

Decarbonizing the US Economy: Pathways Toward a Green New Deal



SAMPLE POLICY: IMPLEMENTING A CARBON CAP-AND-DIVIDEND PROGRAM

INTRODUCTION

The climate crisis is here. According to the UN Intergovernmental Panel on Climate Change, limiting climate change to 1.5°C—and avoiding some of its most harmful impacts—would require a 45 percent cut in human-caused CO₂ emissions by 2030 and carbon neutrality by mid-century. We argue that decarbonizing at this rapid pace is not only possible, but that it will improve our economic outlook, create jobs, and promote equity. Such an endeavor, however, necessitates immediate action and a broad range of policy tools. In *Decarbonizing the US Economy: Pathways Toward a Green New Deal*, we outline the three pillars of such an approach: 1) carbon pricing that promotes an equitable transition while meeting our emissions goals; 2) comprehensive regulations to redirect private spending and to ensure climate targets are met; and 3) large-scale public investments.

Solving these sizable problems will require a sizable actor: government. To change the everyday decisions of businesses, individuals, and communities, and to provide a true alternative to the dirty “business-as-usual” economy, we must put a price on carbon and deploy direct environmental regulation. Though necessary, regulations and carbon pricing alone will be insufficient to meet the scale of the challenge and to address the dislocation associated with decarbonization. Carbon pricing and regulation may reduce fossil fuel extraction, for example, but they won’t ensure that workers in carbon-intensive industries find quality jobs; they may reduce transportation-related emissions, but they won’t offset increased driving costs or expand access to alternative modes of transit. Fortunately, the choice between decarbonization and meeting other social needs is a false one. A rapid transition to a carbon-neutral economy will raise living standards for the majority of Americans.

We must rewrite the rules of our economy to promote a rapid and equitable transition, with an increase in public investment at the core of such an undertaking. To transform our economy on the scale that a Green New Deal would require, we need a large degree of coordination—coordination that can and must be directed by the government. While the economics of decarbonization are often misunderstood as a problem of *scarcity*, in which doing more to avert climate change means doing less to meet other social needs, we argue that a more robust public sector to facilitate this transition is both affordable and attainable.

In *Decarbonizing the US Economy*, we outline a set of policy proposals that demonstrate how we can decarbonize the economy in ways that promote growth and ensure equitable outcomes. These sample policies show that decarbonizing the US economy can create quality jobs, reduce inequality, and tackle the existential threat of climate change. Here, we explore one of these policies: implementing a carbon cap-and-dividend program.



SUMMARY

Currently there is no national carbon tax or carbon cap on emissions in the US. To ensure that the US meets its emissions targets and does so in an equitable fashion, we propose the creation of a nationwide carbon cap-and-dividend program. This is a relatively straightforward policy that forces polluters to pay for the emissions they dump into the atmosphere. Our policy is structured to ensure that emissions are reduced in line with ambitious emissions targets, avoid commodifying or financializing¹ the environment, and protect the purchasing power of those most in need: low-income communities and communities of color. This policy should be paired with complementary environmental regulations to eliminate the co-pollutants that have contaminated the air, water, and land, and afflicted the health of environmental justice communities for generations. While a carbon cap is by no means a silver bullet to the climate crisis, a well-designed carbon cap can bring sizable, lasting benefits to current and future generations, promote equity, and reclaim common ownership over our environment.

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BACKGROUND

Currently, polluters are largely free to emit CO_{2e} into the atmosphere and do not have to pay for the environmental and health damages associated with burning fossil fuels (Boyce 2018). To correct this, policymakers and economists have been debating a set of policies for decades to put a price on carbon with an aim of reducing emissions. The point of this type of policy is to price the externality—the pollution and damages from fossil fuels that are not reflected in current prices—which would help address what economist Nicholas Stern refers to as “the greatest market failure the world has ever seen” (2007).

A price on carbon can come in two forms: a carbon tax or a carbon cap. A carbon tax charges a given price for each unit of carbon, usually denoted in dollars per metric ton of CO_{2e}. This policy is frequently referred to as a tax, price, levy, or fee. In this case, the price is certain, but the emission reductions remain uncertain. This arises from the fact that we simply do not know how much emissions will be abated for a given price on carbon. If the price of carbon is \$230/tCO_{2e}, we can estimate how much emissions will be reduced, but it’s really just an educated guess.

A carbon cap on the other hand sets a quantity of CO_{2e} emissions that can be emitted and sells emissions permits through an auction up to that cap, while allowing the price to vary. Here, we have emissions certainty but price uncertainty. Of course, we can also imagine a combination of the two, as has been implemented in Switzerland and was proposed in California (Fremstad and Paul 2017).

Provided that the point of the policy is to meet agreed upon climate goals and emissions targets, rather than to raise

¹ We define “financialization” as the outsized growth of the financial sector and its increased power over the real economy.



revenue, we prefer a carbon cap. This will ensure that emissions targets are met by allowing the price of emissions permits to fluctuate. It's important to note that many equate a carbon cap with a carbon cap-and-trade policy, however this need not be the case; permits may be time-limited and nontradable (Boyce 2018). Further details on policy design are discussed below.

Many economists have called for a carbon tax or a carbon cap to address our climate crisis. After all, we live in a market-based economy where many decisions are influenced by prices reflected in the market, despite the fact that the state plays a major role in creating and shaping markets. With current prices of fossil fuels far too low to reflect their true social cost, placing a price on carbon through a carbon tax or cap can play an important role in reducing GHG emissions. Currently, when you go to the pump and pay to fill up your car, you're not being charged for the damages associated with burning the fossil fuels. If policymakers were to implement a carbon cap, as we will discuss below, the price of gas, along with other goods and services in the economy, would increase in line with their carbon content (i.e., gas would get more expensive relative to, say, food, which is less carbon intensive). This would send price signals to firms, governments, and everyday people to consume less carbon-intensive goods and services.²

A carbon price is not a panacea. Recently, a group of eminent economists from both parties, including Nobel laureates and former Federal Reserve chairpersons, endorsed a carbon tax-and-dividend program as *the* solution to our environmental crisis (Baker et al. 2017). While we argue that a singular market tool is not enough—and a suite of policies, including public spending and environmental regulation, are available and necessary—it is worth noting that these economists supported the idea of a carbon dividend (i.e., a way to redistribute the revenue raised by a carbon tax or cap back to the people). Historically, economists have argued that the revenue raised from a carbon price should be used for tax cuts, while policymakers have often been keen on using the revenue for green investments; however, such revenue spending fails to protect the purchasing power of most Americans and would result in a sizable reduction in people's incomes (Fremstad and Paul 2019; Jorgenson et al. 2015; Goulder and Hafstead 2013). Instead, a dividend takes the revenue raised and gives it back to the people in an equal per-capita measure. In other words, if \$500 billion is raised annually, and there are about 330 million people in the US, each would receive about \$1,500 back every year. Those who emit more carbon than average would end up paying in more than they get back, while those who emit less carbon than average would end up paying in less than they get back. This is a vital aspect of building an equitable carbon price. While a carbon price, coupled with a dividend, would make it easier and more equitable to transition the economy, it is far from sufficient.

Though this is a policy prescription that economists across the political spectrum broadly support (Hook 2019; IGM 2012; Fremstad and Paul 2017), some environmentalists and climate advocates have been understandably skeptical of market-based policies (Edwards 2018; Huber 2016; Klein 2016; Walsh 2018). They critique the program on a number of grounds, including the ideas that a carbon price may be regressive, easily gamed by corporations, insufficient to address the climate crisis, and ignores the plight of communities that require environmental justice.

First, there's robust literature modeling the effects of a carbon price on inequality, and the results indicate that a carbon cap-and-dividend program would indeed be strongly progressive, redistributing revenue from the rich to the poor (Fremstad and Paul 2019). Second, domestic and international examples of carbon pricing legislation have often resulted in corporate giveaways; this, however, can be overcome through policy design that puts the interests of people before corporations. Third, we want to reiterate our belief that a carbon price (through either a tax or a cap) alone is insufficient to address our environmental disaster. A carbon cap should be considered as one of the policies comprising a comprehensive suite of legislation. Finally, we also share the concerns that a carbon cap

² Over 46 national jurisdictions, as well as over 20 cities, states, and regions, have implemented a carbon pricing mechanism to date, with many more in the works (Carbon Pricing Leadership Coalition. n.d.). While California and nine northeast states (through the Regional Greenhouse Gas Initiative) have passed some form of a carbon price, the US as a whole has failed to pass a carbon price at the national level. The most famed effort to do so was the Waxman-Markey bill. For a deep dive into the failure to pass this bill, see *Naming the Problem: What it Will Take to Counter Extremism and Engage Americans in the Fight against Global Warming* (Skocpol 2013).



fails to address the plight of environmental justice communities. These concerns, such as prioritizing emissions in sensitive areas and areas that have historically been disproportionately polluted, will require complementary policies to address, such as environmental regulations to eliminate harmful co-pollutants.³

SAMPLE POLICY

Rather than allowing polluters to emit into the environment for free, the federal government should implement a carbon cap-and-dividend program for GHG emissions across the entire US economy. In turn, the price of goods and services will increase depending on their carbon content. This is easiest to see at the gas station, where the price of gas will increase about \$0.01 per gallon for every \$1 per tCO₂e. But the price of other goods will increase too, so that goods more closely tied to carbon emissions (e.g., airplane tickets) increase in price more relative to goods with little carbon embedded in them (e.g., education). The economy will respond as relative prices change, with people, businesses, and governments adjusting their behavior to reduce their carbon footprint when possible. The point of a carbon cap is not to raise revenue or reduce the purchasing power of people but to incentivize economic actors to reduce emissions and transition to a clean and renewable economy.

A simple cap-and-dividend structure should be implemented, as it would best achieve the goals of pricing emissions along a path to meet agreed-upon emissions reductions. The carbon cap could be determined by a group of stakeholders, with a maximum emissions allowance that would reduce emissions at least in line with recent IPCC guidelines, though preferably faster.

To make the transition equitable, the revenue should be rebated through a carbon dividend. A carbon dividend would simply be a payout to all of us in equal per capita measure, meaning a carbon cap will help us meet our emissions targets while ensuring that the vast majority of low-income families come out ahead financially. Although everyone will receive a dividend, the policy will nevertheless benefit low-income people more (see graphics and example below). In order to protect those least able to deal with the financial effects, the first dividend can be pre-paid so that people do not have to wait for a rebate until months after paying the increased prices. This policy will promote equity by redistributing funds from high polluters, mainly the rich, to low polluters, mainly low-income households. This is crucial to successful climate policy and to ensure carbon pricing schemes are designed to take into account important distributional consequences.

To guide policymakers, we set out a number of policy guidelines for the carbon cap-and-dividend program:

- 1. Price emissions upstream:** To cover the maximum amount of GHG emissions while ensuring minimal compliance challenges, emissions should be taxed upstream, meaning at the wellhead, refinery, or mine. This policy design would allow the government to effectively cover the vast majority of fossil fuels while only monitoring 1,150-2,000 points across the US (CBO 2001; Metcalf and Weisback 2009).
- 2. Establish emissions targets:** To fully take advantage of the carbon cap policy design, policymakers should adopt a clear emissions trajectory. This should be done with stakeholder involvement from environmental justice groups and affected communities. For instance, the emissions reductions should at least be in line with the recent IPCC guidelines to cut emissions by 45 percent by 2030 and reach net carbon neutral by 2050; however, provided that the US has emitted far more than its fair share historically and is one of the

³ Note that the policies contained in this report are sample policies and are not comprehensive. For instance, there is no policy included to address harmful co-pollutants, yet this should be a priority due to health and environmental justice concerns.



wealthiest countries, the emissions targets should be stricter, with a target of net carbon neutral by perhaps 2035 or 2040. Once the cap for a given year is set, the government should sell permits at an auction.

- 3. Recycle 100 percent of revenue to the public through a carbon dividend:** Money raised through the carbon price should be rebated in equal per-capita dividends. This policy is critical to protect the purchasing power of low-income Americans and to build common ownership and buy-in pertaining to the environment. While a carbon price is regressive—disproportionately impacting the least well off in our society—a carbon dividend protects the purchasing power of a majority of people in the US and 84 percent of those in the bottom half of the income distribution (Fremstad and Paul 2019).⁴ Further, the universal nature of the dividend is crucial to building across-the-board buy-in from political constituencies and for building common ownership and support for our natural assets. Like Medicare and Social Security, the universal nature of the program can make it politically durable (Barnes 2014; Boyce 2018).
- 4. Border-adjustment tax:** Climate change is a global phenomenon, and we live in a global economy. To ensure that the US does not simply offshore carbon emissions, a border-adjustment tax is essential. This simply means that the government should levy a tax on carbon-intensive imported goods based on their carbon content.⁵
- 5. No permit trading and limited banking:** With all permits allocated at auction, no trading is necessary; firms simply buy the permits they need at auction. Without trading, there is no scope for market speculation or profiteering (i.e., we are not in any way commodifying or financializing the environment).
- 6. No offsets or exemptions:** To ensure that polluters actually pay for the emissions they create, the policy should be designed to eliminate any potential gaming of the system. This means no carbon offsets and no free allocation of permits.

To illustrate how such a proposal would affect the pocketbooks of Americans across the income distribution, Figure 1 provides an example assuming a \$230 price per permit (t/CO_{2e}).⁶ This number is based on a permit price associated with meeting 2.5°C of warming, according to Nordhaus (2017)—which is insufficient to meet our climate goals, but as we explain below, this is just one of many policies aimed at decarbonizing the US economy. Keep in mind that the price will be determined by the auction for permits, which will provide a fixed number of permits in line with our emissions goals. The analysis of the distribution below holds for alternative prices determined at auction, but the magnitudes of dollars redistributed will change.

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⁴ The program should “keep government whole.” This would rebate the revenue back to the people who collectively paid into the program while rebating the revenue paid in by the government back to the government itself. This ensures the protection of local, state, and federal governments’ purchasing power. The numbers provided above reflect this and are fully explained in Fremstad and Paul (2019).

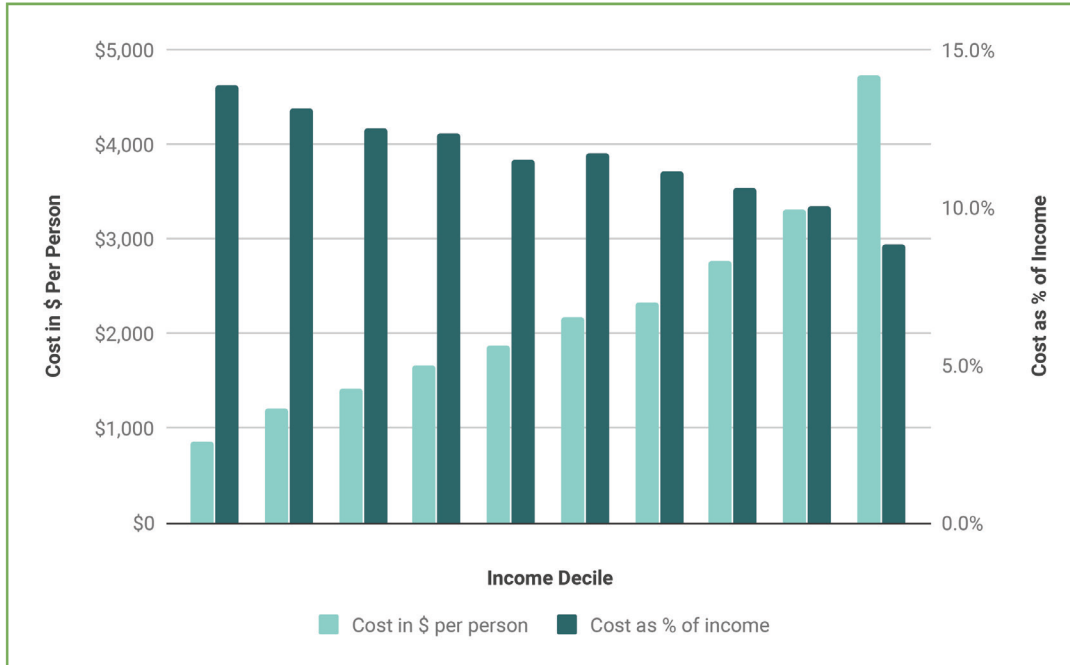
⁵ From a justice perspective, some argue that low-income countries with a minimal historic record of emissions should be exempt from such a tax. For more, on this, see Beachy (2016).

⁶ For a more in-depth discussion of a carbon price-and-dividend, see Fremstad and Paul (2018).

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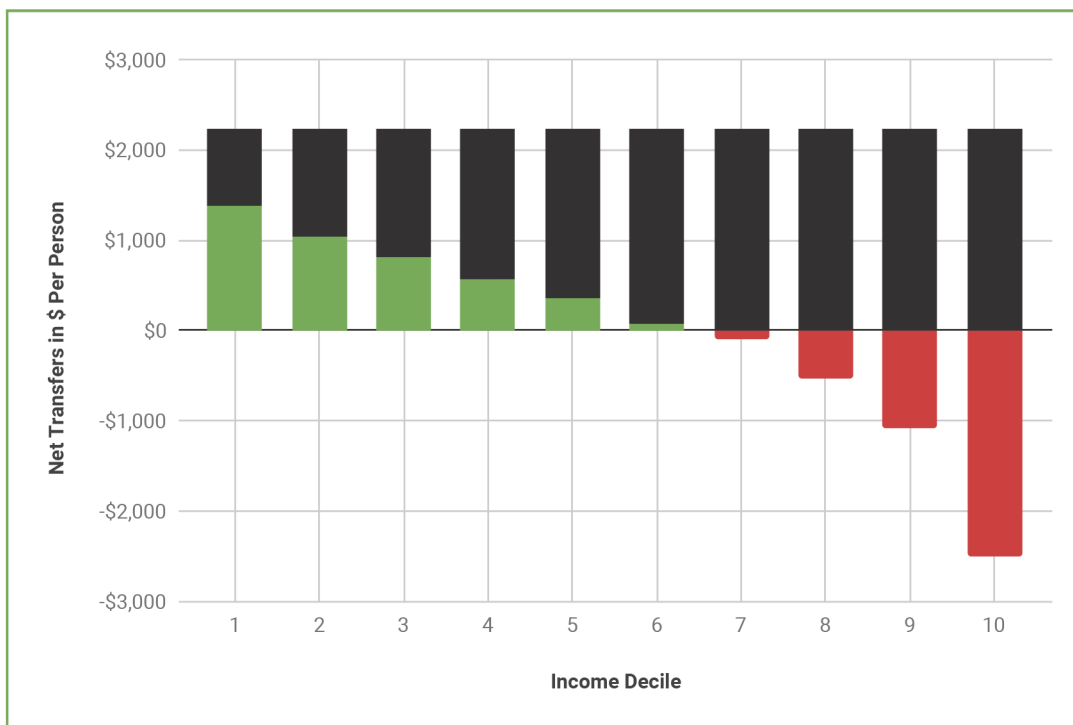
Carbon Tax Burden



The light blue lines show the cost per person in dollars of a \$230 carbon price that is implemented economy-wide. This demonstrates that high-income people pay more in absolute dollar terms than low-income people do. The dark teal line, however, shows that a carbon price is initially regressive since the carbon price effects a larger percentage of low-income people's income.

Figure 1 demonstrates the initial burden of the carbon cap—the incidence of the tax before the money raised is redistributed—at a price of \$230 per permit. Under such a carbon cap, the poorest 10ten percent of people will pay in just under \$1,000 per person per year through higher prices in the economy, while the richest decile will pay almost \$5,000 per person per year. Despite the fact that the rich pay significantly more because they pollute much more, the initial tax is still regressive. This is due to the fact that for the poorest decile, the tax represents about 14 percent of their income, while for the richest decile the tax only represents 8.8 percent of their income; however, this can be remedied through an equal per-capita carbon dividend to everyone in the US.

Net Transfers Under Carbon Dividend



This chart demonstrates that equal per-capita dividends can make an initially regressive carbon price progressive, protecting the incomes of the low-income people across the country.

Figure 2 demonstrates the net effect on one's pocketbook of a carbon dividend. The black bars represent the fact that everyone will receive the same annual carbon dividend of just over \$2,200. The green bars represent the net benefit to groups that come out ahead. We see that the bottom 60 percent of households come out ahead on average, while the richest 40 percent end up paying more in higher prices than they get back through the carbon dividend. In other work, we also demonstrate that the majority of communities of color come out ahead under a carbon dividend policy such as the one proposed here (Paul and Fremstad 2019).

Pricing carbon and returning the money to the people in equal dividends, similar to the idea behind the Alaska Permanent Fund—an idea implemented by a Republican governor and supported across the state's political spectrum—is a critical tool to rapidly curtail the use of fossil fuels and speed investments in clean energy technologies and energy efficiency upgrades. The prices have been wrong for far too long. It's time to get them right.



REFERENCES

- Baker, James A., Martin Feldstein, Ted Halstead, N. Gregory Mankiw, Henry M. Paulson Jr., George P. Shultz, Thomas Stephenson, Rob Walton. 2017. "The Conservative Case for Carbon Dividends." Climate Leadership Council. <https://www.clcouncil.org/media/2017/03/The-Conservative-Case-for-Carbon-Dividends.pdf>.
- Barnes, Peter. 2014. *With Liberty and Dividends for All: How to Save Our Middle Class When Jobs Don't Pay Enough*. San Francisco: Berrett-Koehler Publishers.
- Beachy, Ben. 2016. "Discussion Paper: A New, Climate-Friendly Approach to Trade." Oakland, CA: Sierra Club. https://content.sierraclub.org/creative-archive/sites/content.sierraclub.org.creative-archive/files/pdfs/1433%20New%20Trade%20Report%2005_low.pdf.
- Boyce, James K. 2018. "Carbon Pricing: Effectiveness and Equity." *Ecological Economics* 150 (August): 52-61. <https://www.sciencedirect.com/science/article/pii/S092180091731580X?via%3Dihub>.
- Carbon Pricing Leadership Coalition. n.d. "Carbon Pricing Dashboard." Accessed May 30, 2019. <https://www.carbonpricingleadership.org/who>.
- Congressional Budget Office (CBO). 2001. "An Evaluation of Cap-and-Trade Programs for Reducing U.S. Carbon Emissions." Washington, DC: CBO. <https://www.cbo.gov/sites/default/files/107th-congress-2001-2002/reports/captrade.pdf>.
- Edwards, Scott. 2018. "No, Carbon Taxes Aren't Socialist." *Jacobin*, October 10, 2018. <https://www.jacobinmag.com/2018/10/carbon-taxes-climate-change-united-nations-report>.
- Fremstad, Anders, and Mark Paul. 2017. "Economic Impact of the California Global Warming Solutions Act (SB-775) on CA Households." Self-published. <https://markpaulecon.files.wordpress.com/2017/07/ca-sb775-report1.pdf>.
- Fremstad, Anders, and Mark Paul. 2018. "Disrupting the Dirty Economy." Washington, DC: People's Policy Project. <https://www.peoplespolicyproject.org/wp-content/uploads/2018/09/CarbonTax.pdf>.
- Fremstad, Anders, and Mark Paul. 2019. "The Impact of a Carbon Tax on Inequality." *Ecological Economics* 163 (September): 88-97. <https://www.sciencedirect.com/science/article/pii/S092180091831084X?via%3Dihub>.
- Goulder, Lawrence, and Marc Hafstead. 2013. "Tax Reform and Environmental Policy: Options for Recycling Revenue from a Tax on Carbon Dioxide." Discussion Paper 13-31. Washington, DC: Resources for the Future. <https://www.rff.org/publications/working-papers/tax-reform-and-environmental-policy-options-for-recycling-revenue-from-a-tax-on-carbon-dioxide/>.
- Hook, Leslie. 2019. "Surge in US Economists' Support for Carbon Tax to Tackle Emissions." *Financial Times*, February 17, 2019. https://www.ft.com/content/fa0815fe-3299-11e9-bd3a-8b2a211d90d5?utm_source=divr.it&utm_medium=twitter.
- Huber, Matt. 2016. "The Carbon Tax is Doomed." *Jacobin*, October 9, 2016. <https://www.jacobinmag.com/2016/10/oil-fossil-fuel-climate-cap-trade-tax-renewables/>.
- Initiative on Global Markets. 2012. "Carbon Taxes II." IGM Forum. December 4, 2012. <http://www.igmchicago.org/surveys/carbon-taxes-ii>.
- Jorgenson, Dale W., Richard J. Goettle, Mun S. Ho, and Peter J. Wilcoxon. 2015. "Carbon Taxes and Fiscal Reform in the United States." *National Tax Journal*, 68, no. 1: 121-38. https://www.researchgate.net/publication/273276384_Carbon_Taxes_and_Fiscal_Reform_in_the_United_States.
- Klein, Naomi. 2016. "The Carbon Tax on the Ballot in Washington State Is Not the Right Way to Deal with Global Warming." *Nation*, November 4, 2016. <https://www.thenation.com/article/the-carbon-tax-on-the-ballot-in-washington-state-is-not-the-right-way-to-deal-with-global-warming/>.
- Metcalf, Gilbert E., and David Weisbach. 2009. "The Design of a Carbon Tax." *Harvard Environmental Law Review* 33: 499-556. https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=3033&context=journal_articles.
- Nordhaus, William D. 2017. "Revisiting the Social Cost of Carbon." *Proceedings of the National Academy of Science* 114 no. 7, 1518-23. <https://www.pnas.org/content/114/7/1518>.



Skocpol, Theda. 2013. "What It Will Take to Counter Extremism and Engage Americans in the Fight Against Global Warming." Harvard University (report prepared for symposium on "The Politics of America's Fight Against Global Warming," co-sponsored by Columbia School of Journalism and Scholars Strategy Network, Cambridge, MA, February 14, 2013.. <https://grist.files.wordpress.com/2013/03/skocpol-captrade-report-january-2013y.pdf>.

Stern, Nicholas. 2007. *Stern Review: The Economics of Climate Change*. Cambridge, UK: Cambridge University Press.

Walsh, Jim. 2018. "Carbon Pricing: 5 Reasons It Won't Work." Food & Water Watch. <https://www.foodandwaterwatch.org/news/carbon-pricing-5-reasons-it-wont-work>.



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