

## ENVIRONMENTAL TAX REFORM, BUSINESS, AND THE ECONOMY

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**R**EDFINING PROGRESS HAS CONDUCTED SEVERAL studies in recent years on the potential economic effects of restricting carbon emissions in order to slow global warming. The results show that taking aggressive action to address climate change would not debilitate the U.S. economy, as is often assumed by politicians, *but can in fact benefit our economy.*

Although it is true that carbon emissions charges will raise energy prices, Environmental Tax Reform (ETR) can compensate for these price effects and generate economic efficiency gains at the same time. Because it can provide a mechanism for offsetting energy price impacts, ETR should be central to climate change policy.

ETR would raise charges on environmentally harmful activities while lowering existing rates on other, more productive, economic activities. In the specific case of climate change, revenues from a carbon emissions tax or an auctioned permit system could be “recycled” into the economy to reduce payroll taxes or other distortionary taxes.

This briefing introduces ETR and surveys the results of research showing how we can use these policies to address climate change and benefit our economy.

### INTRODUCING ENVIRONMENTAL TAX REFORM

**W**HILE STATE AND FEDERAL TAX CODES PRIMARILY SERVE to raise revenue for public services, they also send powerful messages through what they do—and do not—tax. Because we get less of what we tax and more of what we do not tax, our choices about what and how much to tax necessarily create economic distortions.

Despite our national economic goals to promote work and saving, the current system primarily taxes labor and investment. At the same time, policy efforts to encourage resource efficiency and waste minimization continue to

focus largely on regulatory approaches. This is true despite widespread consensus among economists that market mechanisms often provide the most cost-effective means for addressing current environmental problems.

ETR seeks to improve upon both of these imperfections in the tax code. By increasing taxes on things we want to discourage—such as waste generation and pollution—we provide direct financial incentives to preserve our environment and better manage our natural resources. We can then “recycle” the revenue raised this way to reduce taxes on activities that we want to encourage—like labor and capital investment—in order to offset any economic impact. This “tax shift” improves incentives for individual initiative *without raising overall tax collection.*

ETR can generate two types of benefits. First, raising taxes or charges we place on environmentally harmful goods and activities provides environmental benefits by discouraging their use and encouraging alternative products and technologies. Second, using the revenues raised from “green” taxes to lower taxes on productive activities—such as work, saving, or corporate earnings—generates economic benefits by improving the tax system’s overall efficiency. These potential benefits taken together are known as the “double dividend.”

### ENVIRONMENTAL TAX REFORM IN ACTION

**E**TR HAS BEEN WIDELY IMPLEMENTED IN EUROPE AND HAS gained increasing attention at the state and local level in the United States. More than 450 state and local environmental tax reform initiatives have been documented in the United States.

Tax shifting is particularly suited to use as a policy tool to address climate change. In 1997 more than 2,500 economists, including eight Nobel Laureates, endorsed market-based policies such as carbon taxes or the auction

*Environmental Tax Reform (ETR) is an idea that combines the use of auctioned permits with revenue recycling, thereby utilizing market-based incentives to achieve environmental goals in an economically efficient manner.*

of emissions permits as the most efficient approach to curbing carbon emissions that cause climate change. In particular, they argue that the revenue generated by a tax or auctioned permits can be used to reduce other inefficiencies and mitigate the potential economic impact of increased energy prices.

Recognizing the need for rigorous analytical research both to accompany activity on the ground and to develop full estimates of potential impacts, REDEFINING PROGRESS has sponsored several analytical studies of ETR scenarios to address climate change. This research has focused on revenue and distributional impacts of ETR proposals involving raising money by charging for carbon emissions—either through auctioned permits or taxes.

*The results strongly suggest that carefully constructed tax reforms can yield real efficiency gains.* Two separate studies modeling the price effects of carbon charges show that the majority of industrial sectors would experience very small (less than 2%) impacts on production costs, with several industries reducing their tax burden as a result of the tax shift. While the most energy intensive sectors would experience larger price impacts, the studies offer policy options that could largely compensate these sectors.

This report summarizes the key findings of this analytical work. A complete list of related REDEFINING PROGRESS reports and a Glossary of Terms is included on page four of this policy brief. Each report can be accessed on our web site at <http://www.RedefiningProgress.org>.

## EXAMINING THE CONSENSUS

THE PROJECTED ETR IMPACTS ON BUSINESS CAN BE FRAMED around two central questions:

1. How would a specific environmental tax reform policy affect different industries and consumers?
2. How would environmental tax reform impact capital formation, economic growth, jobs, and U.S. competitiveness?

REDEFINING PROGRESS has conducted and commissioned several studies to examine multiple dimensions of these questions.

### HOW WOULD ENVIRONMENTAL TAX REFORM IMPACT SPECIFIC INDUSTRIES?

Research shows that if revenue from a carbon emissions tax is recycled to reduce other distorting taxes—such as those on labor or capital—a substantial majority of U.S. industries would see very small increases, and in some

case decreases, in their overall tax burdens and production costs. This runs contrary to the frequently raised objection that carbon emissions taxes would necessarily raise costs for U.S. industries, reduce competitiveness, and hurt consumers and workers.

Two separate studies, one by J. Andrew Hoerner (*Center for a Sustainable Economy*) and another by Kevin Hassett (*American Enterprise Institute*) and Gilbert Metcalf (*Tufts University*), independently found that the price impacts of a carbon emissions tax would be very small for most industries. Their analysis identifies industries that would likely experience price increases from a tax shift, so that policymakers can anticipate which sectors will require transition assistance.

Hoerner’s “*Burdens and Benefits of Environmental Tax Reform: An Analysis of Distribution by Industry*,” (February 2000) finds that a substantial majority of U.S. industry—73 to 80 percent by value, employing 78 to 92 percent of U.S. workers—would be net *beneficiaries* of a tax shift if all the revenue from a pollution and energy tax were used to lower either labor taxes, capital taxes, or a combination of the two. Likewise, a more recent working paper by Hoerner and Jan Mutl, *Good Business: A Market Analysis of Energy Efficiency* (May 2001), finds that 84% of industry, as measured by share of output, would receive a net long-run price cut if a \$50 per ton carbon tax were combined with energy efficiency incentives outlined in the widely reported U.S. Department of Energy report “Clean Energy Futures.”

Hassett and Metcalf, in “*Environmental Taxes to Finance Capital Tax Reform*,” (November 2001) examine a revenue-neutral tax shift in which the revenue from a carbon tax or auctioned permits would offset the double-taxation of corporate income paid out as dividends. The study predicts that this tax shift would result in very small price or tax effects (ranging from -1.84% to +1.21%) on the large majority of industries, and have significant adverse price effects on only the most energy-intensive industries. In fact, 21 out of 50 industries actually would pay less in carbon taxes than they would receive in tax reductions under a corporate tax integration policy. Hassett and Metcalf predict

### DEFINING ENVIRONMENTAL TAX REFORM

We define an environmental tax reform (ETR) as any combination of an environmental tax (or user fee, or emissions permit) with a reduction in one or more existing taxes. If the ETR is revenue-neutral, we would call it an environmental tax shift. Because precise revenue-neutrality is difficult to achieve in practice, we address ETRs generally in this report. Revenue neutrality allows us to focus on tax policy choices—rather than tax revenues—in the debate over green taxes.

that to the extent that industries can pass on the price effects of a carbon tax to consumers, they can mitigate the impact of the tax shift's effect on industry profits.

A climate change tax shift has the potential to have regressive impacts. That is, it could impose greater impacts on low-income communities because carbon charges will raise energy prices, and energy represents a greater portion of low-income household budgets than high-income households. Tax shift scenarios that cut lower-bracket income and payroll taxes can help soften these impacts because these taxes disproportionately burden lower income people. A reduced payroll tax, for example, could lead to more jobs and to higher take-home pay for workers. Hoerner's research indicates that this type of tax shift scenario would benefit a large majority of U.S. workers.

Corporate tax integration, the strategy discussed by Hassett and Metcalf, on the other hand, is more likely to have regressive effects on the overall tax system. Because it is likely that businesses would be able to pass on much of the increased costs of a carbon tax to consumers (through higher prices), corporate tax integration would likely ultimately benefit shareholders more than consumers. Although not fully explored by Hassett and Metcalf, it may be the case that corporate savings could be passed on to labor through a positive employment effect.

To address concerns that U.S. firms may be disadvantaged internationally, Hoerner proposes border tax adjustments (rebating the tax or permit costs on exports, and imposing comparable taxes or permit purchase requirements on imports) as an assistance mechanism. He notes that this policy instrument has already proven successful in preventing domestic policy from harming U.S. businesses in world and domestic markets. He predicts that border tax adjustments on roughly 20 to 40 of the 498 industries in his model would be sufficient to ensure the overall competitiveness of U.S. industry in world markets.

### HOW WOULD ENVIRONMENTAL TAX REFORM IMPACT THE U.S. ECONOMY?

In *“Effects of Environmental Tax Shifting on U.S. Capital Formation,”* William Gale (*Brookings Institution*) and Kevin Hassett (*American Enterprise Institute*) explore the effects of an energy tax on the total capital stock in the United States. They show that the use of revenue from an energy tax to fund an economy-wide investment tax credit likely would blunt any negative impacts on the macro-economy and actually increase capital stock in the long run.

Using data from the National Bureau of Economic Research's Manufacturing Productivity database, Gale and Hassett empirically analyze the effect of an energy price

increase on U.S. business investment in equipment and structures. They find that carefully designed revenue recycling policies are likely to more than offset a short-run decrease in investment following increases in energy prices. Because increased capital accumulation is associated with increased productivity and total output, they conclude that a tax shift could exert a positive influence on the macroeconomy and wages.

## CONCLUSIONS

BROAD CONSENSUS EXISTS AMONG ECONOMISTS AND MANY business, environmental and labor advocates that:

1. Many environmental problems may be best addressed using market-based incentives, such as environmental tax reform;
2. Revenue-neutral environmental tax reform can create economic gains for many industries, including lower overall tax burdens and increased employment; and
3. Carefully designed environmental tax reform can be implemented without adverse distributional impacts on either American business or consumers.

As the scientific community's consensus regarding the impacts of carbon emissions and climate change grows, more and more businesses are recognizing the need to transition to a less carbon-intensive economy. The fact is, the principles of Environmental Tax Reform yield concrete policy strategies that can encourage reduced dependence on fossil fuels and strengthen our economy in the process.

Our analysis has not focused on the potential gains from early action. Still, given that eventually the United States will need to regulate carbon emissions, businesses looking for a strategic edge in the next new economy might do well to understand the economics of climate change and push for strategies such as Environmental Tax Reform that would best ensure an economically efficient and largely beneficial transition. For more detailed analysis of how these strategies would work as well as the estimated results, please see the full list of related publications listed on page four of this report.

## GLOSSARY OF TERMS

**Auctioned Permits** here refers to permits for carbon emissions that can be bought and sold. Those industries for whom mitigation is relatively cheap would be able to sell permits to those for whom carbon emissions reductions are relatively expensive. How permits are initially distributed is a critical factor in the overall effectiveness of this policy approach.

**Revenue Recycling** refers to using the revenue raised from an environmental tax to boost the economy or offset the potential financial harm of that tax. In the case of a carbon tax, for example, revenues could be used to lower the payroll or income taxes to compensate low-income people for the impacts of higher energy prices. The combination would encourage conservation and the proliferation of alternative fuels while softening the impacts of higher fossil-fuel prices on consumers and businesses.

**Revenue Neutral** means that some form of tax reduction would fully offset any new environmental tax, so that total tax revenues following an ETR equal prior tax revenues.

**REDEFINING PROGRESS** is a nonprofit organization that develops policies and tools that reorient the economy to value people and nature first.

Redefining Progress does this by developing policies and tools to internalize the economy's hidden social and environmental costs (the **Accurate Prices Program**), to transform the human use and distribution of the Earth's natural resources (the **Sustainability Program**), and to restore the value of shared social and natural assets (the **Common Assets Program**).

These three goals come together in Redefining Progress's advocacy of fair and low-cost policies to reverse climate change (the **Climate Change Program**).

**[www.RedefiningProgress.org](http://www.RedefiningProgress.org)**

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## REDEFINING PROGRESS PUBLICATIONS EXAMINING ENVIRONMENTAL TAX REFORM

Hassett, Kevin and Gilbert Metcalf, "Environmental Taxes to Finance Capital Tax Reform," December 2000.

Eissa, Nada, Richard Blundell, and Laura Blow, "Employment, Environmental Taxes, and Income Taxes," May 2000.

Sanstad, Alan and Gary Wolff, "Tax Shifting and the Likelihood of Double Dividends: Theoretical and Computational Issues," RP, February 2000.

Wolff, Gary, "When Will Business Want Environmental Taxes?" February 2000.

Hoerner, J. Andrew, "Burdens & Benefits of Environmental Tax Reform: An Analysis of Distribution by Industry," February 2000.

Hamond, M. Jeff, *Greening the Golden State: A Tax Reform for California's Future*, RP, May 1999.

Dunkiel, Brian, M. Jeff Hamond, and Jim Motavalli, "Sharing the Wealth," in *E Magazine*, March/April 1999.

Metcalf, Gilbert, *A Distributional Analysis of an Environmental Tax Shift*, RP Working Paper Series, No. 2, June 1998.

Fullerton, Don, *A Conceptual Framework to Compare Environmental Tax Shift Policies*, RP Working Paper Series, No. 1, June 1998.

Hamond, M. Jeff, Stephen DeCanio, Peggy Duxbury, Alan Sanstad, and Christopher Stinson, *Tax Waste, Not Work: How Changing What We Tax Can Lead to a Stronger Economy and a Cleaner Environment*, 1997.