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## HOW CBO ESTIMATES THE COST OF CLIMATE-CHANGE LEGISLATION Explaining the “25 Percent Offset”

by Chad Stone, James Horney, and Robert Greenstein

When the Congressional Budget Office prepares cost estimates for climate-change legislation, those estimates reflect what is known as a “25-percent income and payroll tax offset.” As a result of this offset, the *net* revenue estimated to be generated by an auction of emissions allowances under a cap-and-trade program or by a carbon tax is *25 percent smaller* than the estimated gross proceeds from the auction or carbon tax alone.<sup>1</sup> This offset arises because, consistent with longstanding cost-estimating procedures, CBO assumes that the overall amount of revenue the federal government receives from income and payroll taxes will decline by an amount equal to 25 percent of the proceeds it gets from auctioning emissions allowances or imposing a carbon tax.<sup>2</sup>

This paper explains why the Congressional Budget Office “scores” climate-change legislation in this manner. Before doing so, we note several key implications that the 25-percent offset holds for the design of climate-change legislation,

### KEY FINDINGS

- If climate-change legislation uses all of the proceeds from auctioning emission allowances for spending increases or tax reductions, the Congressional Budget Office will “score” the legislation as increasing the deficit.
- This is because CBO assumes that the imposition of an “indirect business charge” — in this case, the cost of an emissions allowance — will reduce federal income and payroll tax revenues. As a result, the *net* increase in revenues from the legislation will be less than the *gross* proceeds from auctioning emission allowances.
- Legislation such as the Lieberman-Warner bill thus must return a portion of the proceeds from auctioning allowances to the Treasury or it will violate Pay-As-You-Go and other budget rules.
- Well-designed, fiscally responsible legislation that takes this requirement into account can slow global warming and still generate sufficient revenues to meet a variety of public purposes, ranging from increasing basic research on alternative energy sources to ameliorating the effects of increased energy costs on low- and moderate-income families.

<sup>1</sup> A cap-and-trade program and a carbon tax are two alternative ways to achieve cost-effective reductions in greenhouse gas emissions. For a discussion of their similarities and differences, see Chad Stone and Matt Fiedler, “The Effects of Climate-Change Policies on the Federal Budget and the Budgets of Low-Income Households: An Economic Analysis,” Center on Budget and Policy Priorities, October 24, 2007, <http://www.cbpp.org/10-24-07climate.htm>.

<sup>2</sup> As discussed below, cost estimates of proposed legislation that CBO produces are different from analyses that CBO may issue on the potential economic impacts of such legislation.

including S. 2191, the cap-and-trade bill sponsored by Senators Joseph Lieberman (I-Ct) and John Warner (R-Va) and reported by the Senate Environment and Public Works Committee in December 2007.

- In a CBO cost estimate, spending any more than 75 percent of the proceeds from federal auctions of emissions allowances (or a carbon tax) will add to the budget deficit and violate Pay-As-You-Go and other budget rules. That is because, for every \$100 of receipts raised from auctioning allowances (or imposing a carbon tax), income and payroll tax receipts will be estimated to decline by \$25, leaving a net of \$75 for deficit-neutral expenditures or tax reductions.
- The 25-percent offset *cannot* be avoided by giving away allowances for public purposes. CBO has determined that the 25-percent offset applies regardless of whether the government auctions the allowances and uses the proceeds directly or the government gives the allowances to utility companies, state governments, or other entities and directs those entities to use the proceeds for designated public purposes.
- The only circumstance in which there would not be a 25-percent offset is when the allowances are given away in a form that effectively makes them taxable income to the recipient, such as when existing emitters are given allowances for free. (“Grandfathering,” as this is known, increases the profits of the companies receiving the allowances, and those profits constitute taxable income.<sup>3</sup>)

As originally drafted, the Lieberman-Warner bill (S. 2191) did not take into account the 25 percent offset and assumed that the full value of the allowances would be available to finance the spending the bill contained. As a result, CBO’s cost estimate of S. 2191 showed that the mandatory spending in the bill would exceed the net revenues in the bill. This would leave the bill open to budget points of order in the Senate and the House of Representatives.

In response, the bill’s sponsors drafted an amendment that would: 1) increase the portion of allowances to be auctioned; 2) reduce the mandatory spending in the bill; 3) deposit a portion of the auction proceeds into a Climate Change Deficit Reduction Fund; and 4) make spending from that fund subject to future appropriations legislation. CBO has estimated that with the proposed amendment, the increase in mandatory spending under the legislation would be \$78.4 billion less than the revenues the legislation would generate over the 2009-2018 period. Mandatory spending would continue to be less than net revenues in the years after 2018 as well.

CBO has also reported that under the bill as the sponsors propose to amend it, \$93.4 billion would be deposited in the climate-change deficit reduction fund and could be tapped for appropriations bills. Since spending that the legislation makes contingent upon the enactment of future appropriations legislation is *not* scored as a cost of the legislation — it will be scored if and when appropriations bills that use these funds are enacted — CBO estimates that with the proposed amendment, S. 2191 would reduce the deficit both over the next ten years and in years after that.

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<sup>3</sup> The higher the percentage of allowances that is given away free to existing emitters, the smaller is the percentage that is available for public purposes and the larger are what CBO has termed the “windfall” profits of the grandfathered emitters.

(See the box for an explanation of the difference between mandatory spending and spending that is subject to appropriations legislation.)

The remainder of this paper explains the 25-percent offset as it applies to climate-change legislation.

### **Mandatory versus Discretionary Spending**

Federal budget expenditures fall into one of three broad categories: discretionary spending, mandatory spending, and net interest payments on the federal debt. Discretionary spending is subject to, and controlled by, the annual appropriations process. Mandatory spending, such as spending for Social Security and Medicare, is not subject to or controlled by that process. Most spending in the Lieberman-Warner climate bill is mandatory spending.

### **The 25-percent Income and Payroll Tax Offset**

CBO, the Congressional Joint Committee on Taxation, and the Treasury Department's Office of Tax Analysis have long applied an "income and payroll tax offset" when estimating the revenue effects of changes in excise taxes or equivalent policies. The offset derives from a longstanding convention used in making budget estimates, which is that policy changes do not change the total amount of income in the economy.<sup>4</sup> This estimating convention implies that any additional revenue collected from imposing an "indirect business charge" (such as a tax on energy or its equivalent) will come at the expense of wages and profits elsewhere in the economy.<sup>5</sup>

Specifically, to the extent that the producers of a commodity (like energy) that is subject to an excise tax or other indirect business charge absorb the charge themselves, their own income goes down, and they have less money to pay as wages or to take as profits. To the extent that it is the *consumers* of the commodity who absorb the charge rather than the producers, they will have less income to spend on other goods and services; as a result, incomes — and hence wages and profits — will fall in the economic sectors where the demand for goods and services declines. In either case, some taxable wages and profits will be "crowded out" by the indirect business charge. And since taxable wages and profits will be lower than they otherwise would be, less income and payroll tax revenue will be collected. It is this decline in income and payroll tax revenue that constitutes the "income and payroll tax offset."

Rather than trying to prepare a complicated estimate of the exact percentage offset that would result from each individual legislative proposal that would impose an indirect business charge, the revenue estimators long ago agreed to apply a standard 25-percent offset to most such proposals.

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<sup>4</sup> See Congressional Budget Office, *Budget Estimates: Current Practices and Alternative Approaches*, January 1995.

<sup>5</sup> National income is composed primarily of the compensation of employees (wages, salaries, and benefits) and the profits of businesses; income and payroll taxes are collected from this part of national income. Excise taxes (and tariffs), in contrast, are collected at the point of production or sale. As a matter of national income accounting, they are part of the market value of goods and services produced in the economy and hence are a part of national income. If excise taxes increase, then the portion of national income remaining for wages, salaries, benefits, and profits must decrease correspondingly. The same accounting applies to a carbon tax or the value of an emissions allowance, whether or not they are strictly regarded as excise taxes.

The Joint Committee on Taxation has explained that, “This [25-percent] factor may be thought of as an average marginal tax rate on factors of production.”

In other words, when cost estimates of excise tax proposals (or their equivalents) are produced, the estimates take into account the likelihood that such policies will reduce taxable income elsewhere in the economy. The *net* revenue raised by an excise tax or an equivalent charge is assumed to be 25 percent smaller than the gross revenue that the excise tax or equivalent charge is expected to raise.

## Implications for Climate Change Policy

The implication of the 25-percent income and payroll tax offset for a carbon tax is clear: CBO will estimate that the net receipts a carbon tax will generate will equal 75 percent of the gross receipts the tax is expected to raise.<sup>6</sup> Although it might not be as obvious, CBO applies the same principle to a cap-and-trade system — and estimates that the net receipts such a system will generate will equal 75 percent of the gross receipts that are raised by auctioning emissions allowances.

CBO applies this offset to a cap-and-trade system as well as to a carbon tax because economists generally believe that as long as a cap on emissions allowances is binding and limits the supply of fossil-fuel energy, energy prices will rise and the economic effects will be comparable to those of a carbon tax. For this reason, the revenue raised by auctioning emissions allowances is treated by CBO as having the same effects on income and payroll taxes as a carbon tax would have. CBO consequently applies the 25-percent offset to the gross receipts from an auction. In other words, the net government receipts under a cap-and-trade system will be estimated to equal 75 percent of the gross receipts the auction is estimated to raise. Thus, if legislation establishing a cap-and-trade system calls for the use of more than 75 percent of the auction receipts, CBO’s cost estimate will show that the legislation increases the deficit, and the legislation will violate various budget rules.

## What If Allowances Are Given Away Free?

CBO has concluded that the 25 percent offset should not be applied in the case of allowances that are given away free to energy companies, without conditions. However, CBO *will* apply the offset in the case of allowances that are given free to entities that are required to use, for designated public purposes, the proceeds they obtain from selling these allowances.

When existing emitters receive allowances for free, those companies are, in effect, given the ability to impose the equivalent of a tax on consumers by raising energy prices, with the companies allowed to keep the proceeds. However, because the resulting “excess profits” that the companies secure are taxable, there is no crowding out of taxable income. In other words, the increased energy prices, operating as the equivalent of an excise tax, will, under CBO’s cost-estimating convention, lead to lower wages and profits elsewhere in the economy and hence to a loss of tax revenue. But the lower revenue from these other economic sectors will be offset by the higher tax revenues collected from the companies that have been given allowances for free, since those companies will be taxed on their

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<sup>6</sup> For most tax legislation, CBO uses estimates provided by the congressional Joint Committee on Taxation (JCT) and CBO may consult with JCT on non-tax legislation such as cap-and-trade legislation that has indirect tax effects. For simplicity, this memo attributes all estimates to CBO.

additional profits. Since the revenue losses and gains are assumed to balance out overall, there is no 25-percent offset in this circumstance.

The story is different if allowances are given away for public purposes, such as in the case of the allowances that the Lieberman-Warner bill would give to electricity and natural gas retailers to provide relief to low- and middle-income consumers and encourage energy efficiency. In this case, even though the government is, in effect, allowing the recipients of the allowances to collect the equivalent of an excise tax from the entities to which they sell the allowances, the government is requiring these recipients to use those proceeds in a particular way. Hence, the proceeds from the allowances do *not* represent additional, taxable company profits. For this reason, the revenue effects of giving away the allowances for public purposes would be no different from the revenue effects that would result if the government auctioned the allowances and used the proceeds to carry out the public purposes itself. In either case, under the assumptions that CBO and the other revenue estimators use in estimating the costs of legislation, there would be a 25 percent offsetting reduction in income and payroll tax revenue.

CBO thus will apply the 25-percent offset to the value of allowances that are given away for public purposes, just as it will apply the offset to allowances that are auctioned off. Accordingly, the effect on the budget will be no different whether the government auctions the allowances and directly expends the resources or gives the allowances free to other entities to use for public purposes.<sup>7</sup>

### **Other Ways of Estimating Budget Impacts Likely Would Yield Similar Results**

A *cost estimate* of climate-change legislation is different from an *analysis of the economic effects* of such legislation. As noted, a longstanding assumption used in making cost estimates is that tax changes do not have economy-wide macroeconomic effects. An economic analysis, in contrast, is not bound by that convention. Economic analyses that CBO (and other institutions) conduct will be separate from the cost estimates they produce and could well show some changes in the level of economic activity and overall inflation as a consequence of climate-change legislation. As a result, in such an analysis, the estimated “offset” in income and payroll taxes from the imposition of a cap and trade system (or a carbon tax) could be smaller than 25 percent.<sup>8</sup>

But the *overall* impact of climate-change legislation on federal budget deficits would likely be similar. To the extent that an economic analysis concludes that the overall level of prices in the

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<sup>7</sup> Technically speaking, in producing its cost estimates, CBO records as net revenue an amount equal to the value of the allowances given away for a public purpose *minus* the 25 percent offset. CBO also records the full amount of these allowances as government outlays or expenditures. This procedure produces a net cost to the Treasury equal to 25 percent of the value of the allowances given away for public purposes.

<sup>8</sup> Since the cost estimating assumption that overall price levels (like other economic variables) would not change is frequently relaxed in such an economic analysis, that analysis could find that higher energy prices would raise overall prices in the economy. In that case, total national income measured in *nominal* terms (i.e., before adjusting for inflation) would increase. Such an increase in nominal income would reduce the offset in the income and payroll taxes that would occur under CBO’s official cost estimates (which, as noted, would assume that overall price levels and national income would *not* change). But, as the text explains, if the overall level of prices in the economy goes up, the government’s costs for various programs will rise. An increase in overall prices also would reduce tax revenues, relative to what they otherwise would be, because various features of the federal income tax code are adjusted annually for inflation.

economy would change because of higher energy prices, programs with cost-of-living adjustments such as Social Security, veterans' benefits, and civil service and military retirement would become more expensive and the cost of federal purchases of goods and services would increase. The Congressional Budget Office has estimated, using a different set of approaches and assumptions than those it uses in producing its official cost estimates, that the total costs borne by federal *and state and local* governments as a result of climate-change legislation — on both the revenue and spending sides of the budget — would equal roughly 30 percent of the value of the allowances under a cap-and-trade system (or of the receipts under a carbon tax).

The bottom line is that climate-change legislation will impose some budgetary costs that will need to be taken into account when policymakers and stakeholders consider what level of resources will be available under the legislation to devote to other purposes. The 25-percent offset that CBO applies is probably a reasonable proxy for the impact of climate legislation on the federal budget.<sup>9</sup> There is, however, no comparable automatic recognition of the budgetary effects that state and local governments will experience. As a result, to avoid driving states (which are required to balance their budgets each year) into deficit and forcing state and local governments to cut services or raise taxes, those governments would need to receive aid from the federal government. Such aid could be provided by giving a modest share of the allowances to these governments.<sup>10</sup>

None of this alters the findings of various economic analyses that well-designed climate change policies are likely to provide significant long-term benefits to the economy and the public that exceed the policies' costs. Nor does it change the conclusion that failure to address climate change could have serious and potentially catastrophic effects over time. Climate change could reduce standards of living — and budget receipts — below CBO's "baseline" estimates, while increasing the government expenditures needed to address the consequences of those adverse impacts.

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<sup>9</sup> The assumption of unchanged macroeconomic conditions that CBO uses in its cost estimates implies that increased government costs for higher-priced, energy-intensive spending will be offset by lower costs for lower-priced, non-energy-intensive spending, so that the entire net impact on the federal budget comes from the loss of income and payroll tax revenue. If, however, the overall level of prices in the economy rises, then the reduction in income and payroll tax revenues will be smaller, but the government will incur increased costs in other areas, such as for higher cost-of-living adjustments in Social Security and other programs.

<sup>10</sup> Such aid would need to be given to states, which in turn could address local government needs. It would not be practical for the federal government to try to deal directly with the thousands of local government entities.