

## AUCTIONING CARBON DIOXIDE PERMITS: A BUSINESS FRIENDLY CLIMATE POLICY

by Beth Goldberg and Paige Brown

**W**HEN WOULD A COMPANY SUPPORT A POLICY THAT increases its costs so that its suppliers could reap windfall profits? Probably never. It's not a rational business strategy.

This is exactly what would happen, however, if the federal government gives away permits to limit carbon dioxide (CO<sub>2</sub>) emissions rather than auctioning them to energy suppliers.

When governments decide to reduce greenhouse emissions, they must also create fair and workable programs. Outside the United States, industrialized countries have reached a consensus on the need to take action to slow climate change. Despite President Bush's retreat from a campaign pledge to regulate carbon dioxide and his Administration's disavowal of the Kyoto Protocol, even Bush acknowledges that the United States will eventually have to reduce its greenhouse gas emissions.

When policymakers do act on climate change, they should establish a domestic greenhouse gas permit trading system. This is the mechanism favored by many economists, legislators, industry groups, and nongovernmental organizations. Auctioning tradable emission permits, and giving the revenue back to firms and consumers, is the climate policy that offers the greatest advantage to U.S. businesses.

Auctions have several advantages over giveaways, including:

- Producing greater incentives to lower costs;
- Creating a transparent transfer process that avoids political maneuvering;
- Guaranteeing (when well-designed) that permits are allocated to the firms that value them most; and
- Raising revenue that can be recycled to assist industries and groups of people disproportionately impacted by carbon reductions.

The last point is particularly important because climate change policies will raise energy prices. Most companies, as a result, would benefit from financial support as they transition to cleaner and more efficient energy systems.

### MARKET MECHANISMS PROVIDE INCENTIVES TO LOWER COSTS

**U**NLIKE COMMAND-AND-CONTROL MECHANISMS, WHERE government mandates the use of specific technologies, market-based policies capture the positive qualities of a market system. A tradable permit regime, for example, can enhance market qualities like competition and innovation.

Under the permit trading system that regulates the chlorofluorocarbon (CFC) emissions that cause ozone depletion, 3M and McDonalds both discovered ways to reduce their CFC-use to levels that were *below* government ceilings. The overall cost to government and industry was at least 30% less than originally anticipated. This cost reduction occurred in part because a permit system allows firms to decide for themselves how best to reduce emissions.

Many businesses support a permit trading system for greenhouse gas emissions as well. BP (formerly British Petroleum) argues that emissions trading "offers the incentive and opportunity to fulfill the obligation in a commercial and efficient manner."<sup>1</sup> BP, ABB, and several other companies have initiated internal trading mechanisms for greenhouse gases and have expressed support for an interfirm-trading regime.<sup>2</sup> Such mechanisms motivate firms to utilize and develop the lowest cost abatement methods, including those that government regulators may not have considered.

### NOT ALL MARKET MECHANISMS ARE CREATED EQUAL

**M**ANY STUDIES HAVE FOCUSED ON THE POTENTIAL ECONOMIC gains generated by moving from command-and-control emissions regulations to flexible market-based policies. The case for market mechanisms is strengthened,

moreover, when policymakers charge for permits *and* then “recycle” (or return) the revenue raised from permits to firms and citizens. Such a strategy has distinct advantages over giving away emissions allowances, the mistake made in previous pollution permit trading programs.

It may seem counterintuitive that charging for greenhouse gas emissions would cost society less than giving away emissions permits. However, with few exceptions, policies that substantially limit carbon emissions will cause fossil fuel prices to rise in the short term whether polluters are charged or not.<sup>3</sup> Fossil fuel price increases slow down investment and consumer spending and raise the cost of living and of production because fuel is an important component of business costs and the price of consumer goods. This decrease in consumption and investment could translate into reduced GDP growth.

Recycling pollution revenue mitigates the impact of greenhouse gas reductions on the economy by putting money back into it, particularly through tax reductions. Such policies reduce the dampening effect of increased fossil fuel prices on economic activity. On the other hand, if the government gave away pollution rights, the extra money spent by consumers and most businesses would stay in the pocket of the select few corporations granted free emission rights.

Those businesses without permits would face increased production costs as they purchase emissions permits or lower their own emissions. Recipients of the free permits would earn windfall profits from companies and individuals downstream by being able to charge higher prices for energy. They would also have a competitive advantage over other firms in their industry—one determined solely on their ability to win permits through a giveaway system.

***One of the advantages of a market-based allocation system is that it allows the market—rather than the government—to determine the winners and losers.***

## **ROLLING THE DICE: GIVEAWAYS LACK TRANSPARENCY AND INCREASE UNCERTAINTY**

**E**VEN FOR THOSE INDUSTRIES THAT RECEIVE FREE PERMITS, a giveaway creates a high degree of uncertainty. Unlike an auction, political factors rather than economic efficiency would be the basis of the government’s allocation of permits.

Allocating emission permits under a giveaway program would be fraught with interest group politics. To gain a competitive advantage, industries would lobby furiously to obtain the maximum number of permits possible.

Congressional oversight committees with legislators holding varying degrees of political influence would be

heavily invested in the allocation process. Those firms with the greatest political connections or strongest lobbying efforts would be the likely winners. The profits from the permits, however, would not be theirs alone. They would be shared with industry lobbyists through legal and lobbying expenses.

Interestingly, the high-cost jockeying and unfair distribution that has plagued the free distribution of government permits and licenses led to *industry support* for auctioning the telecommunication spectrum for portable phones, pagers, and other wireless communication devices.<sup>4</sup> In lobbying for auctions, many telecommunications companies were willing to give up “free” permits. The telecom industry did not view the licenses as free because of the lobbying, legal, and administrative costs imposed on firms.<sup>5</sup> In fact, the FCC estimated that the “free” permits were actually six times more costly than the auctioned permits when filing costs, government administrative costs, and public losses from delayed services were calculated.<sup>6</sup>

The element of uncertainty under a giveaway system increases even more when a politically driven allocation process is subject to change over time. The frequent allocation process would resemble the yearly budgetary appropriation process in Congress, with permits bestowed upon those businesses and industries with the most political capital. These recipients may change over time, creating new winners and losers in the allocation game. This would increase the level of uncertainty for businesses trying to forecast future emissions limits.

The sulfur dioxide (SO<sub>2</sub>) tradable emission permit program enacted in the United States in 1990, which gave away permits to electric utilities, demonstrates how uncertainty increases with multiple allocation periods.

The SO<sub>2</sub> program had two allocation periods. In the first phase, the program distributed permits based on historic emission levels. Initially, a simple permit allocation formula was used, but special provisions and extra permits were added to the bill in response to lobbying from high-sulfur interests and large emitters. Midwestern states, which had high SO<sub>2</sub> emissions levels but were well represented on key congressional committees, were the biggest winners.

A study of the SO<sub>2</sub> program that compared simple historical allocations with actual permit allocations found that Indiana, Ohio, and Illinois each received over 6% more allowances than the historic emission formula alone would have allocated.<sup>7</sup> Georgia, with the fourth-highest level of SO<sub>2</sub> emissions before the program, but no representatives on the relevant committees, received no special allowances.

In fact, Georgia had roughly 26,000 (nearly 4.5%) fewer permits than the historic emission formula would suggest.<sup>8</sup> With allowances trading between \$250-\$300 in 1992, Georgia utilities would have to spend \$6.5-\$7.8 million to make up for their under-allocated emissions allowances.<sup>9</sup>

The second phase of the SO<sub>2</sub> program began five years after the initial phase. Like the first phase, the second phase included a simple allocation formula along with multiple special provisions. Many of these focused narrowly on special interests, benefiting individual states or individual utilities.<sup>10</sup>

Interestingly, the winners in the second phase were not the same as those in the first phase. In Phase I, three states with high emissions levels received a large number of extra permits, while four states in the same situation did poorly. The second phase tended to favor “clean” states (although they did not have too much to gain) over states with high sulfur emissions that had much to lose. States with greater political influence did well in both phases.<sup>11</sup>

Giving away carbon dioxide emissions permits could engender similar favoritism and unequal initial allocation. In the case of carbon dioxide, it is even more uncertain which companies, industries and states would win and which would lose.

For example, coal-fired electricity generators received 56% more allocations under a formula based on historic carbon emissions compared to a performance-based electricity generation standard.<sup>12</sup> One can imagine how hard it would be for businesses to conduct long-term planning under such an unpredictable permit regime. Which scheme will be chosen and which industries will reap the benefits?

It is difficult to predict, but there will certainly be winners and losers. One of the advantages of a market-based system is that it allows the market—rather than the government—to determine the winners and losers.

## **AUCTIONS WITH REVENUE RECYCLING IS BETTER FOR ALL BUSINESSES**

**A**UCTIONING PERMITS WOULD HAVE VARYING EFFECTS ON industry depending on how revenues are recycled. However, there are several options for reforming the tax system to benefit those industries and individuals affected by higher energy prices, while furthering the goal of protecting the environment.<sup>13</sup>

Reducing taxes on things we want more of (such as savings, investment, and labor) and replacing them with taxes on

things we want less of (such as pollution), would yield both economic and environmental benefits. This approach is known as “environmental tax shifting.”

Personal, corporate, or other taxes could be reduced and replaced with revenue raised from auctioning permits.<sup>14</sup> Economic studies of different types of tax shifting have reached similar conclusions: *the impacts for almost all industries are very small, and in many cases positive*. Only a few would be significantly worse off (fossil fuel industries such as coal mining will be hurt by any regulatory regime for CO<sub>2</sub>).<sup>15</sup> Most businesses could benefit from reduced payroll and corporate taxes or from investment tax credits.

Some of the possible tax shift options include:

- *Using revenue to reduce payroll and corporate capital income taxes:*

One of the most extensive studies examined the effect on 498 industries of using revenue from pollution charges to reduce payroll taxes and/or corporate taxes on capital income, such as retained earnings and dividends. The study found that 73 percent to 80 percent of industries, employing 78 percent to 92 percent of U.S. workers, would benefit from environmental tax shifting whether through reductions in payroll taxes, capital income taxes, or a combination of the two.<sup>16</sup>

- *Recycling revenue through an investment tax credit:*

Revenue can be recycled specifically to help those industries that are affected by an increase in energy prices through such mechanisms as an investment tax credit.

For example, firms in high technology, chemical, pulp, and paper industries are not primary energy producers—and so are unlikely to receive emission permits—despite facing higher energy prices. Higher energy prices would cause an initial decrease in investment, which in turn would slow economic output.

However, if permits are gradually phased in and some of the revenue raised is used to offer businesses an investment tax credit, then it is possible to avoid the decrease in output among all businesses.<sup>17</sup> Reducing investment taxes can benefit the economy and is a more equitable approach among businesses than a permit giveaway.

- *Using revenue to remove corporate tax distortions:*

***Market mechanisms such as tradable emissions permits are widely supported by economists and policy analysts as the most cost-effective and business friendly way to implement pollution controls.***

Revenue recycling can be an opportunity to eliminate the double taxation of corporate income through an approach called “tax integration.” This approach would narrow the differences in tax treatment between personal and corporate income. While tax integration would remove many inefficiencies of our current system, it would cost the government large amounts of revenue. Carbon permit revenue could provide the funding needed to implement tax integration, creating benefits to businesses and consumers that would outweigh the cost of permits.

Tax integration would reduce double taxation by eliminating taxes on dividends, or by passing all corporate income taxes and credits through to shareholders (essentially taxing corporate income at the personal tax rate).<sup>18</sup> In either case, such reform would lead to tax reductions for industry that could offset any price increases due to higher energy prices. In many industries, the tax cut would more than offset the effect of carbon permits—creating a net benefit to investors and businesses.<sup>19</sup>

A study by Resources for the Future investigates the differential impacts of permit policies on industry by estimating changes in their equity values under various scenarios. Equity values are useful because they incorporate expected changes in profit for the short, medium, and long term. *Table 1* illustrates the results of auctions with tax reductions versus giving away permits.

A permit giveaway would be a boon to the coal mining industry (1,005.4% increase) and the oil and gas industry (29.2% increase), while the equity value in most other industries would decline. On the other hand, under a system of permit auctions coupled with targeted corporate tax cuts, the electric utility, construction, auto, service and housing industries would do better relative to the giveaway scenario. In some cases, even better than if there were no climate policy at all.

While the coal industry would have to forfeit its 1,005% gain, the tax relief provided under this scenario would protect it and the oil and gas industry from losses. In addition, this policy has the economy-wide advantage of reducing corporate taxes, which are particularly distortionary and inefficient. Reducing them helps the economy as a whole.

The question for most industries is: given that climate change will be and needs to be addressed, what policy will make the most sense for the overall economy? Should a policy of free permits be implemented so that coal mining, oil, and gas companies can enjoy windfall profits while other industries suffer? The argument against giveaways and in favor of auctions becomes even more convincing when policies could be implemented to compensate the

**TABLE 1**  
**PROJECTED CHANGE IN EQUITY VALUES OF FIRMS**  
**UNDER DIFFERENT CLIMATE POLICY SCENARIOS**

*Equity values of firms in 2000*  
*(% change from reference case)*

Industry	Carbon Permit Auction + industry specific corporate tax cuts*	100% Giveaway of carbon permits
Agriculture & Non-Coal Mining	0.1	0.0
Coal Mining	0.0	1,005.4
Oil and Gas	0.0	29.2
Petroleum Refining	0.0	-4.7
Electric Utilities	0.0	-5.7
Natural Gas Utilities	-0.3	-0.8
Construction	1.8	1.0
Metals and Machinery	-0.6	-0.5
Motor Vehicles	0.2	0.1
Misc. Manufacturing	-0.2	-0.2
Services (except housing)	0.2	-0.1
Housing Services	0.4	0.1

*SOURCE: Goulder 2000*  
*\*Assumes permit price of approximately \$25/ton carbon. Any revenues remaining after cutting corporate taxes would be used to finance cuts in personal income tax.*

most affected industries while minimizing the burden on other industries.

## CONCLUSION

MARKET MECHANISMS SUCH AS TRADABLE EMISSIONS PERMITS are widely supported by economists and policy analysts as the most cost-effective and business friendly way to implement pollution controls. They reduce the total cost of limiting greenhouse gases by creating incentives to reduce pollution while also allowing businesses flexibility in determining how to reduce emissions.

In order to achieve the full benefits of a market system, permits should be auctioned rather than given away. A permits auction system avoids political maneuvering and decision making, thus greatly reducing the uncertainty for industry and ensuring that permits go to the firms that value them most.

A permit giveaway, on the other hand, would provide windfall profits to the few companies that receive free permits. However, the majority of companies downstream from the major energy suppliers, as well as those energy suppliers that do not receive adequate allowances, would face higher costs. Auctioning permits would generate revenue to compensate those industries, workers, and consumers affected by policies to slow global warming, thereby easing the necessary transition to cleaner energy sources.



## ENDNOTES

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- <sup>1</sup> BP Amoco, November 1999.
- <sup>2</sup> Pew Center on Global Climate Change.
- <sup>3</sup> Freely distributing emissions permits create windfall profits for firms that receive free permits (Cramton and Kerr 1999). Some have proposed alternate free distribution schemes that reduce windfall profits. One alternative distributes permits based on a firm's projected output of the good it produces. The permit allocation is then regularly updated. While the details can not be fully discussed here, this distribution system lowers price effects and decreases windfall profits (Lashof, et al. 1997, Burtraw, et. al. 1999). However, because this approach bases distribution on a firm's output, it would become incredibly unwieldy for the private sector in general, which produces thousands of different products. It may be feasible for some large sectors with largely homogenous outputs, such as the electric utility sector. Also, output-based allocation fails to create revenue for transition assistance and loses economic efficiency compared with taxes or auctioned permits.
- <sup>4</sup> Cramton, 1995.
- <sup>5</sup> McMillan, 2001.
- <sup>6</sup> McMillan, 1994.
- <sup>7</sup> Joskow and Schmalansee, 1997.
- <sup>8</sup> Joskow and Schmalansee, 1997.
- <sup>9</sup> Bohi and Burtrow, 1997.
- <sup>10</sup> For example special provision 405(d)(5) provided a special allowance to one generation unit located in Tallahassee, Florida.
- <sup>11</sup> Joskow and Schmalansee, 1997 .
- <sup>12</sup> The H. John Heinz III Center for Science, Economics and the Environment, 1998.
- <sup>13</sup> This paper can only offer a brief outline of tax shifting. See also Hamond et al. 1997 and Parry 1996.
- <sup>14</sup> Personal tax reductions may involve expanded earned income tax credit, increased exemptions, or payroll tax reductions. Corporate tax reductions may involve reducing the corporate tax rate, increasing the investment tax credit, or reducing the capital gains tax.
- <sup>15</sup> see Hassett, K. & G. Metcalf 2001 and Hoerner 2000.
- <sup>16</sup> Hoerner, J.A., 2000.
- <sup>17</sup> Gale and Hassett, 1997.
- <sup>18</sup> Detailed explanation of the mechanics of tax integration can be found in Hassett and Metcalf, 2001.
- <sup>19</sup> Hassett and Metcalf, 2001.

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