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CUT TO INVEST

Institute a Modest Carbon Tax to Reduce Carbon Emissions, Finance Clean Energy Technology Development, Cut Taxes, and Reduce the Deficit

Mark Muro and Jonathan Rothwell

Summary

The nation should institute a modest carbon tax in order to help clean up the economy and stabilize the nation's finances. Specifically, Congress and the president should implement a $20 per ton, steadily increasing carbon excise fee that would discourage carbon dioxide emissions while shifting taxation onto pollution, financing energy efficiency (EE) and clean technology development, and providing opportunities to cut taxes or reduce the deficit. The net effect of these policies would be to curb harmful carbon emissions, improve the nation's balance sheet, and stimulate job-creation and economic renewal.

Background

The nation needs to reduce its budget deficit and will require significant new revenue to do it.

Likewise, the nation needs to clean up its economy, which emits too much carbon dioxide and requires investments in energy-system technology development and deployment.

Can these imperatives be rationalized? Potentially they can be through an embrace of smart economic tools. Which is why the confluence of the nation's debt and climate problems is sparking a fresh look at price and tax responses.

The opportunity is compelling as the "fiscal cliff" yawns and in the wake of Hurricane Sandy.

On the debt side, all parties now recognize the urgency of beginning to control the national debt and a bipartisan consensus is emerging that addressing the current fiscal crisis will require significant new revenue as well as spending cuts.

That was the position of each of the two major 2010 deficit commissions—the National Commission on Fiscal Responsibility and Reform ("Simpson-Bowles") and the Domenici-Rivlin Task Force on Debt Reduction. And the view has gained traction since then, albeit voiced most often only as a readiness to eliminate tax expenditures and "close loopholes" as opposed to raising marginal rates. In short, minds

have been focused by the projected rise of U.S. debt-to-GDP ratios to near 80 percent by 2021 (more than double the typical post-World War II level).

As to the nation's environmental challenge, the disastrous impact of Hurricane Sandy on the New York and New Jersey region has again focused attention on the nation's still-undefined strategy for decarbonizing the economy and mitigating the effects of global climate change.

In this regard, the 2010 collapse of efforts in Congress to establish a complicated "cap-and-trade" system for regulating greenhouse gas pollution has motivated a new focus in the energy and climate community on simpler, more efficient, and transparent measures for cleaning up the economy. Such a stance represents a welcome concession to political realities. But it also represents a recognition that the intricacies of the cap-and-trade model, while theoretically workable, would be prohibitively difficult to implement and almost certainly insufficient (if established) to drive the scale of technology change needed to achieve America's share of the 60 to 80 percent world emissions cuts (from 1990 levels) needed by 2050 to limit global warming to acceptable levels.

All of which contributes to the attractiveness of a different option: the implementation of a modest tax on carbon dioxide emissions to discourage emissions, finance energy efficiency (EE) and cleantech innovation and development, and reduce taxes and the deficit. Simpler and more transparent than "cap-and-trade" schemes, a carbon tax retains the environmental merits of a trading system but eliminates many of the economic, administrative, and political debits, as conservative and liberal scholars have acknowledged. Moreover, establishing a carbon tax has another virtue: It would raise hundreds of billions of dollars at a time of fiscal need. Consequently, the imposition of such a fee raises the potential of a "win-win-win" solution that could at once help allow for revenue-neutral tax relief, reduce the debt, and correct some of the distortions in the marketplace that result from the fact that carbon pollution associated with fossil fuel use is not now reflected by the market price.

So here is something to look at. At a minimum, the potential windfall of significant revenue associated with the introduction of a properly designed price mechanism for discouraging carbon pollution would seem to raise the possibility of a bargain in the next Congress that could provide an efficient, inspired response to the fiscal and climate crises at once.

The Problem

Notwithstanding the multiple attractions of introducing a modest carbon tax, however, several problems with recent efforts to price carbon emissions must first be addressed.

To begin with, **Washington's appetite for price-related strategies for addressing climate issues appears low** in the wake of the Congress' 2010 rejection of cap-and-trade legislation**.**

In part, the current aversion to carbon pricing strategies reflects the moment of skepticism that surrounds all things "green" in the wake of controversies over the Obama administration's high-profile subsidies to renewable energy companies.

In part, it reflects fears during an anemic recovery that putting a price on carbon will reduce economic growth.

But more specifically, the present skepticism about carbon pricing represents a hangover from the collapse of the 2010 cap-and-trade bills, which owed in part to the extreme complexity of the bills, with their variable prices, complex permit allotments, and myriad special-interest concessions and exemptions.

Especially off-putting to members of Congress was the system's lack of clarity and transparency about the precise use of the revenues from the emissions trading. In this respect, continued aversion to taxes

of all kinds—and especially to complex pricing schemes—presents a substantial hurdle to the introduction of a carbon-fee-based response to the debt and climate challenge.

Yet there is another hurdle to the development of a price-related response to these issues. Significant evidence suggests that **achievable price solutions will not by themselves prompt enough energy system clean-up or emissions reduction to slow climate change sufficiently**.

Numerous scholars have demonstrated that, while the scale of the needed carbon emissions reductions is extremely large, price-based systems by themselves are not likely to induce sufficient technology change to deliver the needed reductions, particularly given the "lock-in" of cheap, readily available dirty technologies and the modest pollution prices that are tolerable to politicians.

In this regard, embedded subsidies and price advantages, regulatory barriers, and numerous market failures all conspire with the politics of price-setting to preclude a full resolution of the nation's carbon emissions problems through tax policies alone.

Some of the evidence here emerges from recent modelings of plausible carbon pricing regimes proposed by teams from the Brookings Institution Climate and Energy Economics Project and the MIT Joint Program on the Science and Policy of Global Change. To be sure, fossil fuel use goes down, oil imports shrink, and emissions decline under each system. However, neither proposal forecasts anything near the 80 percent cut in emissions below 1990 levels that is the nation's long-term carbon emissions goal. Why is this? One reason is the relatively low carbon prices the models deem politically attainable. But another is surely the welter of market failures that lock in dirty technologies and keep the inventors of cleaner solutions from capturing the full value of their advances.

Witness here additional empirical evidence specifically focused on technology change. Earlier this year scholars from the London School of Economics looked at company patenting patterns under the European Union emission trading system (a cap-and-trade pricing scheme) and concluded that the system has had very little impact on low-carbon technology change, in part due to the low permit prices the system delivered. Likewise, a Swiss-German team recently found that the EU system has stimulated only limited adoption of low-emissions technology, while research, development, and demonstration (RD&D) technology "push" measures induced more action. This group concluded that none of the first three phases of the trading system—with their low pricing levels—were "capable of triggering increased non-emitting technology adoption" and that "technology-push policies in the form of R&D subsidies are suggested to address [private underinvestment in R&D]."

All of which points to the fact that an academic consensus is emerging that carbon pricing mechanisms need to be paired with direct research, development, and demonstration (RD&D) investments in order to overcome carbon lock-in and induce the cleantech innovation needed to dramatically lower carbon emissions. Which is to say: A major problem with all carbon pricing solutions is the fact that the private sector will not (for recognized reasons) invest adequately on its own in low-carbon solutions and technology change—even in the presence of carbon pricing .

The bottom line: Any proposal of a carbon price needs to overcome some steep hurdles. First, it will need to allay suspicions that carbon pricing is inevitably a hyper-complex, special-interest free-for-all and a drag on growth. And second, it will need to answer the accumulating evidence that carbon pricing systems have thus far been largely ineffective at inducing technology change and substantially lowering carbon emissions.

Proposal

And yet, there exists a way forward—one by which Congress and President Obama can design a transparent, efficient, and timely response to the nation's fiscal, climate, and technology challenges that links a clear and certain price signal directly to fiscal stabilization and technology investment.

Along these lines, the Metropolitan Policy Program at Brookings proposes that Congress **enact a modest carbon tax, with a significant portion of the revenue yield reserved for investments in clean energy and EE-related RD&D and deployment and the remainder dedicated to growth-driving tax reductions (and rebates to affected low-income households) or deficit reduction.**

To be sure, the hangover of the 2010 cap-and-trade drama remains a hurdle to action. Likewise, skepticism about complex legislative designs persists.

However, the fact remains that there could be an opening now—given the extreme difficulties of the nation's fiscal crisis—for serious consideration of a carbon-tax approach to meaningful progress on the nation's economic, deficit, and carbon problems. Especially since such a consumption fee could be preferable to increases in marginal income tax rates on the labor side, a carbon levy could appeal to both parties if it is designed simply , oriented toward tax relief and budget stabilization, and optimized to spark technology change through R&D investments.

Along these lines, Congress and the next administration should move to design and implement a carbon fee system that would:

- **Establish a modest carbon levy of roughly $20 per ton of carbon dioxide emissions.** According to the MIT group, a carbon tax starting at $20 per ton and rising at 4 percent annually per year in real terms would raise on average $150 billion a year over a 10-year period while reducing carbon dioxide emissions 14 percent below 2006 levels by 2020 and 20 percent below 2006 levels by 2050. The initial economic cost of the levy—implemented as much as possible at the retail level—would not be severe. Prompted by legislative action, the Australian government analyzed the economic consequences of a carbon tax of a similar but slightly higher magnitude ($23.5 per ton) than the one proposed here. That assessment found that the fee would increase consumer prices by just one percentage point during the first five years of implementation and have little effect after that, although the short-term impacts would be heavier on low-income households

- **Set aside at least the first $30 billion of revenue annually for clean energy- and EE-related RD&D and technology deployment.** This reflects the need to complement pricing strategies with direct investments in technology "push" measures to ensure that decarbonization proceeds rapidly and adequately. Along these lines, at least the first $30 billion of carbon tax revenue each year should be deposited into an independently managed fund for supporting top-quality energy-system RD&D activity. Nor is $30 billion an arbitrary number. Such a figure reflects a Brookings Metropolitan Policy Program analysis of the amount the federal government needs to invest in clean energy technology development (that industry won't do on its own) simply to bring the energy industry's RD&D intensity in line with comparable technology industries such as health or IT. What is more, a solid argument exists for dedicating more of the carbon fee's revenue to the advancement of new low-cost clean energy technologies. After all, in addition to R&D investments, research has demonstrated the need for investment in the refinement, deployment, and scale-up of competitive technologies that can compete with fossil fuels but have trouble obtaining private financing because they remain unfamiliar, lack a long operating history, or must contend with the "lock-in" of existing technologies

- **Allocate the rest of the revenue (approximately $120 billion a year) to tax cuts and deficit reduction as well as rebates to affected low-income households, as determined by Congress and the president.** With direct energy technology development and deployment accounted for, the rest of the carbon fee revenue should be dedicated to some mix of tax reductions and debt reduction, as Congress prefers. In this regard, it is clear that the substantial revenue yield of a carbon tax opens up room for a variety of what the MIT modelers call "win-win-win" solutions. Along these lines, Congress and the president will have a number of options to weigh as they design the fee program and revenue allocation.

  Congress and the president could, for example, recycle some or all of the remaining revenue to permit revenue-neutral reductions of personal or corporate income taxes, payroll taxes, or taxes on capital. In the MIT and Brookings models, this group of options actually *improves* overall economic performance beyond what it would be without the carbon tax. MIT finds that reductions to the corporate income tax have the largest growth effect, consistent with empirical evidence that a high corporate income tax deters investment. Likewise, Brookings analyses suggest that using carbon tax revenue to reduce capital gains taxes would stimulate investment, spark job creation, and increase overall GDP. In any event, adopting a carbon tax and using the revenue to cut taxes could help to stimulate the economy—an important consideration.

  Likewise, Congress and the president may wish to use some of the carbon tax's revenue to limit or avoid cuts to social safety-net programs as well as to protect low-income households from the consumer impacts of the carbon price. The importance of directing some share of a carbon fee's revenues toward protecting low-income Americans is brought into relief by the regressive nature of a tax on energy. On this front, the Australian study of a similar carbon tax to the one proposed here found that the levy would raise electricity prices by 10 percent and gas prices by 9 percent during its first five years. This argues for allocating perhaps $25 billion during this initial five-year period, or as long as necessary, to an energy tax credit for low-income households. In addition to meeting equity concerns, this tax credit program would complement the tax cuts with another short-term stimulus to the economy, since lower-income consumers spend a higher share of their incomes on energy costs.

  Additionally, Congress and the president could dedicate portions of the tax revenue to deficit reduction, which will lower taxes and stimulate growth in the future.

In sum, the $150 billion annual yield of a $20 per ton carbon tax—which exceeds the likely yield of most of the realistic options now on the table for budget stabilization—holds out an extremely attractive opportunity to address the nation's fiscal and carbon problems even while spurring the economy.

Such a feature—if embedded in a federal budget deal—would bring new options to an extremely difficult fiscal moment. A carbon tax could, if entertained, provide a fruitful site for enacting some combination of investments in technology development, income or payroll tax cuts to stimulate growth, and-or meaningful deficit reduction. And it would help the nation respond to the climate changes that are increasingly linked to extreme weather events like the hurricane that devastated New Jersey and the greater New York region.

If the parties are ready to deal constructively with the nation's longer-term budget deficits and carbon problems, they should explore seriously this particular tax on consumption.

Budget Implications

Implementation in 2013 of a carbon tax starting at $20 per ton and increasing 4 percent per year in real terms would raise about $1.5 trillion over its first 10 years, netting on average $150 billion a year over the period, according to the MIT Joint Program. Once the $30 billion a year required energy technology development and deployment investment has been allocated, the positive budget impact of the carbon tax will run to about $1.2 trillion over 10 years, or $120 billion a year. The net impact of the program will depend on the mix of tax cuts, deficit reductions, investments, and program funding chosen by policymakers.

State of Play

Economists as diverse as Martin Feldstein, Glenn Hubbard, and Greg Mankiw (advisors to George W. Bush and Mitt Romney), on the right, and Harvard's Robert Stavins, on the environmentalist left, have all agreed that a carbon tax represents a fiscally and economically efficient option for reducing carbon dioxide emissions.

Numerous environmental and economic policy organizations support or are studying the establishment of a carbon fee, including the American Enterprise Institute (AEI), the Brookings Climate and Energy Economics Project, the Information Technology and Innovation Foundation, and Resources for the Future. For example, when scholars at AEI submitted a deficit-reduction plan as part of the Peter G. Peterson Foundation's 2011 Fiscal Summit Solutions Initiative they included a $26-per-ton carbon tax in order "to address environmental concerns in a more market-friendly manner."

In Congress, Rep. Jim McDermott, D-WA, has introduced the Managed Carbon Price Act of 2012 (H.R. 6338). The act would establish an emissions reduction schedule that would use a flexible carbon pricing system to reduce carbon emissions by 80 percent of 2005 levels within 42 years of enactment. The revenue generated from the carbon tax would be put into a public trust fund with 25 percent of funds going to pay down the deficit and the rest to subsidize any rate increases consumers might face.

With that said, significant skepticism exists in Congress about taxes of all kinds, especially environmentally oriented ones.

Implementation Requirements

Legislative action would be required to institute a carbon tax and manage its revenues.

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