Published on *The National Law Review* https://natlawreview.com

The Carbon Tax Checklist

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Many stakeholders have called for the United States to adopt a carbon tax. Such a tax could raise billions of dollars in annual revenue while simultaneously reducing greenhouse gas emissions. Several carbon tax proposals were introduced in the last Congress (2019-2020 term), and it is likely that several more will be introduced in the new Congress. Several conservative economists have endorsed the idea, as has Janet Yellen, President Biden's Secretary of the Treasury. But the details of a carbon tax matter—for revenue generation, emissions reductions and fairness. Because Congress is likely to consider several competing carbon tax proposals this year, this article provides a way to compare proposals with a checklist of 10 questions to ask about any specific legislative carbon tax proposal, to help understand that proposal's design and implications.

1. What form does the tax take: Is it an emissions tax, a fuel tax or a production tax?

The point of a carbon tax is to reduce greenhouse gas emissions by imposing a price on those emissions. But there is more than one way to impose that price. Critically, the range of options depends, to a very large degree, on the type of greenhouse gas the tax is trying to address.

The most ubiquitous greenhouse gas is carbon dioxide (CO_2) and the largest source of CO_2 emissions is the combustion of fossil fuels. Those emissions can be addressed by imposing a fee on each individual emission source or by taxing the carbon content of the fuel—because carbon content is a reliable predictor of CO_2 emissions across different combustion circumstances. Most carbon tax proposals are fuel tax proposals; they impose a tax on fuel sales, corresponding to the amount of CO_2 that will be emitted when the fuel is burned.

For CO_2 emissions, the fuel tax approach has one significant advantage over the emissions fee approach. The fuel tax can be imposed "upstream," rather than "downstream," thereby reducing the total number of taxpayers and the overall administrative burdens associated with collecting the tax. A tax imposed on petroleum products as they leave the refinery, for example, is a way to address CO_2 emissions from motor vehicles without the need to tax every individual owner of a gasoline-powered

car. Most CO2-related carbon tax proposals work that way—they are upstream fuel taxes rather than downstream emissions taxes.

But not all greenhouse gas emissions can be addressed through a fuel tax, because not all greenhouse gas emissions come from fossil fuel combustion. Methane, for example, is released in significant quantities from cows, coal mines and natural gas production systems. A carbon tax directed at those emissions is likely to take the form of an emissions fee imposed on the owner or operator of the emission source. Many carbon tax proposals, however, simply ignore methane emissions or expressly exempt agricultural sources.

Fluorinated gases are yet another type of greenhouse. If they are subjected to a carbon tax, that tax is likely to take the form of a production tax, which would be imposed at the point of production and/or importation into the United States. (Fluorinated gases are used in a variety of refrigerant and cooling applications and contribute to global warming when they leak out of those applications). However, the prospect of such a tax is less likely now because Congress recently adopted legislation imposing a phase-down of domestic hydrofluorocarbon gas production over the next 15 years.

2. Which greenhouse gases are covered? Which sources (if any) are exempt?

The answer to this question dictates, to a large degree, which particular form a carbon tax takes. Legislative proposals that address more than one type of greenhouse gas will very likely include more than one type of tax mechanism. Just as important, the range of greenhouse gases covered by a proposal is relevant to evaluating the proposal's environmental and economic impacts. A carbon tax that addresses only CO2 emissions from fossil fuel combustion will cover the largest segment of US greenhouse gas emissions but will still omit several other significant greenhouse gas sources. Sources omitted from a federal carbon tax may become targets for other types of regulation.

3. Who pays the tax?

Most carbon tax proposals address CO2 emissions through an upstream fuel tax—a tax that is based on the carbon content of the fuel and that is imposed at the refinery (for petroleum products), the coal mine (for coal) and the compressor station (for natural gas). But that still leaves the question of who pays the tax. Some carbon tax proposals dictate exactly who pays. They specify, for example, that the taxable event is the delivery of crude oil to the refinery *and that the taxpayer is the refinery operator*. Other proposals specify only the taxable event (such as the first sale of natural gas extracted from a well) without saying which person or entity (the seller or buyer) is responsible for paying the tax. If Congress enacts a carbon tax that specifies the taxable event but not the taxpayer, it will likely fall to the Treasury Department to make that decision, through rulemaking.

4. How much is the tax, how is it set and how does it change over time?

One potential approach is to link the tax rate to the "social cost of carbon," a dollar figure intended to express the harm associated with emitting one ton of CO2.** But the more fundamental question to ask of any carbon tax proposal is whether the tax rate (or "carbon fee," as some proposals call it) is linked to any specific environmental goals or metrics. Many proposals set an initial tax rate (such as $50 per ton of CO2 emitted) and increase that rate every year until a specific level of emissions reduction has been achieved (such as a 90% reduction in domestic CO2 emissions compared to 2005 levels). Other proposals base the yearly tax increases (or decreases) on inflation or other economic measures, rather than environmental measures.

***The Obama administration published social cost of carbon (SCC) figures. The Trump administration did not and actually disbanded the interagency task force that had previously been charged with developing the SCC. The Biden administration has re-established that task force and directed it to publish new SCC figures by no later than January 2022.*

5. How is the revenue used?

A carbon tax could raise billions of dollars for the federal government every year. In 2018, fossil fuel combustion in the United States produced more than five billion metric tons of CO2 emissions. A carbon tax of $50 per ton would have raised $250 billion that year, assuming emissions held steady (although the point of a carbon tax is to drive emissions down). What should the government do with the money?

Many commentators have argued for a "carbon dividend"—that is, that the revenue should be returned to American citizens in the form of a quarterly or annual rebate. (The Climate Leadership Council, of which Janet Yellen was a founding member, has called for such an approach.) Congress will not necessarily take that approach. Some alternatives for the revenue include: using it to reduce income taxes, spending it on social justice initiatives of various kinds and funding career transition services for oil and gas industry workers. Another approach is to use the revenue to fund green infrastructure, such as electric vehicle charging stations along interstate highways. Some proposals call for a combination of these approaches.

6. Does the tax include a border adjustment?

One concern frequently raised about a carbon tax is that unless other countries also impose a tax, certain domestic manufacturing activities may move overseas to areas without a tax, reducing domestic US employment without reducing overall global emissions. A border adjustment is one way to address that concern.

A border adjustment would apply a carbon tariff to imported goods and, very likely, exempt exported goods from the US carbon tax (*i.e*., by providing a tax credit or refund to exporters). Most, if not all, carbon tax proposals introduced in Congress to date have included some form of border adjustment. The details of the border adjustment can be critical, with the export provisions posing a particularly tricky set of issues. Exempting exports may protect US competitiveness but it also means that some emissions are not taxed, thereby undermining the tax's environmental goals. Exempting exports also requires a mechanism for refunding, or crediting, exporters.

7. Does the tax modify or replace existing carbon-related tax credits?

Section 45Q of the US tax code currently provides a substantial tax credit for qualifying carbon capture and sequestration activities. The tax code also includes tax incentives for investing in solar energy, producing wind energy and blending biodiesel into diesel fuel. An important question for any legislative carbon tax proposal is whether it adjusts, modifies, expands or repeals any of those other carbon-related tax provisions.

8. Does the tax replace or preempt existing greenhouse gas regulations?

If domestic greenhouse gas emissions are addressed through a carbon tax, it may not be necessary to regulate those emissions under the federal Clean Air Act and other statutory programs. Indeed, the

Climate Leadership Council, a leading proponent of enacting a carbon tax, has expressly called for the tax to replace federal regulation of CO2 emissions (albeit while retaining the Clean Air Act's greenhouse gas reporting rule). A critical question for any legislative carbon tax proposal is whether it addresses other federal regulatory programs or is silent about those programs, leaving debate over their fate for another day. A closely related question is whether the proposal addresses state regulatory programs. Some of those programs, such as California's cap-and-trade program and the northeast's Regional Greenhouse Gas Initiative, have reduced emissions substantially while raising billions of dollars for renewable energy and energy efficiency programs. A federal proposal that preempted those programs might encounter substantial opposition from state officials and other stakeholders.

9. How transparent is the legislative language?

There is a robust academic (and advocacy) literature about carbon taxes. But that does not mean that any specific federal legislative proposal is well designed, easy to understand or easy to implement. An important question to ask of any legislative carbon tax proposal is whether the specific language is clear enough to be implemented efficiently and effectively. Is it clear what gets taxed? Is it clear who actually pays the tax and files the tax forms? Is it clear how the tax rate is set and how that rate relates to emission reduction goals? Is it clear whether any emission sources are exempt? Is it clear to what extent other carbon-related tax provisions and regulatory programs are impacted? Is it clear how the tax will work based on the legislative language alone, or will it be necessary for the Treasury Department to issue regulations or guidance explaining the legislation? If regulations are required, will those regulations be implemented by the Treasury Department alone, or will the Department of Energy and/or the Environmental Protection Agency also be involved?

10. What does the modeling show?

Finally, what impact will the tax actually have on greenhouse gas emissions and the economy? This is not so much a question to ask of the legislative language but of the modeling that will almost certainly accompany it—modeling done by the Congressional Research Service, the Treasury Department, other federal agencies and/or the proposal's advocates and opponents.

National Law Review, Volume XI, Number 43