



FACT SHEET

COUNTING THE BENEFITS OF CUTTING CARBON POLLUTION

Scientists agree on what's driving climate change: carbon pollution from burning fossil fuels and other sources of greenhouse gases. And they agree that climate change will harm the public, including by degrading air quality, fueling property-damaging extreme weather, fueling floods and drought that wreak havoc on our crops, and exposing our coastal homes and businesses to sea level rise. So how can the economic consequences be calculated? What is the total damage from each ton of carbon pollution? And what is the dollar value of the benefits we get from curbing each ton of carbon pollution?

These are the questions many economists have been working on, and that economists from 12 federal agencies addressed in analyzing the “social cost of carbon.” Using peer reviewed studies, these economists estimated that society gets at least \$41 dollars in benefits of avoided climate change impacts for each ton of carbon pollution cut. This estimate allows us to compare the benefits of limiting carbon pollution with the cost of curbing it.

Economists call that calculation the “social cost of carbon” because it shows how much society as a whole—hence “social”—loses from the damage caused by carbon pollution.

WHY CALCULATE THE BENEFIT OF CUTTING CARBON POLLUTION?

- Every president since Richard Nixon has sought information on the costs and benefits of federal standards and regulations. Under presidential executive orders, each agency proposing a federal standard or regulation must estimate its costs and benefits—how much it will cost to meet, and how much it will benefit the public. This is something that conservatives often demand.
- To perform cost-benefit analyses on standards to reduce climate pollution, federal agencies need an estimate of the benefit from each ton of pollution avoided. The social cost of carbon provides that estimate, allowing agencies to compare benefits against costs. Without that estimate, cost-benefit calculations cannot be accurately computed.
- The current official estimate is that reducing a ton of carbon pollution will prevent \$41 dollars of climate damages. This likely underestimates the benefits of reducing carbon pollution because the studies used omit many damages that are harder to quantify.

BASIS IN LAW

The interagency cost of carbon estimate has a solid legal foundation.

- In 2008, the Ninth Circuit Court of Appeals found that agencies needed to estimate the benefits of reducing carbon pollution because not doing so was unlawfully arbitrary. The court rejected Bush Administration fuel economy standards because the U.S. Department of Transportation had put no value on carbon pollution reductions. “[T]he value of carbon emissions reduction is certainly not zero,” the court explained.¹
- In 2016, the Seventh Circuit affirmed the U.S. Department of Energy’s use of the social cost of carbon in setting appliance efficiency standards, finding the methodology reasonable.²

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HOW THE BENEFITS OF REDUCING CARBON ARE CALCULATED

- The interagency estimate of the benefits of reducing carbon pollution is based on the best available science and economics from peer-reviewed publications. It does not rely on a single economic study, but averages values from a range of leading climate change damage models.³
- If anything, the interagency estimate is too low. Even the best economic models do not cover all of the types of damage from climate change.⁴ The models don't place any dollar value on climate change impacts such as forest fires, crop damage from temperature extremes, effects of drought on food prices and energy and water supplies, health impacts from degraded air quality, and potential catastrophic events (e.g. a 20-foot sea level rise from collapsing ice sheets). As a result, the government's official \$41 per ton value underestimates the full benefits of reducing carbon pollution.⁵
- Climate change damages are getting worse as more carbon pollution accumulates in the atmosphere and climate changes become more severe. For this reason, the benefits of curbing carbon pollution go up over time. The interagency estimate reflects this. Avoiding a ton of carbon pollution in 2020 is worth \$43. In 2025, it rises to \$48. By 2050, it will be worth \$71.
- Carbon pollution doesn't stay within one country's borders. It spreads around the world and hurts us all. Other countries ought to, and do, account for the damage their pollution does to us. So the U.S. estimate accounts for all the damage our pollution does to others. Courts agree; last year the Seventh Circuit upheld this global approach.⁶
- Carbon pollution lasts in the atmosphere for centuries. So to calculate the benefit of curbing carbon pollution, economists must decide how to value harms that occur in the future and how much to "discount" them. The interagency panel presents cost of carbon estimates based on a range of discount rates. Agencies have generally used a moderate rate of 3 percent. Using a higher (5 or 7 percent) discount rate implies that we do not care about what happens to future generations.

BROAD USE OF COST OF CARBON POLLUTION

The United States is not alone: Many other countries and states also quantify the benefits of reducing carbon pollution. Canada, Mexico, Britain, Norway, France, and Germany use similar estimates.⁷ And many U.S. states have started doing so as well, including Minnesota, New York, Washington, and Maine.⁸

ENDNOTES

1 *Center for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1200 (9th Cir. 2008).

2 *Zero Zone Inc. v. U.S. Dept. of Energy*, 832 F.3d 654, 677-79 (7th Cir. 2016). Cass R. Sunstein, "A Court Ruling that Could Save the Planet," *Bloomberg*, August 12, 2016, www.bloomberg.com/view/articles/2016-08-12/a-court-ruling-that-could-save-the-planet.

3 Interagency Working Group on Social Cost of Carbon, United States Government, *Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866*, May 2013, web.archive.org/web/20170118134050/https://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf (Accessed January 26, 2017).

4 "Testimony of Howard Shelanski Administrator for the Office Of Information and Regulatory Affairs Office of Management and Budget Before The House Committee on Oversight and Government Reform Subcommittee on Energy Policy Healthcare And Entitlements United States House of Representatives," July 18, 2013, oversight.house.gov/wp-content/uploads/2013/07/Shelanski-OIRA-Testimony-SCC-7-18.pdf. For more information, see Peter Howard, *Omitted Damages: What's Missing From the Social Cost of Carbon*, The Cost of Carbon Project, March 2014, costofcarbon.org/reports/entry/omitted-damages-whats-missing-from-the-social-cost-of-carbon.

5 Peter Howard and Derek Sylvan, *Expert Consensus on the Economics of Climate Change*, Institute for Policy Integrity, December 2015, policyintegrity.org/files/publications/ExpertConsensusReport.pdf. Ker Than, "Estimated Social Cost of Climate Change Not Accurate, Stanford Scientists Say," *Stanford News*, January 12, 2015, news.stanford.edu/2015/01/12/emissions-social-costs-011215/.

6 *Zero Zone Inc. v. U.S. Dept. of Energy*, 832 F.3d 654, 677-79 (7th Cir. 2016).

7 Peter Howard and Jason Schwartz, Appendix B in *Think Global: International Reciprocity as Justification for a Global Social Cost of Carbon*, Institute for Policy Integrity, Working Paper No. 2016/3, August 16, 2016, policyintegrity.org/files/publications/Global_Social_Cost_of_Carbon_Reciprocity.pdf.

8 *Id.*