

Why GAO Did This Study

To address climate change, some countries develop monetary estimates to assess the costs and benefits of government actions to reduce greenhouse gas emissions, including carbon dioxide. In the United States, in 2009, OMB convened an interagency working group to estimate the social cost of carbon—the dollar value of the effects of an incremental increase in carbon dioxide emissions in a given year—for assessing regulatory costs and benefits. In 2017, the National Academies recommended updates to the methods used to develop the estimates. Later that year, Executive Order 13783 disbanded the working group, withdrew its guidance, and directed agencies to ensure that, to the extent permitted by law, estimates are consistent with Circular A-4, OMB’s general guidance for regulatory analysis. GAO was asked to review approaches for developing and using the estimates.

This report examines, among other objectives: (1) how the federal government’s current estimates compare to its prior estimates and (2) how the federal government plans to address the recommendations of the National Academies. GAO reviewed executive orders, OMB guidance, and regulatory impact analyses and interviewed OMB, EPA, NHTSA, and BLM officials and staff who had conducted such analyses.

What GAO Recommends

GAO recommends that OMB identify a federal entity responsible for addressing the National Academies’ recommendations. OMB did not comment on the recommendation.

View [GAO-20-254](#). For more information, contact J. Alfredo Gómez at (202) 512-3841 or gomezj@gao.gov.

SOCIAL COST OF CARBON

Identifying a Federal Entity to Address the National Academies’ Recommendations Could Strengthen Regulatory Analysis

What GAO Found

According to documents reviewed and interviews with officials from the Environmental Protection Agency (EPA), Bureau of Land Management (BLM), and National Highway Traffic Safety Administration (NHTSA), the federal government’s current social cost of carbon estimates used in conducting regulatory impact analyses are lower than its prior estimates. Although both the prior and current estimates were calculated using the same economic models, two key assumptions used to calculate the current estimates were changed: using (1) domestic rather than global climate change damages (see table) and (2) different discount rates (3 and 7 percent rather than 2.5, 3, and 5 percent). As a result, the current federal estimates, based on domestic climate damages, are about 7 times lower than the prior federal estimates that were based on global damages (when both prior and current estimates are expressed in 2018 U.S. dollars and calculated using a 3 percent discount rate).

Prior and Current Federal Estimates of the Social Cost of Carbon, per Metric Ton, at a 3 Percent Discount Rate in 2018 U.S. Dollars

Year of emissions	Prior estimates (based on global climate change damages)	Current estimates (based on domestic climate change damages)
2020	\$50	\$7
2030	\$60	\$8
2040	\$72	\$9
2050	\$82	\$11

Source: GAO analysis of data from the Interagency Working Group on Social Cost of Greenhouse Gases, EPA, and the United States Gross Domestic Product Price Index from the U.S. Department of Commerce, Bureau of Economic Analysis. | GAO-20-254

The federal government has no plans to address the recommendations of the National Academies of Sciences, Engineering, and Medicine for updating the methodologies used to develop the federal estimates of the social cost of carbon. In a January 2017 report, the National Academies made recommendations for updating the methodologies used to estimate the social cost of carbon to ensure federal estimates reflect the best available science. The Office of Management and Budget (OMB) in Circular A-4 provided guidance to federal agencies on how to conduct regulatory analyses, and in 2017 Executive Order 13783 directed agencies to use that guidance when estimating the social cost of carbon; both direct agencies to use the best available science. OMB staff GAO interviewed said the agency does not have specific plans for implementing the recommendations and that no federal agency has responsibility for addressing them. OMB staff told GAO that nonfederal entities are leading research efforts that are responsive to the recommendations, but no federal entity has responsibility for monitoring developments in scientific research or ensuring updated federal estimates consider such developments. However, OMB continues to play a leading role in the federal government’s use of the social cost of carbon by having responsibility for the guidance in Circular A-4, which Executive Order 13783 directs agencies to be consistent with in developing their social cost of carbon estimates. By identifying a federal entity to be responsible for addressing the National Academies’ recommendations, OMB would have better assurance that agencies use the best available science in their regulatory impact analyses.