CONGRESSIONAL BUDGET OFFICE
U.S. Congress
Washington, DC 20515

Douglas W. Elmendorf, Director

May 15, 2009

Honorable Henry A. Waxman
Chairman
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The potential introduction of carbon cap-and-trade policies raises complicated questions about how those policies might be reflected in the federal budget. In response to such questions, the Congressional Budget Office (CBO) has prepared the enclosed description of how it plans to assess those budgetary impacts. Federal legislation to limit the emission of greenhouse gases (GHGs) through the issuance of tradable allowances effectively would create a new type of financial instrument of significant value and liquidity. The document explains CBO's view that the value of such allowances—whether auctioned or freely distributed—should be recorded on both the revenue and outlay sides of the federal budget. It also describes CBO's position regarding the circumstances in which net revenue from the allowances would be less than the value of the allowances themselves because of a so-called "revenue offset." The examples used to illustrate various possible budgetary outcomes involve electric generating companies and local distribution companies (LDCs), which have been a focus of your and other policymakers' recent discussions.

I hope this information is helpful to you. If you have any questions or concerns, I would be happy to discuss them with you. The CBO staff contacts on this subject are Frank Sammartino, who can be reached at 226-2680, and Theresa Gullo, who can be reached at 226-2800.

Sincerely,

Douglas W. Elmendorf

Enclosure

cc: Honorable Joe Barton
Ranking Member

Congressional Budget Office

The Budgetary Treatment of Emission Allowances Under Cap-and-Trade Policies

The potential introduction of carbon dioxide cap-and-trade policies raises complicated questions about how those policies might be reflected in the federal budget. Federal legislation to limit the emission of greenhouse gases (GHGs) through the issuance of tradable allowances effectively would create a new type of financial instrument of significant value and liquidity. This letter explains the Congressional Budget Office's (CBO's) view that the value of such allowances—whether auctioned or freely distributed—should be recorded on both the revenue and outlay sides of the federal budget. The letter also describes CBO's position regarding the circumstances in which the government's net revenues from the allowances would be less than the value of the allowances themselves because of a so-called revenue offset. The examples used to illustrate various possible budgetary outcomes involve electric generating companies and local distribution companies (LDCs), which have been a focus of policymakers' recent discussions.

Tradable Emission Allowances and the Federal Budget

When considering the appropriate budgetary treatment for new federal activities, CBO relies heavily on the guidance provided by the 1967 *Report of the President's Commission on Budget Concepts.* The commission recommended that the federal budget be "comprehensive of the full range of federal activities. Borderline agencies and transactions should be included in the budget unless there are exceptionally persuasive reasons for exclusion."

Clearly, federal efforts to control GHG emissions through a cap-and-trade system would be promulgated and enforced through the government's sovereign powers and would alter the usage of scarce economic resources. Under recent cap-and-trade proposals, the federal government would determine both the scope of covered emissions and the number of allowances to be issued. Moreover, the allowances would be traded in a large and liquid secondary market, which would make them "cash-like" in nature.

Under those circumstances, the distribution of allowances by the federal government would be essentially equivalent to the distribution of cash grants, so CBO believes that such distributions should be treated as outlays. At the same time, allowances in a cap-and-trade system would be valuable financial instruments, so CBO thinks that the creation of allowances by the federal government should be recorded as revenues.

That logic does not hinge on whether the federal government sells or, instead, gives away the allowances. Allowances would have significant value even if given away because the recipients could sell them or, if they are carbon dioxide emitters, use them to avoid incurring the cost of purchasing allowances or investing in costly emission mitigation mechanisms. Therefore, selling the allowances and giving entities cash, and giving

entities the allowances themselves and letting the entities realize their value, are essentially the same transaction. Sound budgeting requires that the budget treat equivalent transactions in the same way.

Consider the following examples. In each, an electric generating company is allowed to generate $100 worth of emissions, an LDC receives $100 in cash, and the government's financial position is unchanged (except for subsequent indirect effects on tax collections, as discussed below):

- The government sells a $100 allowance to an electric generating company and gives the money to an LDC.

- The government imposes an emission tax of $100 on an electric generating company and gives the money to an LDC.

- The government gives a $100 allowance to an LDC, which sells it to an electric generating company for $100.

In the first and second examples, the government budget would clearly show an additional $100 in revenues and $100 in outlays. Because the third example is an equivalent transaction, it should be recorded the same way in the budget.

Some might question why the cap-and-trade method of regulating emissions should warrant inclusion in the federal budget, while other methods such as directly controlling GHGs through requiring the use of different technology or mitigation systems would not. A fundamental difference is that cap-and-trade systems create cash-like assets whose supply is determined by the government, while command-and-control approaches do not.

Potential Offsets to Revenues from Emission Allowances

Under cap-and-trade proposals, the cost of purchasing emission allowances would become an additional business expense for companies that must comply with the cap. These additional expenses could result in decreases in taxable income somewhere in the economy, which could produce a loss in government revenue that would partially offset the revenue from the allowances themselves.[1]

Consider an electricity generator that purchases $100 worth of allowances from the federal government:

- If the generator could not pass that expense on to its customers, its profits and therefore taxable income would decline by $100. On average, the tax on additional income (across businesses and households) is roughly 25 percent. By long-standing convention, CBO, the Joint Committee on Taxation, and the

[1] For a further explanation of revenue offsets, see Congressional Budget Office, *The Role of the 25 Percent Revenue Offset in Estimating the Budgetary Effects of Legislation* (January 13, 2009), available at http://www.cbo.gov/ftpdocs/96xx/doc9618/01-13-25PercentOffset.pdf.

Treasury Department would apply that 25-percent tax rate to the $100 income decline and estimate that income and payroll tax revenue would fall by $25. This "revenue offset" means that the net additional revenues collected under the cap-and-trade system would be $100 minus $25, or $75.

- Alternatively, if the generator could pass that expense on to its customers by raising prices, its profits would be unchanged. However, since consumers would spend $100 more on electricity due to the higher prices, they would have $100 less to spend on other goods. As a result, the profits and wages received by producers of those other goods would fall by $100. Again, that drop of $100 in taxable income would reduce the federal government's tax receipts by $25 and net additional revenues under the cap-and-trade system to $75.

The situation is complicated further because cap-and-trade proposals often include provisions to return some or all of the proceeds from the sale of emission allowances to individuals and businesses. Depending on the manner in which the proceeds are conveyed to private entities, the reduction in taxable income in the preceding examples (the "revenue offset") might be accompanied by a matching increase in taxable income elsewhere in the economy. In these cases, CBO would view the distribution of the allowance proceeds as creating an "offsetting offset" that would compensate for the initial loss of tax revenues from the sale of the allowances and make the net revenue from that sale equal to the value of the allowances themselves. (Although it may appear that this terminology is deliberately confusing, it is chosen to be consistent with the long-standing treatment of revenue offsets.)

Again, some examples may help illuminate the situation:

- If the government took $100 received from selling allowances and gave it to a taxable entity in a manner that increased its taxable income, that higher income would generate $25 in additional tax revenue. The tax receipts gained through this method of "recycling" of the auction revenue would equal the $25 tax loss created when generators needed to purchase allowances from the government. The revenue offset would have an offsetting offset, so the net change in revenue would be the $100 gained from selling allowances. (The net change in the government's outlays would also be $100, and the outcome would not affect the budget deficit.)

- If the government took $100 received from selling allowances and gave it away in a manner that did not increase some entity's taxable income, there would be no gain in tax revenue to offset the $25 decrease in tax collections caused by the added cost to generators. The net revenue offset would be $25, and the government's net revenue gain from the sale and distribution of allowances would be $75. (Outlays would rise by $100.) Examples of government uses of the money that would not increase taxable incomes include:

    - Revenue given to non-taxable entities, such as low-income households.

- Direct government expenditures of $100 on goods and services, such as research and development, or weatherization projects. Under the assumption governing CBO budget estimates that legislation does not affect the size of the economy—a topic to which we return shortly—the government's purchases of goods and services would displace other spending in the economy and would not cause a net increase in income.

- Revenue given to other entities with instructions that they use it in particular ways, such as for research and development or weatherization projects. This approach would be equivalent to the government paying for those items directly.

Fixed Nominal GDP and Revenue Offsets

It may seem inconsistent that providing money to businesses or households in certain ways—such as taxable transfers—is assumed to raise overall taxable income, but that providing money to them in other ways—such as purchases of goods—does not. Yet, this result is consistent with long-standing budget conventions and economic logic.

When CBO estimates the effect of proposed legislation on revenues and outlays, it assumes that the legislation would not affect nominal or real (inflation-adjusted) gross domestic product (GDP). One reason for this assumption is that the effects of legislation on overall economic output and prices are quite uncertain and depend upon the underlying level of economic activity. If the economy is at full employment, additional spending may primarily increase prices, but if there is slack in the economy, additional spending may increase real employment and earnings. (In the former case, assessing the full budgetary impact of a proposal would require estimates of the effect of higher prices on outlays through entitlement programs and on discretionary outlays that aimed to support government programs at a given inflation-adjusted level.) In addition, the effect of legislation on the economy depends on the policy of the Federal Reserve, which is trying to stabilize economic activity and keep inflation low. The Fed might respond to legislation that tended to change nominal GDP in a manner that kept the economy close to the same level of output and prices. Another reason for the assumption of fixed GDP is to maintain consistency across the treatment of different legislation. If assumptions about the underlying level of economic activity were constantly changing as legislation was introduced and enacted, the cost of proposals would depend upon whether other legislation had already been introduced.

Further Examples of Revenue Offsets for Emission Allowances

In CBO's view, giving away allowances is equivalent, in economic and budgetary terms, to selling them and giving away the proceeds. Therefore, the concepts of "revenue offsets" and "offsetting offsets" also apply to transactions involving the distribution of allowances at no cost. Further examples below illustrate how CBO would estimate the budgetary impact of giving away cap-and-trade emission allowances. These examples involve giving away allowances to electricity generators and local distribution

companies. In all of these examples, electricity generators are assumed to need $100 of allowances to cover their emissions.

In some cases, the revenue offset caused by the issuance of allowances would have an offsetting offset, which means that the revenue from the allowances would equal $100, the value of the allowances themselves, and the overall proposal would be budget neutral ($100 in revenues versus $100 in outlays for giving away the allowances). Examples include:

- Allowances worth $100 are given to LDCs, which sell the allowances to electricity generators and use the proceeds to counteract the price increases that consumers would otherwise face. Counteracting the price increases can take the form of reductions in the charges per kilowatt-hour of electricity or a fixed-dollar credit or rebate on the electricity bill. In that case, generators would increase their electricity prices to reflect the cost of the allowances and therefore have no change in their taxable income. The LDCs would have no net change in their income, and consumers would face the same total cost of electricity as before the proposal was enacted. Overall taxable income would be unaffected by the policy.

- Allowances worth $100 are given to generators of electricity that operate in markets where pricing is governed by competitive forces (rather than by regulation). The cap on emissions would increase the marginal cost to some producers of generating electricity, and the marginal cost of the highest-cost producer is what determines prices in a competitive market; therefore, generators in competitive markets could sell electricity at a higher price. The generators' profits would be $100 higher because they received the allowances for free but were able to raise their prices, but consumers would have $100 less to spend on other goods and services, leading to $100 less taxable income somewhere in the economy. Again, overall taxable income would be unaffected by the policy.

In other cases, the revenue offset caused by the issuance of allowances would not have an offsetting offset, which means that the net revenue from the allowances would be $75, less than the value of the allowances themselves, and the overall proposal would not be budget neutral (yielding $75 in net revenues versus $100 in outlays for giving away the allowances). An example is:

- Allowances worth $100 are given to LDCs, which sell the allowances to electricity generators and use the proceeds to finance household weatherization projects. Because this case is especially complex, we first discuss the effects apart from the weatherization projects and then discuss the effects of those projects.

  Leaving aside the weatherization projects, generators would increase their electricity prices to reflect the cost of the allowances and have no change in their taxable income. The LDCs also would see no net change in their income. However, consumers' electricity expenditures would increase by $100, so they would spend less on other goods and services, leading to $100 less taxable income

somewhere in the economy. Nominal GDP would be unchanged through this substitution: More GDP in the electricity sector because of higher prices, and less in other sectors through lower prices there. But taxable income would decline by $100, and tax revenues would fall by $25.

The remaining piece is the extra spending on weatherization projects by the LDCs. This is assumed, by the logic described above, to be offset by lower spending on something else to keep nominal GDP unchanged, so that spending would induce no change in overall taxable income. Thus, the reduction in taxable income due to the higher electricity prices would be the only change affecting tax receipts, and federal revenues would fall by $25.

One might argue that this example is similar to the previous example in which the LDCs kept consumers' electricity prices from rising (and in which federal revenues did not fall) because both involve giving resources back to consumers. However, this example differs from the earlier one due to the increase in electricity prices that, by the assumption of fixed nominal GDP, must be offset by lower spending elsewhere in the economy. Put differently, making resources available for other spending is not comparable in its effect on overall output and income to preventing a price increase for existing spending.

These examples are conceptual in nature. CBO's determination of the net budgetary consequences of a cap-and-trade program would depend on the specific language of proposed legislation. If legislation allocated allowances to LDCs but did not provide explicit instructions about the use of the revenue from selling the allowances, then CBO would make a judgment call about the likely use of the revenue. To inform that judgment, CBO would consult with LDCs and their regulators to gain a better understanding of how they would probably proceed under those circumstances. Based on those consultations, CBO would estimate what fraction of the allowance receipts would be spent in ways that would result in a budget-neutral outcome (that is, an increase in income and payroll tax collections that would offset the loss of tax revenues from the issuance of the allowances) and what fraction would be spent in ways that did not result in an increase in other tax collections and thus would not be budget neutral.

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