



A Green Tax Shift for Vermont



Vermont Green Tax and Common Assets Project
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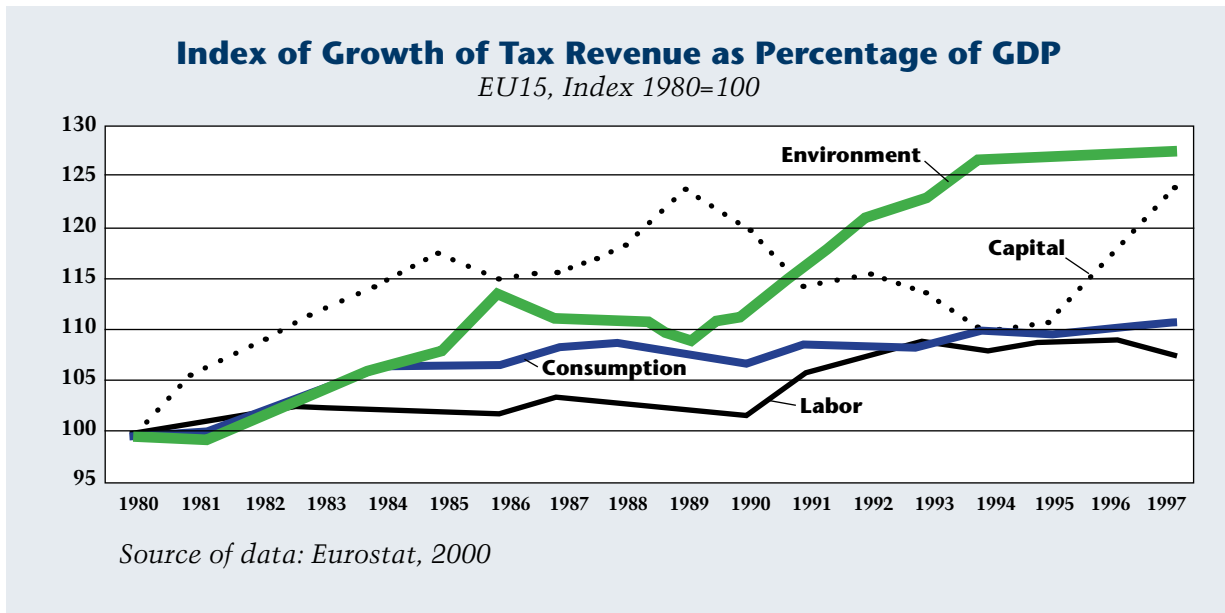
Introduction to Green Taxes

The concept of using taxation as an incentive tool to encourage or discourage various economic activities is nothing new. Tax credits and subsidies are a favorite tool of fiscal policy. Using taxation as a tool of environmental policy is rapidly gaining ground. Environmental taxation is a huge movement worldwide encompassing taxation of energy, pollution, resource use, land and other aspects of nature. Environmental taxes as a share of public revenue increased 25% in Europe from 1980-2000 (Figure 1). A comprehensive list of green taxes in effect in Europe and New England are included in Appendix One and Two.

Many different environmental "bads" are already being taxed such as water and air pollution, solid waste, hazardous waste, chemicals, etc. Prior to the ban on ozone depleting compounds, a tax on cfc's was successfully used to discourage production. One of the environmental taxes used in Europe which has not been widely implemented

in the US, is the carbon tax. Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden, and UK have all implemented a carbon tax as part of their strategy to reduce greenhouse gases and reduce fossil fuel dependence. New England has implemented a Regional Cap & Trade system (RGGI), and the CA Air Resources Board (CARB) has recently categorized CO2 as a pollutant for the first time. Increasing environmental taxes while decreasing taxes on labor is a common strategy followed, harking back to the "single tax" of 19th century economist Henry George, who advocated taxing land, not improvements or production. International conferences take place every year on environmental taxation with participation by prominent academics and policy makers: (<http://www.environmental-tax-conference.uottawa.ca/index.htm>) The Environmental Law Program at Vermont Law School is one of the primary sponsors.

Figure 1



The “Green” Tax Shift

A green tax shift is defined by increasing taxes on environmentally damaging activities while simultaneously reducing them on beneficial economic activities. Taxation of resources increases their cost and thereby encourages conservation. Charging for pollution puts a price on what was formerly free and therefore discourages polluting. Taxation of land causes more dense land use and reduction of sprawl (Schwartz 1999). Therefore to conserve nature, taxation of resources, land, and pollution is called for. For economic efficiency taxes on productive labor and capital should be reduced. This report will present a viable plan for a Green tax shift in the State of Vermont.

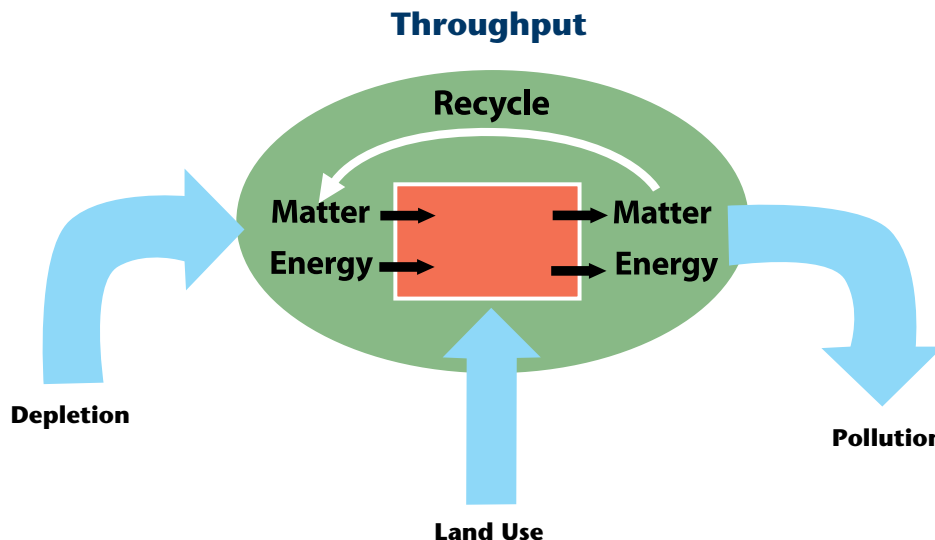
Throughput

The concept most relevant to a green tax shift is throughput. All economic activity starts with materials and energy extracted from the source of nature creating depletion, transformed by labor and capital into products, with waste energy and materials going back into the sink of nature as pollution. “Throughput is the entropic flow of matter-energy from nature’s sources through the human economy and back to nature’s sinks” (Daly 1993, p326). But where does this activity take

place? There has to be a location or site where economic activity takes place. All economic activity takes place on land sites with the exception perhaps of shipping or air travel. So throughput comes from sources, is transformed on sites, and ends up in sinks. Throughput is the flow of resources and energy through the economy resulting in products as well as pollution and waste.

Resource depletion, land use, and pollution are external costs that are not accounted for in normal market transactions. Standard economic indicators such as GDP, stock market level, housing starts, business profits, etc. provide no indication of social and environmental externalities. GDP, for example, measures the total dollar value of goods and services in the economy. Maximizing GDP therefore also maximizes throughput. Wouldn’t it make more sense to maximize GDP per unit of throughput? This would be an efficient economy rather than a wasteful one; smart growth instead of dumb growth. Failure to account for external costs in prices also violates the “polluter pays principle”. A green tax shift can begin to internalize some of these external costs and help make polluters pay. With green taxes resources will be conserved, land will be used more efficiently, and pollution will be reduced.

Figure 2



Environmental Protection-Prices Lie

Creating a sustainable society can be promoted if the prices of products we buy and use accurately reflect the environmental and social costs embodied in them. This is currently not the case. It is much cheaper to do the wrong thing environmentally than the right thing, both for individuals and companies. For example, at \$6/ton in Vermont it is much cheaper to take solid waste to a transfer station than to deal with recycling or composting it. A hybrid car having higher mileage and lower emissions costs \$5-7,000 more than an equivalent gasoline car. A coal burning powerplant spewing mercury, sulphur, and nitrogen oxides into the air drifting over Vermont produces power cheaper than renewable energy such as solar, wind, biomass, or hydro. Chemical farming and lawn fertilizers turn parts of Lake Champlain into "dead zones", and farming with pesticides which endanger human health, is generally more profitable than organic farming.

In every case, the massive environmental and social costs are pushed off onto society, and are not reflected in prices, or paid for by producers or consumers. Since most people make their decisions according to prices, the wrong choices get made for the long-term welfare of people and the environment. Only the dedicated few, or wealthy environmentalists make the right choices by ignoring prices. Many people cannot afford to. The following chart details the uncounted environmental and social costs (Illth) in the US.

Figure 3

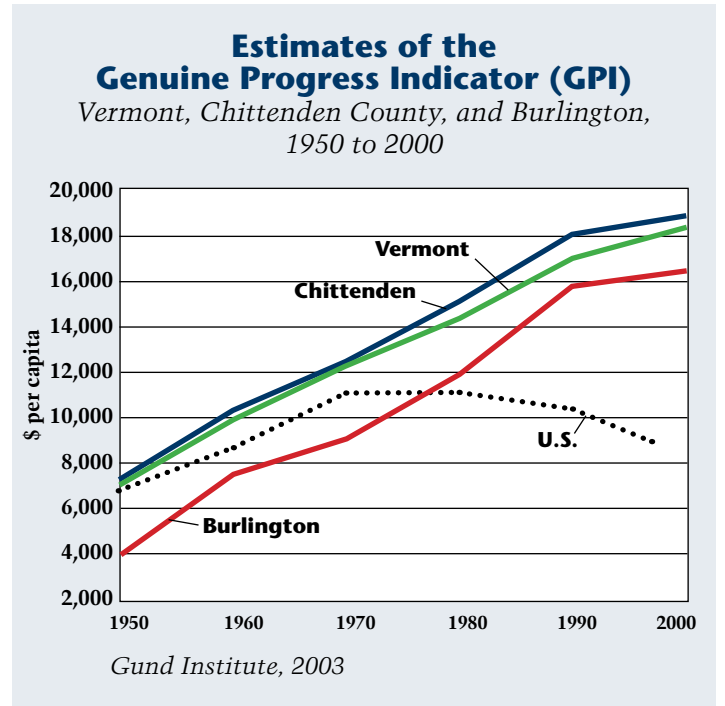
	(\$ Billion)
Cost of household pollution abatement	12
Cost of noise pollution	16
Cost of crime	28
Cost of air pollution.	38
Cost of water pollution	50
Cost of family breakdown	59
Loss of old-growth forests	83
Cost of underemployment.	112
Cost of automobile accidents	126
Loss of farmland.	130
Loss of leisure time	276
Cost of ozone depletion	306
Loss of wetlands.	363
Cost of commuting	386
Cost of long-term environmental damage	1,054
Depletion of nonrenewable resources.	1,333
Total	\$4.372 trillion

Costs of Illth in the United States, 1998
 Source: *Why Bigger Isn't Better: The Genuine Progress Indicator Update*, Redefining Progress, November, 1999.

Genuine Progress

Since GDP doesn't subtract costs it provides a false view of economic progress. A recent study by the Gund Institute of the Genuine Progress Indicator for Vermont subtracts economic costs (Illth) as well as counting economic benefits. The result shows that Genuine Progress in Vermont is continuing to rise, although it is beginning to level out. Genuine progress in the US has been declining since the 1970's. A big factor in the data leading to a higher GPI in Vermont was the more pristine and less crowded environment. Green taxes can help maintain a high level of genuine progress.

Figure 4



Internalizing External Costs/ Making Prices Right (Milne, Primer 1996)

A crucial aspect of a green tax shift is the ability to begin to include the uncounted external costs of environmentally damaging activities into the price of products. The market by itself will not impose external costs on products. Only government can do this. Currently many damaging externalities of pollution, such as emissions from burning gasoline in motor vehicles, are not included in the cost. This puts the burden of costs on society, rather than on the user of the product. This violates the "polluter pays" principle, and leads to distorted prices which provide false information to consumers. Even worse, many polluting activities are not only untaxed, but have large subsidies distorting the price even more. Using the example of gasoline, various studies have calculated from \$3 to \$15 per gallon of uncounted environmental costs (ICTA, 1998). By artificially lowering the actual cost of

gasoline, over-consumption results, as demonstrated by the decline in US average vehicle fuel economy since 1987 (Heavenrich, 2005). Green taxes at one level of government could compensate for subsidies at other levels. For example federal oil industry subsidies, combined with a state green tax on carbon would basically redirect lost federal revenue to the state level.

While oil industry subsidies might benefit industry in oil refining states, little or no benefit accrues to states such as Vermont, with no fossil fuel refineries or industry. So it is appropriate that the loss of federal revenue and increase in local environmental impacts due to lower prices of fuel is compensated by a state Green tax. An even better example might be the 80% of mercury pollution in Vermont which comes from mid-west coal burning power plants (Myers, 1999). Very little electricity in Vermont comes from coal, yet Vermont suffers the damage. A VT carbon tax or green tax specifically targeted at coal power purchased through the grid in Vermont, would make coal power more expensive and less used, at least by Vermont utilities.

Economic Efficiency

Taxes on income and capital, are generally considered inefficient for several reasons. "The most obvious cost is that Americans are left with less money to meet their needs for food, clothing, housing, and other items, and businesses are left with fewer funds to invest and build the economy. In addition, the tax system imposes large compliance burdens and "deadweight losses" on the economy. Compliance burdens are the time and administrative costs of dealing with the tax system's rules and paperwork. Deadweight losses are created by taxes distorting the market economy by changing relative prices and altering the behavior of workers, investors, businesses, and entrepreneurs" (Crane, Boaz 2005) Taxes on income and wages also increase the cost of labor to business, thereby decreasing the supply of jobs. This is true of income taxes, payroll taxes, and workers compensation payments.

Since "investment flees taxation" taxes on labor or capital also discourage innovation, job creation, and risk-taking. Taxes generally add to production costs, thereby raising prices and reducing consumption of the item taxed. For example, taxes on cigarettes or gasoline decrease consumption of these items by raising their price. Taking housing as an example, do we really want to increase the cost and restrict the supply of housing, when housing costs are already through the roof in Vermont? Taxes on building improvements have this effect. A green tax shift can replace taxes on productive activities such as building construction with taxes on the use of sources, sites, and sinks.

Solution-Green Tax Shift

Choosing what item to tax and which to exempt from taxes allows a double policy tool of incentives. Since taxes generally decrease consumption of the item taxed, a sensible strategy is to tax undesirable activities more, and desirable activities less. These principles lead to the Green Tax philosophy of "TAX BADS NOT GOODS", or "TAX WASTE, NOT WORK" (Hamond, et al, 1997). If work, income, wages, and investments in productive activities are taxed less, these items will be encouraged. If resource use, land use, and pollution are taxed more, resources will be conserved, land will be used efficiently, and industry will avoid pollution. This revenue neutral shift is a common green tax strategy and is the policy followed in the recommendations below. While higher green taxes are often promoted by liberals for environmental reasons, conservatives often recommend lower income taxes. Many of the plans to reduce income taxes are combined with the suggestion to replace them with higher sales taxes (Crane, Boaz 2005). While this would decrease consumption, it is highly regressive, and only indirectly addresses resource consumption downstream. It punishes the labor and capital portion of production. Green taxes are a better alternative to replace income or payroll taxes, and address resource consumption directly. A green tax shift can stimulate the economy and protect the environment at the same time, the holy grail of sustainable development.



Theories of Internalization

There are three approaches to cost internalization. Pigouvian theory is based on the theories of economist A.C. Pigou who developed the idea that market forces could take care of external costs if prices reflected those costs through the addition of environmental taxes (Pigou, 1932). Another approach is to calculate what restoration costs would be under the "polluter pays" principle. Another approach is to calculate "least cost abatement" for pollution caused by industry. Each of these techniques is imperfect and much research and debate is spent calculating exactly what these numbers would be. An exact figure which internalizes all external costs could never be found. An empirical approach is also possible by implementing a green tax shift, monitoring the results, and adjusting them as necessary. The goal is that prices would begin to reflect the actual costs of the product to society and not just the direct market costs.

Behavioral Approach (Milne, Primer 1996)

Whatever you tax you get less of due to increasing its price (with the exception of real-estate sites). Therefore we can ask ourselves what do we want more of and what do we want less of? Do we want less income, wages, jobs, investment, and housing? If not we should tax these items less. Do we want less depletion of resources, land use, and pollution? If so we should tax these items more. This is the essence of the behavioral effect of taxes in general and the green tax shift in particular. The effect of prices on behavior depends on the sensitivity of consumer demand to changes in prices (price elasticity). If demand is very inflexible (inelastic) with respect to price, then a large change in price will result in a small change in demand. This is true for products such as gasoline, which have very few substitutes in the short term. The demand for gasoline is very inelastic as we saw during Hurricane Katrina, when demand changed little despite a 75-cent increase in the price. Conversely if an item has many substitutes, then demand may be very elastic and will change a great deal with only a small change in price. An example might be for seeing movies at the theatre. There are many substitutes such as renting a video or dvd, downloading video off the internet, live theatre, or some other kind of entertainment. Demand for

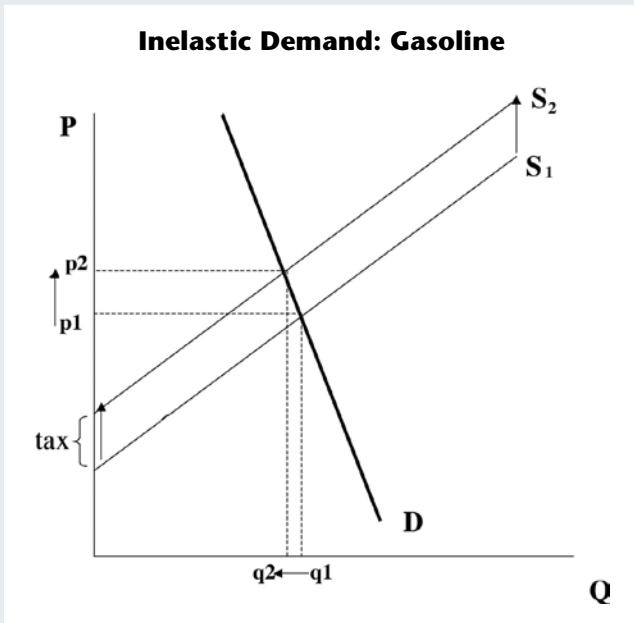
movies might well be very elastic. This determines the behavioral effect from a change in prices due to a green tax shift applied to various consumer items. It will also affect available revenue, as a decrease in demand will also reduce tax revenue over time. This principle also applies to reduction in taxes on economic activities such as housing, jobs, or investment. Tax cuts, credits, and deductions are often used to spur various kinds of economic activity. Reduction in price increases demand in the same way.

Revenue Generating (Milne, Primer 1996)

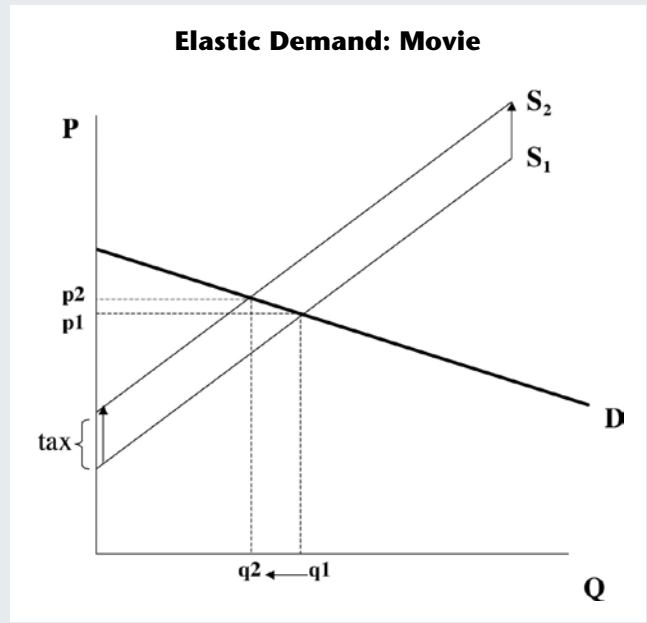
The third green tax principle is revenue generation. It is consistent with green tax principles to target revenues to issues related to the item taxed. This is already the done in many cases. For example a portion of the Vermont gasoline and diesel tax is used to pay for leaking underground fuel tanks. Another question is what taxes to offset with green tax revenues. Possibilities are to use the revenue for deficit reduction, targeted revenues, or to offset other taxes. The Green tax plan we developed for Vermont provides \$500 million of additional revenue that is applied to other tax relief. Tax relief could be applied to personal income, payroll, corporate income, sales, or other taxes on "goods". Options are described below.

Figure 5

Price Elasticity of Demand



INELASTIC: Large change in price = small change in demand



ELASTIC: Small change in price = large change in demand

Green Tax Criteria (*Durning and Bauman, 1998*)

Each of the existing Vermont taxes and proposed changes was subjected to scrutiny on the following basis:

1. Economic Efficiency

Does the tax encourage or discourage enterprise, growth in productivity, and job creation? Specifically does the tax cause what economists call a deadweight loss”: a loss of economic output caused by distorted incentives created by the tax? Taxes on wages, for example, increase the cost of hiring labor. Taxes on investment discourage people from investing. Both reduce economic output and efficiency.

2. Distributive equity

Does the tax fall on people in proportion to their ability to pay? Progressive taxation attempts to equalize sacrifice instead of simple percentages by taking

a larger proportion of income from higher-income households than from poorer ones. Regressive taxes by contrast, take a larger share from middle-class and poor households than from affluent ones. Because the cost of some taxes is passed on from the initial taxpayer to others, assessing fairness requires paying attention to who ultimately feels the tax bite.

3. Environmental protection

Does the tax encourage or discourage resource conservation and pollution prevention? Does the tax correct the failure of the market to reflect environmental costs, such as pollution’s effects on human health?

4. Ease of administration

Is the tax easy to administer and enforce? Is it easy for taxpayers to comply with the tax? Is it easy to evade?

Green Taxes in Vermont

“There is nothing more difficult to carry out, more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For those who would institute change have enemies in all those who profit by the old order, and they have only lukewarm defenders in all those who would profit by the new order.”

— Nicolo Machiavelli, 1490

There are those on the right who dislike green taxes as a “big government” interference in the market. There are those on the left who dislike market-based approaches, and prefer direct regulation which has worked in the past. When you offend people on both sides you know you are on to something. A revenue neutral green tax shift as proposed here should have non-partisan appeal. Green taxes may be user fees for nature, but are still considered taxes. Taxes is a dirty word, but they have tremendous incentive

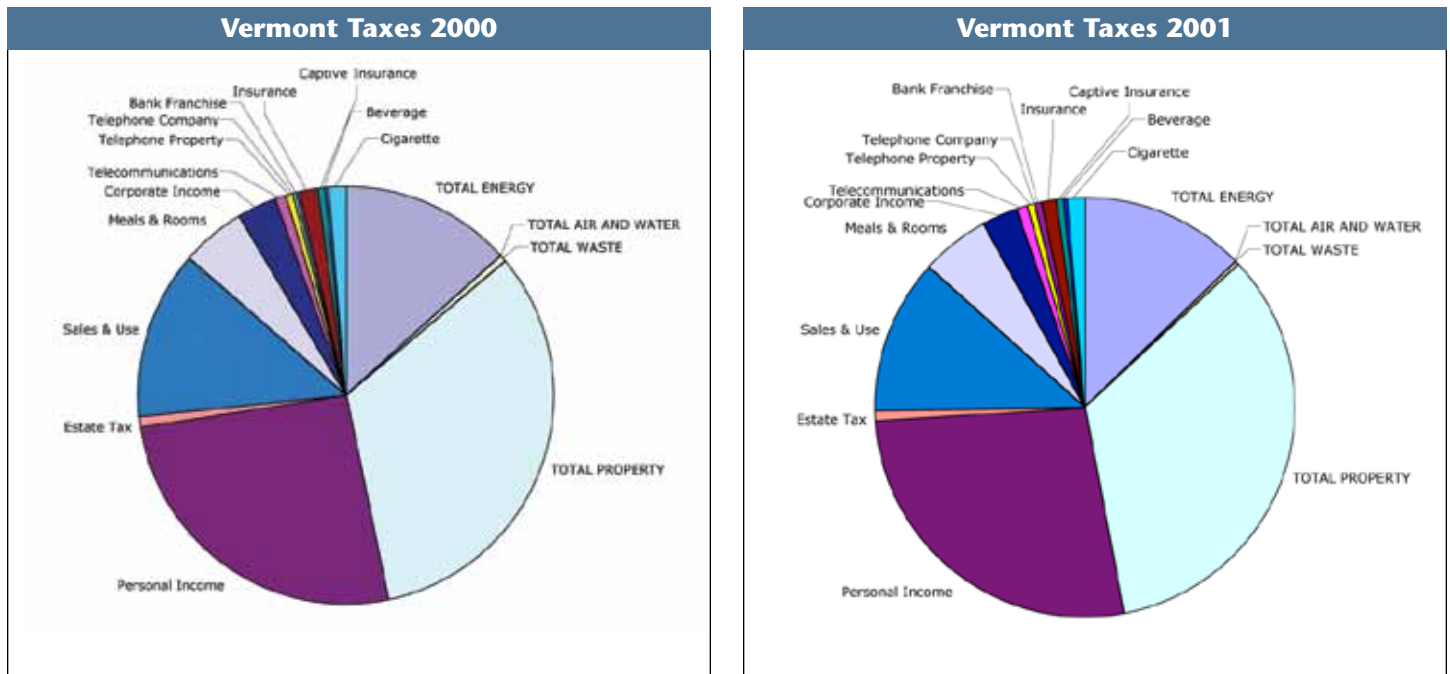
effects in addition to their function to generate revenue for the necessary functions of government. Green taxes combine environmental protection and economic efficiency into a market mechanism by affecting prices and incentives. It is not a panacea, but an important tool to use in conjunction with other policy tools. Green taxes already comprise approximately 25% of Vermont state taxes. What would you expect in the Green Mountain state?

There are many different ways to apply green tax

Figure 6:

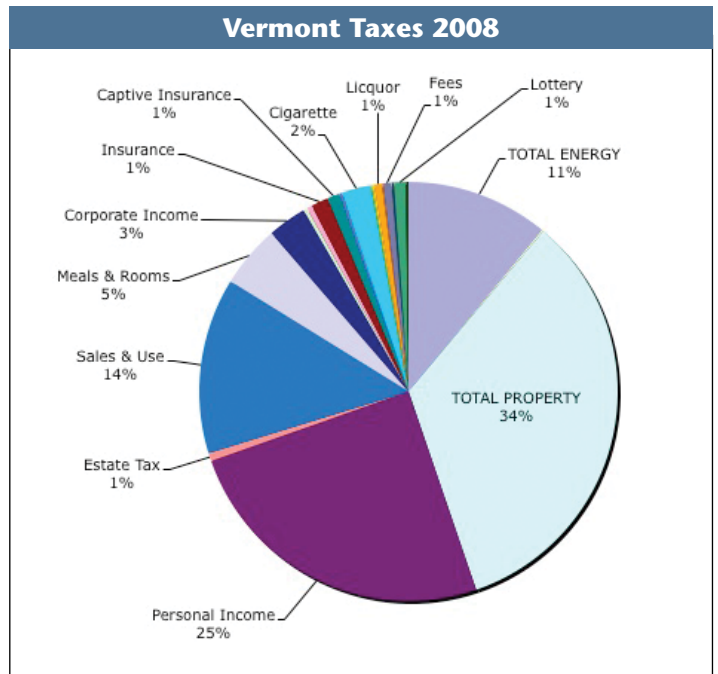
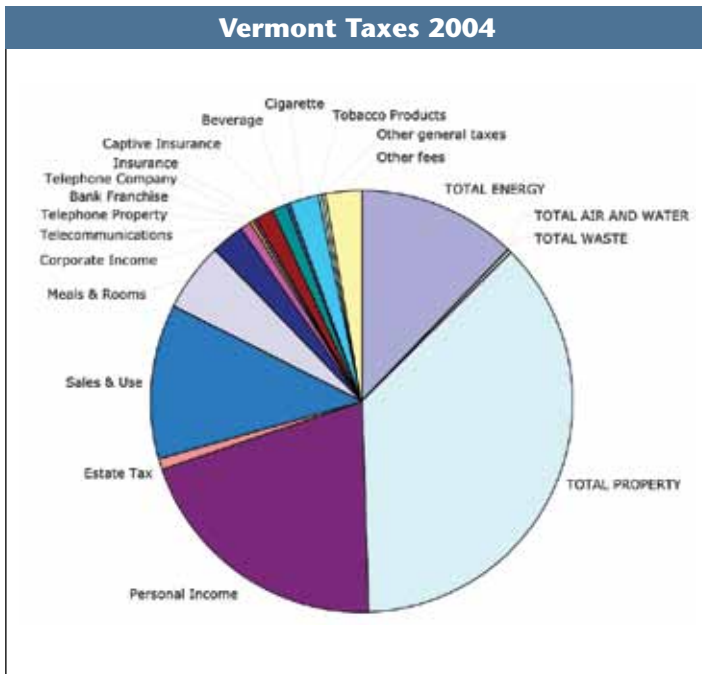
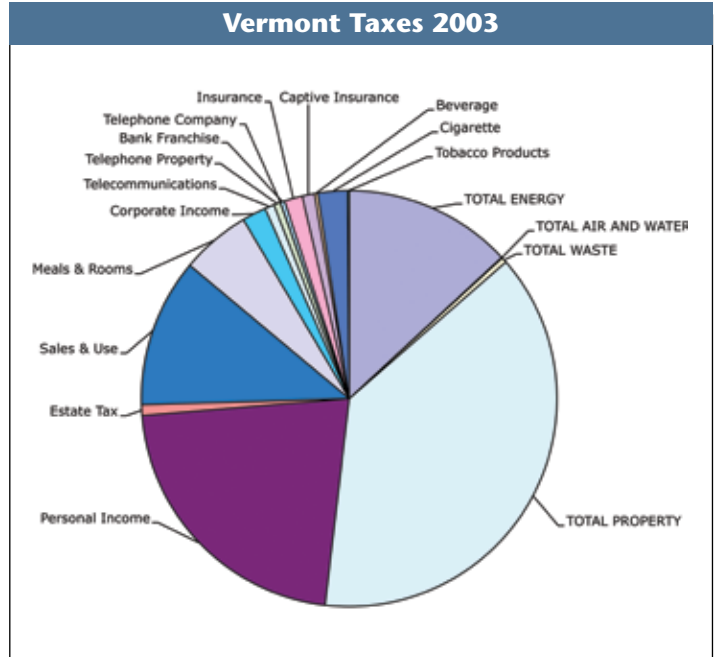
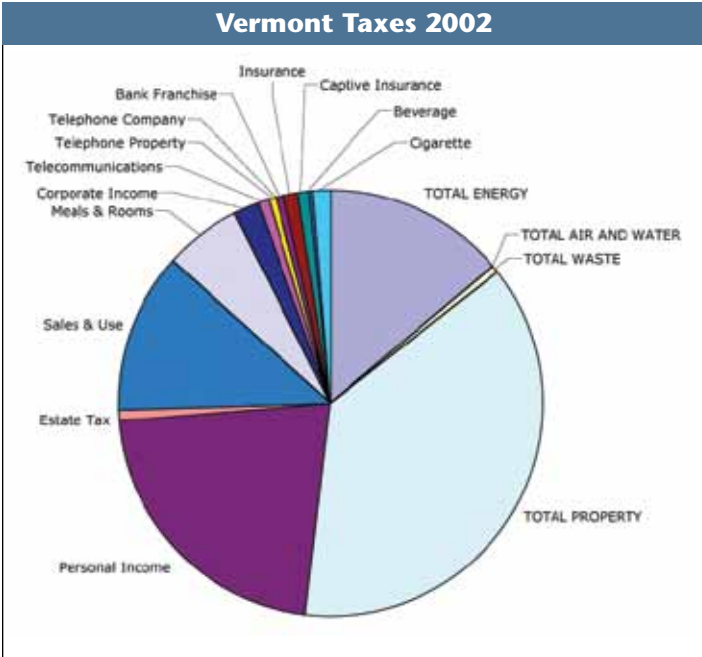
Vermont Revenue from 2000-2008

Nothing New Here



principles. The plan outlined here is just one possibility among many. This plan provides two options of approximately 50% Green taxes, and a more ambitious option which could generate 100% of state revenue from a Green tax shift. Information was combined from numerous revenue-collecting agencies of state government. All of the research and original data can be

found at: <http://www.uvm.edu/~gflomenh/GRN-TAX-VT-PA395/> This is possibly the only consolidated data source for most of the taxes and fees generated in the state of Vermont. The remainder of this paper is a case study of how green taxes, land taxes, and common assets could be implemented in a state such as Vermont, based on actual state revenue figures.



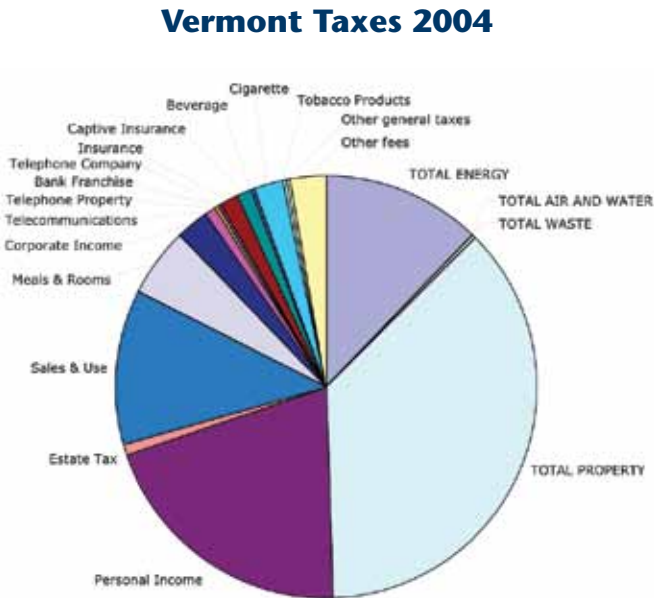
The tax plan in this report was done for the year 2004, but the history of Vermont tax revenue shows that revenue sources have changed little from year to year, so this plan could be applied in any year. The state is not maximizing the opportunity of the tax structure to provide positive incentives for economic efficiency and environmental protection.

Existing Vermont Sources of Revenue

The 2004 Vermont Budget was about \$3.574 billion of which \$2.117 billion was generated from in-state revenue (Vermont Legislative Joint Fiscal Office and other state offices, 2004). The tax department has 37 line items in revenue account reports, each with their own set of rules and regulations, not including property taxes. There are hundreds if not thousands of fees administered and collected by various agencies. No complete compilation exists of all these fees. One-third of updated fees are reviewed annually by the Joint Fiscal office. No single source of this information was available. Dozens of Vermont agencies were contacted to assemble the entire Vermont revenue picture shown below. Of total in-state revenue the largest items were:

Property taxes comprising 35%
 personal income 20%
 sales and use 12%
 energy taxes 12%

Figure 7:

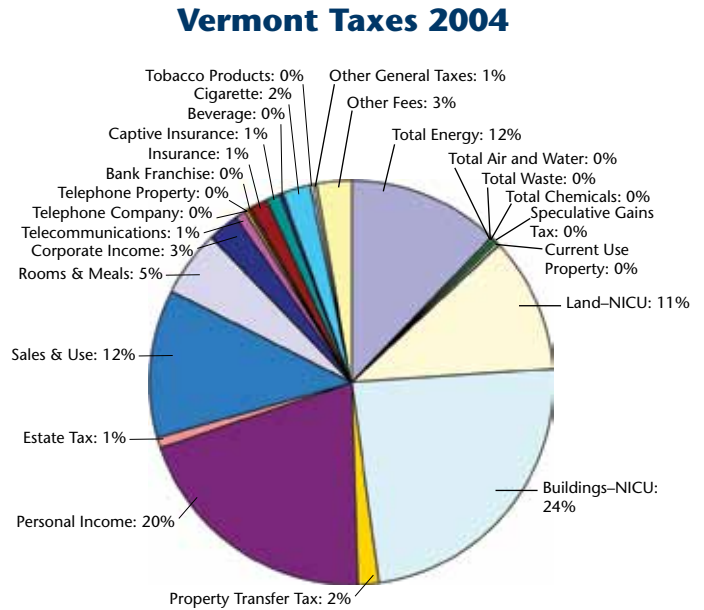


Vermont Instate Revenue: Another Look at Property tax

If we further divide property taxes into land and buildings (NICU=not in current use program) we find that 24% of instate revenue is coming from taxes on buildings. This is due to the fact that the average property in Vermont has 2.3 times as much value in the buildings and other improvements compared to the land itself. (Batt, 2002) Since assessed value of property consists of the land value and building value combined together, this results in 2/3 of the property tax burden falling on buildings. It is worth considering if this negative incentive structure is worth keeping in a state where there is a severe lack of affordable housing, and large wage gap between income and housing costs. Revised tax summary:

Buildings 24%
 Personal income 20%
 Sales and use 12%
 Energy taxes 12%
 Land 11%

Figure 8:



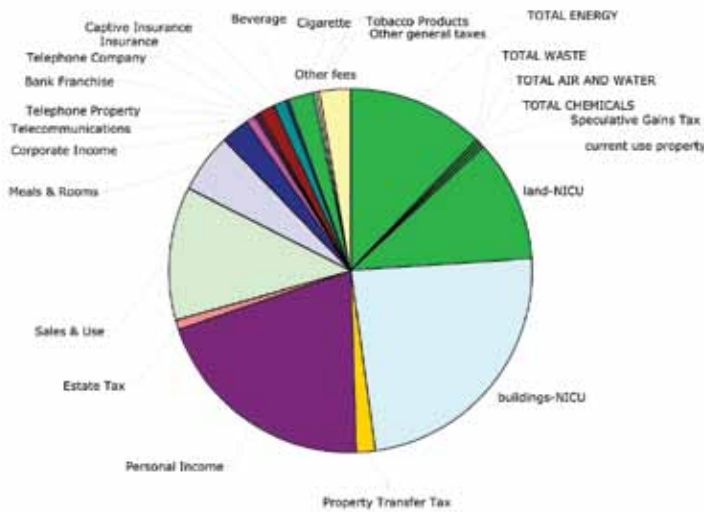
Existing Green Taxes in Vermont

If we define green taxes as taxes on throughput: either resource depletion, land use, or pollution we find that approximately 25% of current Vermont instate revenue comes from Green taxes. These taxes and fees include energy taxes such as gasoline and diesel fuel, fees on solid and hazardous waste, chemicals such as pesticides, air and water emissions including cigarettes, and the land portion of the property tax. Sales tax is colored light green due to the fact that sales taxes do tax

Figure 9:

Existing Green Taxes in Vermont		
Topic	Main Features	2004 Revenue
Energy	varies.	\$259,269,147
Property2/3 on buildings, 1/3 on land	\$782,118,363
Waste	\$.6/ton on haulers	5,901,672
Air and Water	\$1170 impervious surfaces	1,201,769
Chemicals.	\$100 pesticides fee	932,100
General	varies.	\$1,012,614,704
Other fees	varies.	\$56,585,608
TOTAL		\$2,118,623,363

Existing Green Taxes in Vermont



consumption, but they tax the labor and capital value-added portion in addition to the resource portion. We feel that taxing resource use directly is more effective and doesn't provide a disincentive to labor and capital as a sales tax does.

**Revised Green Tax Plan
Additional Revenue-\$500 million**

A thorough review of all possible green taxes was performed based on the Green tax criteria listed above. A comprehensive program of increased green taxes was devised which are detailed in Appendix 3. The areas addressed include energy, property, air and water emissions, water use, solid and hazardous waste, pesticides and chemicals. These recommendations are just one possibility among many following green tax principles of taxing bads, not goods. Many other possibilities are viable for Vermont or any other state. This plan is an attempt to put down some real numbers to start the conversation, and to demonstrate that green taxes can replace some or all other taxes.

Energy: In the energy area the primary recommendation is a \$100 per ton carbon tax falling on all fossil fuels. A large hydro and nuclear tax was added to compensate for environmental hazards and damage of large non-fossil power plants. Many of the other energy taxes were eliminated to simplify the collection of revenue. These changes would generate an additional 262 million dollars of revenue.

Property: The state Property tax in Vermont is highly controversial due to its primary use to equalize education funding around the state. The total revenue was not changed, but the recommendation is to reverse the ratio of revenue collected from buildings and land within downtowns and growth centers, and leave the current structure in place outside growth centers for now. Instead of 2/3 of the revenue coming from buildings, the revision recommends 2/3 of the revenue come from land value. The logic of this is to encourage building improvements and development within the growth centers, but to discourage it outside the growth centers. The justification for this is that land value in Vermont is very dispersed throughout the landscape. Towns are not that far apart, and farms are being converted to residential housing at a rapid pace. The current property tax structure provides some disincentive to development. Therefore, the recommendation is to retain the current property tax structure outside of growth zones.

Waste: The current tipping fee of \$6 per ton does not provide much incentive to reduce, reuse and recycle. The recommendation is for a \$2 per bag "pay-as-you-throw" (PAYT) plan and doubling of tipping fees. A recent \$1.20 per bag payt plan in Victoria, British Columbia resulted in an 18% reduction of trash in one year. This system would generate \$149 million additional revenue, accounting for a 20% reduction in trash, and preserve scarce landfill space.

Revised Green Taxes Main Features *(For details see appendix 3)*

Energy	Carbon @ \$100/ton.	+\$262,270,853
Property	1/3 on buildings 2/3 on land in growth centers	(\$782,118,363) same
Waste	\$2/bag PAYT	+\$149,103,672
Air and Water	\$.01/gal >100gals	+\$89,851,516
Chemicals.	\$.300 pesticides fee.	+\$ 2,215,900
Total Increase.		~\$500 million

Air and water: A number of recommendation were made which would have beneficial environmental effects, but not much additional revenue. The main revenue generating recommendation is a one cent per gallon surcharge on residential water use over 100 gallons per day generating 89 million dollars.

Pesticide and chemicals: A number of these fees were revised with the largest additional revenue coming from raising the pesticide license fee from \$100 to \$300.

Tax Shifting Options

Keeping to our theme of revenue neutrality, the next step was to choose which taxes to reduce with the additional green tax revenue. All of the following were reviewed and considered: Sales and Use tax, Meals and rooms, individual income tax, Corporate/business income tax, Fed payroll tax, or even to eliminate all other taxes.

All of the recommended changes are detailed in the table above amounting to additional revenue of \$500 million.

Analysis – Reduction of Sales and Use Tax, 2004 Revenue: \$255,569,644

Sales and use taxes are considered semi-green as they do tax throughput in the form of consumption, but also tax the value added labor and capital portion of products. They could be revised to tax environmentally damaging products more heavily than benign ones. Exemptions could be reviewed to leave only those necessities used by all people. Sales and Use tax was left as is for now, a semi-green tax.

Analysis – Reduction of Meals and Rooms Tax, 2004 Revenue: \$108,392,469

Perhaps it was Huey Long who had the expression, “Don’t tax me, don’t tax thee, tax the man behind the tree.” Meals and rooms is a perfect example. Sources indicate that this tax is popular since it taxes out of state tourists more than Vermonters. It was left be.

Analysis – Reduction of Other Taxes
2004 revenue

Telecommunications	\$12,949,990
Telephone Property.	\$9,126,836
Telephone Company	\$1,206,583
Bank Franchise	\$8,335,660
Insurance	\$20,399,766
Captive Insurance	\$10,036,744

This table lists the other major sources of tax department revenue in Vermont. The available revenue from increased green taxes could be used to offset any or all of these taxes.

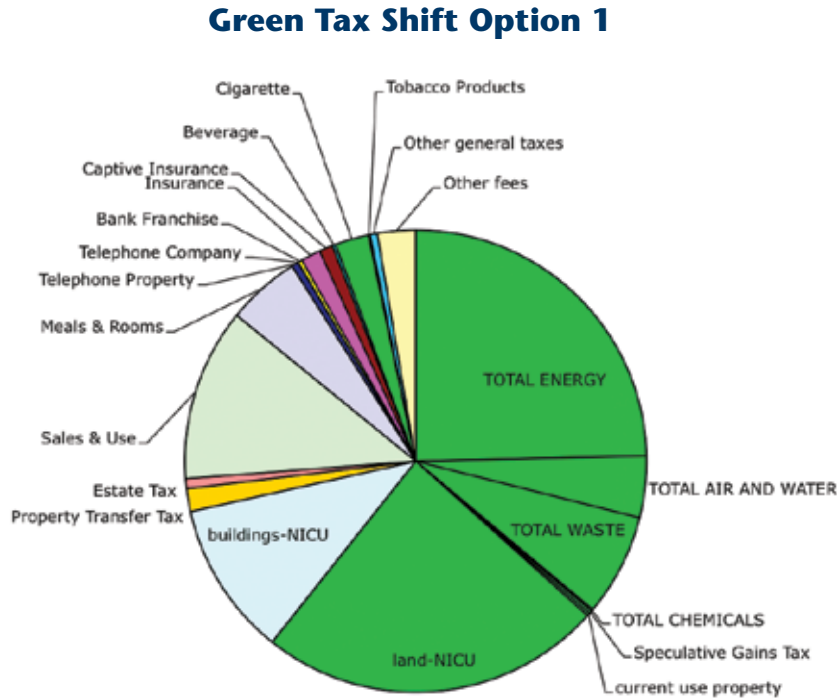
Green Tax Shift Option 1
Cut personal income, corporate income, and telecommunication taxes, 2004 revenue ~\$500 million

Taxes reduced:	
Personal income tax. cut	-\$429,488,824
Corporate income. cut	-\$55,497,257
Telecommunication. cut	-\$15,000,000
Total Reduction	\$499,986,081

Analysis – Elimination of personal and corporate income taxes, and telecommunication taxes.

Vermont is often accused of having an unfriendly business environment, particularly in comparison to neighboring New Hampshire which has no income tax. This reduction could help to silence critics. However, state income tax is already progressive so lowest income filers have little or no liability. Offsetting income tax may not help compensate for higher fuel costs. Current

Figure 10:

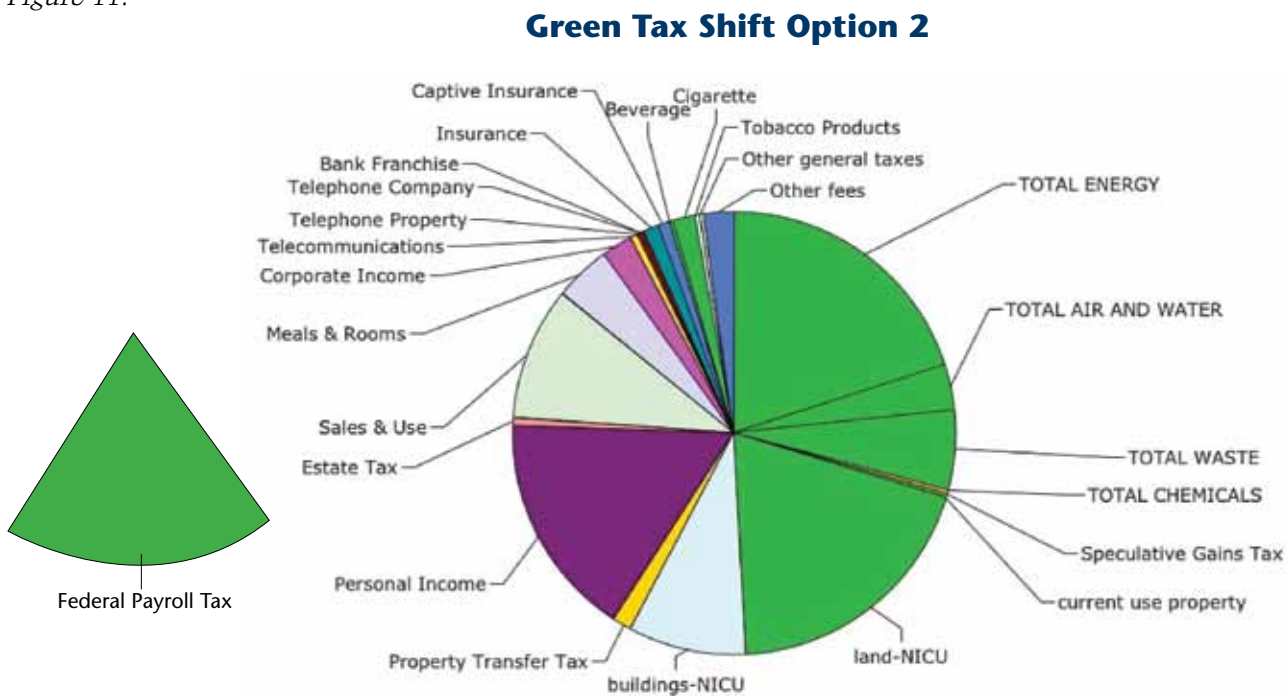


work was being done in 2005 to change corporate taxation requiring unitary combined reporting to crack down on income-shifting. Elimination of corporate income taxes would make this a moot point, and simplify reporting for business. Telecommunications is a high tech industry that should be promoted in Vermont, and reduction of taxation on this industry could be beneficial to job creation. While property tax revenue

was not changed, a shift of the ratio is recommended from 2/3 on buildings to 2/3 on land. These changes would result in state revenue 3/5 based on green taxes.

Green Tax Shift Option 2:
Decrease federal payroll tax by \$500 million starting with wage earners below \$35,000/year

Figure 11:



Employee income	VT income tax	FICA employee	FICA employer	Self employed
\$10-\$15K	0	\$956	\$956	\$1912
\$15-\$20K	\$79	\$1340	\$1340	2680
\$25-\$30K	\$633	\$2486	\$2486	\$4972

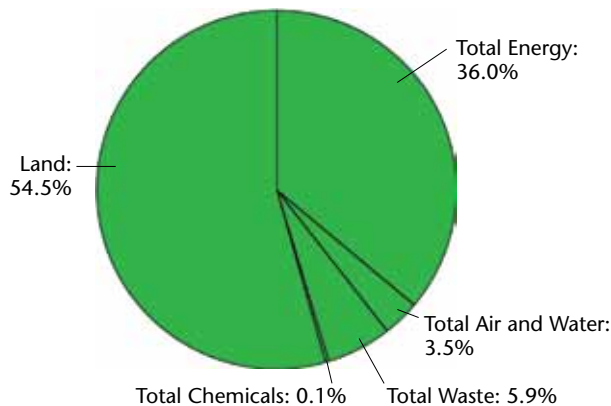
Analysis: \$500 million reduction in federal payroll tax.

Payroll tax burden is much higher than income tax for low-income taxpayers and business as shown on table above. Reduction of payroll tax is therefore much more progressive and better for business who pay half. This amounts to a 7.65% tax break for employees and employers of these individuals. The total payroll taxes paid in Vermont in 2004 was calculated to be \$1,852,073,396, which nearly equals the instate revenue of \$2.1 billion. To reduce payroll taxes by \$500 million it is possible to eliminate payroll taxes on all employees in Vermont making below \$35,000, and allow the reduction to be tapered-in for incomes above that amount. The Economic Benefits of FICA Reduction are multiple including returning income to those most likely to spend it, and aiding businesses as well as workers. It provides an incentive for employment by reducing the cost of labor, thereby boosting the Vermont economy. This option results in half of state revenue coming from green taxes, as well as \$500 million in payroll taxes paid. This option was the recommended plan by MPA students at UVM.

This is exactly what Germany did in 1999 with their Eco-Tax Reform. Fuel taxes were increased by 55% and payroll taxes were reduced. The result was that Germany reduced their GHG emissions, and developed the largest renewable energy industry in the world, with 18% of world wind and 40% of world PV installations.

Figure 12:

Green Tax Shift Option 3



Details of 100% Green Tax

Topic	Main features	Revenue
Energy	Carbon @ \$300/ton	\$946,800,000
Property	Land @ 9.6%	\$1,433,117,922
Waste	\$2/bag	\$155,005,344
Air & Water	1c/gal >100gals	\$91,053,285
Chemicals	\$300 product fee on pesticides	\$3,486,000
TOTAL	100% Green	\$2,629,462,551

By 2006 Germany had 150,000 jobs in renewable energy compared with 107,000 in traditional energy.

Green tax shift Option 3: Let's go all the way

100% Green tax shift-\$2.6B revenue. Increase energy, waste, air, water, chemicals, and land tax. Eliminate all other taxes in Vermont, and reduce federal payroll tax by \$500 million.

Analysis

A 100% Green tax shift is feasible, and could simplify taxation and revenue generation enormously by shifting to a few broad-based green taxes. Green taxes imposed in this plan are the same as option 1&2 above with the following two changes: Carbon tax is increased from \$100 to \$300/ton, and taxes on buildings are eliminated and replaced with a 9.6% tax on land only. This would simplify taxes enormously with a "single tax" on nature, and none on income, sales, or any other productive activity in Vermont.

Summary

The recommendations in this report would have resulted in additional revenue of over \$500 million dollars in fiscal year 2004, by increasing fees on energy, air and water use and emissions, solid and hazardous waste, and chemicals and pesticides. This demonstrates the viability of the green tax shift, and the possibility of reducing taxation of productive activities, while increasing taxation of resources, land, and pollution.

Regulatory approaches to the environment have been effective in the past, but face the obstacle of economic incentives working against them. A green tax shift allows prices to more accurately reflect the environment cost of products, creating market incentives for environmental protection. Simultaneously, it allows taxes on production to be reduced, resulting in a "greener" more productive economy. By joining the popular movement for Green Taxes the broader goal of payment for use of natural opportunities, and exempting private effort can be achieved more readily.

Appendix One

European Green Taxes

Development in environmental tax bases in EU Member States, 1996-2000, indicating year of introduction of CO₂ taxes

Tax on:	A	B	DK	FI	FR	GE	GR	ICL	IRL	IT	L	NL	NO	P	SP	SW	UK
Energy																	
CO ₂ *			1992	1990	2001	1999				1999		1992	1991			1991	2001
Transport																	
Diff annual car tax																	
Sin car fuel																	
Water effluents																	
Waste-end																	
Dangerous waste																	
Tires																	
Disposable razors																	
Beverage containers																	
Disposable cameras																	
Raw materials																	
Packaging																	
Bags																	
Disposable tableware																	
Pesticides																	
CFCs																	
Batteries																	
Light bulbs																	
PVC/phtalates																	
Lubrication oil																	
Fertilizers																	
Paper, board																	
PE																	
Solvents																	
Aviation noise																	
NO _x																	
SO ₂																	
Minerals (P, N)																	

 In 1996  New in 2000 *Years of introduction

From Environmental Taxes; Recent Developments in Tools for Integration, European Environmental Agency, Nov. 2000.

Appendix Two

New England Green Taxes

From Environmental Taxes in New England, an Inventory of Environmental Tax and Fee Mechanisms Enacted by the New England States and New York, Janet Milne, Environmental Law Center, VT Law School, 1996.

Reducing Point Source Pollution: Air/Water/Industrial Waste Facilities	CT	ME	MA	NH	NY	RI	VT
Tax Incentives:							
<i>Tax Credit</i>	■				■		
<i>Amortization</i>			■			■	
<i>Property Tax Exemption</i>	■	■	■	■	■	■	■
<i>Sales Tax Exemption</i>	■	■					
<i>Air Contaminant Fees</i>	■*	■*			■*		■*
<i>Water Discharge Fees</i>							■
Managing Hazardous Waste							
Property Tax Relief for Recycling Facilities						■	
Fees on Waste Generators	■*			■*	■*		■*
Fees on Waste Facilities	■				■		
Property Tax Charge for Polluted Land	■						
Managing Solid Waste							
Fees on Treatment/Disposal Facilities	■*		■	■*			■
Tax on New Vehicle Tires	■					■*	
Tax on Hard-to-Dispose Materials		■*				■*	
Deposit-Refund for Batteries	■					■	
Deposit-Refund for Tires						■	
Deposit-Refund for Beverage Containers	■	■	■		■		■
Tax on Beverage Containers					■*	■*	
Fines for Newsprint Nonrecycling	■*						
Bonus for Waste Management Proposals						■	
Funding Petroleum Clean-up							
Oil Terminal Fee		■*		■*			
Oil Transfer Fee		■*					
Automotive Oil Fee				■*			
Oil Transport Fee				■*			
Heating Oil Fee				■*			
Underground Storage Tank Fee		■*				■*	

Appendix Two

Reducing Fossil Fuel Usage in the Transportation Sector							
Traditional Motor Vehicle Fuel Taxes	■	■	■	■	■	■	■
Van Pool Vehicle Tax Incentives:							
<i>Property Tax Exemption</i>	■						
<i>Gas Tax Refund</i>	■						
<i>Registration Fee Exemption</i>			■				
<i>Excise Tax Exemption</i>			■				
<i>Tax Credit for Transportation Management Program</i>	■						
Alternative Fuel Vehicle Incentives:							
<i>Sales Tax Exemption for Vehicles and Refueling Equipment</i>	■				■		
<i>Tax Credit for Filling Stations</i>	■						
<i>Tax Credit for Converting Vehicles</i>	■						
<i>Franchise Tax Exemption for Alternative Fuel Vehicle Companies</i>	■						
Reducing Fossil Fuel Usage in the Energy Sector							
Renewable Energy Investment Incentives:							
<i>Property Tax Exemption</i>	■		■		■	■	
<i>Accelerated Depreciation</i>			■				
<i>Sales Tax Exemption</i>			■				
<i>Income Tax Credit</i>			■				
<i>Franchise Tax Exemption</i>	■		■				
Income Tax Deduction for Patent Revenue			■				
Tax Credit for Investments in Community Conservation Projects	■						
Maintaining Undeveloped Land							
Property Tax Relief	■	■	■	■	■	■	■
Tax Credit for Forest Management		■					
Property Taxation of Land under Easement		■		■			
Farmland Gift Tax Exemption	■						
Charitable Transfer Tax Exemption		■					
Tax on Speculative Gains							■
Protecting Marine Resources							
Seed Oyster Assessment	■*						
Sardine Tax		■*					
Quahog Tax		■*					

*Indicates that the revenues generated by the tax are dedicated to certain uses.

Appendix Three

Vermont Green Tax Shift Revenue Details

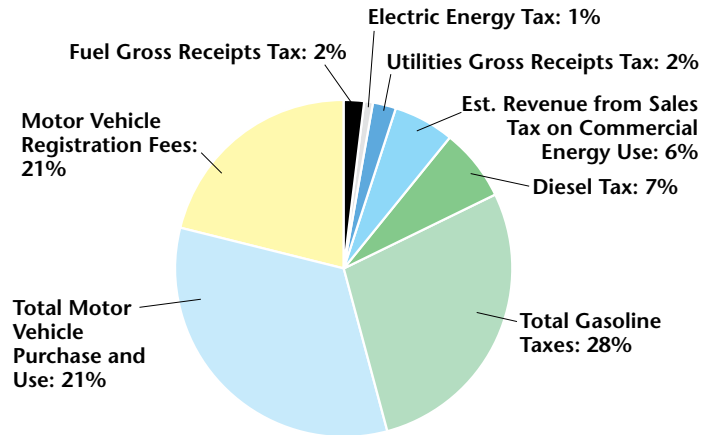
Note: Much of the work compiling a Green Tax Plan for Vermont was done in conjunction with a group of Public Administration Graduate students in fall of 2004. When this report refers to our plan, or recommendations we made, it is referring to decisions made by this consortium of researchers including Melissa Bailey, Thomas A. Benoit Sr., Amanda Dow Davis, John Demeter, Cheryl L. Diersch, Peter M. Freeman, Andrew Jope, John Mejia, Rachel Marie Weston.

tor license fee was doubled from 1c to 2c for the gasoline tank clean-up fund. The gasoline and diesel taxes were reduced to 2cents per gallon each which also funds tank clean up. Sales Tax on Commercial Energy use, Utilities Gross Receipts Tax, Fuel Gross Receipts Tax, and Electric Energy Tax were eliminated in this plan. Existing revenues and recommended changes are shown below.

Energy Tax Shift

The rationale behind our energy tax recommendations is to simplify the numerous existing energy taxes, encourage reduced consumption of fossil fuels, thereby reducing CO₂ emissions, and to use the revenue to purchase energy saving efficiencies and invest in alternative transportation and energy. This plan largely follows recommendations found in *Taxing Pollution*, by Rebecca D. Ramos and Deb Brighton, published by the Vermont Fair Tax Coalition in Winter 2000, updated for 2004. The plan involves the added imposition of a \$100/ton carbon tax, a \$0.0084 tax on large nuclear and hydro powerplants, while retaining existing motor vehicle purchase and registration fees. The petroleum distribu-

Vermont 2004 Energy Taxes



Energy Tax	Rate	'04 Revenue	New Rate	'04 Revised Revenue
Gasoline tax	\$.19 / gal	\$71,400,000	0.02	\$7,200,000
Diesel Tax	\$.17-.26 / gal	\$18,000,000	0.02	\$1,800,000
Sales Tax on Commercial Energy use	5% * (with exceptions)	\$15,000,000	0	\$0
Utilities Gross Receipts Tax	.3-.5% of gross operating revenue	\$5,669,316	0	\$0
Fuel Gross Receipts Tax	.5% on retail sales	\$5,532,603	0	\$0
Electric Energy Tax	2.75% of appraised value	\$2,767,228	0	\$0
Petroleum distributor license fee (clean-up)	Part of gasoline tax (.01)	(\$3,600,000)	0.02	\$7,200,000
Carbon tax	none	0	\$100/ton	\$216,200,000
Nuclear and large hydro tax	none	0	0.0084	\$148,300,000
Total Motor Vehicle Purchase and use tax	6% of purchase price of motor vehicle	\$86,200,000	same	\$86,200,000
Motor vehicle registration fees	based on type, size, weight, and purpose of vehicle	\$54,700,000	same	\$54,700,000
Total Energy Taxes		\$259,269,147		\$521,540,000

Analysis

The advantages of carbon taxes include broad impacts throughout the economy. Heating fuel, vehicle fuel, and power plant fuel are all affected. Low transaction costs are due to the fact that carbon taxes are an upstream source that taxes carbon-containing fuels as they enter the state, since Vermont has no instate source of fossil fuels. There are many fewer sources of fuels than users downstream to tax, and therefore lower compliance costs. Closely related is the ease of administration due to simplifying the energy tax code and the vastly fewer sources to tax. The additional revenue generated can be recycled to energy and transportation related projects, and to offset other taxes.

A \$100/ton carbon tax could generate \$216 million in revenue. Recent studies indicate this would increase the price of gasoline by about 89 cents per gallon. In the past, opponents of carbon taxes have claimed an unacceptable increase in the price of fuels. In light of the recent increase in gasoline prices of 75 cents in two days during the Katrina crisis, this argument no longer has any merit. We didn't see the economy collapse or demand reduce much, although public transit did see an increase in ridership. Increases in the price of other fuels would also be moderate.

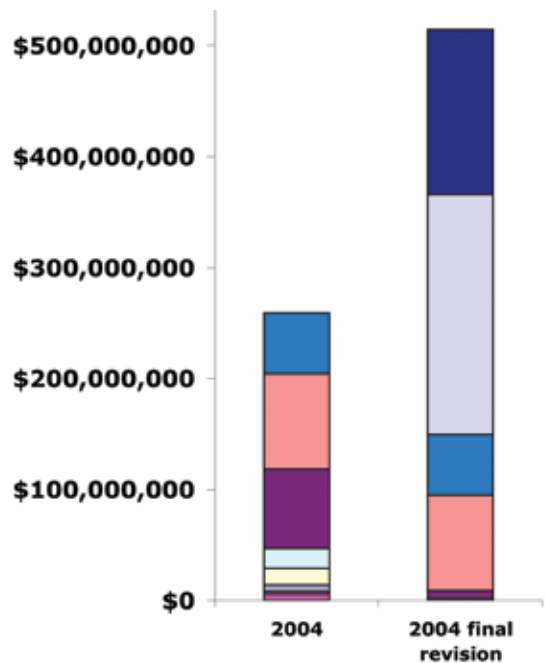
Hydro/Nuclear Power tax

In *Taxing Pollution*, Ramos and Brighton make the case that a carbon tax provides an unfair market advantage to large hydro and nuclear power plants, which also have undesirable environmental and social effects. Therefore part of the recommendation is to add a \$.0084/KWH tax on nuclear and large hydro for equity and market competitiveness.

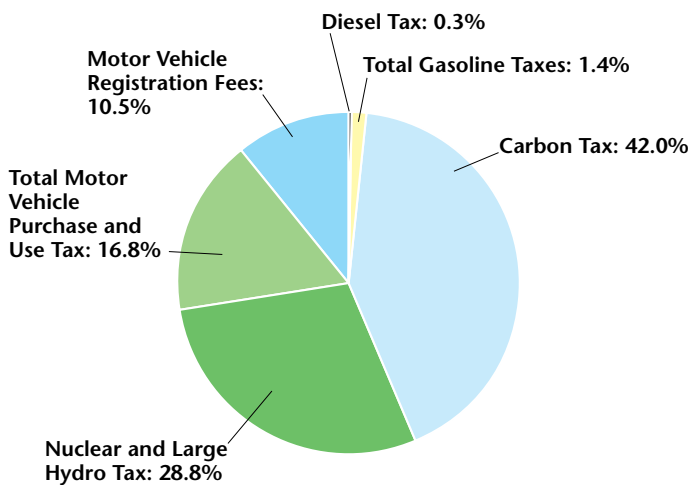
Revenue

In our revised Energy Tax plan all the motor vehicle fees and taxes are retained, but Utilities Gross Receipts, Fuel Gross receipts tax, Electric Energy, Sales Tax on Commercial Energy, have all been replaced by carbon tax and nuclear and large hydro tax. A side-by-side comparison is shown below, showing total revenue in the revised plan is double the previous revenue, amounting to an additional \$248.4 million dollars in revenue and comprising about half of the increased revenue generated by the total green tax plan. About 5 Trillion BTUs of energy would be saved, and Greenhouse gas emissions would be reduced by the equivalent of 386,000 tons of CO₂. In the 2006 Vermont legislative session a significant hike in the gasoline tax was considered, but huge opposition and a threatened governor's veto killed it.

Vermont 2004 Energy Taxes



2004 Revised Energy Taxes



Carbon Trading Potential for Vermont

There is an emerging market for “carbon trading credits”. The Kyoto protocol calls for carbon limits and trading systems. Europe already has a carbon-trading program in place, and the New England states have also organized a regional cap and trade program for carbon in 2005. The Vermont State legislature recently passed H.860 to establish a cap and trade system for carbon dioxide in Vermont. The Chicago Climate Exchange (CCE) is operational on a voluntary basis. R. Sandor of Northwestern University claims that the carbon exchange may become the biggest commodity market in the world. Carbon taxes can supplement cap and trade carbon permitting systems.

Nebraska and Kansas have already begun quantifying the carbon sequestration (absorption) potential of their land. This is consistent with the US position on the Kyoto protocol, which calls for counting sequestration equal to carbon reduction. Vermont forests held a carbon stock of 492 million metric tons of carbon (MMTC) in 1997. Carbon tax revenues could be used to quantify the capacity of Vermont land holdings for carbon sequestration, and define compliance mechanisms for trading. US farmers can sequester 200 MMTC, which could add \$4-6 billion in gross income from carbon permits, which would amount to a 10% increase in average net farm income.

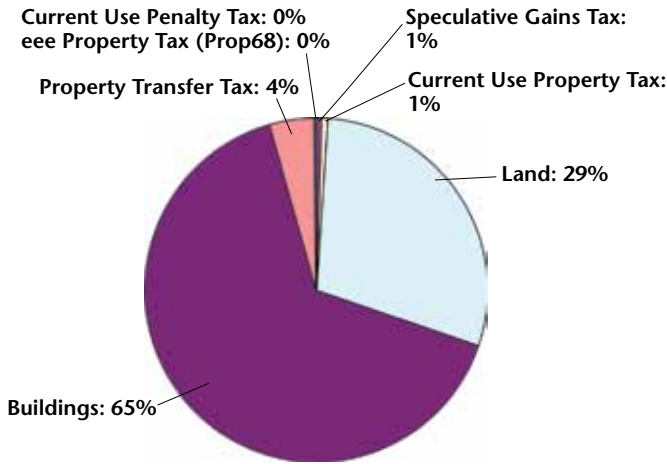
Vermont Property Tax

Vermont has a number of property related taxes. Similar to a number of other states, Vermont has a system of use-value appraisal or “current use”. This allows residents living on agricultural or actively forested properties to be assessed at a lower rate than the residential rate, as long as the property is engaged in the defined use. A large amount of property in Vermont is enrolled in use-value appraisal. If the property is converted or sold for residential use, the Current Use penalty tax is applied at this time. Speculative gains taxes apply to agricultural or forested properties if they are sold within a short period of time to avoid speculation. Property transfer taxes apply when property is sold. The State portion of generic property taxes is mainly used to fund education, and has a system to help equalize funding for all towns in the state regardless of local tax revenue.

Land Value Tax Shift

In most states including Vermont assessments of land and improvements values are combined together and the property tax is applied to the total. Since the average Vermont property has 2.3 times as much value in the buildings and other improvements compared to the land itself, this results in 2/3 of the property tax falling on buildings. As previously mentioned, this means that 24% of total state revenue is coming from taxes on buildings. This is a huge disincentive to affordable housing, renovation, infill-development, and helps create sprawl, and slums. A better system is to shift most or all of the taxes to the land value only, and abate the tax on improvements. Total assessed value of buildings in Vermont is \$33.2 billion, and land is assessed at \$14.9 billion. Therefore a tax rate of 5% on land only would generate the same level of property tax revenue as currently generated. A land value tax reduces speculation by making it less profitable, and spurs compact development by putting vacant properties to use.

Vermont Property Related Taxes
Current property tax structure



Tax	Rate	2004 Revenue
Property Transfer Tax	.5% - 1.25%	\$33,951,657
Speculative Gains Tax	5-80%	\$4,288,132
Current Use Penalty Tax	10-20%	\$404,155
Property Tax (State Portion)	avg 1.52%	\$741,600,000
Total Property related taxes		\$782,118,363

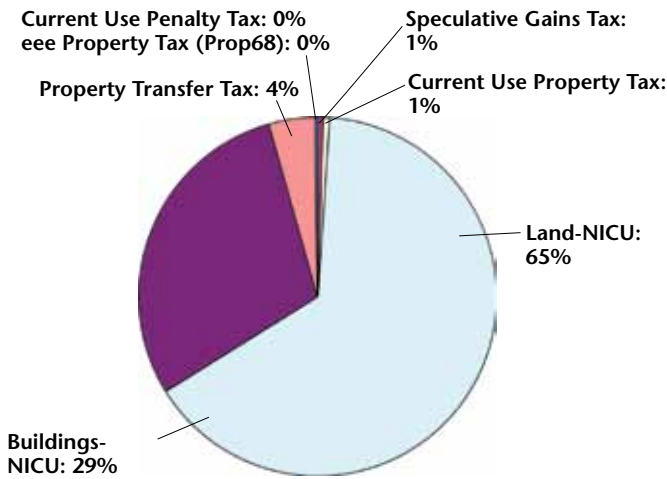
Revised Property Tax Plan

Rather than make such a drastic transition, this plan calls for a reversal of the current ratio of revenue generated from land and buildings. Instead of 2/3 of the revenue generated from buildings, the plan calls for 2/3 of the revenue to be generated from land. Furthermore, due to the fact that land value is very dispersed in Vermont, and it is desirable to preserve the rural agricultural landscape, this land value tax shift should be applied initially in “growth centers” only. Growth centers refer mainly to village centers where development is desirable to reduce sprawl. The Vermont legislature in 2006 did in fact pass “The Downtowns and Growth Centers Bill” (S.142). This legislation

provides for financial and tax incentives to encourage development in growth centers, and a land value tax shift would be an ideal policy for these new growth centers. The revised property tax plan maintains the same level of property tax revenue, but reverses the ratio of taxation falling on land and buildings within the growth centers. Outside of growth centers this plan recommends the standard property tax be retained, seeing as it discourages development.

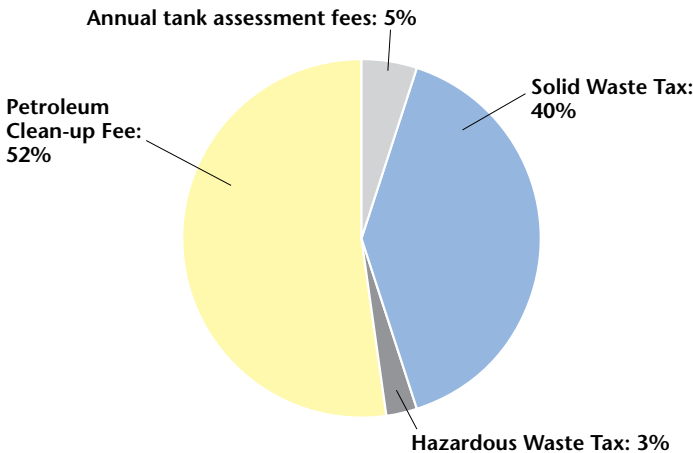
2004 Revised Vermont Property Taxes

No change in revenue



Solid and Hazardous Waste Taxes

Total waste taxes, 2003



2003 Total Waste Revenue: \$7,956,749

Current Status of Solid Waste

Operators of solid waste facilities and transfer stations in Vermont currently pay a \$6/ton tipping fee. Vermonters generate approximately 3.4 pounds per capita every day and pay for waste disposal on a per capita or flat fee rate. Vermont has two permitted lined landfills that will reach capacity in about seven years. Vermont has a \$.05 deposit on glass, metal, paper, or plastic containers for beer, malt beverages, mineral waters, mixed wine drinks, soda water, and carbonated soft drinks, but many larger containers are exempt from the bottle bill.

Current Status of Hazardous Waste

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. 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 hazardous waste and its ultimate destination (e.g. whether it is destined for recycling, treatment, or land disposal.) Standard fee for underground storage tanks (USTs) is \$200 per tank, but some gasoline outlets and municipalities that use smaller amounts of motor vehicles fuel pay \$100 per tank. Petroleum cleanup fees and tank assessment fees are deposited into the Petroleum cleanup fund.

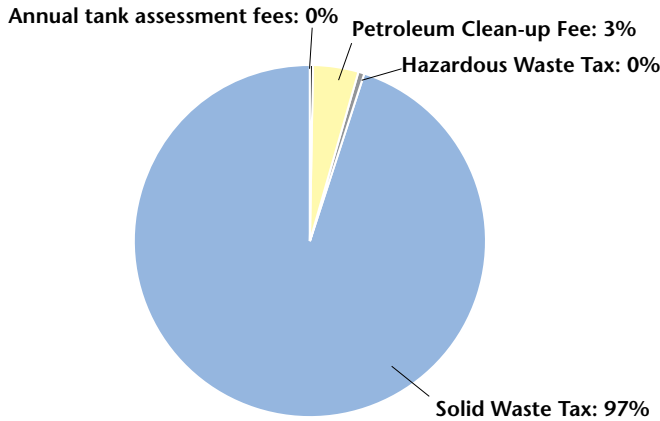
Solid Waste Tax Recommendations

The plan increases the solid waste tax from \$6 per ton to \$12 per ton. Revenue calculation includes an adjustment for behavioral change assuming a 20% reduction in waste due to the increase. In addition it is recommended to institute a statewide mandatory Pay as You Throw (PAYT) programs with a .13/pound PAYT fee (~\$260/ton or \$2/bag). To assist the process we suggest Instituting a mandatory recycling and enforcement program, and to increase funding for market development for recycled materials. The bottle deposit should be retained at 5 cents, and all beverage containers should be added to the bill.

Hazardous Waste Recommendations

In order to provide additional funding for leaking petroleum tanks, the petroleum clean-up fee should be raised from one cent per gallon to two cents per gallon. This will also fund increased compliance and inspection visits for tank owners. Additional education and outreach to tank owners and the general public should also be conducted.

Solid and Hazardous Waste Taxes



2004 Revised Revenue: \$155,005,344

Revenue

As shown in the chart above, there are small increases in the hazardous waste and petroleum tank clean-up programs. The increase in the solid waste tax is quite large amounting to \$146 million. We expect this will have multiple beneficial results.

Solid Waste

- Decrease our current rates of fill for the two permitted lined landfills
- Mandatory recycling and enforcement will level the playing field for all those involved. Recycling will take place at all levels (residential, business, institutional)
- PAYT will create personnel incentives to reduce waste generation and increase recycling.
- Market development will make waste reduction a very appealing option

Bottle Bill: Increase recycling and generate more materials for the recycling markets.

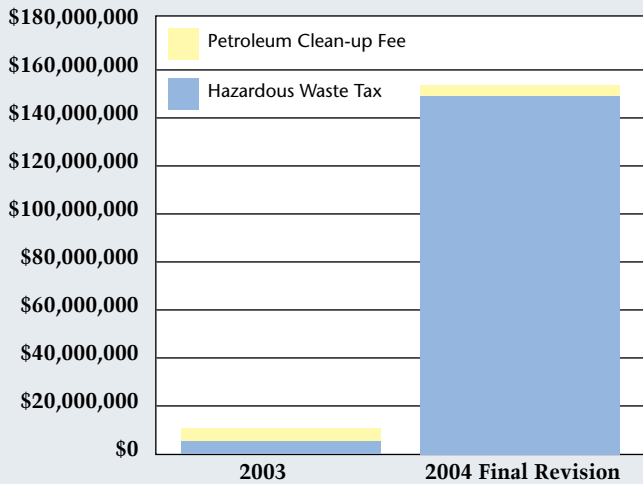
Hazardous Waste

- Regulated tanks will be operated and maintained properly due to increased inspections, which will result in fewer leaking tanks
- Current sites will have more resources to help eliminate environmental pollution.
- Tank owners and the general public will be more aware of improper maintenance and contamination.

Air and Water Pollution

Air and water emissions consist of discharges into lakes, rivers, harmful air emissions, and use of hazardous household products. Farms contribute runoff including pesticides and fertilizers. Air pollution is regulated by the federal EPA under the Title V Air Toxics program. The problem is that most air pollution is from non-point sources. Due to the rural nature of our state, 50% of energy expenditures in VT are for transportation and this accounts for most of the air pollution in the state. This transportation related pollution has been dealt with somewhat by the carbon tax explained earlier. For stationary sources under title V, the following recommendations are suggested:

Comparison of 2003 and Revised Revenue



	2003	2004 Final Revision
Annual tank assessment fees	\$364,060	\$364,060
Petroleum Clean-up Fee	\$4,115,480	\$4,770,454
Hazardous Waste Tax	\$277,920	\$546,808
Solid Waste Tax	\$3,199,289	\$149,324,022

Title V Fees for Construction

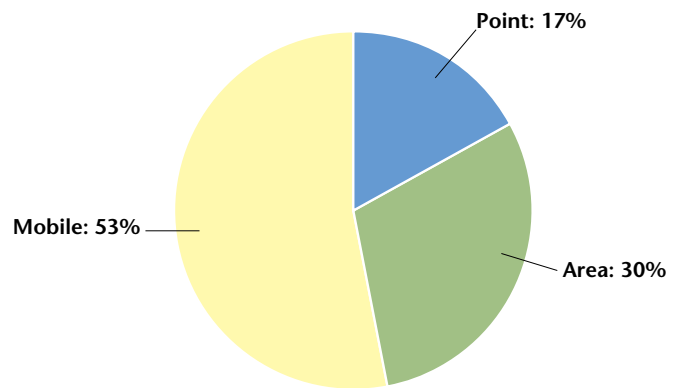
Basic Fee Schedule	Type	2004 Amount	Recommended New Rate
Permit Application	Major Stationary	\$11,500	\$15,000
	Non-Major Stationary	\$750	\$1,000
	Indirect Source	\$4,000	\$5,000
Minor Amendment	Clerical	\$100	\$100
	Technical	\$500	\$500
Supplemental Fee Schedule for Non-Major Stationary Sources	Type	Amount	New Rate
Engineering Review		\$1,460	\$2,000
Air Quality Impact Analysis	Screening Model	\$600	\$600
	Refined Model	\$1,170	\$2,000
Observe and Review Emissions Testing		\$1,750	\$2,000
Audit Performance of Ambient Air Monitoring		\$1,750	\$2,000
Implement Public Comment Requirement		\$500	\$500
Revenue		\$159,458	\$248,519

Title V fees for Operating: Emitters have to pay for permission to release harmful chemicals into the atmosphere. They pay fees to the state to cover the cost of monitoring their businesses and then get charged by the amount of pollution emitted. Usually by the pound or gallon of chemical.

Air Toxics – Definition

“Air toxics” refers to 188 hazardous air pollutants (HAPs) listed in the Clean Air Act of 1990. HAPs include industrial chemicals, solvents, metals, pesticides, and combustion by-products. Mobile Sources include on and off-road vehicles and aircraft. Area Sources include Burn barrels, gasoline filling stations, woodstoves, paint stripper, surface coatings, drycleaners, industrial boilers, (small stationary sources). Point Sources include manufacturing operations (large stationary sources). Entities producing more than five tons of “criteria” air pollutants must register with the state. These include approximately 218 entities including UVM, Cargill, OMYA, Burlington electric, Middlebury College. Total emissions amount to 11,086 tons of toxins into the air during 2000.

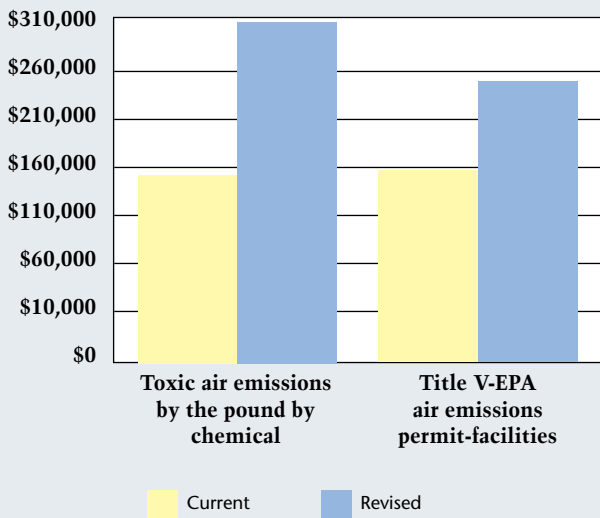
1990 Total AP Emissions
(as estimated by the CEP)



Air Toxics Revenues

Basic Fee Schedule	2003 Amount	Recommended New Rate
For facilities with emissions greater than 5 tons but less than 10.	\$ 0.016 per pound of emissions of SO ₂ , PM, O ₃ , NOR, or Hydrocarbons	\$250 plus \$0.032 per pound
For facilities with emissions greater than 10 tons.	\$840 plus \$ 0.016 per pound	\$1,680 \$ 0.032 per pound
Hazardous Contaminant Surcharge <i>Fee assessed based on emissions with regard to public health. Please consult the Air Division for type definitions.</i>	Excludes emission from the combustion of fuels except for "solid waste" fuel. Type 1: \$ 0.008 per pound emitted Type 2: \$ 0.084 per pound emitted Type 3: \$ 0.840 per pound emitted Type 4: \$ 8.40 per pound emitted	Excludes emission from the combustion of fuels except for "solid waste" fuel. Type 1: \$ 0.08 per pound emitted Type 2: \$ 0.84 per pound emitted Type 3: \$ 8.40 per pound emitted Type 4: \$ 84.00 per pound emitted
Hazardous Contaminant Surcharge on the amount of fuel burned annually.	Coal: \$0.43 per ton Wood: \$ 0.103 per ton #6 Fuel Oil: \$ 0.0005 per gallon #4 Fuel Oil: \$ 0.0004 per gallon #2 Fuel Oil: \$ 0.0002 per gallon LPG: \$ 0.0002 per gallon Natural Gas: \$0.87 per million cubic feet	Coal: \$0.86 per ton Wood: \$ 0.206 per ton #6 Fuel Oil: \$ 0.001 per gallon #4 Fuel Oil: \$ 0.0008 per gallon #2 Fuel Oil: \$ 0.0004 per gallon LPG: \$ 0.0004 per gallon Natural Gas: \$1.74 per million cubic feet
Toxics Revenue	\$153,576	\$307,151
Title V Revenue (from above)	\$159,458	\$248,519
Total Air Emissions Revenue	\$313,033	\$555,670

Air Emissions Summary

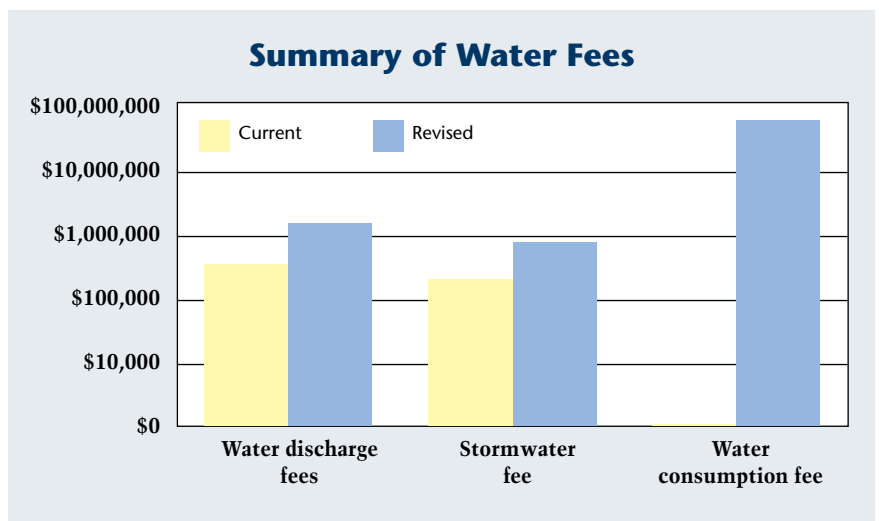


Water Fees

2004 Rates	2004 Rates	Revenue	Revised Rates	Revised Revenue
Water Discharge Fees		\$570,000		\$1,710,000
Permit application	\$100		\$300	
Review fee	\$50-\$30,000		\$150-\$90,000	
Stormwater Fees		\$318,735		\$956,205
Administrative fee	\$100		\$300	
Application review fee	\$300/acre of impervious surface in class B watershed		\$900	
	\$1170/acre of impervious surface in class A watershed		\$3510	
Annual Operating Fee	\$50/acre in Class B watershed		\$150	
	\$235/acre in class A watershed		\$705	
Water consumption Fee	0	0	1 cent/gallon over 100 gallons/day	\$87,831,410
Total Revenue		\$888,736		\$90,497,615

Water Use and Discharge Fees

Water discharge permit fees as well as design review fees are currently required for new construction. Storm water discharge requires administrative, application review, and annual operating fees. We recommended increasing these fees, as well as adding a water consumption fee. Taxation on the excess consumption of water promotes efficiency and conservative use. It encourages recycling, reuse, and innovation. Meters already in place, or can be placed on wells. First 100 gallons are free of charge, only use over 100 gals will be taxed. A water consumption tax will generate a large amount of revenue that can displace other taxes.



Pesticide and Fertilizer Fees

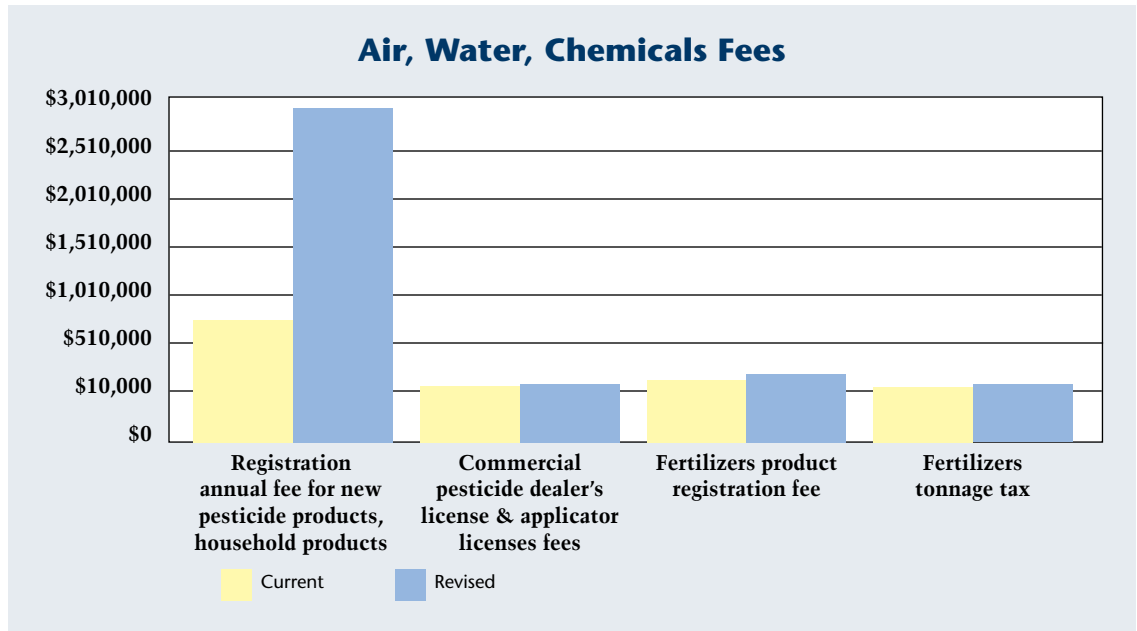
Currently in Vermont products containing toxic chemicals require a \$75 registration fee to be sold in the state. This includes products such as RAID bug spray, lawn chemicals, and even anti-bacterial soap. Dealers who sell pesticides and farmers who apply them pay fees. Fertilizers require product registration fees and tonnage tax as well. Recently a sales tax exemption was created for agricultural use of pesticides and fertilizers as an attempt to assist family farmers who are struggling to compete with large scale agribusiness farms elsewhere in the country. Although this violates the Green tax principle of taxing environmentally harmful items, we were convinced that this exemption should remain, and focus the increased fees on dealers.

Pesticide and Fertilizer Fees		
Product Fee	2004 Rate	Recommended Rate
Product registration fee	\$75.00	\$300.00
Dealer's license & application fees for pesticides	\$41,000	\$82,000
Fertilizer product registration fees @\$15.00/nutrient	max. \$105.00	@ \$30.00/nutrient, max. \$210.00
Fertilizer tonnage tax@ \$.25/ton	with a min. of \$50.00	@ \$.50/ton with a min. of \$100.00
Total	\$932,000	\$3,203,000

6.0% Sales Tax Exemption for Agricultural Use of Pesticides and Fertilizers — We recommend this be maintained, and substitute product fees for Pesticide sales.

Expected Outcomes from air, water, chemicals fee changes

- Healthier Vermont residents
- Pure water
- Fresh Air
- Increased tourism
- Family Farms flourish



Appendix Four

Introduction

In addition to green taxes, another source of revenue that was briefly investigated was revenue from common assets, those assets created by nature, by government, or by society as a whole. In 2008 a comprehensive study of revenue from common assets was done by the Green Tax and Common Assets Project. It can be found under documents at: <http://www.uvm.edu/giee/?Page=research/greentax/commonassets.html>. For this study, creation of money and speculation were briefly assessed for revenue potential.

International financial speculation

Of all the financial transactions that take place internationally, it is estimated that 95% are speculation in paper assets only, and only 5% in actual goods and services. Economist James Tobin suggested a tax (Tobin Tax) to slow down the rate of speculation, which creates no new goods or services. Financial markets and regulatory bodies that monitor them are socially created assets that allow financial transactions to take place. Therefore the public deserves a share of the money generated in these markets. Creating a Vermont .25% "Tobin" tax could generate \$268.9 million annually.

Goods and Services \$30 Trillion/yr

Buying and selling of paper . . . \$1.5-2 Trillion/day
=\$500-700T/year

Money creation/seigniorage

Banks create 93% of the money in the US through the fractional reserve system, which allows the banking system to loan out many times more money than they have on deposit. The monetary system is a socially created system, which has been almost completely privatized by the Federal Reserve. If we are going to give banks the privilege of seigniorage (money creation) we should at least recover a share of it for the public. A 1% tax on bank money creation would generate \$35.7 million for the common assets fund in Vermont.

U.S. Govt (Currency) . . . \$600 Billion 7%
Banks (Loans) \$8 Trillion 93%
Total \$8.6 Trillion . . . 100%

Vermont Bank Loans 2004 \$3,574,450,000
1% Suggested Rate \$35,744,500

U.S. and Vermont Financial Speculation

<i>(Annual Rates)</i>	Current Trading Volume	Projected After-Tax Volume	Tax Rate (both sides)	Revenue
Stocks	\$11 trillion	\$7.3 trillion	0.5%	\$36.5 billion
Gov Bonds	\$41.6 trillion	\$27.7 trillion	0.1%	\$27.7 billion
Corporate Bonds	\$22.1 trillion	\$14.7 trillion	0.1%	\$14.7 billion
Futures Contracts	\$100 trillion	\$66.7 trillion	0.02%	\$13.3 billion
Currency	\$200 trillion	\$133.3 trillion	0.1%	\$33.3 billion
	<i>(worldwide)</i>			<i>(U.S. share = 25%)</i>
Swaps	\$22 trillion	\$14.7 trillion	0.02%	\$2.9 billion
Options	Not available	NA	0.01%	NA

Suggested Total U.S. Revenue @.25% Tobin Tax rate: \$128.4 billion

x .21%

Vermont Revenue \$268,891,964

From *Taxing Financial Speculation: Shifting the Tax Burden From Wages to Wagers*, Dean Baker, Center for Economic and Policy Research, February 2000. Vermont total is pro-rated by population: Vermont was .21% of 2000 US population \$128.4 billion x .0021 = \$269 million.

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Green Tax Shift Option 1
*Cut personal income, corporate income,
and telecommunication taxes,
2004 revenue ~\$500 million*

Taxes reduced:

Personal income tax. cut	-\$429,488,824
Corporate income. cut	-\$55,497,257
Telecommunication. cut	-\$15,000,000
Total Reduction	\$499,986,081

**Green Tax Shift
Option 2:**
*Decrease federal payroll tax
by \$500 million starting with
wage earners below \$35,000/year*

Summary of New Revenue-Option One or Two

Item	2004 Revenue	2004 Revised Revenue	New Revenue
Energy	\$259,269,147	\$521,540,000	\$262,270,853
Air and water	\$1,201,769	\$91,053,285	\$89,851,516
Waste	\$5,901,672	\$155,005,344	\$149,103,672
Chemicals	\$932,100	\$3,148,000	\$2,215,900
Property	\$782,118,363	\$782,118,363	<i>no change</i>
General	\$1,012,614,704	\$1,012,614,704	<i>no change</i>
Other fees	\$56,585,608	\$56,585,608	<i>no change</i>
Total	\$2,118,623,363	\$2,622,065,304	\$503,441,941

Vermont Green Tax and Common Assets Project

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