

The Obama Administration published a notice in the Federal Register today [seeking comment](#) on its approach to estimating the social cost of carbon (SCC) for use in regulatory impact analysis. The premise of the SCC, and public policies aimed at reducing carbon dioxide (CO₂) emissions, is that the social cost of burning carbon is greater than the private cost, because the long-term effects of CO₂ emissions on the climate are not included in the costs of the goods and services that generate the emissions. The SCC is intended to reflect this “external cost” associated with CO₂ emissions.

There is certainly room to debate the merits of the Administration’s climate agenda as a whole; but, as we have noted in [previous analyses](#), if the U.S. is going to constrain CO₂ emissions, the use of a unified SCC makes sense. The SCC summarizes into one metric a vast array of information derived from scientific and economic research and modeling. To the climate, all CO₂ molecules look alike, so use of a consistent SCC can bring some coherence to the vast portfolio of emissions regulations, energy efficiency standards, renewable fuel mandates, technology subsidies, and other policies intended to mitigate global warming.

The question is, what value should the government use? In response to a [2007 Ninth Circuit Court of Appeals opinion](#), which remanded to the National Highway Traffic Safety Administration a corporate average fuel economy (CAFE) standard because the agency “failed to monetize the value of carbon emissions,” the Bush administration [sought comment on a value of \\$7 per metric ton](#) in a 2008 proposal. The Obama administration used that \$7/metric ton in its [final rule setting CAFE standards](#) in 2009. In 2010, an Interagency Working Group on the Social Cost of Carbon issued a “[technical support document](#)” (TSD), without public comment, which established a range of SCC values. In May 2013, the Working Group [revised the SCC values](#), again without seeking public comment. The revised 2013 values [were more than 60 percent higher](#) than those presented in 2010. For example, for 2020 using a 3 percent discount rate, the SCC rose to \$43/metric ton from \$26.3/metric ton. Another revision announced on November 1, 2013 lowers the values slightly, but more importantly, OIRA Administrator Howard Shelanski [committed](#) to seeking [public comment on the document](#).

Though released as a technical document, the SCC is appropriately viewed as a policy instrument. The 2013 “technical updates” raised the estimated social cost of U.S. CO₂ emissions by about \$100 billion per year over 2010 values. If the U.S. were using a carbon tax to address climate change, this would amount to [a trillion-dollar tax increase](#) over the next decade. Instead, this trillion dollars will be placed on the scale of benefit-cost analysis, weighing in favor of expanded regulation by DOE, DOT, EPA, and all of the other federal agencies engaged directly or indirectly in climate policy. The influential nature of the SCC value for a variety of future policies, as well as the difficulties and uncertainties of calculating the SCC make robust public comment essential.



Some of the key issues involved in setting the SCC include the appropriate discount rate for considering effects that may occur far in the future, the scientific and technical uncertainties in modeling emissions effects over time, and whether benefits to other nations should be included in the value.

The discounting question is particularly difficult given the long time horizon for impacts. People are generally comfortable with the notion of discounting over time periods of 30 years or so, but as the Interagency Working Group noted in its 2010 TSD, “the choice of a discount rate, especially over long periods of time, raises highly contested and exceedingly difficult questions of science, economics, philosophy, and law.” The choice of discount rate affects the SCC significantly: values for 2020 range from \$12/metric ton at 5 percent to \$64/metric ton at 2.5 percent. The economic rationale for such low discount rates depends critically on assumptions such as a neutral attitude towards risk, unbiased estimates of various outcomes (i.e., no precautionary assumptions or worst-case scenarios), and a clear analysis of uncertainty.

Further, uncertainty in the “integrated assessment models,” which combine climate science models with economic models, is great. As MIT economist [Robert Pindyck observed](#), “even if we assume that the climate science part of the three IAMs was accurate (a dubious assumption), the treatment of economic impact in those (and most) IAMs is completely ad hoc and of almost no predictive value.”

A third important policy question affecting the choice of the SCC is whether to consider impacts on the United States, or on the world. The administration has chosen to use a global value, which it estimates is between 4 and 14 times the domestic value to U.S. citizens. Given that the Energy Information Administration (EIA) [projects](#) that increasing emissions in other countries (especially China and India) will more than offset steady or declining U.S. emissions over the next 25 years, the appropriateness of using a global metric to value U.S. emission reductions is questionable.

None of these difficulties argue against using an SCC. If we are going to issue regulations to address climate change, it is important to have a reasoned, consistent basis for estimating those benefits. These challenges do call for thoughtful discussion of these policy issues however, and a recognition that the SCC is ultimately a policy tool, and not a “right number” that technical experts can divine through modeling.

Perhaps the best use of this policy tool would be in international negotiations. U.S. policies to reduce domestic emissions will do little good if they merely shift production overseas. If that happens, U.S. citizens will lose the good things associated with those economic activities (job opportunities, productivity, growth) without avoiding the bad things, because sources of CO₂ and other greenhouse gases will simply migrate to where they are unconstrained. In the absence of an international agreement on climate policy that achieves functional reciprocity, the real SCC of any unilateral action by the U.S. is effectively zero, or less. Working to reach agreement with other countries to ensure that worldwide efforts are based on the same marginal cost would pay much higher dividends for future generations across the world than unilateral actions.

