

## On the Merits of a Carbon Tax

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Chairman Bingaman, Ranking Member Murkowski, and Members of the Committee, I appreciate the opportunity to appear before you today to discuss the merits of a carbon tax. I commend the Committee for its interest in examining all feasible policy tools to address climate change.

My testimony will make the following points:

1. Either a carbon tax or a cap-and-trade program will result in substantially lower economic costs than command-and-control regulations that mandate technologies, fuels, or energy efficiency standards.
2. Given the uncertainty of the future costs of climate policy, a carbon tax is more economically efficient than cap-and-trade.
3. Carbon allowances in a cap-and-trade program would be susceptible to price volatility. Price volatility causes economic disruptions and complicates investment decisions. It also could lead to political pressure on Congress to repeal or substantially loosen the cap.
4. A carbon tax, in which the revenues are used to offset economically harmful taxes or to pay down our deficit, would substantially lower the cost of climate policy compared to a cap-and-trade program that gives away allowances for free.
5. The currently proposed climate bills rely heavily on offsets to reduce the overall costs of cap-and-trade. Given the substantial potential value of offsets, there is a very real concern that offset integrity will not be maintained. This would result in a weakening of the cap, undermining its environmental benefits.

Please allow me to elaborate on these points.

### 1. Carbon tax and cap-and-trade are preferable to command-and-control.

A carbon tax is similar to cap-and-trade in that they both rely on sending market signals to raise the price of carbon, rather than relying on more inflexible – and thus more costly – technology and fuel efficiency mandates to achieve carbon reductions.<sup>1</sup> For existing air pollution regulations, command-and-control mandates result in up to 22 times the cost relative to a market-based approach.<sup>2</sup> Command-and-control regulations, such as

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<sup>1</sup> See, for example, Ted Gayer and John K. Horowitz (2005), “Market-based Approaches to Environmental Regulations,” *Foundations and Trends in Microeconomics* 1(4).

<sup>2</sup> See *Economic Report of the President, 2003*, Washington, DC: US Government Printing Office, 2003.

technology standards, might be preferable to market-based regulations when measuring emissions is costly or infeasible. However, this is not the case with carbon emissions.

I believe the over-reliance on inflexible command-and-control regulations in the existing Clean Air Act and in the House energy bill [HR 2454] will result in much higher economic costs than would reliance strictly on a carbon tax or cap-and-trade. Indeed, were cap-and-trade or a carbon tax to be enacted, the additional command-and-control regulations – such as the renewable fuel mandate, the renewable electricity mandate, and the various energy efficiency requirements – would likely just add to the overall cost of the program without accruing any climate benefits.

## 2. Given cost uncertainty, a carbon tax is more economically efficient than cap-and-trade.

When there is uncertainty about the costs of reducing a pollutant, a carbon tax and cap-and-trade yield different results with respect to economic efficiency.<sup>3</sup> With respect to climate change, the benefits of carbon reduction are related to the stock of the pollutant, whereas the costs are related to the flow of the pollutant. Under these circumstances, a carbon tax yields more economically efficient results than cap-and-trade.<sup>4</sup>

## 3. Carbon allowances in a cap-and-trade program could be susceptible to price volatility.

The main distinction between a carbon tax and cap-and-trade is that the former gives certainty about the price of carbon, whereas the latter gives certainty about the quantity of carbon emitted. Market participants prefer stability of prices, in order to better plan capital decisions, including long-term investments in low-carbon technologies. The price volatility of a cap-and-trade program would likely also increase pressure on policymakers to eliminate or substantially weaken the cap, thus creating more uncertainty about future prices.

Price volatility, as well as my previous concern about cost uncertainty, could be addressed relatively easily within a cap-and-trade program. For example, a cap-and-trade program that included a safety valve price – in which the government offers to sell additional allowances above the cap at a pre-established price – would eliminate the risk of high-end price volatility. A Congressional Budget Office study on the policy options for reducing carbon emissions also noted that a safety valve would limit the cost of a cap-and-trade program.<sup>5</sup> And a recent paper by my colleagues at Brookings suggested a price collar, which would establish both a price floor and a price ceiling for cap-and-trade allowances, thus addressing the problem of price volatility.<sup>6</sup> Unfortunately, the House energy bill does not include any such provisions. A carbon tax could offer a cleaner approach to tackling the issue of price volatility.

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<sup>3</sup> See Martin L. Weitzman (1974), “Prices vs. Quantities,” *Review of Economic Studies* 41(4): 477-491.

<sup>4</sup> See William A. Pizer (1998), “Prices vs. Quantities Revisited: The Case of Climate Change,” Discussion Paper 98-02, Resources for the Future.

<sup>5</sup> See Congressional Budget Office, “Policy Options for Reducing CO<sub>2</sub> Emissions,” February 2008.

<sup>6</sup> See Adele Morris, Warwick J. McKibbin, and Peter J. Wilcoxon (2009), “A Copenhagen Collar: Achieving Comparable Effort through Carbon Price Agreements,” Brookings Institution.

4. A carbon tax that uses the revenue to offset harmful taxes would substantially reduce costs.

A carbon tax generates public revenue. A cap-and-trade program generates public revenue only when the allowances are auctioned off by the government. In practice, this rarely happens, and the allowances are instead given away for free to regulated entities. Failing to capture and direct this public revenue to reducing economically harmful taxes and deficits would substantially increase the cost of any policy.

Any successful climate policy would increase the prices of such things as electricity and transportation. These price increases amount to a reduction in real incomes, which in turn magnifies the economic inefficiencies in our overall tax system.<sup>7</sup> These inefficiencies – known as the tax-interaction effect – can substantially increase the overall cost of any environmental regulation, even in some cases leading to negative net benefits.<sup>8</sup>

The way to address this problem is to use public revenues from a carbon tax to offset inefficient taxes or deficits. A carbon tax set at a similar stringency to the House energy bill's cap-and-trade program would likely result in \$60 to \$100 billion per year<sup>9</sup> that can be used to reduce other economically harmful taxes. A revenue-neutral carbon tax would achieve former Vice President Al Gore's aim to "tax what we burn, not what we earn."<sup>10</sup>

5. Carbon offsets could undermine a cap-and-trade program.

In a cap-and-trade system, an offset is a reduction in carbon emissions from sources that are not subject to the mandatory cap. The advantage of offsets is that they can provide many sources of low-cost reductions, thus significantly reducing the overall cost of achieving an emissions reduction goal. This can be seen in the currently proposed climate bills, which rely heavily on offsets to reduce overall costs of cap-and-trade. According to the EPA's analysis of the House energy bill, international offsets would average over 1 billion metric tons of carbon dioxide equivalent per year.<sup>11</sup> Without international offsets, the allowance price would increase 89 percent.<sup>12</sup>

But offsets also pose a substantial problem in that they are difficult to measure. The enforcement of a carbon tax or a cap-and-trade program relies on measuring carbon emissions, typically by measuring the carbon content of fuel inputs. Offsets, on the other

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<sup>7</sup> See, for example, Agnar Sandmo (1975), "Optimal Taxation in the Presence of Externalities," *Swedish Journal of Economics* 77(1).

<sup>8</sup> See Lawrence H. Goulder (1998), "Environmental Policy Making in a Second-best Setting," *Journal of Applied Economics* 1(2): 279-328.

<sup>9</sup> See [http://www.epa.gov/climatechange/economics/pdfs/HR2454\\_Analysis.pdf](http://www.epa.gov/climatechange/economics/pdfs/HR2454_Analysis.pdf)

<sup>10</sup> See Al Gore's Speech at Constitution Hall in Washington, July 17, 2008: <http://www.npr.org/templates/story/story.php?storyId=92638501>

<sup>11</sup> See [http://www.epa.gov/climatechange/economics/pdfs/HR2454\\_Analysis.pdf](http://www.epa.gov/climatechange/economics/pdfs/HR2454_Analysis.pdf)

<sup>12</sup> See [http://www.epa.gov/climatechange/economics/pdfs/HR2454\\_Analysis.pdf](http://www.epa.gov/climatechange/economics/pdfs/HR2454_Analysis.pdf)

hand, rely on measuring *emission reductions*, rather than *emissions*. This introduces a host of problems, because it is difficult to know what would have happened to emissions absent a given offset project. For example, planting a tree will only lead to a net reduction in carbon emissions if 1) the tree would not have been planted without the offset provision, and 2) the tree will not be subsequently destroyed after the offset purchase takes place.

The difficulty of measuring emission reductions could lead to honest mismeasurements, in which reported reductions are not real. And given the substantial value of offsets in the proposed cap-and-trade programs, it could lead to deliberate mismeasurements of carbon reductions. A similar problem that also arises with cap-and-trade is the treatment of early reduction credits. These are credits given to count against the cap, based on reductions that have occurred in years past. These early reductions are even more difficult to measure than any future offsets, so are more likely to undermine the integrity of the cap-and-trade program.

Unless the integrity of carbon offsets and early reduction credits can be assured at relatively low cost, the environmental benefits of a cap-and-trade program could be substantially undermined, resulting in a program that transfers wealth without achieving climate benefits. Given the financial crisis of the past few years, we should be cautious about creating an active market in a poorly-measured financial instrument.

### Conclusion

I acknowledge that my arguments in favor of a carbon tax over cap-and-trade are made easier in that I am comparing my *ideal* hypothetical carbon tax to the *actual* cap-and-trade programs either passed by the House or proposed in the Senate. Indeed, a cap-and-trade program that included a safety valve and that auctioned allowances would achieve many of the economic advantages of a carbon tax.

The most frequent criticism of a carbon tax is that it would be politically unpopular. But to quote Milton Friedman, I think my role is to “prescribe what should be done in light of what can be done, politics aside, and not to predict what is ‘politically feasible’ and then to recommend it.” You, of course, have the more difficult task of determining what is politically feasible. But given the magnitudes of the costs and benefits associated with any climate policy, I recommend to you a careful consideration of the merits of a carbon tax.