hydrocarbons. Businesses and individuals who generate more than five tons of emissions per year pay \$0.021 per pound, and those who generate more than ten tons per year pay an \$924 fee in addition to the rate per pound.⁸⁵

To address the toxicity of air contaminant emissions, Vermont also levies annual fees on businesses and individuals who emit more than five tons per year of hazardous air contaminants that cause short-term irritant effects, that cause chronic systemic toxicity, that are known or suspected to cause cancer, and that result from the combustion of coal, wood, fuel oil, propane, and natural gas.

Revenues collected from air contaminant emissions fees are deposited in the state's environmental permit fund and are used to cover all the costs of the operating permit program for air emissions. Revenues collected from hazardous air contaminant emissions fund the hazardous air contaminant monitoring program, which undertakes activities to monitor the presence of hazardous contaminants in the air, assess risks, and gather data.

Revenues collected from air contaminant emissions fees⁸⁶

2000	\$360,700
2001	\$225,100
2002	\$278,500
2003	\$360,700
2004	\$313,000
	(3/4 year only)

Water Discharge Fee⁸⁷

Vermont levies fees on individuals and businesses that discharge wastes into lakes, rivers, reservoirs, or other waters. The fees are based on the volume and types of waste discharged. Applications for discharge permits carry a fee of \$100, and there are application review fees and annual operating fees.

Revenues from water discharge fees are deposited into the environmental permit fund and used to cover expenses related to the state's environmental permit programs.

Revenues collected from water discharge fees⁸⁸

2000	\$102,962
2001	\$140,723
2002	\$265,171
2003	\$381,782
2004	\$570,000

Stormwater Fee⁸⁹

A stormwater fee was instituted in 2001; previously it had been levied as part of the water discharge fee. There are three parts to the fee: the administrative operating fee (\$100); the application review fee (\$300 per acre of impervious surface in a Class B watershed, \$1,170 per acre of impervious surface in Class A watershed); and an annual operating fee (\$50 per acre of impervious surface in Class B watershed, \$235 per acre of impervious surface in Class A watershed).⁹⁰ The revenues are used to fund ANR's permitting programs.

The Vermont Agency of Natural Resources issues stormwater permits to new construction sites and developments with large impervious surfaces. Stormwater deposits contaminants such as animal waste, fertilizers, pesticides, copper, zinc, lead, oil, grease, phosphorus, and soil particles into rivers.



Revenues collected from stormwater fee⁹¹

2001	\$36,100
2002	\$198,300
2003	\$318,700
2004	\$318,700 estimated

disposal.) Some hazardous waste is exempt from the tax. The hazardous waste tax was most recently changed in 1997, when the tax rates were raised.

The revenues collected from the hazardous waste tax are used to improve hazardous waste management and mitigate the effects of hazardous waste releases into the environment.

WASTE TAXES, FEES, AND INCENTIVES

Solid Waste Tax⁹²

Operators of solid waste facilities and waste transfer facilities in Vermont pay a tax of \$6.00 per ton of waste. The tax also is assessed when waste is shipped to an out-of-state facility without first being delivered to a transfer facility in Vermont. Certain landfill operators that receive 1,000 tons of waste per year or less may, if they choose, pay a tax of \$2.80 per cubic yard instead of \$6.00 per ton. In addition, certain types of waste are excluded from the tax.

Revenues from the solid waste tax are deposited into the waste management assistance fund, which funds activities that enhance solid waste management in the state.

Revenues collected from waste taxes

2000	\$2,599,374
2001	\$3,052,700
2002	\$2,765,289
2003	\$3,199,289
2004	\$3,243,041

Total Hazardous Waste Revenues⁹⁴

2000	\$370,704
2001	\$335,103
2002	\$427,238
2003	\$572,081
2004	\$352,317

Deposit/Refund for Beverage Containers

Vermont requires a five-cent deposit to be placed on the sale of glass, metal, paper, or plastic containers of beer, malt beverages, mineral waters, mixed wine drinks, soda water, and carbonated soft drinks. (Containers that are biodegradable do not require a deposit.) Liquor containers that are greater than 50 milliliters in volume are required to have a deposit of fifteen cents. The deposit is paid by the consumer and refunded to the consumer by a retailer or redemption center when the empty containers are returned. Distributors and manufacturers compensate retailers and redemption centers for redeeming and handling the containers. All beverage containers must be labeled with the deposit amount.

Hazardous Waste Tax⁹³

A tax is assessed on hazardous waste in Vermont when the waste is shipped, or when facilities recycle, treat, store, or dispose of hazardous waste. The tax is based on the quantity of the hazardous waste and its ultimate destination (e.g., whether it is destined for recycling, treatment, or land-

Petroleum Cleanup Fee and Tank Assessment Fee⁹⁵

A fee of one cent per gallon is assessed on all motor vehicle fuels sold in the state for the purpose of providing cleanup funds for leaking petroleum storage tanks. The fee is collected in the same manner as the tax on motor fuels.

In addition to the petroleum cleanup fee, owners of underground storage tanks are



required to pay an annual tank assessment fee through June 2004. The fee does not apply to fuel oil storage tanks used for on-premise heating, and to farm or residential tanks used for storing motor fuel. The standard fee is \$200 per tank, but some gasoline outlets and municipalities that use smaller amounts of motor vehicle fuel pay \$100 per tank.

Most hazardous releases into Vermont's environment come from leaking underground petroleum storage tanks. Underground storage tanks often start to leak when they are about 25 years old. Because Vermont has always relied heavily on fuel oil for heating, there are many aging tanks that have the potential to leak in the near future, posing hazards to human health and the environment. Federal law required that single-wall commercial underground storage tanks be replaced by newer, safer tanks by December 1998.

Petroleum cleanup fees and tank assessment fees are deposited into the Petroleum Cleanup Fund. The fund was established in 1987 after private insurance companies no longer were willing to cover cleanup costs associated with leaking fuel tanks.⁹⁶ The fund program originally provided money to clean up and restore contaminated soil and groundwater caused by petroleum releases from underground fuel storage tanks. In 1997, the program also started to provide money for leaking above-ground tanks.

Revenues collected from the Petroleum Cleanup Fee and Tank Assessment Fee

Fiscal Year	Petroleum Cleanup Fee	Annual Tank Assessment Fee
2000	\$3,999,099	\$361,870
2001	\$3,967,028	\$361,308
2002	\$4,351,115	\$366,134
2003	\$4,115,480	\$364,060
2004	\$2,385,227	Not available

LAND RELATED TAXES, FEES, AND INCENTIVES

Use Value Appraisal (Current Use) for Agricultural and Forest Land⁹⁷

Vermont's use value appraisal program for agricultural and forest land allows approved lands to be assessed for property tax purposes based on their current use values rather than their fair market values. To qualify for the program, forest land must be at least 25 acres and must be managed under a 10-year forest management plan that meets certain minimum standards. Agricultural land must be at least 25 acres, with some exceptions, and must be used for agricultural purposes. A current use advisory board is responsible for determining current use assessment values.⁹⁸

A state Use Tax Reimbursement Fund exists to reimburse municipalities for the property tax revenues lost as a result of use value appraisals. The fund is financed with appropriations from the Legislature and from the revenues raised from the Land Use Change Tax.

Vermont's tax break for keeping land in the use value appraisal program is combined with a tax penalty for subsequently developing that land. If land that was previously appraised under the use value appraisal program is subsequently developed, a 10% land use change tax on the full fair market value of the changed land is assessed.

The use value appraisal program was originally started in 1977 when legislators recognized that people who lived off the income of farm and forest land were taxed beyond their ability to pay. The program has several goals, including encouraging agricultural and forest land to remain in productive use now and in the future, helping to maintain Vermont's working rural landscape, encouraging the protection of ecological systems, and discouraging accelerated development of open lands.



Capital Gains Tax on Speculative Land Sales⁹⁹

Vermont taxes the capital gain realized from the sale or exchange of land held for less than six years, in order to deter short-term, high-profit land speculation. The number of years the land has been held prior to the sale and the extent to which the land has risen in value determine the tax rate, which ranges from 5% to 80% of the gain. There are a number of exemptions from this tax.

The revenues are deposited into the general fund and the Property Tax Rebate Trust Fund, which funds property tax rebates and credits in the state.

The disbursement of the property transfer tax revenues is codified in statute, however this disbursement formula has not been followed in the past several years. The disbursement formula in statute is: 1% to the Tax Department; 33% to the General Fund; 50% to the Housing and Conservation Trust Fund; and 17% to the Municipal and Regional Planning Fund (MRPF). Of the 17% going to the MRPF, 70% of it was earmarked in statute for the Regional Planning Commissions; 20% for the Municipal Planning Grants (MPG) program; and 10% for Vermont Center for Geographic Information (VCGI). In Fiscal Year 2005, the General Fund received roughly double the amount it would have received under the statutory formula, while the other categories received roughly one-half of what they would have received.

Revenues collected from capital gains tax on speculative land sales¹⁰⁰

2000	\$1,729,903
2001	\$2,010,081
2002	\$1,915,651
2003	\$2,672,174
2004	\$4,288,132

Property Transfer Tax¹⁰¹

Vermont levies a property transfer tax on the sale of real property. Currently, the purchaser pays a tax at the rate of 0.5% on the first \$100,000 of the property, and 1.25% on the amount above \$100,000, for the purchase of a principal residence. For the purchase of a non-principal residence, the rate is 1.25% on the entire amount.¹⁰²

Property Transfer Tax Disbursements, Fiscal Year 2005¹⁰³

	FY 2005 Formula	FY 2005 (Passed in legislature)
Tax Dept.	\$438,000	\$288,000
General Fund	\$14,309,460	\$27,138,080
Housing and Conservation Trust Fund	\$21,681,000	\$12,604,000
RPCs	\$5,160,078	\$2,638,944
MPGs	\$1,474,308	\$753,984
VCGI	\$737,154	\$376,992
Total	\$43,800,000	\$43,800,000

Property Transfer Tax Revenues¹⁰⁴

2000	\$20,948,234
2001	\$22,745,881
2002	\$26,764,285
2003	\$30,424,383
2004	\$33,951,657



Endnotes

- ¹ Vermont Department of Taxes, 2004 Annual Report: Division of Property Valuation and Review, 2004.
- ² Vermont Legislative Joint Fiscal Office, 2004 Fiscal Facts, 2004.
- ³ Vermont Department of Taxes, Revenue Accounting System Tax Receipts Summary, June 30, 2004; and Vermont Legislative Joint Fiscal Office, 2004 Fiscal Facts, 2004.
- ⁴ Vermont Legislative Joint Fiscal Office, 2004 Fiscal Facts, 2004.
- ⁵ John Demeter, "Green Tax Recommendations," November 28, 2004, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁶ The true rate is slightly lower, since self-employed workers can deduct a portion of the payroll taxes from taxable income. John Demeter, "Green Tax Recommendations," November 28, 2004, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁷ Ted Halstead, The Washington Post, "The Big Tax Bite You Don't Even Think About," April 23, 2000, <http://www.newamerica.net/index.cfm?pg=article&DocID=201>.
- ⁸ John Demeter, "Green Tax Recommendations," November 28, 2004, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁹ Vermont Department of Public Service, 2004 Vermont Comprehensive Energy and Electric Plan: Final Draft, December 2003.
- ¹⁰ Vermont Department of Public Service, 2004 Vermont Comprehensive Energy and Electric Plan: Final Draft, December 2003, quoted in Vermont Public Interest Research Group, Clean energy for Vermont: plan today for tomorrow, Summer 2004.
- ¹¹ U.S. Federal Highway Administration, Highway Statistics 2003, Tables SF-1 and LGF-1, www.fhwa.dot.gov/policy/ohim/hs03/mv.htm.
- ¹² Vermont Department of Public Service, 2004 Vermont Comprehensive Energy and Electric Plan: Final Draft, December 2003.
- ¹³ David Anderson and Gerard McCullough, The Full Cost of Transportation in the Twin Cities Region, August 2000, www.cts.umn.edu/trg/research/reports/TRG_05.html.
- ¹⁴ U.S. Federal Highway Administration, Highway Statistics 2003, Table MF-121T, www.fhwa.dot.gov/policy/ohim/hs03/index.htm.
- ¹⁵ U.S. Energy Information Administration, Department of Energy, Weekly Retail Premium Gasoline Prices (Including Taxes), <http://www.eia.doe.gov/emeu/international/gas1.html>.
- ¹⁶ U.S. Environmental Protection Agency, "Emission Facts," www.epa.gov/otaq/consumer/f00013.htm.
- ¹⁷ U.S. Federal Highway Administration, Highway Statistics 2003, Table MV-1, www.fhwa.dot.gov/policy/ohim/hs03/index.htm.
- ¹⁸ National Automobile Dealers Association, "Auto Sales to Continue Modest Climb in 2005, Reports NADA Chief Economist," www.nada.org/Content/NavigationMenu/Newsroom/News_Releases/2005/TaylorForecast_1-30-2005.htm.
- ¹⁹ U.S. Federal Highway Administration, Highway Statistics 2003, Tables MV-1, MV-9, www.fhwa.dot.gov/policy/ohim/hs03/mv.htm.
- ²⁰ U.S. Environmental Protection Agency, Model Year 2005 Fuel Economy Guide, www.fueleconomy.gov/feg/FEG2000.htm.
- ²¹ U.S. Environmental Protection Agency, Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2004, April 2004, www.epa.gov/otaq/cert/mpg/fetrends/420r04001.pdf.
- ²² U.S. Environmental Protection Agency, www.fueleconomy.gov, "Frequently Asked Questions," www.fueleconomy.gov/feg/info.shtml#guzzler; and Friends of the Earth, "Gas Guzzler Loophole," 2000.
- ²³ Friends of the Earth, "Gas Guzzler Loophole: SUVs and Light Trucks Drive off with Billions," 2000, www.foe.org.
- ²⁴ U.S. Dept. of Energy, Energy Information Administration, "U.S. Retail Gasoline Prices," http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrgp/mogas_home_page.html.
- ²⁵ Econoday, "2005 U.S. Economic Events and Analysis: Motor Vehicle Sales," fidweek.econoday.com/reports/US/EN/New_York/motor_vehicle_sales_1/year/2005/yearly/01/.
- ²⁶ MSNBC News, "Gas prices eat into sales of large SUVs," March 15, 2005, <http://www.msnbc.msn.com/id/7181566/>.
- ²⁷ Edmunds.com, "Edmunds.com Looks Back at 2004 and Forecasts 2005 Automotive Trends," January 3, 2005, <http://www.edmunds.com/help/about/press/104065/article.html>.
- ²⁸ Rick Popely of Chicago Tribune, Detroit Free Press, "Impact of tightened fuel rules for light trucks is unknown," March 3, 2005, www.freep.com; and Friends of the Earth, "Gas Guzzler Loophole: SUVs and Light Trucks Drive off with Billions," 2000, www.foe.org.
- ²⁹ Vermont Department of Public Service, Fueling Vermont's Future, July 1998.
- ³⁰ Vermont Joint Fiscal Office, 2005 Fiscal Facts, 2005.
- ³¹ U.S. Federal Highway Administration, Highway Statistics 2002.
- ³² Vermont Joint Fiscal Office, 2005 Fiscal Facts, 2005; and Andrew Jope, UVM student.
- ³³ Vermont Public Interest Research Group.
- ³⁴ New England Climate Coalition, Getting on Track: New England's Rising Global Warming Emissions and How to Reverse the Trend, February 2005.



- ³⁵ New England Climate Coalition, *Getting on Track: New England's Rising Global Warming Emissions and How to Reverse the Trend*, February 2005.
- ³⁶ Vermont Public Interest Research Group.
- ³⁷ Vermont Agency of Natural Resources, Air Pollution Control Division, *Air Pollution from Motor Vehicles in Vermont*.
- ³⁸ Vermont Department of Public Service, *Fueling Vermont's Future*, July 1998.
- ³⁹ European Environment Agency, *Environmental Taxes: Recent Developments in Tools for Integration*, www.reports.eea.eu.int/Environmental_Issues_No_18/en.
- ⁴⁰ EcoSecurities, *The Costa Rican System of Direct Payment for Environmental Services*, www.ecosecurities.com/200about_us/233costa_rica.
- ⁴¹ Barry Rabe, *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy*, pp. 123-124, quoted in Andrew Jope, "Carbon Tax Possibilities in Vermont: A Fitting Policy Laboratory?," 9/21/04, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁴² Andrew Jope, "The Case for a Vermont Carbon Tax," 11/16/04, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁴³ Andrew Jope, "The Case for a Vermont Carbon Tax," 11/16/04, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁴⁴ The Woman's Foundation of California, "Confronting Toxic Contamination in Our Communities," www.womensfoundca.org/media_env_key.html.
- ⁴⁵ Vermont Agency of Agriculture, Food, and Markets.
- ⁴⁶ "Cooling tower" usage refers to antimicrobial pest control for the use of pesticides to control pests in non-potable cooling waters and in water or slurries used in industrial processing, in, on or around human dwellings, commercial establishments, or institutions.
- ⁴⁷ Vermont Agency of Agriculture, Food, and Markets, "Commercial Applicator Pesticide Usage Summary for 2003," <http://www.vermontagriculture.com/pestuse2003/pidpestuse2003.htm>.
- ⁴⁸ Vermont Agency of Agriculture, Food, and Markets, "Pesticide Monitoring Program," <http://www.vermontagriculture.com/pidagchem.htm>.
- ⁴⁹ Cheryl Diersch, "Progressive policies to eliminate pesticide hazards," November 23, 2004, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁵⁰ Brian Skoloff, Associated Press, "Farm Scene: Pesticide tax, farmer education could lessen pollution from runoff, report says," February 16, 2005, <http://www.ebfarm.com/News/NewsStories/PesticideTax021605.aspx>
- ⁵¹ New Rules Project, "Iowa Groundwater Protection," <http://www.newrules.org/environment/iaground.html>.
- ⁵² Cheryl Diersch, "Toxic chemicals are poisoning us... what's being done to stop this injurious behavior using tax reform?" September 29, 2004, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁵³ Brian Skoloff, Associated Press, "Farm Scene: Pesticide tax, farmer education could lessen pollution from runoff, report says," February 16, 2005, <http://www.ebfarm.com/News/NewsStories/PesticideTax021605.aspx>
- ⁵⁴ Thomas Benoit, "Solid Waste Tax," September 21, 2004, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁵⁵ U.S. Environmental Protection Agency, "Pay-as-you-throw: Vermont," <http://www.epa.gov/epaoswer/non-hw/payt/states/vt.htm>.
- ⁵⁶ Thomas Benoit, "Solid Waste Tax," September 21, 2004, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁵⁷ Thomas Benoit, "Solid Waste Tax," September 21, 2004, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁵⁸ Container Recycling Institute, "Beverage Container Deposit Systems in the U.S.," http://www.bottlebill.org/geography/usa_deposit.htm
- ⁵⁹ Miquel Llanos, MSNBC, "Plastic bottles pile up as mountains of waste," March 3, 2005, <http://www.msnbc.msn.com/id/5279230/>.
- ⁶⁰ Container Recycling Institute, "Growing problem of beverage container waste," http://www.bottlebill.org/about_bb/campaigns-national.htm
- ⁶¹ Container Recycling Institute, "Beverage Container Deposit Systems in the U.S.," http://www.bottlebill.org/geography/usa_deposit.htm.
- ⁶² Container Recycling Institute, "What is a bottle bill?," http://www.bottlebill.org/about_bb/bottlebill-whatis4.htm
- ⁶³ Melissa Bailey, "Applications of Land Value Taxation," 09/21/04, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁶⁴ Melissa Bailey, "Applications of Land Value Taxation," 09/21/04, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>
- ⁶⁵ 33 V.S.A. § 2503.
- ⁶⁶ Vermont Weatherization Program Overview, January 2002; available at <http://www.ahs.state.vt.us/oeo/wxpo.htm>.
- ⁶⁷ See note 61.
- ⁶⁸ See note 61.
- ⁶⁹ Vermont Office of Economic Opportunity.
- ⁷⁰ 10 VSA § 1942.
- ⁷¹ Vermont Department of Taxes, "Highlights of Tax Legislation Passed in 2004."
- ⁷² 32 VSA § 8661 and 32 VSA § 5402a.
- ⁷³ Vermont Department of Taxes.
- ⁷⁴ 30 V.S.A. §22.
- ⁷⁵ Vermont Department of Public Service.
- ⁷⁶ Vermont Department of Public Service.



- ⁷⁷ 23 VSA §3101; §3001
- ⁷⁸ Vermont Department of Public Service.
- ⁷⁹ Vt. Legislative Joint Fiscal Office, Transportation Fund Revenue Forecast Update, July 2004; and Vt. Legislative Joint Fiscal Office, Education Fund Revenue Forecast Update, July 2004.
- ⁸⁰ Vt. Legislative Joint Fiscal Office, Transportation Fund Revenue Forecast Update, July 2004; U.S. Federal Highway Administration; <http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs>.
- ⁸¹ 32 V.S.A. § 8901–23.
- ⁸² Vt. Legislative Joint Fiscal Office, Transportation Fund Revenue Forecast Update, July 2004; and Vt. Legislative Joint Fiscal Office, Education Fund Revenue Forecast Update, July 2004.
- ⁸³ Vermont Department of Motor Vehicles, “Vermont Vehicle Registration,” <http://www.aot.state.vt.us/dmv/REGISTRATION/REGISTRATION.htm>.
- ⁸⁴ 3 V.S.A. §§ 2805, 2822.
- ⁸⁵ Vermont Agency of Natural Resources, Permit and License Information, Air Pollution Annual Registration, Stationary Sources, Revised 02/05.
- ⁸⁶ Personal conversation with Corrie Dunn, Vt. Dept of Environmental Conservation, Air Pollution Control Division..
- ⁸⁷ 3 VSA § 2822 (j) (2).
- ⁸⁸ Vt. Department of Environmental Conservation, Wastewater Management Division.
- ⁸⁹ 3 V.S.A § 2822.
- ⁹⁰ Amanda Davis, “The Unaddressed Issue of Water Consumption in Vermont,” November 16, 2004, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ⁹¹ Vt. Department of Environmental Conservation, Wastewater Management Division.
- ⁹² 32 VSA §5952.
- ⁹³ 32 V.S.A. §§ 10101–10113.
- ⁹⁴ Vermont Department of Taxes, 2002 Biennial Report and 2004 Biennial Report.
- ⁹⁵ 10 V.S.A. §§ 1941–44.
- ⁹⁶ Vermont Department of Public Service.
- ⁹⁷ 32 V.S.A. §§ 3751–3776.
- ⁹⁸ Personal conversation with Bill Snow, Current Use Programs Chief, Vermont Department of Taxes, 2/99.
- ⁹⁹ 32 V.S.A. §§ 10001–10011.
- ¹⁰⁰ Vermont Department of Taxes; personal conversation with Mike Pietkowski, October 2004.
- ¹⁰¹ 32 V.S.A. Chapter 231; 24 V.S.A. §4306; 10 V.S.A. §312
- ¹⁰² Melissa Bailey, “Policy Analysis of Land Related Taxes in Vermont,” 10/12/04, <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/papers.html>.
- ¹⁰³ Vt. Joint Fiscal Office spreadsheet, from John Shullenberger.
- ¹⁰⁴ Vt. Department of Taxes website.

THE VERMONT FAIR TAX COALITION MEMBERS

American Flatbread
Association of Vermont Recyclers
The Baldrige Network
Better Planet Books, Toys, and Hobbies
Center for Small Business and the Environment
CET Solar Store
Chamberlain & Associates
Child Care Resource
City of Burlington
The Clean Yield Group
Community and Economic Development Office (CEDO)
Concept II
Controlled Energy Corp.
Create Joy Coaching
Dewey and Associates, Architects
Energy Efficiency and Renewable Energy Services
The Fat Hat Factory, Inc.
ForesTrade
Friends of the Earth
Gardener's Supply Co.
Global Resource Options, LLP
Gund Institute for Ecological Economics
Healthy Habitat Ecological Cleaning and Property Services
Doug Hoffer
Debra Howard Communications
Insights
John Hancock Lumber, Inc.
Tricia Lyon-Gunderson, MBA, RYT
William Maclay Architects & Planners
Merritt & Merritt
National Wildlife Federation/ Northeast Natural Resource Center
The Natural Step of Vermont
Noise Pollution Clearinghouse
Northeast Organic Farming Association of Vermont (NOFA)
Peace & Justice Center
Powderhound Resort
Quality Solutions
ReCycle North
Renewable Energy Vermont
Ribbon Recyclers
Samii Clothes
Save Our World-VT
Seventh Generation
Share the Wealth
Solar Barns
Southern Vermonters for a Fair Economy & Environmental Protection
Spruce Mountain Design
Stephanie Lahar and Associates
Taproot Consulting
Vermont Businesses for Social Responsibility (VBSR)
VBSR – Research & Education Foundation
Vermont Energy Investment Corporation (VEIC)
Vermont Natural Resources Council (VNRC)
Vermont Population Alliance
Vermont Public Interest Research Group (VPIRG)
Vital Communities of the Upper Valley
David Wagner Consulting
The Wilderness Society
Wind Harvest Company, Inc.
Work Recovery Services, Inc.
Ted Zilius Design

The topic of taxes has the power to produce blank stares and yawns, as well as impassioned emotions, complaints, and arguments. Many individuals and businesses believe taxes are too high and too complicated, and that nothing can be done to change them.

Tax Reform That Agrees With Vermont shows there's good reason to overcome the boredom, set aside the preconceived ideas, and reconsider just how taxes work and how they could work better – better for the economy, the environment, and for Vermont families.

This book explains how the power of taxes could be better harnessed to improve the public good with lasting benefits for the economy, the environment and all members of society.



**THE VERMONT
FAIR TAX COALITION**

Friends of the Earth

**Vermont Businesses for
Social Responsibility -
Research and Education
Foundation**

**Vermont Natural Resources
Council**

**Vermont Public Interest
Research Group**