



Free markets. Real solutions.

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A CARBON BARGAIN FOR CONSERVATIVES

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INTRODUCTION

The debate over the science of anthropogenic climate change may rage on in political circles, but one thing is certain: policies to restrict the emission of carbon dioxide and other greenhouse gases already are on the books. Small-government interests balk at the growing number of regulations, subsidies and miscellaneous policies that check carbon emissions, including automotive Corporate Average Fuel Economy (CAFE) standards; energy-efficiency standards for appliances; oil-and-gas drilling regulations; fuel-emissions requirements; loan guarantees; tax breaks; and the Obama administration's highly ambitious Clean Power Plan.

This is the status quo and it's a highly unsatisfying one. There's a better way forward.

It's time for carbon policy that ignites, rather than restrains, the power of markets. This paper seeks to address key design principles for a carbon policy that would do just that. Rather than the redundant, intrusive policies coming from the White House, this approach would do better to reduce greenhouse-gas emissions and provide more predictability and flexibility for the market. Most importantly, a properly designed revenue-neutral price on carbon would create the

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TABLE 1:

Carbon interventions and their respective carbon prices 3

impetus to shrink the size of government at a time when it has been growing perpetually.

MARKET FAILURE

Greenhouse gases in the atmosphere trap a bit of the sun's heat, delivering a temperate climate that favors life on Earth. Without greenhouse gases, Earth's temperature would be below freezing and hostile to all but a select few forms of life.¹

More recently, there has been a gradual shift in the other direction. Since the Industrial Revolution of the late 18th and early 19th centuries, human activities have increased the amount of greenhouse gases in the atmosphere by roughly 50 percent, leaving such levels well-outside the bounds of natural variation over the last million years.²

While many of the consequences of increased greenhouse-gas concentrations are up for debate, it's generally accepted that activities like burning fossil fuels, industrial agriculture, manufacturing and deforestation have added enough additional greenhouse gases to the atmosphere to warm the Earth's climate. A warmer climate, in and of itself, is not necessarily dangerous, but the next-level impacts can be: changes in the natural range of tropical disease, melting glaciers, sea-level rise, more frequent or dangerous storms, drought, hot and cold weather extremes, and more.³

A warmer climate also can confer some benefits. Fatalities from extreme cold exceed those from extreme warmth by

1. University Corporation for Atmospheric Research, "The Greenhouse Effect," National Science Foundation, accessed Sept. 15, 2016. <http://scied.ucar.edu/longcontent/greenhouse-effect>

2. Associated Press, "Greenhouse gas level highest in two million years, NOAA reports," Phys.org, May 10, 2013. <http://phys.org/news/2013-05-carbon-dioxide-atmosphere-historic-high.html>

3. U.S. Global Change Research Program, "2014 National Climate Assessment," May 2014. <http://nca2014.globalchange.gov/report>

more than a factor of 20.⁴ Greenhouse gases themselves are also a mixed bag: excess carbon dioxide has caused oceans to become 30 percent more acidic.⁵ But carbon dioxide also fertilizes both agricultural crops and the natural environment.⁶ It is, after all, plant food.

While the future of our changing climate isn't entirely clear, the clear consensus is that the climate is changing, humans are largely responsible and the impacts are more than likely to be negative, on balance. To the extent that the prices for goods and services seen by producers and consumers do not take into account the long-term societal impacts of climate change, it represents a simple and straightforward market failure.

RICHER IN THE FUTURE

The problem of tackling climate change is huge and contentious precisely because our quality of life and economic growth have heretofore been based on the consumption of fossil fuels and other behaviors that contribute to greenhouse-gas emissions. If these emissions are made more expensive, behaviors that generate emissions become more expensive. This leads to an uncomfortable choice: should society pay more to address the long-run costs of climate change now or in the future?

Complicating this question further is the reasonable confidence economists have that people will be richer in the future than they are today. The trajectory of innovation is constantly improving productivity and generating wealth. Even with the impacts of climate change factored in, each generation will be, on average, richer than the last.⁷ If global society is richer in the future, it may be better able to afford the potentially expensive impacts of climate change than current generations could afford making the adjustments to reduce the likelihood of those impacts.

Indeed, the best climate policy is one that puts future generations in a better position to adapt to and afford the future damages of climate change. Climate policy should be expressly designed to make everyone richer in the future.

4. Antonio Gasparrini, et al., "Mortality risk attributable to high and low ambient temperature: a multicountry observational study," *The Lancet*, July 25, 2015. [http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(14\)62114-0.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(14)62114-0.pdf)

5. Nicola Barnard and Jacqueline Grekin, "Biodiversity and Climate Change Issue Paper No. 7," United Nations Environment Program Convention on Biological Diversity, 2009. <https://www.cbd.int/doc/publications/unep-cbd-issue-papers/unep-cbd-issue-papers-07-en.pdf>

6. L. Hartwell Allen Jr., Jeff Baker and Ken Boote, "The CO₂ fertilization effect: higher carbohydrate production and retention as biomass and seed yield," Food and Agriculture Organization of the United Nations Natural Resources Management and Environment Department, 1996. <http://www.fao.org/docrep/w5183e/w5183e06.htm>

7. Working Party on Climate, Investment and Development, "Long-term Economic Growth and Environmental Pressure: Reference Scenarios for Future Global Projections," Organisation for Economic Co-operation and Development, Sept. 26, 2012. [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/EPOC/WPCID\(2012\)6&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/EPOC/WPCID(2012)6&docLanguage=En)

There are a number of obstacles to this goal. Government spending and debt draws resources out of the market and into a limited range of investments specified through bureaucratic or political processes. Prescriptive regulations and subsidies narrow individuals' ability to express a diversity of preferences for products and services. Artificial barriers to entry exclude innovators from identifying and offering new, more effective alternatives. Responsible pro-growth climate policy would trim these hurdles, eliminate government spending that contributes to environmental destruction, embrace choice, eliminate subsidies and clarify market rules.⁸ These are sensible initial steps.

Any further intervention should maintain these principles at its core: to minimize the role of government, maximize the role of the evolving market and allow innovation to drive solutions. Carefully designed climate policy not only can mitigate the impacts of climate change, but can better equip future generations to adapt more effectively to a changing environment.

STATUS QUO

Free-market economists like Friedrich Hayek and Milton Friedman recognized a legitimate role for government to correct market failures, so long as the costs of doing so do not outweigh the benefits. This ostensibly has been – and should continue to be – the bedrock of federal environmental policy. The legislative authorities by which the Environmental Protection Agency operates today were designed to direct the marketplace to reduce behaviors that were damaging public and environmental health, under the guidance of an expert government authority.

In some cases, interventions take the form of explicit market signals. The sulfur dioxide cap-and-trade program under the Clean Air Act is a winning example of the role markets can play in protecting the environment and human health, at low cost and with freedom to devise solutions. The program largely eliminated damaging sulfur emissions, not through expensive treatments or filters, but by identifying a cleaner source of fuel.⁹

But in most cases, government relies on command-and-control regulations to address pollutants. These interventions do not depend on market choices, but instead direct certain corners of the economy to take up or abandon specific behaviors and investments. Such interventions are pricier and riskier.

8. Eli Lehrer, "A Practical Approach to Climate Change," National Affairs, Summer 2015. <http://www.nationalaffairs.com/publications/detail/a-practical-approach-to-climate-change>

9. Dallas Burtraw, "Innovation under the Tradable Sulfur Dioxide Emission Permits Program in the U.S. Electric Sector," Resources for the Future Discussion Paper, September 2000. <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-00-38.pdf>

They require regulators to have a great deal of knowledge about the markets they influence; to balance potentially competing regulatory imperatives; and to predict accurately how markets will react.

Though these types of interventions have been effective in accomplishing dramatic improvements to environmental quality by reducing the most damaging and acute sources of pollution, they are poorly adapted to some forms of environmental harm and nearly always come at great cost. This is the case with carbon emissions.

The current administration has advanced a suite of policy interventions to induce emission reductions from the power sector, transportation, oil-and-gas development and operations, home-energy use, infrastructure, manufacturing and landfills.¹⁰ The centerpiece of this approach is the Clean Power Plan, which deftly defers to the states on how to implement its potentially illegal requirements.¹¹

The remaining regulations are far more prescriptive, calling for specific technological improvements; narrower options for consumers to buy everything from cars to microwaves; government-directed investment in expensive technologies; and so on. This scattershot approach to emission reductions carries costs. A sampling of rules, with costs that range from \$0.21 to \$125.15 per ton of reduced CO₂ emissions, is illustrated in Table 1.¹²

These interventions all restrict choice and raise prices. The result is an expensive set of policies that rely on government, not market motivation, to select where emissions should be reduced, by how much and over what period.

Moreover, the specific emissions trajectories and designs of these regulatory interventions suggest there is some ideal rate or quantity of reduction of carbon emissions. While the scientific record suggests that reducing risk requires us to lower emissions over time, it does not counsel any explicitly “safe” level of carbon in the atmosphere or pace at which that arbitrary level must be reached. Often, carbon-policy-design conversations presuppose false confidence in politically – rather than scientifically – determined greenhouse-gas targets.

10. Executive Office of the President, “The President’s Climate Action Plan,” June 2013. <https://www.whitehouse.gov/sites/default/files/image/president27climateactionplan.pdf>

11. Peter D. Keisler, et al., “Re: Chamber of Commerce of the United States of America, et al. v. United States Environmental Protection Agency, et al.,” U.S. Court of Appeals for the District of Columbia Circuit, Oct. 23, 2015. http://www.eenews.net/assets/2015/10/27/document_cpp_10.pdf

12. R Street calculations based on carbon reductions and cost information as articulated in the each rule’s Regulatory Impact Analysis.

TABLE I: SELECT CARBON INTERVENTIONS AND THEIR RESPECTIVE CARBON PRICES

Intervention	Carbon price (\$/ton CO ₂ reduction)
Clean Power Plan	\$13.68
Renewable Fuel Standard	\$70.12
Energy Conservation Standards for Walk-in Coolers and Freezers	\$0.21
CAFE, Cars and Light Trucks, MY 2011	\$125.15
CAFE, Cars and Light Trucks, MY 2012-2016	\$33.04
CAFE, Cars and Light Trucks, MY 2017-2025	\$77.71

SOURCE: R Street Institute

This approach hinders the goal of ensuring the future will be richer and better able to adapt to a changing climate. Addressing climate risk does not require big-government interventions. Fortunately, because of the large volume of collective decisions that result in carbon emissions, relatively modest changes to market signals can go a long way to reduce impacts.

TAX SWAP ALTERNATIVE

Current policy imposes a high and inefficient price on carbon emissions across a number of economic sectors. Society stands to gain in both environmental outcomes and economic performance by moving to a more straightforward policy that pursues carbon reductions by mobilizing the marketplace. This can be done by placing a direct price on emissions.

This carbon price – or carbon tax – would force the market to make decisions that take into account the future damage stemming from carbon emissions. A direct carbon price elevates behaviors that result in fewer emissions above behaviors that result in more emissions – like searching out a car with better fuel efficiency – by including some approximate cost for climate damage into every decision. If it costs less to reduce emissions than to pay the tax, those investments will be realized. This isn’t a radical policy that seeks to transform the economy overnight, but rather a steady expression of carbon risk through a transparent signal that lets the market decide how best to reduce emissions over time.

The price doesn’t have to be large. If the necessary steps are taken to remove government-imposed obstacles to innovation and wealth generation, a relatively modest price will reshape economic decision-making. A modest carbon price of about \$20 per ton would reduce emissions 8 percent below business as usual and allow the government to collect an estimated \$1.2 trillion over the first decade.¹³

13. U.S. Congressional Budget Office, “Effects of a Carbon Tax on the Economy and Environment,” May 2013. http://www.cbo.gov/sites/default/files/cbofiles/attachments/44223_Carbon_0.pdf

This brings us to the true promise of a carbon tax. While it is an elegant solution that accounts for environmental harm and reduces it at the lowest cost, its largest benefit is that it can accomplish this while also reducing costs elsewhere in the economy. Government currently is financed through a bevy of taxes on things that actually should be encouraged: labor (payroll taxes); personal income (the income tax); corporate profits (corporate income tax); and savings and investment (taxes on capital gains, dividends, earned interest and inheritances). Reducing this tax burden through a carbon tax would offset the costs of carbon-emission reductions and keep the government from growing in size, scope and power. As one example, without any other changes, a modest \$20-per-ton carbon price would raise enough revenue to allow the corporate income tax rate to be reduced from 35 percent to 25 percent.¹⁴

DESIGN CONSIDERATIONS

Other carbon costs

With a direct price on carbon in place, there is an opportunity to trim government overreach elsewhere. Pre-emption of the Environmental Protection Agency's Clean Power Plan and other efforts – including CAFE standards, fuel taxes, the renewable fuel standard, the investment and production tax credits, efficiency standards and restrictions on fossil-resource development – would be a necessary prerequisite. In fact, because a carbon tax swap is intended to price emissions, any intervention designed to reduce emissions from the same economic sectors covered by a carbon price is rendered unnecessary and should be eliminated.

Political pricing

If the price were designed to be exactly equal to the marginal damage caused by carbon emissions, it would perfectly integrate the threat of climate change into market decisions. Of course, determining the value of marginal damage is made extraordinarily difficult by a plethora of uncertainties about science, economic response, global emissions trends and the portion of climate damages or benefits that are attributable to the United States, rather than other societies around the globe.

Moreover, the discount rate used to determine the current value of avoided climate harm dominates all other components of calculated climate damages. What's worse, this is, by its very nature, an entirely subjective determination. The current disparate prices for carbon that we see manifested through regulations and tax incentives highlight the complexity of this determination.

14. Donald Marron, "Bigger, Cleaner, and More Efficient: A Carbon-Corporate Tax Swap," Cato Online Forum, November 2014. <http://www.cato.org/publications/cato-online-forum/bigger-cleaner-more-efficient-carbon-corporate-tax-swap>

This means the ideal carbon price will be extraordinarily difficult to determine through a social cost of carbon (SCC) or marginal-damages calculation. Even if agreement could be reached on the true social cost of carbon, there are other obstacles to using such a price. Evidence suggests that if the United States were to act alone, it should price carbon below the ideal SCC to account for problems of leakage.¹⁵ Further, the existing tax code is already quite distortionary. Unless the revenue is returned (see next section) entirely through reductions to existing taxes on capital, the appropriate price for carbon will also be lower than the SCC.¹⁶

Instead, policymakers should acknowledge the entirely political nature of this cost estimate. The tax rate should be set through a process that determines a price level sufficient to eliminate existing regulation and reduce existing tax burdens.

Revenue neutrality

The large amounts of revenue achievable through even modest prices on carbon will be an enormous source of temptation. The pot of money could easily be devoted to any number of government and policy priorities, including research investments, infrastructure or deficit reduction.¹⁷ Devoting revenues to anything other than reducing existing tax burdens would raise the cost to achieve reductions, as well as offering motivation to grow government and invest in bureaucratic priorities. A carbon tax must be revenue-neutral.

Reduce tax burden on capital

The method used to return revenue is just as crucial as maintaining revenue neutrality. A price on carbon will not be imposed in a vacuum, but rather in the context of an existing tax code replete with inefficiencies. Further, many numerical models suggest that a carbon tax is more economically distorting than taxes to income or capital.¹⁸ Special care must be taken to reduce any unintended economic burden from this proposed tax adjustment.

While the revenue can be returned to the public in any number of ways, there is only one way to do so while pursuing the underlying principle of making the United States richer in the future. A carbon tax should devote all revenues to reduce

15. William Nordhaus, "A Question of Balance: Weighing the Options on Global Warming Policies," Yale University Press, 2008. http://www.econ.yale.edu/~nordhaus/homepage/Balance_2nd_proofs.pdf

16. Lans Bovenberg and Lawrence Goulder, "Optimal Environmental Taxation in the Presence of Other Taxes: General Equilibrium Analyses," NBER Working Paper Series, October 1994. <http://www.nber.org/papers/w4897.pdf>

17. Donald Marron and Adele Morris, "How to Use Carbon Tax Revenues," Tax Policy Center, February 2016. <https://www.brookings.edu/wp-content/uploads/2016/07/howtousecarbontaxrevenueumarronmorris.pdf>

18. Robert Murphy, "Carbon 'Tax Swap' Deals: A Review and Critique," Institute for Energy Research, November 2012. <http://instituteforenergyresearch.org/wp-content/uploads/2012/11/IER-Murphy-Carbon-Tax-Swap-Deals-A-Review-and-Critique.pdf>

the tax burden on capital in order to support long-term growth of gross domestic product.¹⁹

Administrative simplicity

The tax should be imposed on the broadest base and at the lowest administrative cost. This suggests that carbon should be priced at the point at which the fuel or source enters the economy, where it might already be subject to excise taxes and, in some cases, where the administrative infrastructure is already in place to collect the tax. For example, coal currently is taxed when it is mined to support the federal Black Lung Disability Trust Fund. Applying a carbon tax upstream will minimize costs, broaden coverage, diminish the government's footprint and ensure the carbon price is appropriately captured throughout the market.²⁰

Border adjustability

A unilateral domestic price on carbon emissions cannot solve the problem of global climate change. What's worse, it could expose U.S. industry to risk; promote emissions leakage to other, uncovered countries; and erode the domestic basis of carbon policy. A domestic price on carbon is preferable to subordinating U.S. policy to the control of global climate governance. But to minimize these damages, any domestic policy should be adjusted at the border for imports and exports to reduce the risks of diminished trade and leakage.

This is a distinct advantage of a carbon tax. Unlike existing modes of taxation on economic activity, a carbon tax is a consumption tax that can explicitly be adjusted at the border under the rules of the World Trade Organization (WTO). By contrast, existing carbon policy – as expressed through regulation and tax preferences – cannot be adjusted the border. Shifting both the tax basis and our domestic carbon policy to a carbon tax actually would reduce domestic industry's exposure to trade relative to the status quo. It would improve the efficacy of domestic policy by minimizing leakage. While the precise method of border adjustment is not yet formally elucidated, there is broad agreement that such an adjustment would be compliant with the existing rules of the World Trade Organization.²¹

19. Jared Carbone, Richard Morgenstern, Robertson Williams III and Dallas Burtraw, "Deficit Reduction and Carbon Taxes: Budgetary, Economic, and Distributional Impacts," Resources for the Future Report, August 2013. <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-Rpt-Carbone.etal.CarbonTaxes.pdf>

20. Jack Calder, "Administration of a US carbon tax," chapter 3 of *Implementing a US Carbon Tax*, International Monetary Fund, 2015. http://samples.sainsburysebooks.co.uk/9781317602088_sample_952073.pdf

21. See, e.g., Joel P. Trachtman, "WTO Law Constraints on Border Tax Adjustment and Tax Credit Mechanisms to Reduce the Competitive Effects of Carbon Taxes," Resources for the Future Discussion Paper, January 2016. <http://www.rff.org/files/document/file/RFF-DP-16-03.pdf>; See also, Jennifer Hillman, "Changing Climate for Carbon Taxes: Who's Afraid of the WTO," German Marshall Fund, July 2013. <http://www.climateadvisers.com/wp-content/uploads/2014/01/2013-07-Changing-Climate-for-Carbon-Taxes.pdf>

Emissions certainty

Pricing carbon directly would predictably yield emission cuts, though it is impossible to know with specificity which economic sectors would reduce emissions at what pace and at what time. Economic modeling can be used to try to predict these trends, but the elegance of a revenue-neutral carbon price is that the economy may devise solutions that aren't initially apparent. Models cannot anticipate technological innovation and market adaptation with that level of certainty.

While some environmental interests are inclined to cloud carbon-tax design with redundant measures to ensure that carbon reductions occur along a predictable and preferred trajectory, it would be prudent to avoid measures that trade emissions certainty for economic certainty.

CONCLUSION

Existing federal policies already price carbon emissions throughout the economy through a number of expensive and inefficient levers. But addressing carbon emissions does not have to come at a high cost or through prescriptive, redundant or iterative regulations. The market adeptly adjusts to price signals about relative costs. Creating a policy that leverages market efficiencies and creativity will yield more stable, long-term reductions and a more innovative, wealthy future.

R Street approaches issues from a right-of-center perspective, operating under the view that the best public policies minimize the role of government, increase individual liberty, favor liberty over equality in close cases, maximize the role of the market and allow innovation to drive solutions. Carbon policy can and should be devised along these principles.

A properly designed revenue-neutral price on carbon will improve economic efficiency, promote better environmental outcomes than existing policy and allow market forces to determine the course to a lower-carbon future.

ABOUT THE AUTHOR

Catrina Rorke is director of energy policy and a senior fellow at the R Street Institute, where she promotes smart, small-government solutions to energy and climate challenges.

Before joining R Street, Catrina founded the energy program at the American Action Forum, a center-right policy institute that specializes in actionable research and analysis. While at AAF, she emphasized free-market policies and critiqued administration regulatory effort