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Emissions Projections for the Climate Leadership Council Carbon Dividends Plan: 2021

Issue Brief 21-01 by **Marc Hafstead** — April 2021

In February 2017, the Climate Leadership Council (CLC), led by Ted Halstead and Republican statesmen George P. Shultz and James A. Baker III first introduced "The Conservative Case for Carbon Dividends." CLC's Founding Members represent a diverse group of individuals, NGOs, energy companies, consumer good companies, and other multi-national firms.

CLC's updated **Carbon Dividend Plan** rests on four pillars:

A Gradually Increasing Carbon Tax: "The first pillar of our bipartisan plan is an economy-wide fee on CO_2 emissions starting at $40 a ton (2017$) and increasing every year at 5% above inflation."

Carbon Dividends for All Americans: "All net proceeds from the carbon fee will be returned to the American people on an equal and quarterly basis."

Significant Regulatory Simplification: "In the majority of cases where a carbon fee offers a more cost-effective solution, the fee will replace regulations. All current and future federal stationary source carbon regulations, for example, would be displaced or preempted."

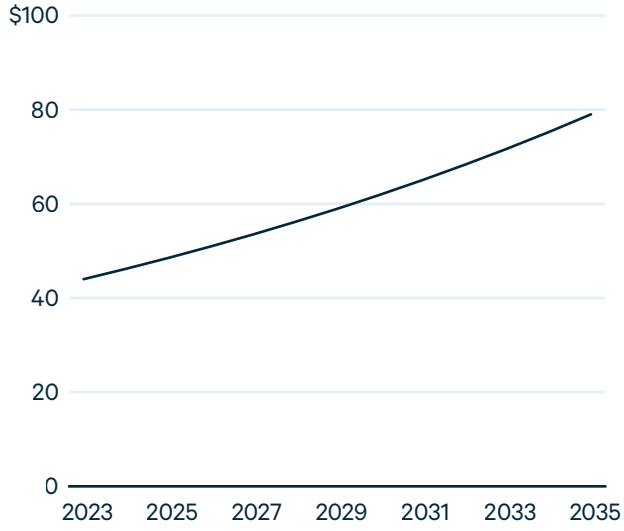
Border Carbon Adjustments: "Carbon-intensive exports to countries without comparable carbon pricing systems will receive rebates for carbon fees paid, while carbon-intensive imports from such countries will face fees on the carbon content of their products."

The purpose of this RFF analysis is to assess the impacts of the Carbon Dividend Plan on US energy-related CO_2 emissions if the policy were to be fully implemented in 2023.[1] The analysis does not consider the economic impacts of any of the four pillars on households or industry.

Energy-Related CO_2 Emissions Projections

Figure 1 displays the carbon price path proposed in the Carbon Dividend Plan. If the plan is implemented in 2023, the carbon price in 2035 would be $79 (in 2023$).

Figure 1. Carbon Fee by Year



1 This analysis uses the EIA definition of energy-related carbon dioxide emissions. The EPA's Inventory of Greenhouse Gas Emissions and Sinks reports levels of energy-related carbon dioxide emissions that exclude emissions from international bunker fuels and includes emissions from US territories.

Figure 2. Energy-Related CO_2 Emissions by Year (million metric tons)

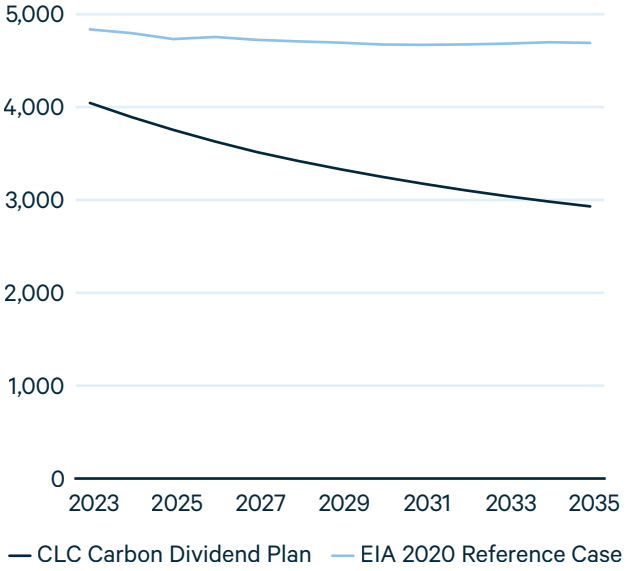


Figure 3. Energy-Related CO_2 Emissions Relative to 2005

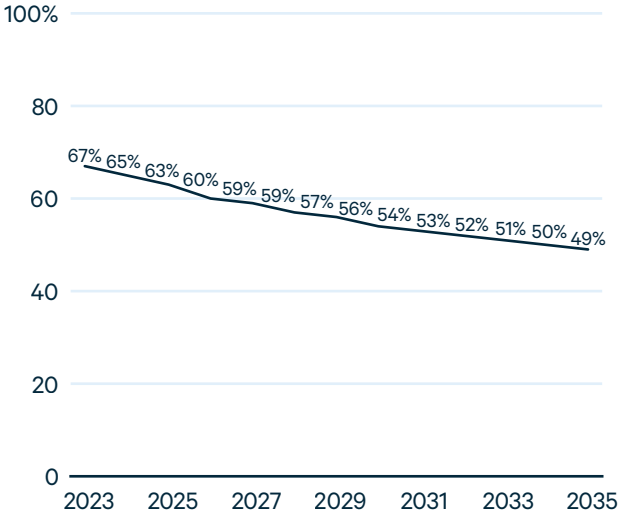


Figure 2 display projected E3 energy-related carbon dioxide (CO_2) emissions through 2035 under the Carbon Dividend Plan and a baseline scenario without a federal carbon tax.[2] In the absence of new climate policy, energy-related CO_2 emtissions are expected to remain approximately flat through 2035. Under the Carbon Dividend Plan, these emissions are projected to fall to 3.25 billion metric tons (bmt) by 2030 and 2.93 bmt by 2035.

Relative to benchmark levels of energy-related CO_2 emissions in 2005, emissions in 2025, 2030, and 2035 are projected to be 63, 54, and 49 percent of 2005 levels. As of date of publication, the Biden Administration has not yet committed to a new Nationally Determined Contribution (NDC) for US emissions in 2025 or 2030, but these results suggest the Carbon Dividend Plan could be an important contributor to reducing emissions to reach aggressive national emissions targets.

Economic Model of Carbon Emissions

To project future energy-related CO_2 emissions, I utilize the Goulder-Hafstead Energy-Environment-Economy E3 CGE Model, an economy-wide model of the United States with international trade. The E3 model has been featured Confronting the Climate Challenge: US Policy Options, published by Columbia University Press (co-authored by Lawrence Goulder of Stanford University), five peer-reviewed journal publications, and it participated Stanford's Energy Modeling Forum (EMF) 32: Inter-model Comparison of US Greenhouse Gas Reduction Policy Options. For further analyses of a carbon tax using the E3 model, including a wider range of impact results, see **www.rff.org/cpc**.

2 Emissions under the baseline scenario are from EIA's AEO 2020. Emissions under the carbon tax are derived from multiplying the percentage change in emissions from the E3 model with a different reference case to the AEO baseline emissions. As shown in Chen, Goulder, and Hafstead (2018), the percentage change in emissions from a carbon tax are approximately independent of reference case forecast assumptions.

Important Note

Projections are not forecasts because they depend on values for a number of variables whose future values are uncertain. Projections in the E3 model represent central estimates of future outcomes conditional on a large number of parameter and model assumptions. Changes to any single assumption may alter projections. Key sources of uncertainty include both baseline forecasts and price elasticities. Chen, Hafstead, and Goulder (2018), available for free download here, evaluate the sensitivity of E3's projected emissions to baseline forecasts such as fossil fuel prices, economic growth and the rate of energy efficiency improvements in nonenergy sectors.

Terms of Reference for the Analysis

The model analysis was structured by the specific elements below.

- The tax is imposed on all fossil fuels (coal, petroleum and natural gas) combusted within the United States.
- The tax is based on the carbon content of these fuels.
- The tax is initially imposed in 2023.
- The tax is applied at a rate $44/per ton (in $2023) of CO_2 emitted through combustion. A fee of $44 is an increase from the original CLC proposal of $40 to account for inflation between 2018 and 2023.
- The tax increases annually at a rate of 5 percent above inflation.
- All of the proceeds from the carbon tax, net of reductions in pre-existing taxes, are returned to the American people on an equal basis.
- Border adjustments are only considered in the model for imports and exports of secondary fossil fuels (such as gasoline).

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Financial support for this analysis was provided by the Climate Leadership Council. The Climate Leadership Council (CLC) is an international policy institute founded in collaboration with a who's who of business, opinion and environmental leaders to promote a carbon dividends framework as the most cost-effective, equitable and politically-viable climate solution.

Marc Hafstead is a fellow and director of RFF's Carbon Pricing Initiative. His research focuses on the evaluation and design of climate and energy policies. His research also analyzes the distributional and employment impacts of carbon pricing and the design of tax adjustment mechanisms to reduce the emissions uncertainty of carbon tax policies.