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with GARY WOLFF, CLIFFORD COBB, and MARK FRAME

GREENING THE GOLDEN STATE:

A TAX REFORM FOR CALIFORNIA'S FUTURE

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ACRONYMS AND ABBREVIATIONS

| | |
|----------------|---|
| AEA | American Economics Association |
| BCT | Bank and corporation tax |
| CalPIRG | California Public Interest Research Group |
| Cal-Tax | California Taxpayers' Association |
| CARB | California Air Resources Board |
| CBO | Congressional Budget Office |
| CCRC | California Constitution Revision Commission |
| CCSCE | Center for Continuing Study of the California Economy |
| CSCC | California State Chamber of Commerce |
| EEPR | Economic Efficiency and Pollution Reduction Act of 1996 |
| EITC | Earned income tax credit |
| ETS | Environmental tax shift |
| FTA | Federation of Tax Administrators |
| GHG | Greenhouse gas |
| MAF | million acre-feet |
| MIC | Manufacturers' investment credit |
| NBER | National Bureau of Economic Research |
| NFIB | National Federation of Independent Business |
| NRDC | National Resources Defense Council |
| OECD | Organisation for Economic Co-operation and Development |
| OMB | U.S. Office of Management and Budget |
| PIT | Personal income tax |
| SWRCB | State Water Resources Control Board |
| VLF | Vehicle license fee |
| VOC | Volatile organic compound |

FOREWORD

As we approach the year 2000, there is much encouraging news in California, but there is also good reason to be concerned for the future:

- The state’s air and water are much cleaner than two decades ago, but the environment is still a serious concern, costing the state billions in lost output and health-related expenses.
- The state’s economy has recovered smartly from the recession in the early 1990s, but there are still millions of “underemployed” workers and many Californians who cannot find affordable housing close to their places of work.
- People are once again attracted to the promise of California, but this has worsened urban sprawl and led to more congestion, more highways, and more farmland and wetlands swallowed up by development.
- Many regions of the state are experiencing encouraging economic growth, yet many inner city areas have been left behind, with little hope or opportunity on the horizon.
- Although an improving economy has temporarily bolstered the state’s revenue stream, California’s tax code is still complex, anachronistic, and vulnerable to economic slowdowns. It also fails to reflect the new economy that will drive California’s economic success.

An environmental tax shift would reduce current state taxes on “good” things—labor, profits, property improvements—and replace the revenue with new levies on “bad” things, such as pollution, speculative land holding, and resource depletion.

A NEW PARADIGM

A new approach to fiscal and environmental policy, called an environmental tax shift (ETS), holds the potential to improve many of the state’s most pressing concerns while attracting support from across the political spectrum. An ETS would reduce current state taxes on “good” things—labor, profits, property improvements, and investment—and replace the revenue with new levies on “bad” things, such as pollution, speculative land holding, resource depletion, waste, and destruction of habitat. Total state revenue would be unchanged, and major shifts in the tax burden up or down the income scale could be avoided. An ETS could also be used to make the system more progressive.

Because other taxes are being reduced, this proposal is not a new revenue source to boost government spending; it is not a “back door” way to increase the size or influence of government. It would simply replace a portion of state revenues—perhaps 5 to 7 percent—with revenues from environmental taxes or fees. Further, the ETS concept is one of those rare “big ideas” that can be implemented gradually. It allows for bold steps and experimentation at the same time.

In California, the health of the economy and environmental protection are usually pitted against each other. But more people are beginning to understand that the two can go hand-in-hand, as experts in the fields of sustainable development or industrial ecology have argued for years. Given California’s economy, its growing industries, its diverse population, and its geography, it is perfectly positioned to demonstrate how a growing economy and a clean environment can occur simultaneously.

An ETS is not about a new way to fund education, increase infrastructure spending, or reduce the overall tax burden in the state, although these goals are undoubtedly laudable. Rather, an ETS is about designing a tax code that reflects California’s future, not its past. It is about helping the state’s economy and creating new opportunities for those who have been left behind by recent growth, while also providing a boost to the industries of the future. It is about protecting the environment through the power of markets and prices rather than regulation, since prices can have an important impact on behavior while leaving individual actions up to the consumer. As the economist Frederick von Hayek wrote more than 50 years ago, the marvel of the price system is that higher prices make people use products more sparingly, without government telling them to do so.

Von Hayek’s notion forms the basis of the tax shift idea: Rather than using restrictive government regulation to direct us toward public goals at high social cost, we ought to use prices to steer us naturally toward the right outcome through the power of markets.

SENSIBLE CHANGES

The tax shift idea is also sensible because it could create a novel alliance among those concerned with disparate problems, such as high taxes on capital formation or on the average family; urban sprawl and the protection of open spaces; protection of our air, water, and endangered species; the costly regulatory burden on private industry; and the economic situation in inner cities. While such a shift from taxing “goods” to “bads” cannot be a magic bullet for every economic and environmental ill, it does offer a promising chance to help the state’s economy while also protecting the environment for future generations.

An environmental tax shift is about designing a tax code that reflects California’s future.

But why California? With its reputation for new ideas, hope and prosperity, and trail-breaking environmentalism—and the way its economy and tax system have evolved—perhaps in no state does an ETS make more sense than here in the Golden State. Whether for tax-cutting policies in the 1970s, environmental policies in the 1980s, or term limits for legislators in the 1990s, California has often pioneered policies—good and bad—that have then been adopted elsewhere (Grant 1995). An ETS could be one good policy for which California takes the lead.

What *Greening the Golden State: A Tax Reform for California's Future* does is simply present a new idea to state policymakers, business leaders, environmentalists, and others. Several illustrations are offered of how an ETS could work, but one policy package is not advocated over another. Nor are the proposals analyzed quantitatively for employment gains or losses, or the effects on the state's economy. The goal is to get the debate moving, to make the case for a new idea. There is research to be done before the policy is implemented, and *Redefining Progress* may do some of this work in 1999 and thereafter. Such analysis is not included here so that readers will focus on the forest, not the trees.

With its reputation for new ideas and trail-breaking environmentalism, perhaps in no state does an ETS make more sense than here in the Golden State.

DOCUMENT ORGANIZATION

This report is organized into six chapters. Chapter 1 looks closely at the issue of environmental tax shifting, exploring the basic concepts and briefly reviewing many of the possible rationales for the idea, from both a state and federal perspective.

Chapter 2 answers the question, “Why California?,” with a focus on three issues: (1) the tax system—whether California's current tax code can be improved, and how it can be brought more in balance with that in other states; (2) the economy—how an ETS can be beneficial to those industries that will drive California's future growth, and how it can be used to address the inequality and opportunity issues that plague the state; and (3) the environment—how an ETS can address the state's congestion, urban sprawl, and pollution—problems that will only grow worse as the population increases and the economy expands.

Chapter 3 is a short chapter that looks at three issues central to the idea. First, it considers the issue of revenue neutrality, including a short section that addresses the potential for revenue losses after an ETS takes effect; that is, if the policy works, and people change their behavior, do revenues fall—and does that matter? Finally, the chapter discusses the important issues of equity and fairness.

Chapters 4 and 5 are where the details are described. Chapter 4 examines various taxes or fees that could be reduced as part of a revenue-neutral ETS. It con-

siders the policy rationales for each idea, their revenue implications, and some of the political issues that would likely surface. The categories of tax reductions include (1) reductions in personal or corporate income taxes, (2) reductions in taxes that fall primarily on labor, (3) cuts in the state sales tax, and (4) changes to the property tax system, including reductions in the portion of the tax that falls on structures. Chapter 5 looks at the other side, suggesting a number of different options for replacement fees or taxes that could be implemented or increased. This chapter examines the rationales for each change and their potential revenues. The general categories are (1) energy or electricity; (2) air pollution, water pollution, and toxic waste; (3) transportation and parking; (4) land; (5) solid waste; and (6) water use.

In Chapter 6, three illustrative revenue-neutral scenarios for a California tax shift are discussed, as well as their likely effects on equity and the economy. The three scenarios are each designed to replace about \$5 billion of California's tax revenues, which amounted to about 7.5 percent of state revenues in tax year 1996–97. Scenario 1, which is the “Energy and Transportation Tax Shift,” focuses on gasoline and energy taxes and offsets the increases primarily with reductions in the labor taxes and the property tax on motor vehicles (that is, the despised “in lieu” fee). Scenario 2, the “Resources and Pollution Tax Shift,” includes a wider variety of increases and decreases to demonstrate that an ETS can be accomplished in numerous ways, but it focuses less on energy and gasoline than Scenario 1. Scenario 3, the “Property Tax Shift,” focuses most heavily on using the tax system to address land use issues. Again, each scenario will leave total state revenue roughly unchanged.

Chapter 6 also discusses the various effects each scenario may have, and examines different ways to address negative impacts on particular demographic groups or industrial sectors. In each scenario, of course, the aim is to keep these distributional consequences to a minimum, but in some cases there may be important groups that may require compensation or further tax offsets. These issues of compensation are not addressed in detail in this report. Finally, two Appendices include a discussion of ETS proposals in other states and a list of principles of a high-quality state revenue system—including how California measures up.

I. THE RATIONALES FOR CHANGE

Like most tax systems, California's current state tax code sends the wrong signals to virtually everyone. It discourages work, enterprise, and capital formation while it encourages urban sprawl, pollution, waste, and the inefficient use of resources.

Think about the tax code this way. When the state or federal government wants to promote a social goal, it frequently reduces taxes—via credits, exemptions, and deductions—on particular activities that the government thinks will help accomplish that objective. If we want more people to buy health insurance, we pass a new deduction for insurance premiums. If we want more savings, some people argue that we should reduce taxes on the returns to saving. When we want fewer people to smoke, we often increase cigarette taxes. Retired Sen. Bill Bradley (D-NJ), an announced presidential candidate, calls these practices “government by tax break” (Bradley 1996) and all of the mixed messages and special (often narrow) preferences result in a convoluted system that no one understands.

These practices help explain why the tax system is the part of government that many people and businesses hate the most. The federal and state tax systems have lost touch with common sense; consider the new federal tax credits for education expenses and for children, which will require millions of middle-income families to compute the alternative minimum tax for the first time. But what if it were possible for government to change behavior and accomplish social goals *both* through what it taxes as well as what it “untaxes”? In fact, what if government could accomplish social, environmental, and economic objectives all at the same time? An ETS—a revenue-neutral shift in how the government raises the revenues it needs to provide public services—holds the promise of meeting these objectives.

How would an ETS work? There are many options. The federal government could implement an energy tax on fossil fuels that pollute when burned, and reduce the payroll or income tax by the same amount. Such a change would penalize pollution and reward work. A state government could increase the gasoline tax or pass a tax on land, and use the revenues to reduce current sales taxes or the property tax on structures. *The central point is that a portion of federal or state revenues—anywhere from 2 to 10 percent of the tax base, as a starting point—would*

be raised by taxing environmental “bads,” and the revenues would be directed to other tax cuts, rather than new spending.

A tax code is primarily a means of raising revenue to pay for public services. But it also sends powerful messages through what it does, and does not, tax.

Make no mistake: A tax code is primarily a means of raising revenue to pay for public services. But it also sends powerful messages through what it does, and does not, tax. In this light, California should move toward a socially useful tax system that would tax those things we need less of, and “untax” those things we want more of. This idea is being tried around the world, most notably in half a dozen European nations, and several states are considering similar changes.

Such an idea makes good sense for California because it will help the state to:

- Reform its tax system in a way that will not shift the burden to the poor or working poor.
- Create a prosperous business environment for its growing industries.
- Spur additional development and job creation in low-income areas.
- Address a number of environmental problems at lower cost than new regulations.

In the pioneering monograph on environmental tax shifting, *Tax Waste, Not Work* (Hamond et al. 1997), Redefining Progress outlined three different categories of rationales for the ETS idea: civic, economic, and environmental.

CATEGORY 1: CIVIC RATIONALES

Individual Empowerment

By providing incentives for people and businesses to invest in energy efficient vehicles, homes, and equipment, an ETS empowers people to reduce their own tax bills in a way that the current system does not. Under an income-based tax system, most people have to earn less to pay less; for example, under today’s federal income tax, about 70 percent of families take the standard deduction, so their ability to reduce their taxes through their actions is limited. If we shift completely to a consumption-based tax, most people will have to *spend* less to pay less. Under an ETS, however, families will be able to affect their tax bills through their daily decisions.

For example, if families respond to the tax shift by purchasing more fuel-efficient vehicles, riding public transit, using more efficient appliances and lighting, sealing leaky windows, adjusting their thermostats, buying recycled products, or any number of other things, their total tax burden will decline. If they do not change any of these behaviors, most families should end up paying about the same as they do today, although some will surely pay more—and some less.

Honest Accounting

A shift to resource taxes would restore the notion that the costs of today's actions should not be borne by future generations. This would bring a sense of honest accounting back to government. If people begin to pay taxes based upon the resources they consume and the pollution they cause, society "pays" for the problems it passes on to its children, rather than passing on the burden.

Legitimization of the Tax System

A tax shift policy restores a certain legitimacy to the public finance system: Individuals should be able to keep more of the fruit of their labor and the profit from their investments, but pay for the costs they impose on others. This change would bring both a coherent rationale and a sense of values to the California tax system, which now gets the bulk of its revenue from taxing work, profits, and purchases of goods—without regard to whether the goods have a positive or negative environmental impact.

CATEGORY 2: ECONOMIC AND FISCAL RATIONALES

While tax shifting is a relatively new idea, the economic rationales for pursuing it are numerous and rest on several long-standing pillars of mainstream thought.

Accurate Pricing

Current market prices for many goods do not take the social and environmental costs of production or energy consumption into account. For example, the price of gasoline does not account for the social costs of driving, such as congestion and pollution, which cost each American hundreds—some say thousands—of dollars every year. Adding the costs of these externalities into the price system via the tax code would make the economy more efficient by reducing the harmful behavior: When the price goes up, people will find ways to consume less, whether by driving less or switching to more fuel-efficient vehicles. Despite disagreement about how (and by how much) energy prices ought to be raised, almost all economists agree that energy prices ought to be higher—and most agree that it would not be as costly to the economy as critics claim.

Replacing a portion of economically inefficient taxes (for example, income taxes) with "corrective" taxes could reduce the overall economic cost of state or federal tax systems.

Economic Efficiency

The current tax system imposes significant efficiency costs on California's economy. Replacing a portion of economically inefficient taxes (for example,

income taxes) with “corrective” taxes that have lower overall efficiency costs (economists call these costs “deadweight losses”) could reduce the overall economic cost of state or federal tax systems. It could also yield several important economic benefits, ranging from more job creation, to higher wages, to new investments in energy efficiency, to higher economic growth. How a tax shift needs to be structured to yield both economic benefits (for example, higher growth or employment) and a cleaner environment (that is, the “double dividend”) is a vibrant new area of economic research.

Tax Reductions

The academic literature has shown that the most efficient use of any revenues from environmental levies would be to reduce other taxes, rather than returning the money in equal lump-sum to every citizen. While there is disagreement over whether tax cuts on work or investment are more likely to yield economic gains, it is this potential for lowering current taxes that is likely to be the most appealing part of this proposal for many individuals, private firms, and policymakers.

An environmental tax shift could yield several important economic benefits, ranging from more job creation, to higher wages, to higher economic growth.

CATEGORY 3: ENVIRONMENTAL RATIONALES

Another motivating force for a tax shift is that its market mechanisms would provide a least-cost approach to reducing pollution, waste, resource depletion, destruction of habitat, and—at the national level—the long-term threat of climate change, or global warming.

The Limits of Regulation

Industry leaders, members of Congress, academic economists, and many members of the environmental community have shown growing support for market-based approaches to environmental policy. The possibility of addressing important problems with less regulation creates the potential for new alliances among business, environmentalists, labor unions, tax reformers, and elected officials.

To a certain extent, the regulatory approach has been successful so far, but the benefits may have reached their peak. Regulations have already eliminated the easiest environmental problems. Squeezing more reductions from factories that have already reduced their emissions will undoubtedly cost more than before. What’s more, mandated technologies discourage flexibility and creativity, slow efforts by the private sector to develop new technologies, and fail to address growing problems, such as pollution from nonpoint sources. Finally, changing individual

behavior—for example, getting people to change their driving habits—will require more sophisticated policies. As one respondent in state government said in an interview for a recent book on California’s pollution problems, “It’s now getting to the point that air pollution is not going to be addressed simply by technological refits on stationary source emissions, it’s going to have to entail some changes in lifestyle” (Grant 1995, 2). The price system can prompt such changes; the public will not shift from gas-guzzling sport utility vehicles to hybrids while gasoline is less expensive than bottled water.

Environmental Protection at Lower Cost

Market-based approaches hold the potential to provide strong environmental protection at much lower costs to society. Environmental taxes, tradable permits, and the elimination of government subsidies are all attempts to include the environmental and social costs of production into the cost of a product. There is abundant research showing that these more flexible approaches can reduce emissions at much lower cost, and this evidence—first uncovered by British economist Arthur Pigou in the 1920s—forms the basis of the ETS idea. To cite just one recent example, the emissions trading program set up by the Clean Air Act Amendments of 1990 to deal with acid rain has addressed the problem at much lower cost than originally predicted (see Sidebar 1).

Market-based approaches hold the potential to provide strong environmental protection at much lower costs to society.

The next chapter begins to examine why this new policy idea makes such good sense for California as the state’s economy continues its remarkable transformation. The chapter focuses on three specific arguments: (1) improving the state’s tax system; (2) devising a tax system that fits with California’s new economy and provides new opportunity for those who have been left behind by recent income gains; and (3) using market-based mechanisms to address the state’s continuing (and, in some cases, worsening) environmental problems.

SIDEBAR 1: MARKET-BASED ENVIRONMENTALISM ON THE RISE

Many examples of successful market-based environmental programs already exist. The 1990 Clean Air Act Amendments created a system of tradable permits for the pollutants that cause acid rain, as an alternative to the more traditional laws requiring smoke-stack scrubbers. Under the act, the Environmental Protection Agency issues permits fixing the total amount of emissions, but allows utilities to buy and sell those permits. The amount of pollution each electric utility can emit depends on the number of permits it holds. The program has made great strides in controlling the problem of acid rain, and the emissions permits ended up costing about *one-tenth* what industry groups originally projected.

States and localities have also enacted market-based environmental laws. Iowa, for example, now imposes a fee on pesticide and fertilizer sales, and Minnesota charges per-ton fees for emissions of several air pollutants. In Pennsylvania, more than a dozen communities—including Pittsburgh and Harrisburg—use land taxation as a market-based way to draw development back into the city center.

Market mechanisms are also making headway outside the United States. Germany has imposed charges on water pollution since 1976, and most of the country's political parties have made tax shift proposals. Just recently, Germany's legislature passed a plan to cut payroll taxes significantly and replace the revenues with new taxes on petroleum and other fuels. Finally, most Scandinavian countries have adopted carbon taxes or mild ETSs, and the United Kingdom has implemented a landfill tax that is being used to reduce taxes on employment. (Appendix A examines ETS efforts in other states.)

The shift to market-based mechanisms is not occurring only in industrialized nations. Chile has introduced two permit programs, one of which is for particulate matter (PM-10) in the capital city of Santiago, and Costa Rica has enacted a 15 percent tax on fossil fuel consumption. Costa Rica uses the funds from this tax to compensate landowners for reforestation expenses.

II. WHY CALIFORNIA?

This chapter examines California's tax code, economic future, and environmental health, and explains why an environmental tax shift makes sense for the Golden State.

CALIFORNIA'S TAX SYSTEM AND OUR RELATIVE TAX BURDENS

Many of us take certain components of California's tax system for granted, yet history reveals that tax systems do change in important ways. Consider that prior to 1933, California had no sales tax, no personal income tax, and no excise taxes on alcoholic beverages and cigarettes, while today these taxes account for more than 80 percent of California's general fund tax revenue. Although that was a gradual change, more sudden shifts are also possible, such as the profound transformation after Proposition 13 passed in 1978. Change is always possible.

In fact, proposals for other tax reforms—including a sharply regressive flat tax—are sometimes offered by state officials. Yet the idea to reduce the major state taxes and replace the revenues with taxes on pollution has not been seriously considered, although the idea is one of those rare tax proposals that could garner broad political support.¹

While the state probably cannot, or should not, meet its revenue needs exclusively from pollution, resource, or land taxes—as advocates of Henry George's "single tax" tried to do—some of the rationale for the single tax still rings true: By "untaxing" work and taxing resources and land, the state's economy can be helped "by the removal of the burdens that now weigh upon industry and thrift."²

He wrote:

If we tax houses there will be fewer and poorer houses; if we tax machinery, there will be less machinery; if we tax trade, there will be less trade; if we tax capital, there will be less capital; if we tax savings, there will be less savings. All the taxes therefore that we should abolish are those that repress industry and less wealth. But if we tax land values there will be no less land (George 1892).

The idea to reduce the major state taxes and replace the revenues with taxes on pollution is one of those rare tax proposals that could garner broad political support.

The basic idea still holds today: If we tax work, there will be less work; if we tax pollution, there will be less pollution. The fact that we tend to get more of things that we tax less—and vice versa—is one of the accepted truths of tax policy.

California's Major Taxes

California's tax system embodies definite strengths and weaknesses. Its personal income tax is the most progressive in the country, which most observers regard as positive; and its revenue sources are reasonably varied, ranging from income and sales taxes to property taxes on vehicles and a menu of excise taxes. On the other hand, its property tax entails a number of inequities, its sales tax is regressive, and the system seriously restricts local governments' alternatives for raising revenue.

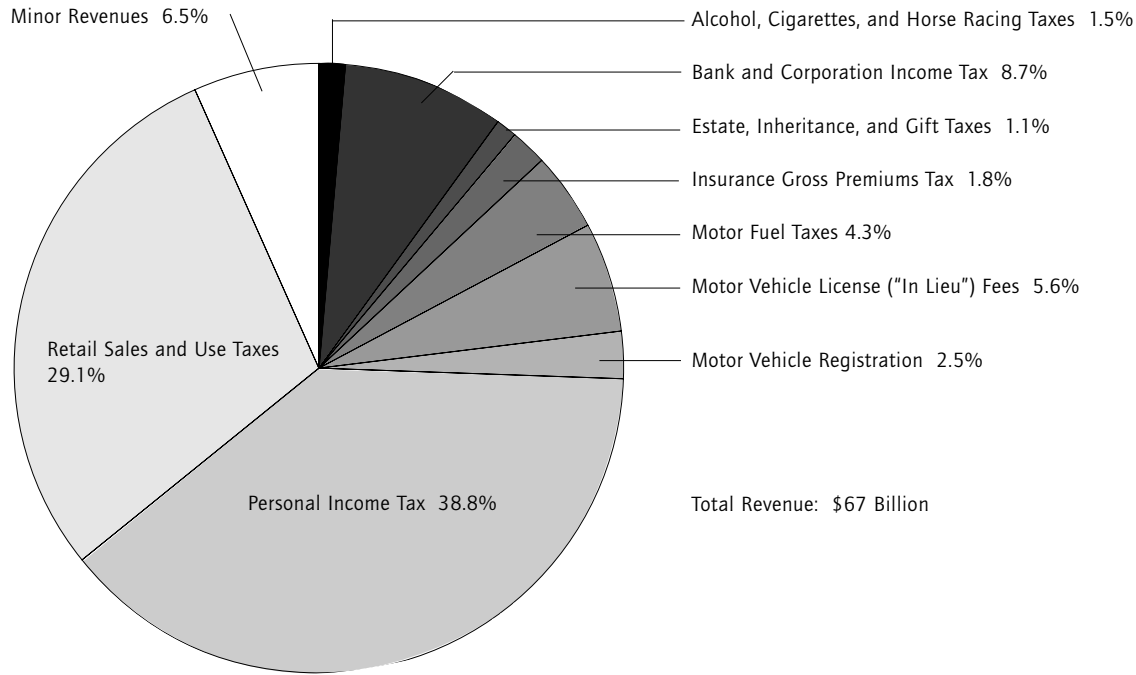
The last point is particularly crucial, given increasing demands for city and county services and improved infrastructure, which, many agree, localities cannot supply under current fiscal arrangements. In fact, California ranks fair to poor in a number of canons of good taxation, such as stability and reliability, and overall equity (see Appendix B).

One roadblock to significant reform is that prominent tax policy analysts and activists in California disagree about their perceptions of the problems, or how they would resolve them. For example, the California Tax Reform Association is most concerned with Proposition 13's effects and the narrow base for the sales tax; the California Taxpayers' Association (Cal-Tax) is concerned about high income tax rates and preventing changes to Proposition 13; and the California Budget Project is most concerned with equity issues. Another problem is that virtually all budgetary or tax changes in the state must be approved by a two-thirds votes in the legislature, or by initiative. *These differences and potential roadblocks show the necessity of a tax reform that could gain the support of a variety of interests—such as an ETS.*

The major revenue earners in the state are depicted in Figure 1, and the most important of the state taxes are summarized below.

Personal Income Tax | California's personal income tax (PIT) is the single largest revenue generator in the state; it was the most progressive state income tax in the country in 1996 (Citizens for Tax Justice and the Institute on Taxation and Economic Policy 1996). Today's rate structure—with six marginal tax rates ranging from 1.0 to 9.3 percent—is partly the result of changes made in 1987, when the state reduced the number of tax brackets and eliminated certain deductions (Gunnison 1987). The result is a system that is sharply progressive: In the 1995 tax

FIGURE 1: CALIFORNIA ESTIMATED STATE REVENUES: FISCAL YEAR 1997-98



Note: Not separated into general and special funds. Figures do not add to 100 percent due to rounding.
 Source: Governor's Budget Summary 1998-99, Schedule 8, Appendix pp. 26 and 28.

year, families with incomes below \$40,000 filed 70 percent of the returns and paid *only 8.6 percent* of the tax revenue, while those with incomes over \$200,000 filed less than 1 percent of the state's tax returns yet paid 31.3 percent of the revenue (Franchise Tax Board 1996). An income tax with this degree of progressivity can be either a good or bad thing, depending on your point of view.

While not quite as progressive as in the early days—introduced in 1935, the state income tax applied only to the very well-off—the progressivity of the state income tax remains a distinguishing feature. The current PIT shields the poor and working classes by taking a relatively big bite from those in the middle to upper income ranges. While progressivity based on ability-to-pay is still an important virtue of any tax system, the high top marginal rates in California—only three states and the District of Columbia have a higher top marginal tax rate—may restrict growth of the state's economy. This fact makes the income tax a continu-

California's personal income tax (PIT) is the single largest revenue generator in the state; it was the most progressive state income tax in the country in 1996.

ing target for reform. A well-designed ETS would allow all marginal rates to be reduced without affecting the overall level of progressivity.³

Bank and Corporation Tax | The state levies bank and corporation tax (BCT) on all corporations deriving income from California, with the exception of insurance companies that face a different tax. At 9.3 percent of profits until 1997, the state's BCT was among the highest in the country. According to Cal-Tax, the tax was 62 percent above the national median in 1993–94, measured in revenues per \$1,000 in income (Kroes 1997). While that figure has declined because of the recent tax reduction to 8.84 percent (a 5 percent cut), the corporate tax remains higher than in most other states.

Tax reformers are split on the true burden of the BCT. Some argue that the burden is only a moderate one, since corporate income taxes have declined more than 30 percent as a percentage of income since the early 1980s (Ross 1998), and because California corporations enjoy a number of loopholes and money-saving tax provisions that reduce their overall tax bills.⁴ Others argue that the relatively high rates continue to contribute to California's reputation as an unfriendly place to do business. The corporate tax thus remains a target for reform.

Again, one advantage of an environmental reform is that it would allow business tax rates to be reduced without necessarily reducing the total tax burden borne by business, or shifting it to individuals.

One could also argue that the corporate tax and its many loopholes result in a system that is completely out of whack with where the state is heading. For example, although service industries have led the recent recovery and are projected to be the big job creators in the state (see the next section on the state's economy), the average tax rates in California are *higher* for these industries than for transportation, utilities, and manufacturing (see Table 1). An ETS could mitigate this peculiarity and encourage more job growth in those sectors that are driving the state's economy.

The Sales Tax | California first adopted its state sales tax in the early 1930s as a 2.5 percent tax on retail sales. Now all levels of government in California impose sales taxes on retail items. The current rate in most counties is 7.25 percent, consisting of 5 percent for the state General Fund; 0.5 percent for the Local Revenue Fund; another 0.5 percent for the Local Public Safety Fund; 1 percent for the city in which the retail sale took place; and 0.25 percent, "the county transportation rate," for the county. The state generally collects the sales tax revenues and then allocates them to the General Fund, cities, counties, and special districts.

Originally, there were few exemptions to the sales tax, such as gas, water, and

One advantage of an environmental reform is that it would allow business tax rates to be reduced without necessarily reducing the total tax burden borne by business.

TABLE 1: BANK AND CORPORATION TAX PAYMENTS BY MAJOR SECTOR, 1995

| INDUSTRY | Number of returns (\$ millions) | Net income (\$ millions) | Total tax | Average tax rate |
|--|------------------------------------|-----------------------------|-----------|------------------|
| 1. Finance, insurance, real estate | 69,247 | 3,903 | 1,010 | 0.26 |
| 2. Agriculture, forestry, fishery | 9,818 | 417 | 57 | 0.14 |
| 3. Services | 161,678 | 4,059 | 559 | 0.14 |
| 4. Construction | 30,539 | 772 | 93 | 0.12 |
| 5. Trade | 89,145 | 6,557 | 781 | 0.12 |
| 6. Transportation, communication, utilities | 12,866 | 8,016 | 767 | 0.10 |
| 7. Manufacturing | 44,969 | 19,259 | 1,489 | 0.08 |

Source: Franchise Tax Board 1996, Appendix C, Table 3.

electricity; food was not exempt until 1935. But the tax now contains many exemptions, including most services, sales of food and medicine, and utilities such as gas, water, and electricity. The California sales tax is actually distinctive for its narrow base. Whereas the average state taxes about 53 services, California taxes only 13 (FTA 1996). Another way of looking at this is to note that while California's state sales tax rate of 6 percent is the eighth highest in the nation, the actual burden of the tax ranks 31st nationwide, in part because so many items are exempt (California Budget Project 1998).⁵

Nevertheless, the tax is still regressive since it falls most heavily on lower-income groups. Citizens for Tax Justice and the Institute on Taxation and Economic Policy (1996) calculated that California's sales tax is the ninth most regressive in the country, taking 4.2 percent of the income of the lowest fifth of the income distribution, 2.7 percent of the middle fifth, and 0.7 percent of the richest 1 percent. Using a different method of analysis, a 1993 University of California–Davis study (cited in Stall and Frammolino 1993a, A15) found that California families earning \$20,000 annually paid 2.15 percent of their income in consumption taxes, while families earning \$100,000 paid only 1.22 percent.

How to reform the sales tax? A tax perfectionist might say that we ought to broaden the base and lower the rate. But in this case, simply broadening the base would not address any of the environmental problems in the state, unless the exemption for utilities was repealed (see Chapter 4). Moreover, a system that exempts many services makes sense from the perspective of designing a system that will be beneficial to California's service-driven economy. Many of the growth

industries in California are relatively clean, nonenergy-intensive, service sector industries that may benefit from a shift off income and sales taxes and onto pollution or energy taxes.

Therefore, when sales tax reforms are considered in Chapters 4 and 5, the report focuses more heavily on alleviating the regressivity of the tax by reducing the rate, while considering only one significant increase in the tax base: the repeal of the exemption for purchases from utilities.

Motor Vehicle Taxes | Taxes and fees related to motor vehicles are major revenue earners in California. These include the gas tax, the motor vehicle license fee (VLF; also called the “in lieu” fee, since it is “in lieu” of a formal property tax), and the vehicle registration fee.

The VLF was adopted in 1935 to correct for wide variation in property taxes on automobiles and widespread automobile property tax evasion (Stockwell 1939). After the 1998 tax reduction, the VLF is now equivalent to a 1.5 percent tax on the value of automobiles. The VLF is one tax that is revisited often in other sections, because it taxes the *ownership* rather than the use of motor vehicles. This is an important distinction because it is the latter activity that causes the environmental harm (with the exception of any environmental costs from producing, transporting, and storing the vehicles).

Other motor vehicle taxes go even farther back than the VLF. The state adopted the registration fee in 1905, a flat \$2.00 fee on all vehicles. In 1923, California adopted the fuel tax to support highway maintenance, which generated substantial revenues for state and county governments and was also popular—except with oil companies. Today, the fuel taxes raise nearly \$3 billion annually, and the state constitution requires that these funds be spent on highway maintenance and construction, or other transportation purposes. Any increases in gas taxes where the revenues would be used to reduce another state tax would require amending the state constitution.

The VLF taxes the *ownership* rather than the *use* of motor vehicles...[but] it is the latter activity that causes the environmental harm.

The Property Tax | While the state does not formally levy a property tax on land and structures, this form of taxation is extremely relevant to the tax debate in California.

Since the passage of Proposition 13 in 1978, California has relatively low property taxes. According to Cal-Tax, property tax revenues per \$1,000 of personal income in California were 15 percent under the U.S. median in fiscal year 1993–94 (Kroes 1997). Under Proposition 13, localities tax land, buildings and improvements, and business tangible property (for example, office equipment) at 1 percent of assessed value, and the taxes cannot increase more than 2 percent per year (to correct for inflation). Generally, properties are reassessed only upon sale or major

improvement. Earlier this decade, the California Policy Seminar observed that the “one percent [tax rate] plus an assessment system based on acquisition value makes the effective tax rate on property in California one of the lowest in the country” (O’Sullivan, Sexton, and Sheffrin 1993).

The property tax has been at the center of controversy in California tax politics since well before the events of the 1970s, when the percentage of California taxpayers’ income devoted to state and local taxes increased 24 percent from 1970 to 1978. After the California revolt, many other states got into the act: 58 different state tax limitation measures passed between 1979 and 1984 (O’Sullivan, Sexton, and Sheffrin 1995). Now, despite other changes to the tax code, the property tax system in California is essentially the same as it was when the initiative passed 20 years ago.

Proposition 13 has led to a number of inequities and inefficiencies, however, which will only become more pronounced as the state’s economy grows. For example, because much of the property tax revenue is now funneled through the state, it has led to “a reduction in local autonomy and a pervasive sense of uncertainty among local governments” (O’Sullivan, Sexton, and Sheffrin 1995, 139).⁶ Because it caused property values to skyrocket, it priced many younger and less affluent buyers out of the housing market.⁷ And the revenue pressure placed on local governments has resulted in a problem called the “fiscalization of land use,” where local governments prefer retail development to manufacturing, since the former generates local tax revenue and the latter does not.

Moreover, Proposition 13 remains extremely popular, and eliminating it would likely have a regressive impact (O’Sullivan, Sexton, and Sheffrin 1995).⁸ However, there are some changes to the property tax regime that would improve the efficiency of the system as a whole while helping communities manage their growth—or target new development to the areas that need it most. These possibilities are discussed in Chapters 3 and 4.

Environmental Provisions | Interestingly, California’s tax code already contains a number of environmental provisions. According to one recent study by J. Andrew Hoerner (1998) of the Center for a Sustainable Economy in Washington, California has 16 environmental fee or tax provisions, a figure surpassed only by Connecticut (with 23) and Washington (with 18), and comparing favorably with a 9.24 average across the 50 states.

Provisions that are currently a part of California’s tax code include those related to solid waste, investments in recycling equipment, and the disposal of solid wastes. Unfortunately, California has no natural resource tax provisions—that is, those designed to promote sustainable agriculture, forestry, or fisheries—

Proposition 13 has led to a number of inequities and inefficiencies, however, which will only become more pronounced as the state’s economy grows.

California's tax code includes a number of special tax subsidies for the oil and gas industries, which many experts consider environmentally harmful.

other than a small timber yield tax (Hoerner 1998).

However, many of California's most notable environmental provisions have expired, such as personal income tax credits on the costs of installing solar energy systems, sales and use tax credits on purchases of pollution control equipment, business income tax credits for recycling equipment, and personal and corporate income tax credits for the costs of vanpools. Also, California's tax code includes a number of special tax subsidies for the oil and gas industries, which many experts consider environmentally harmful. The elimination of these provisions is considered in Chapter 4.

California's Tax Burden

Californians have long believed that they are overtaxed, and Schrag (1998) finds "the seemingly irresistible myth of excessive taxation" a major feature of California populism. He notes that former Governor Wilson insisted—and most voters believed—that Californians are overtaxed compared to residents of neighboring states. Recent poll data seems to support this position, as 40 percent of respondents said that state and local taxes are much too high, up 20 percentage points from three years ago and about at the level as in 1977, before Proposition 13 (Field Institute 1998).

These observations, though compelling, may not portray the entire situation. Governor Wilson has also said that California's tax burden ranks near the middle of the 50 states in total state and local tax collections per \$1,000 of personal income, and that California taxes are very competitive with neighboring states. More recent data ranks California 19th in total state taxes collected as a percentage of personal income.

California's personal and corporate income taxes rank near the top nationally, and are much higher than surrounding states.

While California's overall tax burden places it near the middle of the 50 states, the national ranking of the major taxes shows some important imbalances that an ETS can help address (see Table 2).

The important thing to notice is that California's personal and corporate income taxes rank near the top nationally, and are much higher than surrounding states (see numbers in boldface). Many of its other taxes, however, rank much lower—particularly the gasoline taxes that stand 43rd in the country per \$1,000 of income. *This speaks to an imbalance that should be corrected if California is to continue to compete—so long as those changes can be made without shifting the tax burden to the poor and middle classes.* Policymakers should ask: Which taxes are greater impediments to growth, business development, and job creation: income taxes or gasoline taxes?

Another benefit of addressing this imbalance would be to avoid the structural deficits that worsened the budget problems of the early 1990s. The more a state

TABLE 2: FY 1996–97 STATE TAX COLLECTIONS

(Taxes per \$1,000 of Personal Income)

| TAX | California (\$) | National average (\$) | California ranking |
|----------------------------|-----------------|-----------------------|--------------------|
| Individual income taxes | 28.80 | 22.47 | 11 |
| Sales taxes | 31.22 | 33.40 | 31 |
| Corporate income taxes | 7.18 | 4.73 | 5 |
| Motor fuels sales taxes | 3.49 | 4.19 | 43 |
| Tobacco sales taxes | 0.83 | 1.15 | 37 |
| Alcoholic beverage taxes | 0.33 | 0.57 | 38 |
| All taxes collected | 76.32 | 68.64 | 19 |

Source: California Budget Project 1998.

depends on income taxes, and the more progressive these taxes are, the faster revenues will grow during recoveries—and the more they will decline during periods of slow or negative growth. California’s revenue system is very cyclical because more than three-fourths of state revenues come from the PIT, BCT, and sales and use taxes.

If the state can shift its revenue balance to more closely mirror that of other states, it might not only improve its competitive position vis-à-vis other states, but also protect itself against future deficits during recessions.

In sum, California’s a tax code is complex, burdensome, and out of balance with other states. Business tax executives rate California as one of the worst five state tax systems in 1996 and 1998, placing it *first* in the country in aggressive pursuit of sales tax revenue, *second* in having the “least fair and predictable” system, *first* in aggressiveness of income tax audits, and *third* in its effect on business location and expansion decisions (Springsteel 1998). Clearly, the system needs change, and the type proposed here can bring some logic back to the system: Less tax on what you make (income), more tax on what you take (resource consumption).

CALIFORNIA’S ECONOMIC FUTURE

While concerns are rising again because of economic troubles in Asia, there is no question that California’s economy has made a remarkable turn for the better since the recession of the early 1990s. Since January 1996 alone, the state has added almost 1 million new jobs, and more than 1.5 million since the recession low—a rate of job creation and economic growth that has outpaced the nation as a whole. Income and spending are up; inflation, unemployment, and interest rates

are all relatively low. As Julie Meier Wright, California's former Trade and Commerce Secretary, noted, "In just a few years, California has gone from last to first in job creation" (Quinn 1997).

Still, things could be better. As the Center for Continuing Study of the California Economy has argued, abundant opportunity does not guarantee access for all the state's citizens. California can do more to accelerate job gains and income growth among its working poor and immigrant populations, and in its inner cities. It can do more to create a business environment that will be beneficial to its key growth industries. It can develop public policies that lead the state toward the economy of the future, rather than maintaining remnants of the past.

The trends in California's economy indicate that a shift to environmentally sound taxation could:

- Benefit the industries leading California's expansion.
- Create new opportunities for those who have been left behind by recent job growth and income gains.
- Provide incentives for businesses to look for profit-making ways to reduce their emissions, as many businesses have already done.

California's Economic Trends—and How a Tax Shift Helps Them

California's economic base is in transition, with jobs shifting away from industries like aircraft, defense, and metals, and toward services, entertainment, and computers. According to CCSCE (1998), the shift away from defense and resource-related industries is almost complete. California's future growth will be led by four principal growth sectors: foreign trade, high technology, tourism and entertainment, and professional services. The changes in the last quarter century are stunning:

- In 1997, California had 21 percent of U.S. high-technology jobs and set record levels in state's share of high-technology output, productivity, and exports.
- In 1972, there were 10 California jobs in metals for every computer job, but high-technology and computer services jobs now outnumber metals jobs by more than four to one.
- Since 1990, the entertainment industry has added 60,000 jobs, and amusement jobs are up 33 percent. Tourism and entertainment employed more than 530,000 in 1997.
- Overall service jobs increased by almost 500,000 from 1994 to 1997, and are projected to increase by almost 1.5 million by 2005.

California's future growth will be led by four principal growth sectors: foreign trade, high technology, tourism and entertainment, and professional services.

These trends show that California is the center for the information-based companies and industries of the future, not the resource-based economy of the past. In fact, of the 27 California firms on Fortune's list of the 100 fastest-growing companies in the United States, only one is energy- or extraction-related (CCSCE 1998, 5–20). *The state's economy has changed, and its tax code must reflect these changes by reducing taxes on things the state already has a competitive advantage in—such as labor, entrepreneurship, brainpower, and venture capital—while increasing them on things it needs less of, such as pollution and waste.* Similar changes are occurring in U.S. labor markets as well.

But won't California's businesses claim that if they have to pay more for energy, or pay a fee to pollute, that this will actually make them *less* competitive with firms in other states and countries? While more sophisticated analysis is necessary, a general look at the tax data suggests that this is not the case.

Tax Breakdowns | The truth is that if we compare California's current tax system to the rest of the country, it becomes apparent that those taxes that are the greater infringement on growth and competitiveness are currently much higher in California than in other states (see Table 2). Hence the emphasis on how an ETS is a shift in how California raises its revenue, not an overall increase in taxation. Most businesses would agree that high taxes on income, wages, and profits likely have more of an effect on competitiveness than modest taxes on energy or pollution—particularly when, for most business sectors, energy costs are a small percentage of the price of finished goods.

What Table 2 suggests is that a moderate shift of the state's tax base off wages, profits, and motor vehicle property taxes, and onto fuel, energy, or pollution, would put California more in step with the rest of the country. It would arguably make California a more attractive business location, and it could be particularly beneficial to the industries of the future: labor- or investment-intensive industries, such as services and high technology.⁹

Small Business | In addition, California's economy is driven by small businesses, which tend to be labor-intensive.¹⁰ In California, businesses with less than 100 employees employed about 57 percent of the nongovernment workforce in 1996, and firms with less than 250 workers employed 73 percent of the workforce (California Employment Development Department 1997, 7).¹¹ Quinn (1997) notes that roughly half the state's workforce is employed in small businesses, and these firms have driven the recent recovery, accounting for nearly all the 13,000 new manufacturing companies.

If we compare California's current tax system to the rest of the country, those taxes that are the greater infringement on growth and competitiveness are currently much higher in California than in other states.

A revenue-neutral shift to energy or pollution taxes would likely benefit the employers of a majority of the state's workers.

If smaller businesses are indeed more labor-intensive, a revenue-neutral shift to energy or pollution taxes would likely benefit the employers of a majority of the state's workers. This is because the largest cost for most of these firms—labor—would be reduced, because the taxes on that factor of production would fall. Small businesses—an important political constituency, and the employers of most workers—could be winners under an ETS.

There is also the issue of environmental technology, a \$20 billion industry that employs nearly 200,000 Californians. These businesses include recycling and resource recovery companies, waste management firms, or makers of environmental machinery. “With a world market for environmental technology expected to exceed \$400 billion by decade's end, the global opportunity for environmental products and services is obvious, and California is leading the way” (Quinn 1997, 38). Shifting to a cleaner tax system will help California become a world leader in this relatively new sector.

These tax changes, by improving the quality of life in California through reduced pollution and less urban sprawl, will make the state a more attractive business location, and make it easier for growing industries to attract employees. High quality of life is not just an amenity; it is increasingly a key determinant in attracting workers to the state's leading industries. A recent Bay Area Council survey found that the most important factors of doing business are transportation, environment, proximity to research institutions, and school quality—taxes rank relatively low on the list (Karnhold 1997). (This is related to the issue of urban sprawl, which is discussed below.)

Creating Better Job Opportunities for the Middle and Working Classes

Incomes in California are finally on the rise. After declining between 1990 and 1994, per capita income increased by 8.7 percent during the next three years, and average household income increased by 10.4 percent (CCSCE 1998, 5–73). These figures were higher than the national averages, and California's 1996 average wage of \$31,773 was seventh highest in the nation (CCSCE 1998, 5–71).

Along with the good news comes some bad. While average incomes have begun to rise, income inequality in California has increased markedly (Reed, Haber, and Mameesh 1996), and poverty remains an important problem. In 1994, 27 percent of the state's children were impoverished, 1.4 million Californians lived in families just above the poverty line, and income disparities were the fifth greatest among all states (California Budget Project 1996). In addition:

- Close to 3 million workers in the state are “underemployed” (that is, they hold jobs, but cannot find jobs that match their qualifications or provide

full-time work) or “discouraged” (that is, they want to work but are no longer actively seeking jobs).

- As the state tries to meet its “welfare-to-work” quotas, about 500,000 adult welfare recipients will have to find new jobs.
- The state has more than 1 million working poor (that is, people who work full-time but still live below the poverty line).

Clearly, one of California’s chief challenges as it heads into the new century is to put in place new policies that will ensure that all segments of the income distribution gain from the state’s economic success. The state must find a way to include those workers with few skills—or those with something between entry level skills and highly technical training—in the state’s growth.

One advantage of an ETS is that it might help create new opportunities for those segments of the population that have been left behind by recent income gains. It might do this by (1) reducing taxes on labor, (2) encouraging more compact development patterns, and (3) spawning new enterprises based on recycling and reuse.

- **Reducing taxes on labor.** One possible result of lower taxes on payrolls would be either additional job creation or higher wages—or a little of both.¹² One advantage of this reduction as a way to help cities is that it would have the advantage of affecting all low-income areas *uniformly* (unlike federal enterprise or empowerment zones, which benefit only a limited number of designated areas). Urban communities would no longer have to compete with each other to see which could offer the most incentives to attract new employers or retain old ones. Ideas to reduce labor taxes are explored in Chapter 4.
- **Encouraging more compact development.** Over the past 30 years, jobs have continued to decentralize more quickly than the low-income population, and low-skill jobs in particular are now less available in central city locations (O’Regan and Quigley 1998). If transportation costs rise after a tax shift, or property taxes are changed to tax land more heavily but structures less, some people and firms may choose to live closer (or return) to urban areas, thus reversing (or at least slowing) a decades-old migration from the cities to the suburbs.
- **Spawning new enterprises based on recycling and reuse.** Higher prices for virgin materials could make it more profitable to salvage previously used resources that are now standing idle, such as scrap metal or structures containing wood from old-growth forests. Such salvageable resources are abundant in inner cities, so new businesses involved in recycling or scrap-based manufacturing could start up there.

One advantage of an ETS is that it might help create new opportunities for those segments of the population that have been left behind by recent income gains.

*California must not follow the federal example by attempting to address the plight of urban areas with ineffectual solutions, such as new business tax breaks, more enterprise zones, or job training programs. The problems are too complex to be solved by marginal changes or traditional palliatives. The ETS concept holds a potential for fostering economic opportunity for those who have been left behind because it would augment the inherent economic advantages of cities, where many lower-income workers are concentrated and where new jobs are most needed.*¹³ California's challenge is to design economic policies that will capitalize on these advantages.

Creating Profit Through Emissions Reductions

Whenever new environmental policies are proposed, many business groups inevitably oppose them, claiming that society faces a choice between job creation and environmental protection. This is a false choice for California businesses, because thousands of businesses in California and nationwide have found that it is possible to increase profits and be better environmental citizens at the same time.

Below are several examples of companies in California that have increased efficiency, reduced waste, and increased profits simply by "greening" their business practices. The companies were not forced to make these changes. In many cases, they viewed waste reduction and energy efficient investments as profit-making opportunities. The examples in Table 3—and this is only a sample—show that California businesses can indeed protect the environment and improve the bottom line at the same time. With an ETS, incentives will be created for many more such examples.

Significant savings are not limited only to for-profit companies. For example, the County of San Diego upgraded the lighting systems in as many of its buildings and now saves almost \$100,000 every year. The University of California at Berkeley renovated 60 campus buildings with new energy-efficient lighting systems, which now saves the university more than \$900,000 annually and reduces carbon dioxide emissions by an amount equivalent to removing about 915 cars from the road.

In conclusion, an ETS could bode well for the direction in which the state's economy is headed, it could help create new opportunities for those left behind, and it could spur firms to try to be cleaner and increase profits at the same time.

Thousands of businesses in California and nationwide have found that it is possible to increase profits and be better environmental citizens at the same time.

TABLE 3: ENVIRONMENTAL INVESTMENTS BY CALIFORNIA COMPANIES

| COMPANY (LOCATION) | ENVIRONMENTAL INVESTMENT AND NET SAVINGS |
|---|---|
| <p>Bank of America (San Francisco Bay Area)</p> | <p>By choosing to recycle its paper waste, Bank of America has saved more than \$500,000 annually in disposal fees. Moreover, it has reduced costs and protected the environment by combining trips to recycling centers with monthly supply deliveries, which cuts down on fuel consumption.</p> |
| <p>Baxter Healthcare Cardiovascular Group (Irvine)</p> | <p>The cardiovascular unit at Baxter Healthcare integrated a pollution prevention program into their company more than five years ago that required them to reduce wastes by at least 15 percent a year for five years. The strategy has saved the company more than \$2,500,000 in waste expenses and raw materials.</p> |
| <p>Fetzer Vineyards (Hopland)</p> | <p>In 1990, Fetzer Vineyards reduced their waste levels by 93 percent when they composted 10,000 tons of seeds and grapes and recycled 13.5 tons of plastic shrink wrap. By practicing these new waste reduction strategies, Fetzer now saves approximately \$115,000 in disposal fees annually.</p> |
| <p>Gap, Inc. (Many California Locations)</p> | <p>Since 1995, Gap Inc. has renovated their store locations to be 30 percent more energy efficient. By simply retrofitting existing light fixtures and bulbs in store locations, the company expects to save more than \$5 million over the next five years, while also improving lighting quality.</p> |
| <p>Kaiser Permanente (Northern California)</p> | <p>By purchasing recycled products, Kaiser Permanente has saved more than \$200,000 on average each year. Also, by retrofitting more than 73,000 light fixtures, they save more than \$1.4 million in energy costs each year, plus additional savings from lower maintenance requirements.</p> |
| <p>Nissan Motor Corporation (Southern California)</p> | <p>On a trial basis, Nissan Motor Corporation began a program that was targeted at reducing paper usage. With just a few improvements in efficiency, Nissan has already managed to save an estimated \$3,000 per employee per year.</p> |

CONTINUED

TABLE 3: ENVIRONMENTAL INVESTMENTS BY CALIFORNIA COMPANIES

CONTINUED

| COMPANY (LOCATION) | ENVIRONMENTAL INVESTMENT AND NET SAVINGS |
|---|---|
| <p>Pacific Gas & Electric Company (De Anza Division)</p> | <p>By establishing a resource conservation and waste management program, the De Anza Division of the Pacific Gas & Electric has experienced \$500,000 in annual savings and significantly reduced the amount of waste going to the local landfills as well.</p> |
| <p>San Francisco Hilton and Towers (San Francisco)</p> | <p>Hotel management decided to install load-sending devices and thermostats with motion detectors in the rooms to improve their efficiency. The hotel saves more than \$500,000 in energy costs per year, and has also reduced the greenhouse gas emissions linked to such energy use.</p> |
| <p>Sea World of California (San Diego)</p> | <p>By creating a recycling program, Sea World diverts more than 1.5 million pounds of trash from local landfills and saves approximately \$49,000 annually.</p> |
| <p>Silicon Graphics (San Francisco Bay Area)</p> | <p>By switching their purchasing procedures from a paper system to an electronic system, the company reduced its paper wastes and saved \$2.1 million in the first year, while also saving \$440,000 annually in energy use.</p> |
| <p>United Airlines (San Francisco)</p> | <p>The United Airlines Maintenance Operations Center at San Francisco's International Airport installed an energy-efficient lighting system that has increase productivity and saved an estimated \$100,000 annually in electric and maintenance fees. This project is also expected to cut carbon dioxide emission levels by 350 metric tons a year.</p> |

CALIFORNIA'S PRECIOUS ENVIRONMENT

The Flip Side of Growth: Urban Sprawl and Congestion

Urban Sprawl | Current projections show that the state will add 2.8 million new jobs by the year 2005, but such growth brings problems for cities, communities, and the environment because growth also brings pressures for new development. The CCSCE projects that California will add 5.1 million residents and 1.8 million households in the next eight years. Cramer (1988, 45) notes that California's population doubling time of 25 years "is comparable to population growth in many less-developed countries."

Why is this a problem for the environment? Because the state's fiscal incentives—low land taxes, low fuel and energy taxes, and the failure to value environmental assets in land use decisions—all lead down a path of growing *outwards*, not *upwards*. Population increases in California lead to greater congestion and urban sprawl as more farmland, wetlands, and forests are eaten up by development, highways, and parking lots. As the report *Beyond Sprawl* concluded just four years ago:

Continued sprawl may seem inexpensive for a new homebuyer or a growing business on the suburban fringe, but the ultimate cost—to those homeowners, to the government, to the society at large—is potentially crippling (Bank of America et al. 1995, 2).

In addition to its effects on traffic congestion and travel times (see below), sprawl affects the state's natural beauty and its ecosystems. The problem with wetlands is particularly severe. So far, agriculture, urbanization, and flooding have destroyed more than 95 percent of California's wetlands. Grasslands are suffering the effects as well, since less than 1 percent of the state's original 22 million acres of grassland remains.

The greatest effect on the future, however, will be on agriculture. Hundreds of thousands of acres of farmland have given way to housing tracts and shopping malls in the 1990s, a problem that will be exacerbated if land use policies are not changed. Farmland conversion is an especially serious dilemma in the Central Valley, where the population is expected to rise to 15.5 million by 2020—almost triple today's. Unfortunately, growth in the valley is moving almost entirely onto intensively cultivated croplands. According to one study by the American Farmland Trust (1995), *almost 1,600 square miles of agricultural land in the valley will be devoured by urbanization by the year 2040 if low-density development continues.*

The state's fiscal incentives—low land taxes, low fuel and energy taxes, and the failure to value environmental assets in land use decisions—all lead down a path of growing *outwards*, not *upwards*.

Between 1970 and 1990, the population of metropolitan Los Angeles grew 45 percent, but land devoted to development increased 300 percent.

Land being eaten up by development is not just a problem in the newly developing regions of California: Between 1970 and 1990, the population of metropolitan Los Angeles grew 45 percent, but land devoted to development *increased 300 percent* (“Vital Signs of the Golden State” 1997).

As more land is used for development, the state’s natural plant and animal diversity suffers—nothing is as harmful to wildlife as the buildings and highways that cut off their natural habitats. “Habitat is divided and subdivided until only small islands of open ground remains,” says Reed Noss, editor of *Conversation Biology*. “Such patches might look pretty but they are prison cells for many species” (Knudson 1995, 20). California cities have grown so huge that one prominent biologist—Michael Soule of the University of California–Santa Cruz—calls them “centers of extinction” (Knudson 1995, 19).¹⁴

Sprawl has become such a hot political issue that several communities have been forced to respond. Among other actions, concerns about sprawl have led to numerous local growth limitations, statewide initiatives to protect the coastline, a fund to buy habitat for mountain lions, and a bond issue to provide funding for parks and wildlife habitat. Ventura County, where population has swelled by 450 percent since 1950, is one community that has acted to limit development. A 1997 poll found that 64 percent of Ventura County residents favored slowing growth and limiting development even if it hurt business and cut jobs. One survey respondent said, “I’ve been here for a long time, and every time I leave my home I see all this land that used to be beautiful farms but is just housing now. I want the growth to stop, but I suppose it’s just a wish” (Knudson 1995, 19).

San Jose is another city where action to limit growth has taken place. The city now occupies 174 square miles, up from 17 in 1950 and 136 in 1970, and recently adopted a long-term growth boundary. Mayor Susan Hammer believes that “we have a responsibility to protect our hillsides and protect some open space for future generations” (Sneider 1996). Similar growth-slowing efforts have been prompted by citizens in Bakersfield, Santa Rosa, Healdsburg, Sebastopol, Pleasanton, Rohnert Park, and Petaluma, to name just a few.

Not everyone agrees with these limits, but by pushing for low-density development, land use planners and homeowners’ associations “have encouraged a pattern of development that is both inhospitable to public transport and leads to long commutes by car and extensive travel for shopping and recreation” (Grant 1995, 88).

Formal land use decisions should remain a local process. Yet an inherent conflict exists in the planning process because as many city governments continue to seek out the various benefits associated with growth (for example, jobs, tax revenues), while their citizens are concerned about rising housing costs and increased

congestion. It is in the state's long-term interest to address these problems in a way that balances local autonomy with a concern for the environment and future generations—such as an ETS.

Traffic Congestion | As sprawl increases, so does the need to add more roads to accommodate the increased traffic. These new roads—and the parking needed for the added cars—are taking up a tremendous portion of the land area in cities. In Los Angeles, *more than 60 percent* of urban space is devoted to roads and parking (Nowell 1990). But in one of the well-observed paradoxes of transportation economics, more roads and highways lead to *increased* time wasted on congested roadways, not less.

If traffic congestion were only a matter of lost time, then it might not be a major concern to the state, and it could remain a local issue. But congestion costs the state tremendously in terms of lost economic output and health costs because of the pollution caused by idling or slow-moving vehicles. The Texas Transportation Institute estimated that traffic delays in the 10 most heavily congested areas cost the U.S. economy \$34 billion every year (Parkes 1997)—and four of the top 10 areas are in California: Los Angeles, San Francisco, San Diego, and San Bernardino/Riverside. A 1990 estimate is that congestion costs the state \$17 billion a year; a more recent estimate finds that congestion costs for six California cities alone were almost \$15 billion.¹⁵

Traffic congestion costs the state tremendously in terms of lost economic output and health costs because of the pollution caused by idling or slow-moving vehicles.

The economic effects of congestion and sprawl go beyond these more obvious. The Commission on State Finance estimates that of the 1.6 million unemployed in January 1994, about *one-fourth* of the job loss was because of reasons such as high land costs, congestion, environmental concerns, and regulations—not the recession or cutbacks in defense spending (Chapman 1995). These problems, and their effects on quality of life, should be a concern to state policymakers. Douglas Wheeler, California's former Secretary of Resources, has commented, "The point at which a major company gets fed up with bad air, scarce water, housing prices and traffic, and talks about future capital spending in Colorado or Arizona is the point at which you get a political response" (Linden 1991, 87).

The congestion dilemma is that more capacity is not the answer, but neither are more subsidies for alternative fuels or mass transit. Economics dictates that the most efficient way to address this problem is through markets, by including some of the social costs of driving in its price. The hard part is convincing the public that this is the best option. One answer might be to reduce other taxes.

Despite Improvements, Pollution Continues as a Problem

Finally, there is the continuing problem of pollution. Most people agree that California's air and water have improved in recent years, but problems are still significant and will grow worse with continued growth.

For example, California continues to have the worst air in the United States, particularly in the Los Angeles area, but now also in the Central Valley. Five of the seven worst air quality areas in the country are in California. The South Coast Air Basin alone has 12.8 million people, 8 million cars, and 50,000 points of stationary pollution, and every day 9,000 tons of pollution are added to the air.

This has important effects both on quality of life and the state's economy. A recent poll by the Los Angeles Chamber of Commerce found that 58 percent of Los Angeles residents had considered moving out of the area because of air pollution (Nowell 1990). On the economic side, health damages from pollution range from \$4.1 billion to \$13.3 billion in the Los Angeles area alone, and in Southern California, working days lost to air pollution have been estimated to cost the economy \$10 billion a year (Kirlin 1990, 164, cited in Grant 1995).¹⁶ Estimates show that more than 6,000 people will die prematurely this year from particulate pollution in the South Coast Air Basin. Higher absenteeism from pollution-related health problems also carries high economic costs.

Air pollution in the state is also having an impact on agriculture. One study finds that "the geography and weather patterns in the [Central Valley] make it as potentially vulnerable to extreme air pollution as the South Coast Air Basin" (University of California Agricultural Issues Center 1991, 13). The authors argue that rising ozone levels caused by pollution—a by-product of the population and economic growth that has led to farmland conversion throughout the valley—are already causing yield losses in more than two dozen important crops, including melons, beans, and grapes (more than 20 percent lost in each), and alfalfa, cotton, citrus, and potatoes (9 to 15 percent lost). The authors conclude that "the economic vitality of agricultural system might depend on control of air pollution, as well the health and quality of life of all Valley residents." Pollution is also causing damage to crops in the San Joaquin Valley and forests in Sequoia National Park (Knudson 1995).

As the state's population grows, many of these problems will grow worse, with increasing damage to the state's beaches, forests, and urban trees and plants.

On the water pollution side, according to a recent study by the California Public Interest Research Group (CalPIRG), only 37 percent of California's bays and harbors are safe for swimming, and only 8 percent are safe for fishing. A study by the Natural Resources Defense Council (1998) found that there were 1,141

Most people agree that California's air and water have improved in recent years, but problems are still significant and will grow worse with continued growth.

ocean and bay beach closings or advisories issued in 1997 in California.

Unlike other states, however, California is in a uniquely good position to improve because there are no factories or power plants to the west (that is, the direction from which the jet stream transports pollution). Tom Cahill, a pollution specialist at the University of California at Davis, says, “Unless we pollute every day, all day, the state would get clean. California is in control of its own destiny” (Knudsen 1995, 20).

The variety of pollution problems, plus the total economic cost, make pollution a *statewide* problem. An ETS may be useful in addressing it.

Using an Environmental Tax Shift to Address These Problems

One of the drawbacks of regulation is that, while it is effective at controlling pollution, it may not encourage the innovations that might prevent pollution in the first place. Mandated technologies and strict standards can discourage flexibility or creativity, and slow efforts by the private sector to develop new technologies.

Additionally, pollution pressures from nonpoint sources, and the low cost of fuels that leads to their overuse, are growing problems that regulations cannot address adequately. Government regulation that forces firms to meet arbitrary goals wastes time, energy, management effort, and capital. The loss is invisible—but no less real—because there is no way to gauge the jobs that might have been created, or the investments that might have been made if the policies had been better designed.

On the other hand, market policies like environmental taxes incorporate some of the environmental and social costs of production and consumption into the cost of a product, thereby driving necessary changes in behavior through the price system rather than government edict. They provide a method of achieving pollution control that is more flexible and cost effective than government-mandated technologies because they allow firms and individuals to find the cheapest way to achieve the goal of conservation. As explained in Sidebar 1 in Chapter 1, market mechanisms to deal with environmental problems are being tried at the federal level, and also by other states and countries, with much success. (The federal government is considering using market mechanisms to combat the growing problem of global climate change. Sidebar 2 explains why addressing climate change, while important, may not be the most powerful rationale for a state-level ETS.)

Californians are demanding both a more efficient government *and* increased environmental protection; a shift to environmental taxes offers a means of achieving both goals. By using prices instead of mandated standards to reduce undesirable activities, companies can save money on regulatory compliance—money that can then be dedicated to dividends or profits. Either way, society gains.

Market policies like environmental taxes provide a method of achieving pollution control that is more flexible and cost effective than government-mandated technologies.

SIDEBAR 2: GLOBAL CLIMATE CHANGE AND STATE ENVIRONMENTAL POLICY

The majority of the world's meteorological experts agree that human activity is increasing the atmospheric concentrations of greenhouse gases (GHGs), such as carbon dioxide (CO₂) and methane, which trap heat in the atmosphere and cause global climate change. Many scientists fear that if the rate of growth of GHG emissions is not reduced, Earth's mean air temperature may rise by two degrees Celsius or more by the year 2100.* The potentially catastrophic costs of changing global temperatures—in terms of flooding, changing habitats, severe weather events, and political crises—have quickly moved it to the top of the international environmental agenda.

In December 1997, the major industrialized nations of the world agreed that action was necessary to avert climate change, and they agreed to reduce their GHG emissions by various amounts. The U.S. negotiating team has agreed to meet a binding emissions reduction target of 7 percent below 1990 emissions by the year 2012. The tools that will be used to reach the targets, however, remain to be seen—as does the fate of the treaty in the U.S. Senate, where it probably will not be debated until after the 2000 election.

Since the combustion of fossil fuels, such as coal, petroleum, and natural gas, is the main source of human-caused GHG emissions, any significant and sustained reduction in U.S. emissions will require a reduced dependence upon these fuels as primary energy sources. California contributed about 7 percent of U.S. GHG emissions in 1994, so it would seem that addressing the threat of climate change would be a sensible rationale for an ETS at the state level. *If California were a country, it would be the number 19 emitter of greenhouse gases in the world.*[†]

California should also have an interest in climate change given that small shifts in global climate can cause significant local changes. For example, California's water supply makes it particularly vulnerable to even a slight drying of the climate; Scott Stine of California State University at Hayward says, "The mind boggles about what would happen to California's agriculture" if global warming tips the scales toward another drought (Hecht 1994). This is in addition to the damage that would result from more severe fires, floods, and storms.

Given California's total emissions, it would appear that it could make some headway toward helping the United States meet its emissions reductions target. In this report, however, climate change is not used as grounds for a state ETS because the state should be considering an ETS as a tool to address its own problems. Any contribution the state policy makes toward helping the country reach its reduction targets would be a welcome bonus.

This does not mean that climate change is not an important issue. On the contrary, it may be the most important environmental issue facing the planet. The point here is that

averting global warming will not be an effective argument for motivating *state* legislators to consider an ETS. There need to be some local or statewide advantages to the policy; hence the argument that California will benefit from using an ETS to address its internal problems with pollution, sprawl, and inequality of opportunity.

* Houghton et al. (1996, 39). The report makes this estimate based on a consensus range of 0.9 to 3.9 degrees Celsius.

† California would be number 19 among the larger economies: the 29 Organisation for Economic Co-operation and Development (OECD) countries, the former USSR, and the People's Republic of China.

III. A SHORT CHAPTER ON THREE IMPORTANT CONSIDERATIONS

Before options for tax reductions and increases are presented in Chapter 4, three important considerations must be discussed: revenue neutrality (that is, total state revenue is targeted to be about the same after the change as before); how an ETS will affect state revenues; and equity or distributional issues, as they pertain to both individuals and businesses.

REVENUE NEUTRALITY

As a starting point, Redefining Progress believes that major tax reforms should be designed to be approximately revenue neutral; that is, government should collect just as much revenue after the tax change as it did before. In addition to its advantages as a strategy for efficiently dealing with environmental problems, an ETS is also a sound tax reform idea—and comparisons of tax reform ideas ought to be debated on their merits, not their ability to offer tax cuts or increased expenditures.

Consider that an ETS offers a new way to address a variety of existing and important economic, environmental, fiscal, and social concerns. It is not designed to address questions typically raised in relation to California’s budget, such as whether the state government is too big; whether more should be spent on education, highways, prisons; or whether the state has unjustly taken some of the counties’ resources; or whether the income tax is too progressive. It is simply a way to change the tax system that could accomplish social and economic goals simultaneously, while also attracting broad political support.

Of course, political forces may require that an ETS create a net tax cut in order to help “grease the wheels” and create a constituency for the idea that will mobilize in its support. There are many such net tax cuts that would fit well with the idea—and it is also possible that revenues from an environmental tax could be used to justify new spending. For now, however, the focus on revenue neutrality remains in order to advance the idea on its merits.

As a starting point Redefining Progress believes that major tax reforms should be designed to be approximately revenue neutral.

ENVIRONMENTAL TAX SHIFTING AND REVENUE EFFECTS

One critique of environmental taxes has been that if the new levies accomplish their objective—reductions in pollution, waste, or carbon emissions—the tax base will shrink and revenues will fall short of projections, resulting in higher deficits. If environmental tax rates are increased to make up the difference, the tax base will contract further, and revenues will decline even more—a vicious circle. Yet such changes to the tax base should not be a major concern for policymakers.

First, imagine an extreme scenario: Emissions and waste drop to nearly zero levels, so the new tax base almost totally disappears. If income and payroll taxes are increased to make up the difference, the state would be no worse off than today with respect to taxes and would be better off with respect to environmental problems.¹⁷

Second, if new investments in energy- or material-efficient assets increase future economic growth, tax revenues will increase over time since growth and revenues tend to move in the same direction. In other words, while revenues from the environmental taxes may be lower than projected, revenues from other taxes may be *higher*, eliminating any budget shortfall. Moreover, policymakers are usually concerned with the dollar amount of deficits, not the dollar amount of revenue. Even if revenues do decline slightly, revenue shortfalls might not occur if government can *spend* less on pollution-related health costs, environmental enforcement, or other programs as a result of the tax shift. Ironically, then, an ETS could potentially lead to a reduction in the size of government.

Of course, it is unlikely that emissions and waste would ever drop to nearly zero levels, although they may decline. The use of many newly taxed items—destructive land patterns, and water and energy consumption, for example—cannot realistically drop to zero. As consumption gradually declines, adjustments should be made to the tax rates on a regular basis—such as higher carbon taxes and lower air pollution taxes, or higher solid waste taxes and lower carbon taxes—to achieve the joint objectives of revenue neutrality and growth of the tax base. This will require that behavioral responses be taken into account in tax modeling, particularly because the behavioral response could conceivably be large. Therefore, to maximize the accuracy of revenue projections, the tax rates and offsetting tax cuts should be recalibrated every few years as more information becomes available on individual and firm responses.

EQUITY AND DISTRIBUTIONAL ANALYSIS

Individual Equity

No debate about tax changes is complete without a discussion of distributional implications. Any well-designed ETS should be done in a manner that avoids significant shifts in the tax burden up or down the income scale.

To be sure, there are good arguments for both more or less progressivity. Some argue that greater progressivity hurts those who work hardest, invest the most, and create jobs, while making it harder for people to work their way up the income scale. Others insist that, given recent increases in income inequality, fairness requires higher taxes on businesses and wealthy individuals. This debate is not addressed here because, just as with government spending, the distribution of the tax burden should be an issue decided separately from the tax mechanism.

Of course, there will be winners and losers under an ETS; any tax change inevitably creates both. (Chapter 6 examines these impacts more closely.) What an ETS offers, however, is greater control over one's taxes. For example, if the state passed an energy tax, while income and sales taxes were reduced, it might appear as if a middle-income worker who owned a sport utility vehicle and commuted 40 miles to work each day would face a net tax increase. (Some would argue that she *ought* to pay more, since that person causes more damage to the environment.)

The truth is that she might pay more—or she might not. *The end result will depend on changes in her individual behavior, because now she has some choice about how much tax she will pay.* The worker can elect to pay the tax, or she can commute in a more fuel-efficient vehicle, or she can move closer to her job (or find a job closer to her home), or she can arrange with her employer to telecommute one or more days a week. Her taxes would also be reduced if she uses more fuel-efficient appliances, or buys recycled products that take less energy to manufacture. *The key point is that the average consumer is empowered to cut his or her taxes.* Income taxes or sales taxes are not empowering in this way, because a worker must earn less or spend less to reduce her tax bill. Yet that is what we have today.

To be sure, not every worker has all these options. Some cannot afford to trade in their car; others rent apartments and cannot install new furnaces or air conditioners; others cannot easily change jobs. It may be that any final ETS legislation will have to protect low-income working families who do not have much choice over their situation, or provide them with subsidies to ease their transition. But most families above the poverty line should be able to make some changes to reduce their tax bills.

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Businesses and Individuals

In addition, any new taxes and the tax reductions ought to be shared by individuals and businesses alike. One reason that many past proposals for resource taxes have gone nowhere is that they have been introduced—or easily characterized—as tax increases on business. Ideally, a tax shift would avoid shifting a greater share of the tax burden onto business, because these ideas will need business support. Since individuals, governments, farmers, and private industry have all contributed to today's environmental problems, it is only fair that all contribute to their improvement, and that all share in the accompanying tax reductions.

Since individuals, governments, farmers, and private industry have all contributed to today's environmental problems, it is only fair that all contribute to their improvement, and that all share in the accompanying tax reductions.

Yet there is no avoiding the fact that a shift to resource taxes will have divergent effects on different parts of the state or different industries within the state—even if the total taxes paid by business are unchanged. (Of course, the degree to which particular businesses are affected depends on the nature of the tax package. A tax shift that included fuel taxes would of course have a different impact than one focusing on water taxes and toxic waste.) Some industries may receive a boost and create new jobs, while others may contract and reduce their total employment. Therefore, during a transition period, those regions or industries that will be hurt the most—and their workers—should receive some offsetting compensation to recognize their sacrifice for the greater good.¹⁸ Government's role in these cases should not be to “guarantee particular jobs but to ease the transition from declining to expanding industries” (Repetto 1995, 23).

In short, we need to protect individuals and firms from sudden shifts in their tax burdens, but we also have a responsibility to protect the environment for future generations and move to a tax system that favors the industries of the future, not those of the past. In addition, *any transitional assistance should be temporary, not permanent*.

This report does not suggest which methods of compensation will be most effective; this is a subject for future research. But in the face of attempting to secure the long-term stability of the state's environment and fashion a tax system that can address a number of serious problems, *transitional concerns should not stand in the way of sound public policy*. The ETS proposal is not designed to bring about the end of polluting industries, or lead to severe hardship in certain regions. Rather, it is designed to move the state's tax, economic, and environmental policies to where they can foster a more sustainable vision of the future.

IV. OPTIONS FOR TAX REDUCTIONS

This chapter examines some of the taxes in California that could be reduced under an ETS. The tax reductions fall into five categories: (1) income tax reductions; (2) tax reductions targeted to labor; (3) reductions to the state sales tax; (4) property tax changes; and (5) reductions in the motor vehicle “in lieu” fee. In Chapter 5, the possibilities listed in this section are combined in various ways into revenue-neutral tax scenarios.

REDUCTIONS IN INCOME TAXES

This section considers various ways that income taxes—both personal and corporate—could be reduced in California in the context of an ETS.

Option 1: Reductions in Personal Income Tax Rates

If a primary policy goal of an ETS is to reduce the tax burden on labor and target the cuts to middle-income families, then tax cuts on labor (see the next section on tax cuts on labor) should be a priority. If the magnitude of the tax shift is large enough, however, both income *and* labor taxes can be reduced, since marginal tax rates (for those who pay anything at all) are higher in California than in most other states.

One popular way to reduce income taxes that targets the benefits to middle-class families is to increase the exemption amount, or boost the standard deduction, which increases what people have to earn before they start owing income taxes. At low to moderate incomes, though, California already provides generous credits that boost these amounts for many taxpayers. In 1998, these zero-bracket amounts will be approximately \$26,600 for a single parent with one child and \$36,225 for a married couple with two children (Ross 1998). As a result, many taxpayers already pay very little in state income taxes. Low- to moderate-income taxpayers would probably prefer reductions to the state sales tax, federal payroll tax, or motor vehicle “in lieu” fee.

Still, California raised more of its revenue from personal income taxes than 38

Income taxes—both personal and corporate—could be reduced in California in the context of an ETS.

other states in 1995, and those who pay more income tax tend to vote more often. So income tax cuts could be politically popular. Table 4 shows approximately how much an across-the-board income tax cut would cost the state in lost revenue:¹⁹

TABLE 4: LOST REVENUE FROM AN ACROSS-THE-BOARD PERSONAL INCOME TAX CUT

| Percentage Reduction | Revenue Cost |
|----------------------|----------------|
| 2 percent | \$0.52 billion |
| 4 percent | \$1.04 billion |
| 6 percent | \$1.56 billion |

Or, to look at it another way, if policymakers could also reduce income tax revenues by a particular dollar amount. Table 5 shows what percentage reduction would result in a given revenue loss.

TABLE 5: PERCENTAGE REDUCTIONS TO HIT A REVENUE TARGET (Personal Income Tax)

| Revenue Cost | Percentage Reductions |
|---------------|-----------------------|
| \$1.0 billion | 3.85 percent |
| \$1.5 billion | 5.78 percent |
| \$2.0 billion | 7.70 percent |

Option 2: Adding New Tax Credits

Another way to reduce the PIT would be to pass new tax credits. Three such options are considered below.

A State Earned Income Tax Credit | Except for the federal earned income tax credit (EITC), the working poor—those families whose incomes are too high for public assistance, but too low to escape from poverty—receive little income assistance.

For families with children, the federal EITC is real ladder out of poverty, reaching a maximum of \$3,656 in 1997 for families with two or more children, and \$2,210 for families with one child. The credit works by providing what amounts to a wage supplement up to a maximum credit amount. After a plateau income range, the credit gradually declines to zero. The EITC is also refundable, meaning that if it makes one's income tax liability negative, the taxpayer receives a net refund.

One key rationale for an EITC is that, although the state income tax is already very progressive, state income tax relief does not offer much assistance to low-income working families because they already owe relatively little in income tax. But this does not mean that these families do not pay their fair share of the cost of government. According to Citizens for Tax Justice and the Institute on Taxation and Economic Policy (1996), *the 20 percent of families at the bottom end of the income distribution in California pay a higher share of their income in sales, excise, and property taxes than any other income group.*

Table 6 shows how much a state EITC would cost in lost revenue:

TABLE 6: HOW MUCH WOULD A STATE EITC COST?
(1997 Tax Year)

| Size of state credit (% of federal credit) | Cost of credit (in millions) | Maximum credit: one child | Maximum credit: more than one child |
|---|---------------------------------|------------------------------|--|
| 10 | \$379 | \$215 | \$356 |
| 20 | \$758 | \$420 | \$711 |

Source: California Budget Project (1997).

New Tax Credits for Job Creation and Retention | When Congress increased the minimum wage in August 1996, it also renamed, modified, and extended what was formerly known as the targeted jobs tax credit. This credit applies to employers who hire new workers that meet certain criteria, such as recipients of cash assistance or at-risk youth. If California were to pass a similar credit, would it successfully encourage firms to create new jobs for low-wage workers?

Studies of the success of such programs are limited, and the results are mixed. In California, one recent study found that more than two-thirds of firms did not believe that a tax credit on wages paid to new full-time hires would result in an increase in employment (Pope and Kuhle 1996). Such results indicate that legislators should use caution with these sorts of credits. The research results make a good argument for simply reducing taxes in a straightforward way on factors of production—for example, by reducing labor taxes for the entire workforce—rather than for particular workers.

New Tax Credits or Deductions for Environmentally Sound Investments | To help make the tax system simpler and more efficient, tax reform should aim to end many special tax preferences.²⁰ But in order to provide incentives for investment

while reducing pollution, there may be political pressure to include provisions that would allow for expensing or deductions for new, environmentally sound investments.

California has had mixed experiences with these sorts of proposals. In the 1980s, the state had a number of tax breaks for investments in wind and solar power, which have since expired.²¹ The investments made during that time increased renewable electricity generation by nearly 250 percent from 1983 to 1992, up to 11 percent of California's power supply (Muller 1995). These investments did reduce pollution: If the renewable power supplied to California's grid in 1992 had been generated using coal, an additional 27 million tons of CO₂ would have been released into the atmosphere (Muller 1995, 50).

Yet some critics question whether a viable wind industry was created by the tax subsidies.²¹ More important, even with new subsidies, renewable fuels would still be fighting for position in a marketplace dominated by low-cost fossil fuels. Therefore, new tax credits for renewable fuels are not included in the scenarios in Chapter 6.

Tax Credits for the Purchase of High-Mileage Vehicles | One proposal in the White House Initiative on Climate Change was a federal income tax credit of \$3,000 for the purchase of vehicles getting twice the mileage of the average car or truck in its class, and a credit of \$4,000 for vehicles getting three times the mileage. This proposal, not included in the 1998 federal budget agreement, would have reduced federal receipts by \$0.7 billion over the period 2001–2003, or by some \$233 million per year (U.S. Office of Management and Budget 1998, 55; 73). A similar state credit would cost California about \$23 million annually.²²

Option 3: Reductions in Bank and Corporation Tax Rates

In 1997, the state reduced the BCT rate to 8.84 percent from 9.3 percent, a 5 percent reduction. Still, California retains a higher corporate tax rate than most other states, and its corporate taxes as a percentage of state revenue ranks sixth in the nation. As the state tries to prepare its economy for the next century, further reductions in this tax may help its competitive position. (Some analysts may critique reductions in the BCT due to its purported regressive impact; see Sidebar 3 for a brief discussion of this issue.)

In the 1997–98 tax year, the BCT was projected to raise \$5.86 billion at the new tax rate. The cost of additional rate reductions are given in Table 7:

TABLE 7: LOST REVENUE FROM AN ACROSS-THE-BOARD CORPORATE INCOME TAX CUT

| Percentage Rededuction | New Tax Rate | Annual revenue cost |
|------------------------|--------------|---------------------|
| 3 percent | 8.57 | \$175.1 million |
| 5 percent | 8.40 | \$291.8 million |
| 7 percent | 8.22 | \$408.5 million |

Or, if lawmakers wanted to reduce corporate tax revenues by a particular dollar amount, they could reduce taxes by a certain percentage, as exemplified in Table 8:

TABLE 8: PERCENTAGE REDUCTIONS TO HIT A REVENUE TARGET (Bank and Corporation Tax)

| Revenue Cost | Percentage Reductions |
|---------------|-----------------------|
| \$250 million | 4.28 percent |
| \$500 million | 8.57 percent |
| \$1 billion | 17.14 percent |

SIDEBAR 3: CORPORATE TAX REDUCTIONS AND REGRESSIVITY

Many tax activists argue that corporate tax reductions are regressive, since the benefits accrue to those near the top of the income distribution.

It is true that a reduction in the corporate tax may benefit owners of capital more directly in the short run. In the long run, however, some of these tax benefits will be shifted to labor as lower taxes induce additional investments and thereby increase productivity and wages. This reasoning assumes that the burden of the corporate income tax is shared by shareholders, employees, customers, and capital holders, which is a longstanding result in economics, and that the benefits of a tax reduction on corporations will be shared just as a tax increase would be.

So, while some may object to including tax cuts for business in an ETS package, it is important to recognize that *any* ETS will require some buy-in from the business community. Any package should thus include tax reductions and increases on both businesses and individuals, in order to spread both the burdens and benefits of tax reform.

Option 4: Reducing the Corporate Tax via Labor Tax Cuts

There is at least one way that California could reduce the corporate income tax while targeting the benefits of the tax cuts to labor. This idea, called “Changing the State Corporate Income Tax Formula,” is examined in the next section.

REDUCTIONS IN TAXES ON LABOR

Federal income taxes as a share of income are steady or falling for most families while the payroll tax—the federal tax that falls exclusively on labor—has been steadily rising.

Current political rhetoric would lead one to conclude that the federal income tax is a rising and significant burden for most U.S. families. In truth, federal income taxes as a share of income are steady or falling for most families while the payroll tax—the federal tax that falls exclusively on labor—has been steadily rising.²³ More than 70 percent of U.S. families now pay more in payroll taxes than in federal income tax. For example, a family of four earning \$40,000 in 1997 paid almost twice as much in payroll taxes as in federal income tax—\$6,120 versus \$3,379. The differential will grow more significant in 1998 as the new child tax credit takes effect.

Payroll taxes place a heavy tax burden on labor income, because they apply only to wages and salaries, which are then taxed again under the income tax. Most families cannot avoid the tax because they earn the majority of their income from labor.

Not only do high payroll taxes hurt workers’ pocketbooks directly, but there is broad agreement that high payroll taxes slow job creation or wage growth. While the viewpoints of business lobbyists and tax economists may differ on this issue, the fact is that both results are bad.²⁴ Moreover, because labor is more mobile across state lines than it is across country lines, “state [labor] tax cuts could engender larger labor supply responses and more investment than federal tax cuts” (Berck, Golan, and Smith 1997, 400).

At the state level, however, there is no payroll tax, which makes it difficult to reduce. In addition, payroll tax reductions are less necessary at the state level to offset regressivity because most states have a regressive sales tax that can be reduced to offset the impact of new pollution taxes, while the federal government does not.

Still, there are ways that California could reduce the labor tax burden, including (1) state tax credits to firms for a percentage of federal payroll taxes paid and (2) reductions in the wages portion of the state’s bank and corporation tax. Whether such reductions in labor taxes in the context of an ETS could lead to more job creation in California should be an important topic for further research.

Option 1: State Tax Credits for Federal Payroll Taxes

One way to effectively reduce the payroll tax at the state level would be to provide a credit to firms for a percentage of federal payroll taxes paid, or to exempt a portion of each employee’s wages from the tax. This approach was included in the first legislative effort to pass an ETS in the state of Minnesota, which included a 7.5 percent credit on the employer’s payroll tax payments.

For California, the credit could be applied to both firms and workers, and made refundable so that firms or workers with no net income still receive it. The credit would be claimed on state income tax returns. This would not be administratively complex because most workers—even those who owe no state income tax—still file tax returns.²⁵ Thus, the mechanism (that is, tax returns and tax refund checks) already exists for offering a state payroll tax credit. Such a credit would lead to higher take-home pay for workers right away, and more job creation and higher wages over time.

To provide a potentially greater boost to low income workers (and their employers), a state payroll tax credit should be based on exemptions for the first portion of wages, as opposed to a percentage of the total taxes paid.²⁶ Table 9 shows how much a refundable credit equal to the federal payroll taxes paid on the first portion of wages would cost the state in lost revenue.²⁷

TABLE 9: REVENUE COSTS OF A PAYROLL TAX EXEMPTION

| Payroll Tax Exemption (\$) | State Tax Cut (\$ billions) | Tax Cut Per Worker (\$) * |
|----------------------------|-----------------------------|---------------------------|
| 1,000 | 1.752 | 124 |
| 2,000 | 3.613 | 248 |
| 3,000 | 5.473 | 372 |

*This is the total tax cut per worker. Initially, half will go directly to the worker and half to the firm. The final incidence of the tax cut will be determined over time.

Option 2: Changing the State Corporate Income Tax Formula

In California, businesses that derive income from sources both within and outside the state must apportion their income before applying the state's bank and corporation tax rate, to ensure that income tax is paid only on California-based income. This calculation is done through an apportionment formula that is tied to the percentage of a firm's total property, sales, and payroll that are located in California.²⁸ The formula determines a "California Factor" that is multiplied by total corporate income to arrive at the portion of income that is subject to California's BCT.

One interesting quirk of the formula is its "double-weighted sales factor," which provides a tax benefit to California companies that locate there, but make a lot of sales out of state (that is, it gives an incentive for companies to locate their headquarters in California).²⁹ By double-weighting sales, the California Factor will be reduced for any firm whose in-state sales are a lower percentage than their in-state property or their in-state payroll, or both.

Interestingly, the formula also offers a way to reduce the tax burden borne by labor. If the percentage of payroll in this formula were reduced by one-third or one-half, this would entail a sizeable tax reduction for California businesses that was linked explicitly to the amount of their total labor force located in the state.

Although this option is intriguing as a way to give a boost to job creation while also providing an income tax cut for business, it is not included in Chapter 6 because no good data exist to calculate how much such a change might cost. Further research should consider how a change to the apportionment formula could be combined with energy or pollution taxes in order to provide a boost to employment.

REDUCTIONS IN THE STATE SALES TAX

Chapter 2 discussed how California's sales tax is among the most regressive in the country, making it a good target as one state tax that could be reduced under an ETS.

Option 1: Sales Tax Rate Reductions

In 1997–98, the 5 percent of the state's sales tax that goes into the General Fund is projected to raise \$17.545 billion. This implies the following revenue losses from rate reductions, assuming little or no change in consumption behavior (see Table 10):

TABLE 10: REVENUE COSTS OF SALES TAX REDUCTIONS

| Tax Reduction | General Fund Sales Revenue | Total Tax Reduction |
|---------------|----------------------------|---------------------|
| 0.50 percent | \$15.80 billion | \$1.75 billion |
| 0.75 percent | \$14.92 billion | \$2.63 billion |
| 1.00 percent | \$14.04 billion | \$3.51 billion |
| 1.25 percent | \$13.16 billion | \$4.69 billion |

In other words, every 0.25 percent reduction in the state’s general fund sales tax would cost the state about \$880 million in lost revenue, on average. If the general sales tax reduction is combined with higher fuel prices, however, some of that lost revenue would be made up, since gasoline is subject to the sales tax in California. In addition, if the sales tax base is broadened to include utility and water use, as discussed in the next chapter, revenues will also increase.

Thus, one advantage of increasing gasoline or energy prices, other than the environmental benefits, is that the cities and counties will benefit from some additional revenue. For example, a gasoline tax increase of 10 cents per gallon would add more than \$80 million to state sales tax revenues and \$36 million to city and county revenues, depending on consumers’ behavioral responses, assuming the sales tax rates stay the same. An increase of 20 cents per gallon would lead to new revenues of about \$162 million and \$73 million, respectively. In other words, cities and counties may favor an ETS not only because it will help address sprawl and pollution, but also because it will provide them with additional revenues.

One advantage of increasing gasoline or energy prices, other than the environmental benefits, is that the cities and counties will benefit from some additional revenue.

CHANGES TO THE PROPERTY TAX

In recent years, several states have attempted to roll back or reduce property taxes as a way to improve the effectiveness of their fiscal systems, or just to cut taxes.

In 1994, Michigan reduced property taxes and raised state sales and cigarette taxes to replace the revenue. Vermont and Wisconsin tried to do similar things to eliminate the tax as source of school funding, but the changes were too incremental to generate the necessary media attention. Legislators in Minnesota proposed an energy tax, with the revenues directed toward reducing state property taxes. Iowa froze property taxes in 1994, and other states have also made incremental steps, including Illinois, Kansas, Maine, Ohio, South Carolina, and Utah (Mackey 1996).

In California, changes to the state's property tax can be made that would make the state's economy function more efficiently.

In California, changes to the state's property tax can be made that would make the state's economy function more efficiently and improve land use. Since this report is about revenue-neutral changes, however, it does not advocate outright property tax relief. In fact, by some measures, California's property taxes are now among the lowest in the nation.³⁰ In his review of the likelihood of property tax reform in the 50 states, Hovey (1996) concludes that California is not one of the primary candidates for further tax reductions, since the state's property tax burden is already below the national average.

Neither is *increasing* the property tax the answer, or eliminating assessments upon resale for homeowners. Most voters still feel that the results of Proposition 13 were positive, so attempts to lessen the relief it mandated would almost certainly fail—and moving back to a market-value property tax system would likely be regressive.

So if outright rate reductions and tax increases are both out of the question, what options remain? The state could reexamine the *different elements* of the tax—the land, improvements, and tangible personal property components, and the application of the tax to housing and businesses—and adjust them accordingly to reflect changing needs.

Land Use—Issues for Change

The current property tax system in California and elsewhere creates incentives for destructive, not constructive or sustainable, growth. In *Home from Nowhere*, James Howard Kunstler writes, “Our system of property taxes may be the single most insidious, pathogenic factor contributing to the geography of nowhere.” This is because land is taxed relatively little, while the structures that rest upon it are taxed relatively heavily.

“Our system of property taxes may be the single most insidious, pathogenic factor contributing to the geography of nowhere.”

-James Howard Kunstler

California offers a perfect example of this truism in action. Most of its tax revenues come from taxes on buildings, improvements, and business tangible property (for example, office equipment, computers), not on the land on which the buildings are situated. *While the state constitution requires that land and buildings be taxed at the same rate, the tax on buildings, improvements, and business tangible property accounts for about 63 percent of property tax revenues.* Perhaps land taxes ought to be higher—which, as economist Henry George pointed out more than 100 years ago, would not reduce the quantity of land. At the same time, lower taxes on structures would remove any disincentive to improve one's property.

Low land taxation has the effect of making previously undeveloped land more attractive, prompting developers to initiate projects outside of urban (or even suburban) areas. It provides an incentive to leave idle valuable land near

urban centers, since the “carrying cost” of such speculation is low. The resulting sprawl leads directly to “increased commute times, parking problems, increased air pollution, increases in local traffic, overtaxed water and sewer services, crowding in schools, more expensive waste disposal and inadequate municipal government services” (Goldberg 1991). In the San Francisco Bay Area and elsewhere, the land-property tax differential has resulted in most of the region’s new housing stock being built in outer suburbs, far from the areas where jobs are concentrated, and prices for the existing housing stock closer to the city limits are skyrocketing (Association of Bay Area Governments 1997).

Moreover, because significant tax revenues from property are out of reach, many localities now prefer sales tax-paying businesses to new manufacturing plants and other industry, even though the latter usually generate better jobs (Schrag 1998). Other forms of development would generate higher tax revenues for the state (for example, income taxes), but not for not the cities and counties. Addressing these issues—local governments’ forced reliance on sales taxes and the land-property tax differential that provides incentives for further sprawl—is a must if the state is to protect the environment and create high-wage employment opportunities. With wholesale reform of Proposition 13 an impossibility, California sorely needs tax reform that can improve land use planning and provide a revenue base that keeps pace with population growth.

Unfair Treatment of Business—Issues for Change

The current property tax regime confers unwarranted special benefits to many businesses, and places unfair burdens on many others. Since the tax requires reassessments only when property is sold, it has the unfortunate effect of taxing new businesses at a higher effective rate than existing ones.

Many tax experts believe that this treatment is unfair: “A new or expanding business may have to build or purchase new property, assessed at full market value,” writes Goldberg (1991), “while the property tax of more established competitors, or those with older or leased property, could be one-fifth or less of market values” (71). O’Sullivan, Sexton, and Sheffrin (1993, 142) write that this “is precisely the opposite of the incentive system that we would like to create. Taxing new activity at a higher rate than existing activity is not sound tax policy and has no policy rationale.” What’s more, if companies want to avoid reassessment, they can lease the property rather than sell it outright, or sell it in chunks of less than 51 percent (which is how the law defines a “sale”).

The next chapter goes into more detail on how land and property taxation in California could be changed to achieve fairness, sustainability, and a stable rev-

The current property tax regime has the unfortunate effect of taxing new businesses at a higher effective rate than existing ones.

enue base for local government. Since the third objective necessitates that property tax changes themselves be revenue-neutral (that is, reducing a local property tax and replacing the revenue with a state environmental tax would violate the “stable revenue base” requirement), many of the proposals focus on a tradeoff between lower taxes on structures and higher taxes on land.

Nevertheless, it may be helpful to understand the revenue effects of potential property tax changes, some of which are listed in Table 11.

TABLE 11: SOME POSSIBLE PROPERTY TAX CHANGES

| POLICY CHANGE | REVENUE EFFECT (source) |
|---|--|
| Shifting to market-value assessments on all non homeowner property | INCREASE of approximately \$8 billion per year (O’Sullivan, Sexton, and Sheffrin 1993) |
| Shifting to market-value assessments only on commercial and industrial property | INCREASE of approximately \$3.9 billion per year (O’Sullivan, Sexton, and Sheffrin 1993) |
| Removing tangible business property from the tax base | REDUCTION of \$133 million in 1997–98 (State Board of Equalization 1996-97, Table 4, A-4) |
| Implementing a split-rate property tax for all property [*] | REVENUE-NEUTRAL shift of \$3.0 billion |
| Implementing a split-rate property tax for business property only [†] | REVENUE-NEUTRAL shift of \$3.0 billion |

* In 1996–97, local property tax revenues were about \$19.3 billion, after property tax relief. About 37 percent came from land (\$7.1 billion), 57 percent from structures (\$11.0 billion) and 6 percent from tangible personal property (\$1.2 billion). If the average statewide tax rate was 1.063 percent, as reported by the State Board of Equalization, a shift of \$3.0 billion from structures to land would require their respective tax rates to change to 0.77 and 1.51 percent, respectively. Of course, this rough calculation assumes that assessed values remain constant. These rates are only illustrative, however, because they would very likely vary by county.

† Since the tax base for business property is smaller than for all property, the differential in average tax rates between structures and land will be larger than in note 1 if this policy is chosen—although, again, the rates will very likely vary by county.

Reductions in the Motor Vehicle “In Lieu” Fee

According to focus groups recently completed by the California League of Conservation Voters, the motor vehicle “in lieu” fees—which are essentially property taxes on automobiles and trailer coaches—are among the most hated “taxes” in the state. Thus, not only would further reductions in this tax be visible to (and supported by) the public, but it also makes sense from the perspective of an ETS because the fee raises the *fixed* costs of driving, not the *variable* cost.³¹ The “in lieu” fee is a tax on ownership that has no effect on how much people drive.

This is not just the case in California. Throughout the country, most of the costs of driving are imposed on the ownership rather than on the use of vehicles. Combined with depreciation, insurance, and other fixed costs, the financial burden of owning a car is more than \$4,100 per year (American Automobile Manufacturers Association 1996, 58), or about 34 cents per mile for someone who drives 12,000 miles annually. These costs must be paid no matter how much drivers actually use their cars. By contrast, the variable cost of driving is very low—about 10 cents a mile, including the gasoline tax and other highway user fees. In other words, if someone already owns a car, the cost of driving 10 miles across town is only about \$1.00. Why take public transportation?

The figures in California are striking: For the 1997–98 fiscal year, license and registration fees (which, again, are fixed regardless of miles driven), bring in about \$5.4 billion, or more than 8 percent of the state’s revenues. The “in lieu” fees total about \$3.7 billion. In addition, the fee is burdensome for many households, and may be regressive.³² State taxes on gasoline and diesel fuel, however, only raise about \$2.9 billion. These figures point to an obvious tax shift possibility: Increase the gasoline tax (variable costs) while reducing or eliminating the fee (one fixed cost).

The “in lieu” rate was recently reduced from 2.0 to 1.5 percent. An additional one-third reduction in the tax rate, down to 1.0 percent, would cost the state about \$940 million in lost revenue. Completely eliminating the fee would cost about \$3.7 billion, although the state might want to retain a portion of the tax for equity reasons (that is, collectors and owners of luxury cars would receive a disproportionate tax cut).

V. OPTIONS FOR ENVIRONMENT-RELATED REVENUE INCREASES

In this chapter, a number of different possible environment-related taxes or fees that could be implemented in California are explained, some of which will be included in the scenarios in Chapter 6. The taxes or fees fall into six categories: (1) Energy and Electricity; (2) Transportation and Parking; (3) Air Pollution, Water Pollution, and Toxic Waste; (4) Land Use; (5) Solid Waste; and (6) Water.

ENERGY AND ELECTRICITY

While energy use is necessary for any healthy modern economy, most forms of energy production and consumption cause some form of environmental or social harm that is not captured in market prices. For example, the burning of coal, gas, and oil for electricity releases pollution and the GHGs linked to global warming, but the cost of the fuel does not reflect these harms. Cobb (1998) estimates that accounting for the social costs of driving in the price of gasoline would require prices to be at least \$1.60 per gallon higher than they are today.

Because of these external costs—often called “externalities”—many economists believe that energy prices ought to be higher in order to reduce energy consumption, increase efficiency, and reduce the costs imposed on society.

While California ranked 48th in the nation in per capita energy use in 1994 (Morgan and Morgan 1997, 193) many of the state’s persistent environmental problems are related to energy—particularly as it is used for transportation (see the next section on transportation and parking), but not exclusively so. Efficiency gains can still be made in the areas of industrial and residential energy efficiency, as the “no-regrets” efforts in Table 3 (Chapter 2) showed. Higher energy taxes would provide an incentive for more companies to take similar steps.

The burning of coal, gas, and oil for electricity releases pollution and the gases linked to global warming, but the cost of the fuel does not reflect these harms.

New Tax Option 1: Impose a Tax on the Carbon Content of Fossil Fuels

A carbon tax is a levy on the carbon content of fossil fuels. Since the burning of fossil fuels for energy is the source of 96 percent of California’s CO₂ emissions and 84 percent of its total greenhouse gas emissions, a broad-based carbon tax is

the most direct means of combating climate change and the air pollution problems that stem from fossil fuel-based energy use (California Energy Commission 1998A).

A carbon tax would cover all uses of energy, including petroleum, electricity derived from fossil fuels, natural gas used in homes and businesses for cooking and heating, and other industrial energy uses. It would be relatively easy to administer because it is unnecessary to monitor actual emissions³³ and because the number of collection points would be relatively small, assuming the fuel is taxed at the point at which it enters the state's economy. Of the three primary fossil fuels, coal has the highest carbon content, followed by petroleum and natural gas. Natural gas contains only 55 percent as much carbon as coal.

The primary effect of a carbon tax would be to increase energy prices; for example, a \$25 per ton tax would increase prices by about \$15.00 per ton of coal, \$3.25 per barrel of oil, and \$0.41 per 1,000 cubic feet of natural gas, which would increase prices by 82, 26, and 21 percent, respectively, over current wholesale prices.³⁴

Besides being the most direct tax for reducing emissions, a carbon tax has several other advantages. First, since the tax is based on units of carbon contained in the fuel, it would not be affected by fuel-price shocks. Second, since it is a tax on the potential pollution in a fuel, it encourages both energy conservation and the use of cleaner fuels or renewables. Third, a carbon tax would have a broad base, thus allowing the tax rate to be as low as possible. Fourth, by reducing fossil fuel consumption, the production of other harmful pollutants (for example, nitrogen oxides, particulate matter) would also be reduced. Some people may believe that a carbon tax is not a good idea for California, since it gets very little fuel from coal; this issue is discussed in Sidebar 4.

Table 12 shows the revenue potential of a carbon tax in California, and how much each would increase gasoline prices and annual household energy costs (not accounting for any changes in consumption patterns). All figures are for 1995. (The annual household costs would be significantly less than for the average U.S. household, since California generates a high percentage of its electricity from relatively clean energy sources, such as hydropower and natural gas.)

SIDEBAR 4: A CARBON TAX IN CALIFORNIA?

Energy use patterns in California are markedly different in California than in other states. For example, California gets only about 1 percent of its total energy use from coal, compared to about half from petroleum, and annual per capita electricity consumption is about 4,000 kilowatt hours less in California than in the United States as a whole (California Energy Commission 1997A, 33). Because Californians use less energy per capita, and since they use so little coal, per capita emissions of greenhouse gases in California are more than 40 percent below the national average.

Since California uses little coal, and because the state is one of the most energy-efficient in the nation, one might be tempted to rule out a carbon tax. This conclusion seems particularly apt, since a carbon tax is seen by many as a tool for addressing the global warming problem, which is not being addressed directly in this report. (See Sidebar 2 on global warming.)

However, given the provision in the state constitution that requires gasoline taxes to be directed toward transportation expenditures, a carbon tax offers one way around this problem. It would allow policymakers to increase the prices of energy and fuels to account for the social costs of their use without increasing the motor fuels excise tax. A carbon tax would have the effect of increasing prices on commodities, such as petroleum, but it might not be ruled to be a formal tax on motor fuels by the courts.

TABLE 12: CARBON TAX RATES, STATE REVENUES, AND APPROXIMATE COSTS TO HOUSEHOLDS

| Carbon Tax Rate | State Revenue (in billions) | Increase in Gas Prices (per gallon) | Annual Cost to Average Household* |
|-----------------|--------------------------------|--|--------------------------------------|
| \$10 | 0.97 | 3.0 cents | \$88.18 |
| \$25 | 2.41 | 7.5 cents | \$220.47 |
| \$40 | 3.86 | 12.0 cents | \$352.75 |

* The tax rate on coal should be set at a level that reflects both the costs of climate change and of regional air pollution. According to Hoerner (1998), the proposed carbon tax in Minnesota would raise the price of electricity from coal-fired plants by 0.361 cents per kilowatt-hour and from gas-fired plants by 0.157 cents. Thus, the tax on electricity from coal should be at least 2.3 times higher than on natural gas (.361/.157). It should be somewhat higher to reflect local or regional air pollution costs. The social costs of most other modes of electricity generation have yet to be estimated.

New Tax Option 2: A Tax on Electricity Generation

This idea would impose a tax on electricity generation according to a formula that roughly corresponds with social costs, which are generally higher for coal or petroleum-based fuels than for natural gas and renewables.³⁵ An actual schedule of fees should vary depending on the season and the type of generator used.

In the wake of electricity deregulation in California, where all forms of energy—clean and dirty—will be competing with each other, equity in electricity markets should require that pollution fees be imposed according to the approximate social harm caused by each fuel. The illustrative tax schedule in Table 13, which would lead to annual revenue of approximately \$1.75 billion, is based on the assumption that all imported power from the Pacific Northwest is hydroelectric and that all power from the Pacific Southwest is coal-fired. These projections also do not account for changes in behavior.

TABLE 13: POSSIBLE TAX RATES ON ELECTRICITY GENERATION

| ENERGY SOURCE | Change per Kilowatt Hour (kwh) | Annual Generation in California (billions of kwh) | Revenue Raised (\$ millions) |
|------------------------|-----------------------------------|--|---------------------------------|
| Coal-fired generators | 3.0¢ | 20 | 600 |
| Natural-gas generators | 1.0¢ | 80 | 800 |
| Organic waste | 1.0¢ | 6 | 60 |
| Hydroelectric | 0.5¢ | 50 | 250 |
| Geothermal | 0.2¢ | 15 | 30 |
| Wind generators | 0.2¢ | 3 | 6 |
| Solar power generators | 0.2¢ | 1 | 2 |
| TOTAL REVENUES | | | 1,748 |

The biggest obstacle to such an electricity tax may be legal, because it will be feasible only if the courts allow the tax to be based on a reasonable estimate of the social damages caused by each type of power.³⁶ This option is not included in the scenarios in Chapter 6.

New Tax Option 3: Impose an Ad Valorem Tax on Energy Consumption

An ad valorem (that is, fixed percentage of value) tax could be applied at either the wholesale or retail level for energy use, such as on gasoline and utility bills, as well as on industrial combustion of fuels. This type of tax would not be as efficient as a carbon tax in reducing carbon emissions because it would be the

same regardless of the type of fuel. But ad valorem taxes have the advantage of being visible to the public, so they may provide greater tax rate stability and greater public understanding.

According to the California Energy Commission California (1998B) households and businesses spent \$20.64 billion on electricity in 1996, so a 5 percent tax (applied to retail utility sales of electricity) would yield just over \$1 billion in new revenues. If the tax exempted renewable fuels, the revenue yield would be about \$921 million (see Table 14).³⁷

TABLE 14: REVENUE FROM AN AD VALOREM ENERGY TAX

| Tax Rate (percent) | All Electricity (\$ billions) | Exempting Renewables (\$ billions) |
|--------------------|-------------------------------|------------------------------------|
| 2.5 | 0.52 | 0.46 |
| 5.0 | 1.03 | 0.92 |
| 7.5 | 1.55 | 1.38 |
| 10.0 | 2.06 | 1.84 |

New Tax Option 4: Repeal the Sales Tax Exemption on Utilities and Water

If a new tax on energy seems politically untenable, a better option may be to remove an existing tax break. California exempts energy and water consumption from the state sales tax—a provision dating back to 1933, when it was required by the state constitution. Although the relevant sections have since been repealed, the exemption remains. If California seeks to conserve its natural resources, it seems perverse to continue a special exemption that encourages consumption of those resources.

The state sales tax exemption on natural gas, electricity, water, steam, and heat cost about \$3.26 billion a year at an average tax rate of 7.92 percent (Reynolds 1998), which implies that repealing the exemption would bring in about \$2.06 billion to the General Fund (that is, 5 percent rate) and about \$1.20 billion in new local revenue (that is, the remainder). For those who believe that closing a loophole is preferable to adding a new tax, repealing the sales tax exemption offers one worthy option.

New Tax Option 5: Repeal Environmentally Harmful Tax Breaks

This tax change would repeal the existing state tax preferences for the energy and mining industries, such as the percentage depletion allowance. Whereas nor-

Taxpayer subsidies to oil and gas companies in 1997 cost the state \$129 million in lost revenue.

mal cost depletion allows an investor to deduct the actual costs of discovering, purchasing, and developing mineral reserves, percentage depletion allows a percentage of gross income to be deducted instead. Over the life of the reserve, that can exceed costs—and it promotes excessive oil and mineral production.

According to a recent CalPIRG report, taxpayer subsidies to oil and gas companies in 1997 cost the state \$129 million in lost revenue (see Table 15)—a figure that does not include the costs of cleanup, or the indirect economic or health costs resulting from pollution. The oil and mineral companies will object to eliminating these provisions, but circumstances have changed since these provisions were passed. If the industries require special assistance, they ought to be required to make that case on a regular basis—and the assistance ought to be on the spending side of the budget where it is visible to the public, not on the tax side where it can remain for decades. Tax subsidies are very difficult to repeal when they are no longer needed.

In addition, California is the only state in the country without an oil severance fee. This amounts to another subsidy to the state’s oil industry, and further research may show a severance tax to be a viable option. It would also put California’s tax code in alignment with other states. For now, however, a severance tax is not included in the scenarios in Chapter 6.

TABLE 15: SUBSIDIES TO OIL AND GAS COMPANIES BY CALIFORNIA TAXPAYERS

| TAX SUBSIDY AMOUNT (1997 figures) | REVENUE COST |
|-----------------------------------|----------------------|
| Expensing of Exploration | \$10 million |
| Percentage Depletion | \$36 million |
| Manufacturers’ Investment Credit | \$75 million |
| Research and Development Credit | \$6 million |
| Enhanced Oil Recovery Credit | \$2 million |
| TOTAL | \$129 million |

Source: CalPIRG Charitable Trust 1997.

SIDEBAR 5: PAST CRITIQUES OF ENERGY TAXES

In the past, the idea to implement energy taxes at the state or federal level has been opposed by various interest groups. Some of their concerns are well founded and would need to be addressed, while others are not supported by the evidence.

It is true, for example, that energy taxes implemented as an additional tax, with no offsetting tax reductions, would increase the tax burden on the poor. This is why any ETS package needs to ensure that the offsetting tax reductions provide some benefits to low- and middle-income groups. In other words, an energy tax–income tax tradeoff would be inequitable, since the bottom half of the income distribution pays little income tax in California. Fortunately, reductions in sales or labor taxes are possible.

It is also true that state officials will have to watch behavioral responses closely, to make sure that revenues do not decline more quickly than anticipated (see Chapter 3). And any ETS package ought to be phased in gradually, to minimize the cost to families and businesses and to ensure the long-term success of the plan.

Opponents to energy taxes, however, may make other claims that are not well supported by the evidence. For example, coal and oil companies may claim that energy taxes will result in substantial job losses. While some jobs in energy-intensive sectors of California's economy may indeed be *shifted* to other sectors, if the tax shift provides a positive boost to the entire economy, there should be a long-term net increase in total employment. Perhaps some workers in California's influential oil industry may be displaced, but with the majority of their sales occurring out of state, the impact on California's economy should not be major.* If appropriate, any industrial sectors or demographic groups that will be disproportionately affected could be compensated at reasonable cost—but policymakers should make any such compensation provisional and temporary.

In addition, with foreign trade representing a growing share of California's state product, energy-intensive or exporting industries, or both, may claim that energy taxes reduce their competitiveness. This argument is faulty for several reasons. First, although it would increase energy prices, the tax represents only a very small percentage of the value of goods shipped abroad, even for the most energy-intensive sectors of the economy. For example, under President Clinton's 1993 Btu tax proposal, no broad industrial sector would have seen the finished prices of its goods increase by more than 0.6 percent. For targeted industries, only aluminum production, nitrogenous fertilizers, and blast furnaces and steel mills would have seen final prices of shipped goods increase by more than 1 percent (Hoerner and Muller 1993).

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Second, this report concerns *revenue-neutral* tax shifts, not net tax increases. When measuring the impacts of these tax changes on business, it is essential that the accompanying tax reductions be included. For example, Hoerner (1997) looks at the effects on manufacturing industries of a national tax shift that would impose a \$50 per ton carbon tax, refunding the revenues through reductions in the federal payroll tax, and finds that the overall net tax change is less than six tenths of 1 percent, mostly because “manufacturing industries as a group have a higher energy-employment ratio than the rest of the economy” (Hoerner 1997, 12). True, some industries will be impacted more than others, but again, those that are disproportionately affected should be compensated during a transition period.

Third, a number of other policies can be used to offset the burden on business, such as investment tax credits and reductions in corporate income taxes. Bear in mind, however, that while manufacturing remains an important sector of California’s economy, those industries in the state that are growing most quickly are not very energy-intensive. As outlined in Chapter 2, a revenue-neutral ETS could be beneficial to their continued growth.

* To cite one example, according to figures supplied by Chevron’s public affairs department and its 1997 annual report, about 18 percent of its total 1997 revenues (\$7.2 billion out of \$40.6 billion) came from operations in California.

TRANSPORTATION AND PARKING

More than 20 million drivers in California drive more than 280 billion miles per year. As Jerry Meral (1998) of the Planning and Conservation League says, “Most of the environmental problems in California come out of the transportation area because of ridiculously low transportation costs.” In 1995, the transportation sector accounted for 49 percent of energy use in California, a figure nearly twice the national average.

As the last chapter explained, however, most of the costs of driving in California and elsewhere are fixed costs, not variable costs. Therefore, once people decide to own a car, the marginal cost of driving is very low. Our current system of taxes and fees encourages people to use their cars as much as possible, and it discourages them from using public transit or living closer to their place of employment.

Since driving, rather than ownership, is what imposes social costs, such as pollution and accidents, a tax shift that raises the variable cost of driving while lowering the fixed costs would be sound public policy, and would address a number of environmental problems. New taxes on driving may indeed be politically unpopular in California, but the costs of excessive driving are quickly becoming just as unpopular.

“Most of the environmental problems in California come out of the transportation area because of ridiculously low transportation costs.”

-Jerry Meral

New Tax Option 1: Higher Taxes on Motor Fuels

The obvious first option would be to increase California’s tax on gasoline and diesel fuels, currently 18 cents per gallon. In 1995, this tax fell below the national average of 19.3 cents, and ranked 30th in the nation. Connecticut’s was highest at 34 cents per gallon, and several other Western states where people do more driving per capita than in California—such as Nevada, Texas, and Utah—have higher gasoline taxes. In fact, only six states receive less fuel tax revenues per capita than California: Alaska, Georgia, Hawaii, New Jersey, New York, and Pennsylvania (see Table 16).

Therefore, California could clearly increase its gasoline tax and not reduce its competitive standing with other states, particularly if other taxes that are higher in California (for example, the income tax) are reduced to offset the increase. A higher gas tax would raise the cost of driving and, to the extent that it changed behavior or vehicle choice, it would reduce air pollution, accidents, noise, and GHG emissions, while providing revenues to reduce income or sales taxes, or the vehicle “in lieu” fee.

California could clearly increase its gasoline tax and not reduce its competitive standing with other states, particularly if other taxes that are higher in California are reduced to offset the increase.

Table 17 shows the potential revenue gains from new state taxes on gasoline, assuming total state consumption remains constant (which could happen if per capita consumption is reduced, but the state’s population and economy continue

TABLE 16: A SAMPLING OF GASOLINE TAXES IN OTHER STATES
(with a focus on neighboring states)

| State | Tax Rate per Gallon | National Rank | Motor Fuel Tax Revenue per Capita | National Rank |
|-------------|---------------------|---------------|-----------------------------------|---------------|
| Connecticut | 34¢ | 1 | \$127.52 | 10 |
| Montana | 27¢ | 3 | \$187.16 | 1 |
| Nevada | 24¢ | 6 | \$117.80 | 20 |
| Oregon | 24¢ | 6 | \$115.03 | 21 |
| Washington | 23¢ | 10 | \$121.50 | 15 |
| Colorado | 22¢ | 13 | \$111.66 | 26 |
| Idaho | 20¢ | 19 | \$131.38 | 6 |
| California | 18¢ | 30 | \$85.65 | 44 |

to grow). As with earlier estimates, the behavioral response cannot yet be predicted with accuracy.

In other words, each penny of additional gas tax would add about \$160 million of revenue every year. While none of the increases in Table 17 would cover the full social cost of driving (see Cobb 1998), a higher gas tax would start to move us in that direction.

Of course, using gas tax revenues to reduce other taxes would require a change in the state constitution, which mandates that motor vehicle fuel taxes be spent on roads and highways. By using the tax increase to reduce other taxes, how-

TABLE 17: GASOLINE TAXES AND NEW REVENUES

| Tax increase | New fuel tax revenue* |
|--------------|-----------------------|
| 5¢ | \$0.8 billion |
| 10¢ | \$1.6 billion |
| 15¢ | \$2.4 billion |
| 20¢ | \$3.2 billion |

* In 1997–98, fuel and diesel tax revenues were projected to be \$2.907 billion at a tax rate of 18 cents per gallon, implying total consumption of 16.15 billion gallons. This consumption figure is used to derive the revenue increases.

ever, some of the usual opposition to this type of proposal might be diffused.³⁸ Moreover, local governments should support increases in gasoline taxes, since state and local sales taxes apply to gasoline purchases, thereby providing local governments with additional revenues.

Even outspoken advocates for progressivity recognize the benefits of higher gasoline taxes: Lenny Goldberg (1998) of the California Tax Reform Association says, “I can’t be too purist—driving has significant externalities, including the patterns in which we live. The automobile culture is ingrained, but it causes destructive patterns environmentally.”

New Tax Option 2: Taxes on Vehicles That Fail to Pass Inspections

Because of “grandfather clauses” in clean air standards, older vehicles are not required to meet the same air pollution standards as new vehicles. Cars and light trucks made before 1972 produce about 25 times as much reactive organic gas emissions as a new car, about 10 times as many nitrogen oxides (NOx), and 20 times as much carbon monoxide. Vehicles made between 1981 and 1990 emit around twice as much pollution in all three categories, on average, as a new vehicle (CARB 1992). A tax on the emissions from these vehicles would allow drivers to continue to drive them, but they would have an incentive to upgrade their vehicles. This tax might be implemented in conjunction with a program that would allow companies to buy offsets for their emissions by purchasing old vehicles from previous owners.³⁹

Unfortunately, there are no data upon which to base a revenue estimate for such a policy. According to the *California Statistical Abstract* (Department of Finance 1997), however, 9.3 percent of the registered automobiles (about 1.3 million), 7.4 percent of registered commercial vehicles (about 432,000), and 7.2 percent of registered motorcycles (about 38,000) were 25 or more years old in 1997. As a rough figure, if 80 percent of these vehicles were taxable, and the tax rates were \$200 for automobiles, \$500 for commercial vehicles, and \$100 for motorcycles, then the total revenue raised would be about \$280 million.⁴⁰

The major problem with any policy that singles out the worst-polluting vehicles, however, is that the tax would fall almost exclusively on the poorest households in the state.⁴¹ Another problem is that it could result in a large increase in unregistered vehicles. Because of these equity and administrative problems, the idea of taxing the worst-polluting vehicles is not included in the tax shift scenarios.

New Tax Option 3: Tax Emissions from Motor Vehicles Directly

Now that regulation has brought down the level of most forms of air pollution, most of the remaining pollution comes from mobile sources. About 82 percent of carbon monoxide, 57 percent of nitrogen oxides, and 43 percent of hydrocarbons released in California come from motor vehicles (CARB 1991, 22). The remaining stationary sources (for example, the evaporation of paints and sol-

About 82 percent of carbon monoxide, 57 percent of nitrogen oxides, and 43 percent of hydrocarbons released in California come from motor vehicles.

vents as they are applied) are difficult to monitor and control. Can fees or taxes reduce the mobile-source problem efficiently?

Rather than imposing the same restrictions on all vehicles, this strategy could be used to encourage people to clean up the sources that are easiest to control.

There are, however, a number of drawbacks to such direct air pollution charges:

- Emissions testing remains more of an art than a science, and the level of emissions from any vehicle varies widely, depending on a number of factors, including operating speed and engine efficiency.
- The most harmful air pollution (in terms of human health) are 5 micron and 10 micron-diameter particles, which are released from many sources. Attributing particulate emissions to individual vehicles would be close to impossible.
- A disproportionate amount of vehicular air pollution comes from the oldest vehicles on the road, which generally are owned by the poorest members of society. A tax on emissions would have important equity impacts.

A tax on exhaust emissions from motor vehicles could yield revenues of \$3.8 billion or \$8.4 billion, depending on whether a uniform tax rate is used throughout the state or a higher tax is imposed in the Los Angeles area to reflect higher pollution costs.⁴² In the end, however, the political feasibility of any form of tax on vehicle emissions is slim, given the public furor over any form of vehicle inspections—not to mention the administrative problems. Emissions taxes on vehicles are not included in the scenarios.

New Tax Option 4: Congestion Pricing

Traffic congestion on state highways, particularly during rush hours, lowers productivity in the state's larger cities. It increases the cost of commuting, the cost of making deliveries, and the costs of pollution (since cars pollute more in heavy congestion). Many transportation economists argue that the primary cause of overcrowded streets and highways at peak periods is the absence of accurate pricing for the scarce resource: roadway space.

Time-of-day pricing has for years been a standard method of load-spreading for long-distance telephone calls, entrance to movie theaters, airline fares, and some bridge tolls. Applying the same principle to highways would require those who most value the roads at peak hours to pay for that privilege. Recent analyses suggest that moderate congestion fees, collected at automated tollbooths, could reduce peak-period traffic by 15 to 25 percent (Bhatt 1994, 78–79; Small 1992, 10), enough to reduce delays significantly. It would do so by promoting ride-shar-

Recent analyses suggest that moderate congestion fees, collected at automated tollbooths, could reduce peak-period traffic by 15 to 25 percent.

ing, transit use, the choice of alternative routes, and the shifting of nonwork and noncommute trips to other times of day. Congestion pricing is worth examining because California cities recently ranked 1st (Los Angeles), 2nd (Bay Area), 7th (San Diego), and 15th (Sacramento) of the 20 most congested cities in the United States, according to the Texas Transportation Institute.

In terms of revenue, Small (Small 1992, 11) estimates that the revenues from congestion pricing in the Los Angeles basin (including Orange, Riverside, and San Bernardino Counties) would be about \$3 billion per year, net of the cost of maintaining the system. No estimate has been made for the Bay Area, San Diego, or any Central Valley cities, although in combination, they would probably yield another \$1 billion to \$2 billion. Obviously, this is a significant amount of revenue; \$4 billion is almost 6 percent of California's state tax revenues.

Such localized traffic congestion should be considered a matter of statewide concern because the entire California economy depends on a reliable transportation system. In addition, externalities such as air pollution and congestion are sure to enter into the calculations of companies that consider locating in California, although it is impossible to measure the extent of this effect.⁴³ It may be politically difficult, however, to persuade taxpayers in congested regions to subsidize tax cuts for all state residents. Furthermore, while it provides social benefits, such as reduced delays and pollution, congestion pricing can also *create* some social costs, such as reduced access for low-income households or concerns about privacy (that is, electronic tolls can track where and when specific cars have traveled). For these reasons, congestion pricing is not included in the scenarios, although Redefining Progress would strongly support efforts to implement congestion pricing experiments throughout the state.

New Tax Option 5: Fees for Parking

While free parking is regarded by most citizens as a right, charging more for parking would offer a far simpler way than congestion pricing for reducing congestion and promoting carpooling or transit use. This is because imposing new fees on parking will reduce the number of people who drive to work and encourage carpooling and transit use. New charges for parking would require vehicles to pay the full cost of the land they occupy, and it could have a positive effect on sprawl by making more land available in urban areas for high-value uses.

According to some estimates, *90 to 95 percent* of commuters do not pay to park (Shoup 1995, 14). The fact that parking is so inexpensive, and that its costs are often reimbursed by employers, has a big impact on driving decisions. For example, parking paid by employers in Los Angeles increases peak-hour travel by

New charges for parking would require vehicles to pay the full cost of the land they occupy, and it could have a positive effect on sprawl by making more land available for high-value uses.

33 percent and driving by 44 percent over what it would be if employees paid for their own parking (Shoup and Willson 1992, 27).⁴⁴

Recognizing this, the California Legislature enacted a law in 1992 that requires businesses with 50 or more employees to offer cash in lieu of any parking subsidy, in an effort to reduce the number of people commuting alone. But as of 1997, only eight businesses in the Los Angeles area, employing a total of about 1,700 people, had complied with the law (Shoup 1997a). For those firms, the effects of cashing out have been dramatic: The carpool share at the eight firms rose from 14 percent to 23 percent and the transit share from 6 to 9 percent (Shoup 1997b, 8). Based on that experience, the legislature should consider expanding the law by making it apply to all employers. The state could also require cities to study the feasibility of (1) reducing minimum parking requirements in zoning ordinances, and (2) requiring payment for on-street parking, with meters or through the purchase of permits.⁴⁵

One important difference between this idea and some of the others in this report, however, is that no revenues would be raised for the state through new parking charges. Yet cities could increase their revenues by several billion dollars per year, which would allow the state to reduce its share of local funding. (This presupposes that some money could be transferred from transportation funds into the General Fund.)

SIDEBAR 6: INCREASING THE VARIABLE COST OF DRIVING THROUGH INSURANCE

At present, vehicle owners pay insurance premiums based on the value of the vehicle, its location, and the driver's age and driving record. The amount a vehicle is driven has very little effect on the rate. Yet the likelihood of an accident (and a claim against the insurance company) is connected with the amount a vehicle is used. The fact that insurance premiums vary very little with miles driven provides another incentive to drive as much as possible.

To remedy this flaw, a state could require that liability insurance be sold either as a surcharge on each gallon of gasoline, or as a charge based on the number of miles a vehicle was driven in the previous year. The first approach (often called "pay-at-the-pump insurance") solves the problem of uninsured motorists but only roughly approximates a per-mile charge on driving. (Since fuel efficiency varies, it charges higher insurance premiums for big vehicles out of proportion to the accidents they cause.) The

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second approach, which would require inspection of odometers at the time of vehicle registration, would impose precise per-mile fees, but would not solve the problem of uninsured motorists as long as people fail to register their vehicles.*

Both a per-gallon and per-mile fee to pay insurance premiums would have the effect of raising the variable cost of driving. Offsetting the higher variable cost, however, would be a lower fixed cost—the money now paid as a lump sum for insurance. On the one hand, the cost of vehicle ownership would decrease, making it more affordable to low-income families. The cost of driving, on the other hand, would increase.

If a pay-at-the-pump plan were adopted, it would reinforce the effect of a gasoline tax, and its primary effect would be to encourage more fuel efficiency. The per-mile charge would have a somewhat different effect. By raising the price of driving but not the price of fuel, it would cause a reduction in miles traveled but have no effect on fuel efficiency.

* For more information on per-mile vehicle insurance and its effects, contact the Victoria Transport Policy Institute at (250) 360-1560.

AIR POLLUTION, WATER POLLUTION, AND TOXIC WASTE

Much has been made in recent years about how California has taken great strides in improving its air and water. Despite these improvements, pollution continues to threaten both health and recreational opportunities in California. It is time for the state to realize that policies that can change individual behavior are powerful, underused tools. This section includes taxes on air pollution (some of which may overlap with taxes on transportation and energy), water pollution from nonpoint sources, and discharges of toxic waste.

New Tax Option 1: Air Pollution—Imposing a Tax on All Emissions

The U.S. Environmental Protection Agency (EPA) has established acceptable levels for six primary air pollutants: sulfur dioxide (SO₂), nitrogen oxides (NO_x), ozone, particulate matter (PM-10), carbon monoxide (CO), and lead. While firms subject to air pollution standards must incur the costs of complying with regulations, most do not pay taxes or fees on the quantity of emissions that the regulations allow.

The U.S. Congressional Budget Office (1997) has suggested a number of different options for taxing certain air pollutants, some of which could be applied in California. These include (1) taxing emissions of SO_x and NO_x from stationary sources;⁴⁶ (2) taxing emissions of NO_x, volatile organic compounds (VOCs), and CO from mobile sources (that is, vehicles);⁴⁷ and (3) taxing emissions of particulates (PM-10) from stationary sources.⁴⁸ The CBO has recommended a schedule of tax rates for these emissions, such as \$300 per ton for SO_x from stationary sources and \$3,000 per ton for NO_x from stationary sources. The revenue gains from such taxes could be substantial—more than \$1 billion per year—but the monitoring and administrative costs could be prohibitive. Therefore, this option is not included in the scenarios.

The only point-source air pollution tax that may be worth considering for California is also something included in the CBO's report. The majority of NO_x, VOC, and CO emissions in the United States are from mobile sources, so one way to address the problem would be via a one-time tax on new automobiles based on their estimated per mile emissions of these substances, administered like the "gas guzzler" excise tax.⁴⁹ An average tax of \$250 per vehicle sold in the state—higher for dirtier cars, lower (or zero) for cleaner cars—would yield about \$375 million in new revenues every year. While this may prompt some evasion, the vast majority of the state's population live several hours from a border state, rendering such evasion less rewarding.

New Tax Option 2: Water Pollution from Point Sources—Accidental Discharges

Surface water contamination from a point-source (end-of-pipe) discharge is the easiest to measure and control, and the State Water Resources Control Board (SWRCB) is authorized to issue discharge permits that limit the amount of waste that each polluter can emit. Yet according to CalPIRG, major California polluters violated the U.S. Clean Water Act 4,500 times from 1992 to 1996. An extreme example took place at Thousand Oaks Hill Canyon Treatment Plant in Los Angeles County in early 1998, when 70 million gallons of raw sewage poured into a creek.

The SWRCB can impose financial penalties, but critics charge that they are imposed too infrequently to prevent these types of events. If fees were charged for discharges in excess of permitted amounts, plant operators would have an incentive to prevent accidents in the first place.

Politically, the concept of holding companies accountable for accidental releases should be extremely easy to adopt, but administratively, this policy raises

a number of questions, such as the appropriate charges or the volume of accidental discharges in a year once a tax penalty system is in place. Since a reliable revenue estimate cannot yet be prepared, this option is not included in the tax shift scenarios.

New Tax Option 3: Water Pollution from Nonpoint Sources—Agricultural Runoff from Farms

In recent years, water pollution from “nonpoint sources” (for example, fertilizer and manure from farms, storm drain runoff from urban streets) has increased relative to “point sources,” such as effluents from sewage treatment plants. The fact that nonpoint sources are so diffuse makes their monitoring and control difficult. For example, records of the amount of contamination occurring from urban runoff from streets and construction sites, or agricultural pollution from fertilizer and pesticide drainage, are sparse and are not spatially well defined (that is, the pollution from one street compared to another). These factors limit the effect of market-based mechanisms in this instance.

In recent years, water pollution from “nonpoint sources” has increased. The fact that nonpoint sources are so diffuse makes their monitoring and control difficult.

A few isolated cases of nonpoint source pollution in California have been widely publicized, including the accumulation of harmful nitrates in drinking water in the Central Valley and the contamination of groundwater in the San Gabriel Valley from old industrial sites. While the Legislative Analyst’s Office has been critical of the failure to track and report on these types of pollution, addressing the problem is not a simple task; nonpoint source pollution cannot easily be measured or monitored.

Yet there are workable options, such as imposing a charge on the behavior that causes pollution, as opposed to the actual quantity of emissions. One idea would be to tax the use of fertilizer, pesticides, and other agricultural chemicals, since these are known to be significant sources of water pollution. According to a report by the Environmental Working Group and CalPIRG, more than 6 million pounds of toxic chemicals are shipped annually to California fertilizer manufacturers and to farmers, leading to the spread of contaminants such as dioxin, arsenic, lead, and mercury (Environmental Working Group 1998).

An across-the-board tax on the value of all pesticides and fertilizer used in California would be much easier to administer than a tax based on expected environmental damage. The sales of fertilizer and lime in California are about \$770 million and pesticides about \$880 million, for total combined sales of about \$1.65 billion. Therefore, a 5 percent tax would raise \$82.5 million each year, and a 10 percent tax would raise \$165 million. These increases could be accompanied by tax reductions targeted specifically to farmers.

SIDEBAR 7: A REVENUE-NEUTRAL PROPOSAL FOR CLEANING UP "BROWNFIELDS"

Since 1980, when Love Canal was publicized in New York and the Superfund law was adopted by the federal government, Americans have become much more conscious of another source of pollution: the gradual leaking of chemicals from industrial sites and underground storage tanks into the surrounding land. These contaminated areas are commonly referred to as "brownfields."

Unfortunately, because the 1980 Superfund legislation imposed cleanup liability on any past, present, or future site owner(s), many businesses are reluctant to move to brownfields—and banks often are reluctant to provide loans for their development because they fear litigation over contamination caused by previous owners. Developers also shy away from brownfields because the clean-up costs can be prohibitive.

Consider these examples. In October 1993, Pacific Lithograph, a 40-year-old print shop and the largest in San Francisco, shut down precipitously when the land under it was found to be contaminated. The closure did nothing to clean up the land, and the revenue base for restoration was lost. In Oakland, the cost of preparing four parcels for redevelopment in the downtown area rose from less than \$1 million to nearly \$12 million once traces of toxic chemicals were discovered on the sites. Mayor Elihu Harris complained at the time, "We wind up spending more for the toxic cleanup than the land is worth." As a result of the perverse liability rules set up by Superfund, many businesses prefer to site their property on land that has not been previously used for industrial purposes (that is, "greenfields").

The U.S. Conference of Mayors did a survey in 1996 of 39 cities around the country, seeking to estimate the value of land that remains undeveloped because of liability issues. They estimate the aggregate loss of property values nationally to be at least \$50 to \$200 billion (U.S. Conference of Mayors 1996). But even those numbers do not tell the full story: By providing incentives for greenfields development, the liability rules contribute to the statewide problems of sprawl and the lack of jobs in inner cities.

A recently passed federal tax credit for brownfields development may help address this problem, but there are additional steps that the state can take. For example, it could mandate the establishment of special districts around potentially contaminated urban sites and require nearby property owners to share the cleanup costs on the basis of benefits received. In other words, mandate the use of what is called "tax increment financing" for redevelopment of sites.* Where these districts are formed, it should be possible to eliminate the liability of lenders altogether and to limit the long-term liabili-

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ty of potential developers. The city of Wichita, Kansas, has already shown that this policy can work (Glickman and Judy 1993).

This idea is not included in the tax shift scenarios because it would not generate revenue that could be used to reduce other taxes; it is a revenue-neutral idea all its own, since the revenues would be used to help redevelop sites. In the long run, this policy could increase property values and productivity, which would increase the tax base of every city and county that currently faces the problem of abandoned sites. It could contribute to the cleanup of inner cities, and greater job opportunities for those who have been left behind by recent growth.

* Tax increment financing works by capping the property tax revenue that goes to local government, and shifting the additional revenue that comes from higher property values directly to the project being financed. The higher property values come about because of the project itself.

LAND USE

The central argument in this section is that changes to the way we tax land and property can have an important impact on development and sprawl in California, and thereby a positive impact on the state's overall environment.

The way in which land is used has a pervasive influence on our way of life. The Dutch and the Japanese, for example, are very conscious of how little land they have, and they use it carefully. Americans, by contrast, use land less efficiently; our cities are spread out across the landscape, consuming wetlands, farmland, and wilderness. This tendency to grow outward rather than upward develops for many reasons, ranging from low fuel and land costs, to the American dream of owning a peaceful house with a yard, to the desire to escape the crime and noise of urban areas.

Yet the resultant urban sprawl imposes obvious environmental costs in terms of congestion, pollution, and habitat loss. It also affects equity and opportunity because it poses a financial burden on young people who are entering the labor force, or anyone who is forced to buy a car to gain mobility. Mass transit is simply not an option when housing densities are low.⁵⁰

There is no arguing that a major contributor to low-density development patterns is the failure to require landowners to pay the true cost of holding urban land. Such development not only increases pollution and raises household trans-

The Dutch and the Japanese are very conscious of how little land they have, and they use it carefully. Americans, by contrast, use land less efficiently; our cities are spread out across the landscape.

portation costs, but it also raises the collective cost of providing public services and infrastructure, such as police and fire services, street construction and repair, and utility services. It is ironic that at the same time that citizens expect government to be more frugal, they choose to live in low-density developments that impose these heavy public costs.

Higher land taxes or other market-based policies could be used to address this problem without increasing the total tax burden.

New Tax Option 1: Reformulating Land and Property Taxation

In a state where sprawl, pollution, poverty, and job opportunities in urban areas are central concerns, the current tax system works against improving these problems. The current property tax structure in California, which requires land and the buildings that rest on it to be taxed at the same rate, is contradictory in its effects. Taxing structures makes development more expensive and contributes to the hollowing out of cities. Taxing land, however, provides an incentive for urban development and a disincentive for sprawl because it stimulates development of the most valuable land first; costly yet idle land in cities will have to be developed and generate profits, or be sold.

Moving to a two-rate property tax system that applied a lower rate to property, buildings, and improvements and a higher rate to land—particularly for businesses, whose savings are not as tied up in land values, but possibly for homeowners as well—it would be possible to spur new investment and job creation in urban areas, or in areas where density is already high. Consider that as a result of the state’s constitutional requirement that buildings and land be taxed equally, the current property tax is approximately equivalent to a 19 percent sales tax on new buildings (Gaffney 1964). Lowering that tax would promote new construction. At the same time, raising the tax rate on land creates an incentive to put it to use and generate profits from the land.⁵¹

These ideas have been tried before with success. In Pennsylvania, many communities have implemented land taxes, and several former mayors of Pittsburgh and Scranton have attributed much of the success of their cities to the two-rate tax systems (Andelson 1997, 124). One study of the municipalities around Melbourne, Australia, compared changes over an 18-year period in land areas near downtown, and found that vacant land filled in more rapidly in areas where the tax fell primarily on land. Other studies of cities in Pennsylvania and Australia with two-rate taxes have shown that they do indeed redevelop faster than comparable cities with standard property taxes (Cord 1987). One study in the *National Tax Journal* (DiMasi 1987) found that such “property tax shifts” could lead not

Taxing structures makes development more expensive and contributes to the hollowing out of cities. Taxing land, however, stimulates development of the most valuable land first.

only to reduced sprawl, but could also lower housing prices and higher wages. Finally, there is a growing research base showing that such a shift would benefit the vast majority of homeowners in many areas.⁵²

In the end, two-rate property taxes can discourage sprawl by promoting the reuse of valuable sites rather than expansion to farmland at the urban periphery—and this can be done without any increase in total taxation. The policy change could be structured to affect businesses only—since higher land taxes for homeowners will depress land values initially, thereby reducing the value of their home equity—or it could be done for homeowners as well.

If a two-rate tax were to be applied statewide for both businesses and residences, and the desired shift was for \$3 billion in revenues, a very rough estimate is that the average tax on structures would be reduced from 1.063 percent to 0.77 percent, and the rate on land increased from 1.063 percent to 1.51 percent (see Chapter 4). However, it would make more sense to allow local governments to implement their own split rate system, provided that the central provisions and caps of Proposition 13 still hold; that is, the total amount of property tax revenue coming from the county would be capped and limited to the same increases as under current law, but counties would be permitted to tax land and structures at different rates.

Administratively, it would be easy to make this change because land and buildings are already assessed separately in California, but legally, it would require a constitutional amendment. Nonetheless, there are a few factors that may make a split-rate property tax attractive to policymakers:

- Many businesses may support such a change in state law, particularly those for which the tax on tangible property is a record-keeping nightmare.
- It would hold most homeowners harmless, or reduce their annual tax bill.
- It would begin to address the issue of sprawl in the state without new regulations.
- It has worked elsewhere to promote higher-density development.
- It would be a progressive change to the tax code, since the largest landowners—particularly of valuable urban land—are often the wealthiest residents.

Given the continued popularity of Proposition 13, the effects of a split-rate tax ought to be put through a rigorous economic analysis before such a proposal is seriously considered by the state legislature.

“Property tax shifts” could lead not only to reduced sprawl, but could also lower housing prices and higher wages.

New Tax Option 2: A State Land Surtax

A policy idea that might be more simple than a split-rate tax, but still require amending the state constitution, would be for the state to implement a small surtax on the county-assessed value of land. In order to facilitate passage of such an amendment, the surtax revenues would likely have to be tied to the reduction of another tax, as this report suggests. A land surtax would be simpler than a split-rate tax because it would retain a consistency in tax rates across counties.

According to the California State Board of Equalization, the total assessed value of all land in the state was about \$744 billion in 1997–98. Therefore, a statewide land tax (or “sprawl tax”—the state might want to call it something else) would raise about 0.1 percent and would thus yield about \$744 million in new revenues for each 0.1 percent increment in the tax rate.

Again, it is important to emphasize that land taxes are based on assessed value, not land area, and assessed value generally rises the closer one resides to the city center. Therefore, farmers and large landowners in rural areas—and even most suburban homeowners—would not be greatly burdened by such a tax, particularly after considering other tax cuts. It would, however, provide a marginal incentive for new development to be located closer to city centers.

An additional tool for addressing sprawl—called “standby charges” or “impact fees”—is discussed in Sidebar 8.

New Tax Option 3: Annual Market-Value Assessments for Business Property

It is well known in California that, as a result of Proposition 13, property is reassessed only when ownership is transferred. In addition to generating significant inequities among property owners—both homeowners and owners of commercial property—this regime creates incentives for inefficient land use.

A 1991 report by the California Tax Reform Association argued that “commercial property values directly reflect the income to be made from the property” (Goldberg 1991, 78). For that reason, market-value assessments were justified for business because the rising value of the property reflected the property’s actual or potential income. The case of homeowners is different, Goldberg argues, because the value of residential property moves independently of the owner’s income. If business property were reassessed annually, not only would this level the playing field between new and existing businesses, but it would also provide much-needed new revenues to local governments at the same time that it enabled other state taxes to be reduced.

One recent estimate suggests that market-value assessment of all nonsingle-family residential property could yield about \$6 billion in annual revenues, or

about half that amount if applied only to commercial property. (O'Sullivan, Sexton, and Sheffrin 1995, 133). Other studies come up with similar results; the California Tax Reform Association estimated that market-value assessment for nonresidential property would have generated an additional \$4 billion in revenues in 1990 and \$6 billion in 1993–94 (Goldberg 1991, 81). Such changes could be balanced with limitations on local fees for new construction, since the cities and counties would have new revenues from property tax, and tangible business property or some fraction of improvements, or both, could be exempt.

SIDEBAR 8: "STANDBY CHARGES" AND "IMPACT FEES" TO COMBAT SPRAWL

Until 1996, local governments and special districts could easily collect what are called "standby charges" or "impact fees," which are fees from owners of unimproved property equal to the value of the services provided to the property. Thus, a residence would be charged a fixed charge for public infrastructure such as sewers and lighting—even if unoccupied—because the existence of the infrastructure increases the value of the property whether it is used or not.

In an effort to eliminate poorly designed benefit assessments, however, Proposition 218 prevented the levying of such fees unless the service is actually used by the property, and adds value to it. The law also requires that the charges be approved through a cumbersome and expensive process, including a public hearing and possibly a vote among property owners. As a result, it is likely that standby charges will be all but eliminated in California, which would be unfortunate since they rectify obvious inequities between improved and unimproved properties.

In essence, the absence of these charges constitutes a subsidy to unoccupied property. All services provided by government—police, fire, sewer, water, garbage, school facilities, streets, lighting, and more—increase property values. Standby charges ensure that every property owner pays his or her fair share of the costs of services that increase property values throughout the community. They achieve two goals simultaneously: (1) they fairly allocate costs among property owners for benefits received, and (2) they encourage the owners of unimproved property to improve it, or to sell it to someone who will do so. (This latter effect is similar to the two-rate property tax above, although it generally has a weaker incentive effect.)

While there exist no good data on the potential revenue from standby charges, they could be structured in a way to provide a fixed percentage of state and local revenue, thereby becoming a component of an ETS—but this would also require a constitutional amendment.

New Tax Option 4: Reducing the Mortgage Interest Deduction in California

The mortgage interest deduction provides a taxpayer subsidy for sprawl by increasing the tax break as homes grow ever larger.

It can be argued that one of the most destructive policies for our nation's environment is one that has to do with housing, not environmental policy. The mortgage interest deduction, by allowing deductions on interest on up to \$1 million of debt, provides a taxpayer subsidy for sprawl by increasing the tax break as homes—and the plots of land they rest upon—grow ever larger.

What's more, the mortgage deduction, while billed as a tax break for the middle class, actually provides its greatest benefit to well-off taxpayers. According to the U.S. Joint Committee on Taxation (1997), individuals with income over \$75,000, who represent less than 14 percent of taxpayers, claimed *71 percent* of the tax benefits from this deduction in 1997. (This is true because the majority of middle-income homeowners still take the standard deduction on their tax returns.) Clearly, the deduction is inequitable as well as providing a perverse environmental incentive.

Eliminating this tax break would have important impacts on the housing market and would affect millions of families. But reducing the amount of principal eligible for the deduction makes good sense on both equity and environmental grounds because it would reduce the incentive (albeit moderately) for building ever-larger homes on multiple-acre lots far from the urban center. This change would not affect federal tax law, but some California residents would have to add a portion of their mortgage interest back into their state taxable incomes. It would apply only to new home purchases.

While the housing industry would object to this idea, the vast majority of taxpayers might regard it as a sensible proposal: Why should we subsidize the large homes of the well-to-do and promote sprawl at the same time? Unfortunately, reliable revenue estimates are not available for this idea, so it is not included in the tax shift scenarios, although it should be included on both environmental and equity grounds.

SOLID WASTE

It is commonly believed that landfill disposal and incineration have larger environmental consequences than do recycling, composting, and reuse. Economic theory therefore suggests that a "corrective" tax on these activities would be good for society. While it may not be possible to set the "optimal" tax rate, where the tax would be exactly equal to the social cost, we do know that a tax would reduce the amount disposed.

Less solid waste would reduce the rate at which California landfills are being

used up. Landfill capacity is a scarce resource, much like an underground reservoir of petroleum. Owners of such resources should, according to economic theory, charge more for these resources than the current cost of extracting or supplying them. The additional amount—sometimes referred to as a royalty, or scarcity rent—is in essence a payment for using up something available in a fixed and limited amount. Many landfill owners, however, are not able to pass this cost on to users because their rates (or rate of return) are set by a governmental body that does not recognize depletion as a legitimate cost.

Less solid waste would reduce the rate at which California landfills are being used up.

Not charging users for these costs, however, means that scarce landfill capacity will be used up more quickly than is socially desirable. New landfills will be needed sooner than they otherwise would have been, and such landfills are typically more expensive to plan, design, construct, and operate than older ones, or are more distant and therefore involve higher transportation costs. By applying a charge today, current and future landfill users will use existing capacity more efficiently.

New Tax Option 1: Impose a State Tax on Solid Waste

Several taxes on solid waste already exist. Few of them, however, were specifically adopted with the purpose of raising revenue for a state's general fund. This policy idea would set a tax rate designed to increase the average California tipping fee. Higher fees in other states have not disrupted their economies as a whole, and should not therefore be overly burdensome in California. In addition, since solid waste generation is not strongly responsive to price incentives (see below), it is a reasonably stable base.

Since the average California tipping fee is about \$36 per ton versus a Mid-Atlantic region and New England region average of about \$50 per ton, a per ton tax of \$14 would make up the difference.⁵³ The tax would be imposed on waste disposed of in California landfills or incinerators, and on waste generated in California but transported out of state for disposal.⁵⁴ Since waste disposal costs are typically well under half of the cost of solid waste services (30 to 40 percent is common), the per-ton tax will increase average solid waste service fees by only 10 to 15 percent. California disposed of 34 million tons of waste in 1996, so the maximum revenue yield would be \$476 million. Reductions in waste resulting from the tax (see Sidebar 9) will reduce actual revenue to about \$440 million, as an initial rough estimate.

Administratively, the implementation of a per ton tax on solid waste would be simple and would not require a new layer of government or significant changes in current accounting practices. This is because all landfills and transfer stations in California are currently required to have truck scales and to keep records of the

SIDEBAR 9: HOW THE ELASTICITY OF DEMAND MAY REDUCE REVENUES

Economists describe the reduction in demand for a service or good in response to an increase in price via the elasticity of demand. This elasticity expresses the change in percentage terms. For example, a price elasticity of minus one (-1) means that a 1 percent increase in price would cause a 1 percent decrease in demand.

Estimates of the elasticity of demand for solid waste disposal services vary widely. Some of this variation is probably because diversion programs (for example, recycling) were implemented concurrently with price increases. In that case, the reduction in disposal for an increase in price includes a one-time shift from disposal to the new program, so the estimated elasticity is larger (in absolute value) than it would normally be. In the list below the lower estimates appear to have been controlled for this factor while the middle and upper do not appear to have been so controlled.

| Location | Estimate | Source |
|---------------------|----------|-----------------------------|
| Ithaca, NY | -1.25 | Miranda et al. 1994 |
| High Bridge, NJ | -0.63 | Miranda et al. 1994 |
| CA Cross-Section | -0.44 | Albrecht 1976 |
| Seattle, WA | -0.20 | Cuthbert 1994 |
| Tvaaker, Sweden | -0.17 | Wahlberg 1995 |
| Charlottesville, VA | -0.08 | Fullerton and Kinnaman 1994 |

Using a price elasticity of -0.20 and a rise in the cost of disposal services of 39 percent (14 divided by 36), the initial 34 million tons of waste disposed per year might decrease to 31.4 millions tons per year in response to imposition of the tax. Revenue raised would then be around \$440 million per year. This serves as the initial estimate of revenues raised.

In the absence of strong social pressure, such as the 50 percent diversion target by the year 2000 mandated in the California Integrated Waste Management Act of 1989, the total amount of solid waste disposed of rises as the economy expands. After the 50 percent target has been achieved, growth in California population and in output of the Californian economy per person should cause revenue raised by the solid waste tax to rise.* Hence \$440 million is a reasonable minimum revenue stream that can be used in the scenarios of an ETS.

* Indeed, imposition of the tax may be an important tool in achieving the 50 percent diversion goal. Many communities may not achieve the goal by the year 2000, and some political impetus exists for reducing the goal or extending the timeline for compliance.

weights disposed. Politically, however, such a landfill tax might be more difficult because it is politically difficult for municipalities to raise solid waste rates. An increase in rates mandated at the state level, though, might be possible if local jurisdictions were to receive revenues from the tax, or if other state taxes that are perceived as particularly onerous were reduced.

WATER POLICY

Water plays a vital role in the economy of California. If there is too much of it in the winter, it can destroy property through floods. If there is too little stored for the summer, it can cause serious problems for agriculture. And as the state's population grows, particularly in dry regions of the state, it is increasingly important that water be used more efficiently. In the past, the state's main mistake has been to subsidize water use, which makes both farmers and urban dwellers use water wastefully and create what appears to be a shortage.⁵⁵

Unfortunately, more efficient water use will mean asking farmers to use less. Agriculture receives about 80 percent of the 43 to 46 million acre-feet (MAF) of water used each year⁵⁶—about 15 percent of which is consumed by just three crops (alfalfa, pasture, and cotton) in two regions of the state.⁵⁷ Thus, the wise management of water in California depends more on whether farms use this resource wisely than on whether city dwellers turn off the tap while they are brushing their teeth or use low-flow toilets. Also, most farm use of water is consumptive (for example, it is lost to the atmosphere through evaporation); while many urban uses are nonconsumptive (for example, toilet flushing or cleaning) and can be recycled following treatment.

The idea to charge market prices for water is as much about fairness as it is about conservation: Because of the way water rights are allocated, some users can flood their fields with cheap water while other users pay dearly. If the farmers who receive cheap water were required to pay more for it, they would give up some of their water and other farmers (and cities) could buy some of those rights. That would lower the price of water to households and businesses, including farmers who are currently paying too much.⁵⁸ For this reason, many players in the California water system (for example, state agencies like the Department of Water Resources and federal agencies like the Bureau of Reclamation) have taken steps in the last decade to promote water marketing, water reclamation and recycling, and water transfers between low-value and high-value uses. Taxing water rights or water consumption would be a logical and efficient next step for state policymakers in their quest to protect the state's water supply. Moreover, some academic studies have found that taxing water can be a relatively efficient way to reduce cer-

In the past, the state's main mistake has been to subsidize water use, which makes both farmers and urban dwellers use water wastefully and create what appears to be a shortage.

tain types of nonpoint source pollution, such as nitrate runoff from farms (Larson, Helfand, and House 1996). Two different ways to use the tax system to address water conservation are examined below.

If the farmers who receive cheap water were required to pay more for it, they would give up some of their water and other farmers (and cities) could buy some of those rights.

New Tax Option 1: A Tax on the Value of Water Rights

A tax on water rights would discourage overconsumption of water by those who currently pay little or nothing.⁵⁹ Using a market force such as a tax to regulate the efficient distribution of water might be in the best interests of the state as a whole. As Lenny Goldberg (1998) of the California Tax Reform Association says, “The only thing that has been really devoid in the entire debate on water has been the idea of taxing it.”

Today’s situation arises from the way in which water rights were divided up over the past hundred years. Essentially, the legal system has granted rights to those who staked early claims. Senior water rights holders can use water in whatever way they like, while other users have to make do with what is left over or pay high prices for the water that the senior holders decide to sell. By taxing water rights, holders of rights would need to use them efficiently or sell them in order to pay the tax. Tax revenues would be equal to the scarcity rents currently being collected by owners of water rights. Scarcity rent is simply the extra profit people earn because they were the first to locate in an area, own the best grade of ore of some type, have the best farming land in an area, or have senior rights to water.

The scarcity value of water rights is equal to the difference between the current cost paid by the water rights holder and the marginal value of water (its market price) if a complete water market were to exist. It is not possible at present to determine either what the costs of water to water rights holders are, or what the single market price would be if a statewide water market were to exist. A survey of agricultural water districts in 1996 by the Department of Water Resources revealed average charges varying from a low of \$10 per MAF in one district to \$373 in another. Water use patterns would change dramatically if prices this far apart were made equal. Consequently, a revenue estimate is not offered for this option because it is not a feasible policy change.

In addition, a tax on water rights would obtain efficiency at the expense of senior water rights holders and those with low-cost water sources now. Without careful distributional analysis, both the potential revenues and the potential impacts of this type of tax are essentially unknown.

New Tax Option 2: A Tax on Water Use

It seems probable that many voters in California are willing to promote water

conservation because it is a widely recognized basic resource that most people know (from their experiences with drought) can be used more efficiently. A tax on water use is simpler than a tax on water rights. Water prices would not be equalized statewide, but higher water prices would stimulate water trading and other water-related efficiency measures. As noted above, annual water use in California is around 43–46 MAF. Therefore, a charge of \$20 per acre-foot might yield around \$800 million statewide (assuming a contraction of demand of 3–6 MAF in response to the changed price). This measure is our starting point in the scenario analysis (Chapter 6) for a discussion of water taxes as part of an ETS in California.

VI. THREE TAX SHIFT SCENARIOS AND THEIR IMPACTS

This chapter presents three different revenue-neutral tax shift scenarios and discusses whether the scenarios might be viewed as equitable or fair.

Fairness is an important criterion in tax reform that complements the criteria of economic efficiency or environmental benefit. If a proposed tax reform is good for the environment and economically efficient, but unfair in the eyes of many legislators, it will fail to be adopted. Because fairness is a complicated issue, this chapter flags potentially important fairness issues, but does not try to fully resolve them.

The payer of taxes does not always bear the full burden of them. The actual burden of a tax—after it is passed “forward” into consumer prices or “backward” onto the wages of workers and the returns to investors—is referred to as the *incidence* of the tax. The incidence of taxes is distinct from whether that distribution of burden is fair. For example, one might find that gasoline or utility taxes are regressive because payments by lower-income households are a higher percentage of their disposable income than payments by upper-income households. But regressivity is not automatically unfair. If indeed the “polluter should pay,” why is it unfair for those who use gasoline to pay for the damages caused by its use? Should the income of the polluter be relevant? (See Sidebar 11.)

Each scenario in this chapter is thus discussed in two parts. First, the discussion describes the likely distribution of burden from each new or increased tax and the likely distribution of tax relief from each tax cut. These attempts are approximate because behavioral change will occur from the tax reform, and the incidence of taxes ultimately depends on numerous behavioral changes that are difficult to model and estimate in advance. Nonetheless, most groups that will be affected can be identified, and something can be said about the distributional impacts without a detailed quantitative analysis.⁶⁰

Second, the discussion addresses whether the approximate impacts on various constituencies might be viewed as fair or unfair. Since this is inherently a matter of opinion, some “on the one hand, on the other hand” comments are offered. Depending on one’s point of view, it may be possible to modify the scenarios to

Fairness is an important criterion in tax reform that complements the criteria of economic efficiency or environmental benefit.

SIDEBAR 11: WHY FOCUS ON “ABILITY-TO-PAY?”

Current government expenditures are primarily for public services like state parks and courts, the National Guard, the University of California and California State University systems, and funding of schools, police, fire departments, or libraries. If these services benefited all citizens equally, we might be tempted to charge a lump sum or “head tax” that is equal for all households, which would be regressive when measured as a percentage of annual income. It would use the “benefits principle” rather than “ability to pay” as its guiding force.

It is not clear that these services are equally beneficial. For example, those with more income and property may benefit more from police services, while those less able to purchase books benefit more from public libraries. The difficulty of measuring the benefits of public services is one of the most important reasons they are funded with taxes rather than user fees. And it is difficult to make a persuasive case that the ancillary environmental benefits of a tax shift will clearly benefit one group more than others. For these reasons—plus a concern with the social costs of problems, such as income inequality—the scenarios continue to use ability to pay as a core standard for measuring tax fairness.

increase fairness, although perhaps with lower environmental or efficiency benefits. Readers are encouraged to think of ways to do so. The scenarios are offered as specific food for thought, not as legislative proposals.

SCENARIO 1: AN ENERGY AND TRANSPORTATION TAX SHIFT

The first scenario focuses on addressing energy consumption and transportation, with new tax revenues coming from gasoline taxes and the elimination of the sales tax exemption on services purchased from utilities.⁶¹ The revenues are recycled by means of a new state earned income tax credit (EITC), a state income tax credit for employers and employees that offsets part of the payroll tax, and a reduction in the motor vehicle “in-lieu” tax.

Scenario 1 is summarized in Table 18.

TABLE 18: ENERGY AND TRANSPORTATION TAX SHIFT

| NEW TAXES | Revenue (\$ billions) |
|---|-----------------------------------|
| Gasoline tax increase of 17¢ a gallon (increasing the state gas tax to 35¢ per gallon; revenues rounded down) | 2.74 |
| Eliminating the sales tax exemption on utilities (natural gas, electricity, water, steam, and heat) | 2.06 |
| Additional sales tax revenue for the state as a result of the 17 cent additional gasoline tax (revenues rounded down) | 0.13 |
| TOTAL NEW TAXES | 4.93 |
| TAX REDUCTIONS | Revenue Loss (\$ billions) |
| Exemption of the first \$2,000 of wages from the federal payroll tax, in the form of a refundable state income tax credit to both employers and employees | 3.61 |
| An additional one-third reduction in the motor vehicle "in lieu" tax, bringing the percentage down to 1.0 percent | 0.94 |
| New state EITC equal to 10 percent of federal credit | 0.38 |
| TOTAL TAX REDUCTIONS | 4.93 |

Distribution of Burden

The gasoline tax increase of 17¢ per gallon (almost doubling the state gas tax) will bear disproportionately on lower-income households. The Consumer Expenditure Survey of the U.S. Bureau of Labor Statistics (1998) reports that the average household in Los Angeles and San Francisco in 1994–95 earned between \$36,000 and \$40,000 after taxes and spent about 2.8 percent of that on gasoline and motor oil. In comparison, the average household earning about \$16,500 per year spends an average of 4.8 percent of its after-tax income on gasoline and motor oil, while the household earning \$94,500 spent about 1.8 percent on these items.

Eliminating the sales tax exemption on utilities would have a similar effect. Households with after-tax disposable income of \$16,500 reportedly spent 8.5 percent of that income on natural gas, electricity, fuel oil and other fuels, and water and other public utility services. In comparison, families earning an income of \$40,000 spent 4.3 percent of their income on these items, and families with after-

At least two of the three offsetting tax reductions are progressive. They return more tax revenue to low-income households than to middle- or upper-income households.

tax incomes over \$94,500 spent only 2.5 percent. The additional sales tax revenue in Scenario 1 would also be regressive, but it is a relatively small amount of money, and it is entirely a function of the higher gas tax (that is, California's state sales tax applies to the total price of gasoline, after gas taxes have been added).

At least two of the three offsetting tax reductions, however, are progressive, and probably offset the regressivity of the new taxes. They return more tax revenue (as a percentage of income) to low-income households than to middle- or upper-income households. For example, the tax credit that offsets the federal payroll tax is only for the first \$2,000 of wage income, so the benefit to each wage earner is a smaller percentage of income as income rises. The benefit to a household with after-tax income of \$16,500 per year is about 1.9 percent of their income, while the benefit to someone who earns \$40,000 is about 0.7 percent of their income. The federal EITC was available only to those with income below \$29,290 in 1997, and it is gradually phased out as income rises above \$11,950. These forms of revenue recycling are strongly progressive.

A similar calculation shows that the reduction in the vehicle "in-lieu" tax will be progressive if all owned automobiles are of the same value. Since higher-income households own higher-value automobiles, this tax reduction is not necessarily progressive. It will be *proportional* if the value of owned automobiles by each household is exactly proportional to annual income. It will be regressive (that is, higher-income households will receive a higher percent-of-income benefit from the tax reduction) if the value of owned automobiles rises more rapidly than annual income. However, data from the U.S. Bureau of Labor Statistics (1998) Consumer Expenditure Survey indicate that payments for vehicle purchases (new and used) comprise 11.8 percent, 8.4 percent, and 6.0 percent of disposable income for California households with after-tax disposable income of about \$16,500, \$40,000, and \$94,500, respectively. So the reduction in the motor vehicle "in-lieu" tax also appears to be progressive, offsetting the regressivity of environmental taxes.

Overall Fairness of the Scenario

Overall, then, this scenario is very likely to be progressive. If policymakers want to consider another way of blunting regressivity, an exemption from the sales tax could be retained for a basic ("lifeline") level of utility service at homes. More detailed information on the distribution of the benefits of the EITC in California, and on the value of owned automobiles by household income level, is needed to assess the degree of progressivity in more detail.

SCENARIO 2: A RESOURCES AND POLLUTION TAX SHIFT

The focus in this scenario is more on the conservation of resources. New revenue sources in this scenario comprise a \$20 per ton carbon tax, a tax on solid waste disposed of in landfills (or shipped out of state for disposal in landfills), a state land surtax, a tax on water consumption, the same tax on some farm inputs (fertilizer, lime, and pesticides) as in Scenario 1, and the repeal of certain tax breaks for the oil and gas industries. Revenues are recycled via a reduction in the state sales tax, an across-the-board reduction in state personal and corporate income taxes, a reduction in the motor vehicle “in lieu” tax, and a new state EITC.

Scenario 2 is summarized in Table 19.

TABLE 19: RESOURCES AND POLLUTION TAX SHIFT

| NEW TAXES | Revenue (\$ billions) |
|---|----------------------------|
| State carbon tax of \$20 per ton | 1.94 |
| A state land surtax (based on assessed value, not acreage) of 0.2 percent | 1.49 |
| Tax on water consumption of \$20 per acre-foot | 0.80 |
| State tax on solid waste of \$14 per ton | 0.44 |
| A 10 percent tax on fertilizer, lime, and pesticides (rounded down) | 0.16 |
| Additional state sales tax revenue as a result of the carbon tax (accounts for the lower total sales tax rate; see below) | 0.07 |
| Repeal of the exploration, depletion, and oil recovery tax breaks | 0.05 |
| TOTAL NEW TAXES | 4.95 |
| TAX REDUCTIONS | Revenue Loss (\$ billions) |
| A 10 percent reduction in the state general fund sales tax, from 5.0 percent to 4.5 percent | 1.75 |
| Across-the-board reduction in state personal income taxes by \$1.0 billion, or 3.85 percent | 1.00 |
| An additional one-third reduction in the motor vehicle “in lieu” tax, bringing the percentage down to 1.0 percent | 0.94 |
| Reduction in state corporate income taxes by \$500 million, or 8.57 percent (reducing the tax rate to 8.08 percent) | 0.50 |
| New state EITC equal to 20 percent of federal credit | 0.76 |
| TOTAL TAX REDUCTIONS | 4.95 |

Distribution of Burden

An approximation of the burden of carbon taxation at the California level can be made by extrapolating from the burdens found for California in previous analyses of federal-level carbon taxation. A previous analysis pessimistically implies that a \$20 per ton tax on the carbon content of fossil fuels used to generate electricity consumed in California could increase average electricity prices by 5 percent. This is less than the increase in electricity prices that would result from removing the sales tax exemption on utilities included in Scenario 1. The distribution of burden from this tax would be very similar to that discussed for eliminating the sales tax exemption; that is, it would be regressive. Since the carbon tax would apply to the carbon content of all fuels, gasoline prices would also rise by about 6¢ per gallon if the tax were fully passed forward onto consumers (that is, manufacturers and distributors of gasoline would bear no burden of the tax).

Scenario 2 also includes a tax on farmers' inputs of fertilizer, lime, and pesticides. If these taxes were entirely passed forward as price increases for agricultural products, a regressive impact would again result, since expenditure on food consumed at home declines significantly as income rises. Of course, some of the burden for fertilizer, lime, and pesticide taxes will be passed to consumers outside California, and some will be borne by farmers or farm workers, but the annual revenues from this tax (\$0.16 billion) are tiny in comparison with revenue from annual sales of California agricultural output (about \$24 billion), so the total burden on consumers or California farmers and farm workers is probably very small. The maximum rise in the average cost of agricultural output from this tax is less than 1 percent (0.7 percent; 0.16 divided by 24). Impacts might be measurable or significant, however, for some particular crop that uses fertilizer, lime, and pesticides in a highly intensive manner.

Scenario 2 also includes a tax on urban and agricultural water consumption and solid waste disposed of in landfills. Since these taxes are also regressive in nature, many of the new taxes in Scenario 2 are likely to be no less regressive, in principle, than in Scenario 1. The land tax, however, probably has a progressive incidence. In theory, such taxes reduce the value of land, and land ownership is strongly skewed toward the upper income brackets.

Revenue recycling using the 0.5 percentage point reduction in the sales tax rate is progressive, since items subject to sales tax are a larger percentage of the income of lower-income households than in higher-income households. The new state EITC is increased to 20 percent of the federal credit in Scenario 2 compared with 10 percent in Scenario 1. However, a new state EITC would not help families above the threshold of eligibility (\$29,290) and would be phased out over a large

range (\$11,950–\$29,290). As discussed in Scenario 1, the distribution of the benefit of the reduction in the motor vehicle “in lieu” fee also appears to offset regressivity, but its exact benefits are difficult to calculate unless one knows the value of autos owned in each income class (rather than payments made on new and used auto loans in each income class).

An across-the-board reduction in state personal income taxes is proportional (that is, neither progressive nor regressive), and a reduction in state corporate income taxes is generally believed to be regressive, since capital owners benefit the most from this reduction and capital ownership is strongly skewed toward upper-income households.

The effect on farmers is important to consider. As noted above, the tax on fertilizer, lime, and pesticides could increase output prices by less than 1 percent, but farmers will also pay more for water. Since agriculture uses about 80 percent of the water distributed in California, farmers will pay about \$320 million of the \$400 million of water revenues. This is about double the cost to farmers of the fertilizer, lime, and pesticides tax. Consequently, the maximum that average farm product prices could increase because of this tax is about 2.1 percent.⁶² Actual price increases will be less, since there are many cost-effective opportunities to reduce water use in agriculture according to a wide variety of credible studies, and because some of the incidence of taxes will fall on landowners and investors in farms, rather than on consumers.

The \$500 million reduction in state corporate income taxes is small help in offsetting any such backward incidence in agriculture. If profits were equal across all sectors of the California economy, the agriculture sector would receive about \$10 million of this reduction in corporate taxes. This amounts to only 2 percent of the additional \$480 million of tax burden on the agricultural sector. California farmers will likely claim that the tax shift unduly burdens them.

Overall Fairness of the Scenario

It is difficult to say if Scenario 2 is regressive, neutral, or progressive. It may impose more of a burden as a percentage of annual income on middle-class households than on either low- or high-income households. One way to avoid such an impact would be to give every household a base amount of energy, gasoline, water, and purchases of goods that they would not have to pay tax on, similar to the zero-bracket amount in proposals for a national sales tax. Since this cannot be done at point of sale, one might create a refundable tax credit equal to the tax rate multiplied by a base amount of purchases for each household. This policy amounts to a lump-sum refund, or what some European activists have called “eco-

bonus checks.” But it would be done on tax returns, not by mailing checks separately. If used, this refund scheme would need to replace the EITC or some other tax reduction above.

Another idea is to leave corporate income taxes alone, but to create a state tax break for savings by households with incomes below a set amount. This idea would not offset regressivity for those who cannot afford to save (presumably the new EITC compensates those households), but it would offset regressivity calculated on a life-cycle basis for those who can afford to save more (for example, the middle class).

On the other hand, if a significant portion of profits are from fixed (or relatively inelastic) factors of production, such as land or long-term investments in physical structures (for example, buildings, irrigation pumps, power plants), then much of the incidence of environmental taxes, such as those in this scenario, may be borne by owners of land or structures.

In other words, consumer prices might not rise much. Although owners of fixed factors of production would almost certainly complain about incidence of this type, economic common sense is that such incidence, if it were to exist, would improve the efficiency of the tax system and would be progressive. More detailed analysis of the “backward” incidence onto owners of fixed (or relatively inelastic) factors of production would be useful.

SCENARIO 3: A PROPERTY TAX SHIFT

Land taxes are raised in Scenario 3, along with an increase in the gasoline tax and a larger water tax than in Scenario 2. Revenue is returned via a 0.5 percent sales tax reduction (same as Scenario 2), a new state EITC, and a reduction in taxes on buildings, tangible business property, and the motor vehicle “in lieu” tax. This latter group of reductions accounts for more than half the revenue that is recycled, but its exact allocation among types of property has not yet been determined.

Scenario 3 is summarized in Table 20.

Distribution of Burden

This scenario is in essence a combination of two revenue-neutral tax reforms. First, gasoline and water are taxed and revenue is returned by a reduction in the sales tax and a new state EITC. Second, land is taxed more heavily, but the revenues are returned by reducing taxes on “built property.”

TABLE 20: PROPERTY TAX SHIFT

| NEW TAXES | Revenue (\$ billions) |
|--|-----------------------------------|
| Allowing local governments to use split-rate property taxes, provided that the total property tax revenue from the county is no higher than it would have been otherwise; these increases would be on the land portion of the tax | 3.00 |
| Additional gasoline tax of 8.5¢ per gallon | 1.37 |
| Tax on water consumption of \$20 per acre-foot | 0.80 |
| Additional state sales tax revenue as a result of the 8.5 cent additional gasoline tax (accounts for the lower total sales tax rate; see below) | 0.06 |
| TOTAL NEW TAXES | 5.23 |
| TAX REDUCTIONS | Revenue Loss (\$ billions) |
| Allowing local governments to use split-rate property taxes, provided that the total property tax revenue from the county is no higher than it would have been otherwise; these reductions would be on the structures portion of the tax | 3.00 |
| A one-half cent reduction in the state general fund sales tax | 1.75 |
| New state EITC equal to 10 percent of federal credit | 0.38 |
| Removing tangible business property from the tax base | 0.13 |
| TOTAL TAX REDUCTIONS | 5.26 |

If all the cost of the water tax is passed forward to consumers, the distribution of burden from the first tax reform is probably neither regressive nor progressive for most households. Gasoline, water, and food become more costly, but many other essential goods become less costly. Families that are hard pressed to pay for rent, heat, electricity, gasoline, water, food, or other items that are not subject to sales tax might be unduly burdened by the proposal if the new EITC were not included. Since this credit is refundable (one need not have earned income to receive it), only those low-income households that do not file tax returns will likely be worse off, on average.⁶³

Of course, taxes of the type proposed here are collected throughout the year when purchases are made, whereas most families receive the EITC at year's end.

Therefore, some attention may be needed to prevent first-year price increases from harming the lowest-income households that do not have payroll deductions for taxes—or employers will have to encourage their low-wage workers to apply to receive the EITC in each paycheck. (The federal EITC can be claimed in this way.)

The property tax change is likely to be progressive, given the data from studies in other cities. So the crossover point between those who benefit and those who lose is not somewhere in the middle class, but is instead somewhere within the upper-income brackets because large landowners usually have annual incomes well above the average. A notable exception is in rural areas where average parcel size is much larger and may reflect family history or the character of the land (for example, steep slopes that do not support agriculture, logging, or much grazing) much more than family wealth. Both the backward incidence of the water tax on farmers and farm workers, and the distribution of landownership by income group in rural areas, should be examined in more detail.

Overall Fairness of the Scenario

The combined effect of both parts of this scenario appears to be somewhat progressive. Further details on how this type of property tax shift would work, however, might make it more neutral. For example, if partial exemptions were created for landowners, large or small, who maintain their land in a somewhat natural condition, or maintain it according to biologically desirable “best management practices,” the environmental benefit of the tax reform could be magnified. This type of approach would also allow large landowners to partially or completely avoid the total increases in the property tax burden.

In essence, a cleverly constructed property tax shift might be environmentally desirable, economically efficient, and equitable for nearly all players, including those who own large parcels.

APPENDIX A. ENVIRONMENTAL TAX REFORM IN OTHER STATES

This appendix reviews some of the activity related to environmental tax reform in other states. Some states have already considered legislation, while others are in the very early stages of considering the idea.

MICHIGAN

In Michigan, State Representative Kirk Profit (D), the chairman of the House Committee on Tax Policy, used the work of Redefining Progress as the “inspiration” for the initiation of a new Subcommittee to Explore the Environmental Sensitivity of the Michigan Tax Code (Profit 1997). The subcommittee hosted a series of hearings beginning in November 1997 and released an interim report on its progress in April 1998. Rep. Profit also found the idea interesting enough to notify the other tax committee chairpersons in each state legislature about the possibility of exploring an ETS in their states.

In late 1997, the committee introduced eight bills that took a first step in the tax shift direction by offering a series of tax credits or reductions for environmentally sound activities. For example, the bills dealt with issues such as clean manufacturing investment credits, income exclusions for the sale of alternative fuel vehicles, and tax credits for energy conservation by businesses. In the end, four of the eight bills passed before the end of the legislative session: (1) the tax credit for the purchase of recycling equipment that manufactures or produces items for sale (Bill 6047); (2) a tax credit for the installation of such equipment (Bill 6172); (3) an exemption from the state sales tax for the difference in price between an alternative fuel vehicle and a gasoline-powered vehicle when one of the former is purchased (Bill 6050); and (4) an exemption from the state use tax for same (Bill 6051).

While none of these bills increase other fees or taxes to make the overall effect revenue-neutral, they are still a step in the right direction because they open the door toward further environmental changes to the tax code.⁶⁴ The very formation of the subcommittee was a huge step forward, particularly in a state that is so

dependent on the automobile industry, and the fact that these credits passed in the first year they were offered is an encouraging sign.

VERMONT

Vermont is another state in which great strides have been taken on environmental tax reform in the last two years. This past summer, the Vermont Department of Public Service (1998) issued a report, which was designed to show how Vermont can make progress toward meeting its energy and environmental goals. A major theme of the report is making the operation of the marketplace more efficient by internalizing the social costs associated with energy use.

In the report, the state presented the results of a modeling exercise that included a composite of different recommended policies, two of which are included in tax shift scenarios in this report: a carbon tax, with the revenues recycled back to taxpayers through other tax cuts, and a shift of motor vehicle registration and license fees to motor fuels taxes. The analysis shows that the composite policy would reduce total energy use in the state by 16.2 percent and increase the use of renewables by 38.7 percent by the year 2020. Transportation energy use would be reduced by almost 30 percent, and emissions that cause acid rain and ground-level ozone (the main precursor of smog) would decline by more than 20 percent. In addition, the analysis finds that employment could increase by 1 percent above the baseline cumulatively through 2020. Surprisingly, the report also finds that energy becomes *more* affordable in the long run as a result of these changes.

The report states that the state should take action first in areas where it can have the greatest impact, and concludes that one area in which to do so is by using the tax system to “internalize the externalities” of energy use:

The effect of taxes is often to discourage the activity taxed. Therefore, it makes sense to tax activities that are in Vermonters’ interests to discourage, such as those activities that are polluting or inefficient. It also makes sense to use the revenue gained from such taxes to decrease the taxes on activities that are in Vermont’s interest to encourage. For example, home ownership would be encouraged if energy taxes were used to reduce property taxes; working would be encouraged if [they] were used to reduce payroll or income taxes. (Vermont Department of Public Service [1998], Volume 2, 4–75)

This report is significant because it represents the first time in the United States that a state agency has invested a serious amount of time and money to model the effects of an ETS.

On the legislative side, in 1996 Vermont passed Act 60, a law that fundamentally changes how the state pays for public school education. The initial version of Act 60 used as a discussion draft funded about \$30 million in property tax relief with a broad-based pollution and energy tax. During the legislative process, the pollution and energy tax was replaced by a four cent increase in the state's gasoline tax.

That same year, the Vermont legislature created a study committee to explore how environmental taxes could help fund the state's long-term environmental and community development needs. The committee, which included elected officials of all parties, was charged with examining tax changes that could raise revenue for certain government programs while reducing pollution or demand for those programs. One of its recommendations was to shift approximately \$5 million a year in funding for the state's weatherization program from a flat charge on electricity to one that was based on the environmental impacts of a utility's mix of power. Unfortunately, that proposal was killed in committee after complicated political maneuvering by certain utilities, but during hearings at least two utilities did not oppose the proposal and were cautiously supportive of the tax shifting concept.

At about the same time, Representative Ben Rose introduced a bill including all the recommendations contained in *Fueling Vermont's Future*, which was available at the time in draft form. This included the recommendation for a \$100 per ton carbon tax with all of the revenues used to reduce other taxes. No action has yet been taken on the bill.

MINNESOTA

Minnesota's experience with environmental tax reform started in 1992, when Minnesotans for an Energy-Efficient Economy (ME3) proposed a modest \$6 per ton carbon tax in order to provide revenue for wind power incentives. Since then, the idea of an ETS has been slowly gaining credibility in the state as ME3, in coalition with other Minnesota-based groups, has lobbied to introduce different bills in the state House of Representatives.

The first bill to gain significance, the Economic Efficiency and Pollution Reduction Act of 1996 (EEPRA), was introduced in February 1996 by State Senator Steve Morse and State Representative Ann Rest. The EEPRA proposed to reduce taxes on property and payroll by \$1.5 billion a year with revenue earned from pollution taxes. The bill provided for a \$50 per ton carbon tax (phased in over five years), a \$750 million reduction in residential and business property taxes, and another \$750 million reduction in employer and employee payroll

taxes. To offset the potential negative impacts on the poor, the bill included an appropriation of \$80 million for low-income fuel assistance and weatherization programs. Although the bill only received a tie vote in committee, there was enough momentum to work on a new version.

In March 1997, Senator Morse and Representative Rest introduced a revised bill for the 1998 session. The new version of the EEPRA maintained the \$50 per ton carbon tax, but the new version would completely eliminate the portion of the property tax dedicated to education funding. (State courts are increasingly finding this type of education funding unconstitutional.) Although a Tellus Institute study (Bernow et al. 1997) found that the reduction in payroll taxes would benefit a larger share of the economy, focus groups and polls suggested that Minnesotans are more disgruntled with their property taxes than labor taxes. Businesses also claim that merely reducing a tax is not enough—the revenues should be used to entirely *eliminate* a tax so that it is more difficult for the legislature to go back and raise the old tax again. A hearing was again held in the House Environment Committee, but the bill was withdrawn without a vote.

While research has shown that Minnesota industries could actually benefit from the increased energy-efficiency that an ETS would encourage, industry support has been hard to build.⁶⁵ Industry groups claim that they would experience a competitive disadvantage compared to other states, but studies show that many industries—in particular those that constitute the larger part of the Minnesota economy—would actually see their costs decrease from a tax shift. Unfortunately, the loudest opposition for the bill is from the most powerful players in Minnesota politics: the Teamsters Union, mining, pulp and paper manufacturing, and airlines. Recent polling shows that the Minnesota public supports an environmental tax reform, but the support has not yet been not enough to counteract the industry opposition.

In 1999, the ME3-led coalition will introduce a new version that will broaden the scope of the proposal and will be a net tax cut. In a state with a \$2 billion budget surplus, both Democrats and Republicans are looking for a way to cut taxes. ME3 will be convening a symposium of interested parties to pull together a proposal that includes a broader base of both taxes and targeted tax cuts.

MAINE⁶⁶

According to the Maine Center for Economic Policy (MCEP) and the Mainewatch Institute, Maine offers a rich field of opportunity to advance the ideas of using tax policy to enhance natural resource protection.

In the most recent legislative session, State Senator Peter Mills, the ranking Republican member of the Taxation and Labor Committees, proposed a resolve to direct the State Planning Office to analyze the distributional effects of tax shifts to promote environmental objectives, including taxes on carbon emissions and other pollutants. The measure did not get accepted for full consideration, since it was not deemed to be of the “emergency” nature required for an off-year session. However, Senator Mills intends to introduce the concept again in 1999, perhaps through an actual ETS proposal. He is currently seeking bipartisan cosponsorship. One of his potential cosponsors, Democratic State Representative Steve Rowe, was chairman of the Natural Resources Committee and on the Taxation Committee during the last session, and is widely expected to be Speaker of the House in the next session.

In addition, the MCEP and Mainewatch Institute are putting together an advisory committee to develop and test proposals for tax shifting which can gain legislative and public acceptance. (Senator Peter Mills will likely be on the committee.) Over the next two years, the committee will generate proposal ideas for the two organizations that will attempt to develop public awareness and understanding of the issues. In late 1998 and early 1999, four panels will be assembled to begin developing the ideas: an industry panel, a “stakeholder panel” (such as Chamber of Commerce representatives, oil dealers, and environmentalists), a group of tax experts and economists, and a panel of ordinary citizens. From all this, the organizations will put together an initial tax shift package.

The ultimate viability of the proposal in Maine remains to be seen. Maine has been among a handful of states that has developed environmental polices in some arenas that are more assertive than the federal government’s, and polls show that voters tend to be more “green” than legislators. At the same time, though, the public generally thinks taxes are high; it is a cold state, so energy use is higher than average (per capita energy use in 1994 ranked ninth in the country; and low population density means that people tend to drive a lot. (Despite being a small state, Maine ranked 15th in average miles per vehicle in 1995, at 12,680.)

Nevertheless, the idea of shifting taxes off income and onto pollution could be appealing to many state residents and policymakers. The timing for an early discussion is very good, because electrical restructuring in Maine—by the year 2000, electricity generation will be completely deregulated—has forced the public to understand something of how it gets, uses, and pays for electricity. These openings, plus a history of strong environmental protection and bipartisan interest in the idea, will help the concept move forward in the years to come.

OREGON⁶⁷

In Oregon, Governor John Kitzhaber has opened the door to discussion of an ETS. A committee that reviewed the state's tax system mentioned the possibility in a recent report, and a task force set up by the governor reported that a shift in the tax base toward environmental taxes may have merit, but needs further study. The task force did, however, recommend the enactment of a fertilizer and pesticide excise tax.

One study of an Oregon ETS, by Northwest Environment Watch, estimates that a green tax shift could reduce the share of state revenue coming from business and income taxes from 46 percent to 14 percent and eliminate all taxes on property, replacing the revenues with taxes on land, pollution, carbon, and traffic. (Oregon already raises 12 percent of state revenue from environmental taxes, but it also raises a greater share of its revenue from individual income taxes than any other state—64 percent in 1994—making its tax system very cyclical.)

In 1999, proposals to the legislature will include the following: (1) a tax on pesticides; (2) a change in the basis of water permit pollution fees (the fees as they now stand cover neither environmental damage nor the costs of administering the program; the new basis would involve payments for actual discharges); and (3) legislative funding for a study of a larger package of pollution taxes accompanied by reductions in other taxes. Some activists in Oregon are also open to the idea of sending pollution tax revenue right back to the people in lump-sum fashion, as opposed to reducing income and property taxes, since getting people to believe in the tax reductions can be difficult.

While action is just starting in Oregon, advocates of the idea are encouraged by recent developments. "I think it's definitely a chance to air these issues more than they have been and at a higher level than before," says Jeff Allen, executive director of the Oregon Environmental Council (Mayer 1998).

APPENDIX B. PRINCIPLES OF A HIGH-QUALITY STATE REVENUE SYSTEM: HOW DOES CALIFORNIA STACK UP?

The Foundation for State Legislatures and National Conference of State Legislatures (1992, 4-14) have published a list of principles that any high-quality state revenue system should follow. Table 21 summarizes how California stacks up to a selection of these principles.

TABLE 21: HOW DOES CALIFORNIA’S TAX SYSTEM STACK UP?

| PRINCIPLE | THE CALIFORNIA SITUATION |
|---|---|
| Complementary System Components, Including a Relationship Between State and Local Government Which Facilitates Adequate Revenues for Each | Fair to poor , partially as a result of Proposition 13 and other constitutional requirements that limit localities’ alternatives for raising taxes. Cities are dependent on the state for revenue allocation. |
| Stable, Reliable, and Sufficient Generation of Revenue | Fair . Tannenwald (1998) has classified California as both a “high fiscal capacity” and a “high fiscal need” state, but he also classifies California as slightly below average in its taxation effort. One major concern is the high reliance on income taxes, which in good times meet the criteria, but which in bad times may generate insufficient revenue. |
| Several Sources of Revenue with Broad Bases, Low Rates | Good to fair . There are several sources of revenue, but the base of the sales and property taxes are narrow. Additionally, the sales rate is high, and its impact is regressive. Income and sales tax rates are high, and the property tax rate is low. Tax expenditures, which reduce the size of the tax base, are abundant. |

CONTINUED

TABLE 21: HOW DOES CALIFORNIA'S TAX SYSTEM STACK UP?

CONTINUED

| PRINCIPLE | THE CALIFORNIA SITUATION |
|--|--|
| Equity/Progressivity | Fair. In 1996, Citizens for Tax Justice ranked California's personal income tax as the most progressive in the country, but the system overall remains somewhat regressive. Families with the lowest incomes pay the highest percentages of their income in total state taxes. |
| Facilitation of Compliance | Good. With legislation establishing conformity to federal tax laws in 1987, California made paying personal income taxes quite a bit easier; many taxpayers today file simple forms. For the corporate tax, the state controller has admitted that compliance costs are still unnecessarily high (Connell 1996). |
| Effective Administration | Fair. Some taxes are inherently difficult to administer (for example, income taxes on multinational corporations), others less so (for example, the sales tax). However, the administrative structure has come under frequent attack. At least a dozen studies since 1929 have recommended a new administrative structure, and at least eight have suggested eliminating the State Board of Equalization (CCRC 1996). |
| Responsiveness to Interstate and International Competition | Fair. Generally, all other factors held constant, a state with high taxation will discourage business investment. California has recently ranked as having the 19th heaviest burden of taxation, but its revenues by source are significantly different than other states. |
| Accountability to the Taxpayer | Good. California is forthcoming with respect to tax laws and requirements, with tax information available in several places and formats. |

ENDNOTES

1. A 1993 bill introduced by Assemblyman Tom Bates (1993 Cal. A.B. 1725) did propose a carbon tax to replace an expiring portion of the state sales tax, but the idea for a revenue-neutral environmental tax reform has not been seriously pushed in California. Bates's bill did not provide offsets for energy-intensive industries, and a basic exemption level for households was proposed. The carbon tax rate would have risen each year, with the sales and use tax rate being adjusted downward to reflect the new energy tax revenues (Muller and Hoerner 1994, 50-2).
2. Several times earlier this century, advocates of the "single tax" tried to pass a constitutional amendment that would have eliminated the sales tax, exempted most improvements from the property tax, and instead levied taxes on land and natural resources (Stockwell 1939).
3. Economists generally believe that the efficiency costs (that is, deadweight losses) of the tax system rise with the square of the marginal tax rate. This finding explains why many economists prefer across-the-board reductions in marginal rates to the targeted tax cuts favored by politicians.
4. For example, one of the larger tax expenditures is the manufacturers' investment credit (MIC), which reduces the corporate tax base by approximately 10 percent (Connell 1996). The state Department of Finance estimates the total revenue loss due to these special provisions at over \$3 billion per year, or more than 50 percent of the revenue brought in from the tax (Department of Finance 1998).
5. The two 0.5 percent taxes for the Local Revenue Fund and the Local Public Safety Fund are considered state taxes, even though they go to localities.
6. In 1995, the counties received about 20 cents of every property tax dollar, compared to 35 cents in 1991. In fiscal year 1991, property tax revenues went to schools (35.4 percent), counties (34.8 percent), and special districts and redevelopment agencies (16.7 percent), whereas in 1995, the percentage breakdown was schools (53.4 percent), counties (19.9), special districts and redevelopment agencies (16.1 percent), and cities (10.6 percent) (Benson and Muto 1996).
7. Property values generally move inversely to the taxes on those properties. For example, one of the reasons that land is so expensive in many urban areas is because the taxes on the land itself are relatively low. If land taxes were higher, many economists believe that the market price of the land itself would decline.
8. According to a recent poll by the Field Institute, although the public remains dissatisfied with the state tax system, and although they disapprove of certain effects of Proposition 13 (for example, similar houses being taxed differently depending on when they were purchased), the public would still support the initiative by a margin of 53 to 40 percent. As might be expected, support is much higher for homeowners, particularly those who bought their homes in 1978 or earlier, for whom the margin of victory would be 68 for to 30 percent against (Field Institute 1998).g. An analysis of the effects of a California ETS on different industries is one project that may be pursued by Redefining Progress later in 1999.
10. Data from the National Federation of Independent Business (NFIB) indicate that most small businesses are in fact labor-intensive. NFIB's numbers indicate that, on average, wages and payroll taxes comprise about 40 percent of costs for the majority of small businesses—those with up to 15 employees and \$1 million in gross sales—which is significantly larger than any other component of expenses. As computers have become more universal, there has been a slight shift toward more capital intensity, but it has not changed the underlying picture. (Personal communication with Cliff Waldman, research fellow, NFIB Foundation, November 22, 1996.)
11. Government employment is omitted from these figures, since government is not a "business" or "sector" that would respond to changes in tax policy by significantly increasing or decreasing in size.
12. Whether lower labor taxes would lead to higher wages or more job creation is an issue that has not been resolved in the economic literature. For a thorough discussion of this issue, see Eissa, Blundell, and Blow (1999).

13. The advantages of cities include proximity to major population centers and transportation hubs, an abundant supply of relatively low-cost labor, and greater purchasing power per acre than corresponding suburban areas. Porter (1995, 55-72) explains that since population density in inner cities is so much higher than in wealthier suburbs, purchasing power *per acre* is higher in some urban areas than in surrounding suburbs. This occurs even though income *per capita* is much higher outside the inner city area.
14. According to California Department of Fish and Game, California is the home of 76 species of state-listed endangered or threatened animals.
15. The cities are Los Angeles (\$8.62 billion), San Francisco-Oakland (\$3.06 billion), San Bernardino-Riverside (\$1.07 billion), San Jose (\$0.89 billion), San Diego (\$0.74 billion), and Sacramento (\$0.40 billion), for a total of \$14.78 billion. The data come from various reports and tables on the Texas Transportation Institute's website, <http://tti.tamu.edu/mobility/region.stm>.
16. Kazimi (1997) calculated the health costs to be \$3.6 to \$11.6 billion in 1992 dollars; these numbers have been inflated to 1997 dollars according to the Consumer Price Index.
17. Note that this would hold true only if total labor income did not decline as a percentage of state gross domestic product. If total labor income did decline—perhaps because people become so energy-efficient that they save money and choose to work less—income and payroll taxes as a percentage of labor income would have to increase to hold revenue constant. This possibility is one reason why assessing the labor supply response to an ETS is so important.
18. One recent estimate (Hoerner and Muller 1993) suggests that only energy-intensive industries will experience significant transition costs under an energy tax, even in the absence of tax offsets on capital or labor.
19. These figures are based on projected revenues of just under \$26 billion in 1997–98, and do not account for any changes in behavior in response to tax changes.
20. For arguments in favor of eliminating many tax preferences, see Hall and Rabushka (1996, 36–8) and Shapiro (1995).²¹ It is worth noting that former governor Pete Wilson signed into law a bill (A.B. 1755) that reinstates a previously expired exclusion from the property tax whereby new solar installations are not assessed as "new construction" at the time of installation.
21. For example, see Cox, Blunstein, and Gilbert (1991).
22. Since no good data exist on how such a credit would affect vehicles purchased in California, this number is simply the revenue cost of the federal credit, multiplied by the approximately 10 percent of new vehicle purchases in the United States every year that take place in California (U.S. Statistical Abstract 1997, Table 1006, page 626; Angelo 1999).
23. Payroll taxes are split between the employer and employee and fund social security, Medicare, and disability insurance. The "FICA" on paycheck stubs is the social security and disability portion; the Medicare tax is usually listed separately. Self-employed taxpayers pay both the employer and employee portions of the tax.
24. Some recent European studies—including European Commission (1994), DRI/McGraw-Hill (1994), Majocchi (1994), and Tindale and Holtham (1996)—suggest that an ETS that reduced payroll taxes could yield employment gains. In the United States, the Tellus Institute, which has studied the effects of environmental tax reform in Minnesota and New York, concluded that environmental tax reforms could result in modest employment gains in both states (Bernow et al. 1997).
25. In 1995, families with adjusted gross incomes below \$30,000 filed 59 percent of the income tax returns. Families with incomes below \$15,000—most of whom owed no income tax at all—filed more than one-third of the tax returns.
26. A wage exemption benefits low-income workers marginally more than those with higher incomes, since the dollar amount exempted from tax makes up a higher percentage of the income of low-wage workers.
27. Here is how these numbers are estimated: According to the Social Security Administration Office of Research, Evaluation, and Statistics (1997), about 15 million California residents workers in Social Security covered employment in 1995. They had covered earnings of \$321 billion, and paid about \$39.8 in taxes for Social Security (12.4 percent rate). This implies an average taxable wage of about \$21,400 (\$39.8 billion divided by 15 million workers equals \$2,653 in total Social Security taxes per worker; a worker earning about \$21,400 would owe this much in taxes). To get to 1997 numbers, a rough estimate is needed because the federal figures are not yet available. A 5 percent increase in both 1996 and 1997 would increase covered earnings to \$354.1 billion, with \$56.2 billion paid in Social Security and Medicare taxes, and \$43.8 billion allocated to the Social Security Trust Funds. The average taxable wage would be about \$23,600. These are the figures used to make the calculations.
28. For more information about the formula—and the many deviations to the standard formula—see CCH Incorporated (1997), Chapter 13.

29. Kroes (1998a). It should be noted that this preference is not allowed for extractive industries, such as agriculture, oil, and mining.
30. Just 10 years after Proposition 13, in 1987, the average effective property tax rate (that is, taxes paid as a percentage of market value) in California was \$0.55 per \$100 of assessed value, compared to \$1.15 in the United States as a whole—the fourth lowest in the nation (O'Sullivan, Sexton, and Sheffrin 1995).
31. Former governor Pete Wilson signed a 25 percent reduction in this tax into law in 1998.
32. While the amount of the vehicle property tax increases with income, some evidence shows that the fees increase at a slower rate than income, suggesting that lower-income residents may pay a higher share of their income in these taxes than upper-income residents.
33. The amount of carbon dioxide (CO₂) released by burning each type of fuel can be calculated from knowledge of its carbon content, which will be converted to CO₂ when the fuel is burned.
34. Calculations based on Cline (1992, pp. 146–47), Poterba (1991), and recent market prices. A tax of this magnitude would increase the price of gasoline by about 7.5 cents per gallon if the entire burden of the tax was passed on to consumers.
35. The tax rate on coal should be set at a level that reflects both the costs of climate change and of regional air pollution. According to Hoerner (1998), the proposed carbon tax in Minnesota would raise the price of electricity from coal-fired plants by 0.361 cents per kilowatt-hour and from gas-fired plants by 0.157 cents. Thus, the tax on electricity from coal should be at least 2.3 times higher than on natural gas (.361/.157). It should be somewhat higher to reflect local or regional air pollution costs. The social costs of most other modes of electricity generation have yet to be estimated.
36. If the tax is based on environmental damage, then the courts will likely require that the tax on different energy sources be in reasonable conformity to evidence of damage. Courts in other states (for example, Minnesota) have accepted "adders," which have required higher charges for electricity generated from dirty sources than from clean sources.
37. The \$20.64 billion figure includes electricity sales from utilities only and therefore may not represent 100 percent of sales. Sales from nonutilities are relatively small, however, so the revenue estimate should still be reasonable. Calculations are based on California Energy Commission, 1997b <http://www.energy.ca.gov/electricity/electricity_by_county.html>, and 1998b <<http://www.energy.ca.gov/electricity/electricitygen.html>>, October 20, 1998. California obtained just under 11 percent of its energy from renewables that year.
38. In addition, the fact that such a proposal may make new regulations less likely may reduce the opposition of the state's refineries. For example, the process of oxygenating fuel in California in order to reduce air pollution has resulted in new water pollution problems that will likely prompt new regulations, which may be opposed by the oil companies. As Steve Moss (1998) of the consulting firm M Cubed says, "The changes the refineries made to comply with the smog regulations will be a sunk cost, but better a sunk cost [that is, if emissions are taxed instead] than a new cost to do something different."
39. In a program developed by the South Coast Air Quality Management District, called RECLAIM (Regional Clean Air Incentives Market), large emitters of NO_x and SO_x are given flexibility in reduction methods through a tradable emission system. One method by which companies may meet their increasingly stringent emissions levels is by purchasing vehicles and thereby removing a source of emissions from the road. The RECLAIM program has minimal success thus far, but a new tax on heavily polluting vehicles would create a greater incentive for owners to sell them to polluting firms.
40. If the tax were successful, of course, the revenue would drop off sharply as the oldest vehicles were sold to companies under the RECLAIM program.
41. Another potential problem: Normally, it is relatively easy to identify registered vehicles over a certain age that had been registered—but if many old vehicles are not registered and are being driven illegally anyway, the new tax might simply result in fewer old vehicles being registered.
42. These estimates are extrapolated from Small and Kazimi (1995).
43. For example, the report *Beyond Sprawl* cites a major film studio that relocated its animation studio to Arizona because of high housing costs and traffic congestion in Southern California (Bank of America et al. 1995, 6). Other anecdotal examples abound.
44. In addition to the environmental problems it causes, the reimbursement of parking expenses by employers represents a sizeable revenue loss to the government; the exclusion from income of these reimbursed expenses costs the U.S. Treasury about \$1.3 billion every year.

45. The rationale for this latter change is that city streets are an untapped resource that is owned by the public. In effect, whereas few cities provide free housing to people, many provide an equivalent service for private vehicles at a cost of several thousand dollars per on-street parking space! Charging for on-street parking should be considered a user fee just like payments for water, sewage treatment, and garbage collection. It is simply a way of recouping a public expense from those who benefit directly from it.
46. SO_x and NO_x can increase the incidence of respiratory ailments and are the primary causes of acid rain, which damages forests, crops, and lakes.
47. VOCs react with nitrogen oxides to form ground-level ozone, which has adverse effects on human health. The dangers of carbon monoxide (CO) inhalation include impaired thinking, slower reflexes, impaired mental and physical development of fetuses and newborns, and death.
48. PM-10 is responsible for increased incidence of bronchitis and other respiratory and cardiac diseases.⁵¹ Note that this option is limited to new vehicles. While older vehicles account for more than 90 percent of current vehicle emissions of these compounds, taxing older vehicles would be an administrative nightmare—as well as hugely unpopular, since many people driving older vehicles could not afford either the tax or a new car.
49. Note that this option is limited to new vehicles. While older vehicles account for more than 90 percent of current vehicle emissions of these compounds, taxing older vehicles would be an administrative nightmare—as well as hugely unpopular, since many people driving older vehicles could not afford either the tax or a new car.
50. According to Pushkarev and Zupan (1977), frequent bus service depends on a density of 15 dwellings per acre—some-what higher than the residential part of downtown Sacramento. In suburbs of four to seven dwelling units per acre, ridership falls off so much that even subsidized transit must run infrequently.
51. The fact that land in urban areas is so expensive is related to taxes being so low. While this may seem contradictory, higher land taxes will actually *depress* land values in cities, making it easier for land to change hands and reducing the amount of speculative land holding. When taxes are low, speculation is higher because there is no time cost to holding the property. When taxes are high, the time cost of holding is also high, leading to an incentive to develop the land in order to generate an income stream to pay the tax. Since low land taxes increase land values, and most families have the bulk of their savings tied up in their homes, low taxes and high values are good for homeowners. But they are bad for development patterns and the environment, and many businesses would probably prefer a more balanced framework so they could locate closer to public services, population centers, and transportation hubs.
52. For example, see Gihring (1999). Several analyses have found that a shift to land- or site-value taxation would benefit most homeowners, from more than 60 percent in New Jersey, to more than two-thirds in Maryland cities, to more than three-fourths in Arlington County, Virginia (Vincent 1999).
53. The California figure of \$36 per ton is from the California Integrated Waste Management Board's website: <http://www.ciwmb.ca.gov/EconForecast/tipfees/tfsums.htm>. The \$50 per ton figure for the United States is a rough estimate based on anecdotal evidence.
54. Waste is defined as material destined for landfill or incineration. Materials that are recycled, composted, or reused would not be taxed unless they are subsequently placed in a landfill. For example, daily cover (that is, the dirt, foam, or other inert material placed over waste daily so that rats and bugs do not spread diseases from the exposed garbage) made from green waste, such as lawn clippings, would be taxed).
55. For an excellent and entertaining recent article about the politics of water in California, see Graham (1998).
56. An acre-foot is 325,850 gallons, or about the amount of water that an average family of five will use in a year.
57. Based on calculations from California Department of Water Resources (1998), Tables 4-12 and 6-4.
58. This process depends, of course, on the existence of conveyance systems to carry water between low value and high value areas.
59. A "water right" is the legal right to use water on one's own property or, in some cases, to sell it to another user. The two major types of rights are *riparian* rights, which belong to those along a stream or river, and *appropriative* rights, which were obtained long ago on a "first come, first served" basis and must be maintained by "beneficial use." Both types of rights lead to wasteful consumption, because if an owner does not use water, the right to it reverts to others.
60. The burden of taxation using a life-cycle income approach that accounts for lifetime rather than annual income is not addressed. This approach is relatively new in nonacademic discussions of tax reform, and might be useful if some scenario draws enough political interest. For now, however, the discussion is limited to household annual income.
61. Although water consumption is not a form of energy use, water purchased from utilities is included here because the available revenue estimate included *all* purchases from utilities, including water.

62. Impacts on fertilizer, lime, pesticide, or water-intensive crops could be larger.
63. The benefits of the EITC by subcategory within the category of all households eligible for the credit may fail to match the increase in prices exactly. If so, some subgroups of low income households may lose because of the tax shift.
64. These credits will simply be figured into Michigan's budget process, which requires balanced budgets. Although the state does not project surpluses for this reason, the state recorded a surplus for fiscal year 1998 of about \$87 million.
65. Morris and Robertson (1997) show a comparison of companies in various industries that use energy-efficiency best practices versus the average company in the industry. For each industry studied, they found that costs could be significantly reduced by increasing a company's energy-efficiency.
66. Thanks to Kit St. John at the Maine Center for Economic Policy for assistance in compiling this information.
67. Thanks to Jeff Allen of the Oregon Environmental Council and Mayer (1998).

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