

Identifying the means to an end: The role of the social cost of carbon

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The Biden-Harris Administration Day One Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis established an interagency working group to publish a revised interim Social Cost of Carbon (SCC) within 30 days and then to complete a final SCC by January 2022.

The Social Cost of Carbon is a metric that seeks to capture all of the costs that emitting a ton of carbon dioxide imposes on society by contributing to climate change over the hundreds of years it remains in the atmosphere.

On February 26, the workgroup relied on Obama-era methods to produce an interim SCC figure of \$51 per ton, replacing the Trump-era estimate of between \$1 and \$6 per ton. Twelve states promptly challenged the new figure in federal district court in Missouri as unlawful and unconstitutional.¹

The SCC is a metric that seeks to capture all of the costs that emitting a ton of carbon dioxide (or equivalent amounts of other greenhouse gases such as methane) imposes on society by contributing to climate change over the hundreds of years it remains in the atmosphere.

While the cost of carbon emissions on society is relevant in making decisions about what steps are worthwhile to prevent such emissions, the vast range in estimates underscores how complex such an assessment is.

Indeed, some scientists opine² that the social cost of carbon should actually start at about \$100 to \$200 per ton of carbon dioxide pollution, increasing to nearly \$600 by 2100. As climate policymaking and litigation unfold, there are three main topics business stakeholders need to understand about the Social Cost of Carbon.

WHAT ARE THE KEY VARIABLES AFFECTING THE SCC AMOUNT?

The SCC is based on models that encompass the contribution of greenhouse gas emissions to atmospheric concentrations, the effect of those concentrations on global temperatures, climate change around the globe and ocean acidification, and the consequences of such changes such as severity of storms, sea level rise, biodiversity, agricultural yields, and human health effects. The SCC then monetizes those impacts over time.

The sheer breadth of this exercise is staggering, and necessarily creates substantial uncertainty. How much will global temperatures and sea levels rise, when will that occur, and exactly what effects they will have all are uncertain. Still, in explaining the difference between the Trump \$1-\$6 per ton and the Biden interim \$51 per ton, two major inputs to the model dominate in their importance — the discount rate and geographic scope.

The discount rate is intended to account for the difference between the benefits to society from carbon-emitting activities and the future costs those carbon-emissions may irreversibly impose over hundreds of years.

Indeed, the period of time over which impacts are considered and discounted is also relevant; discounting cumulative impacts from climate change over 50 years would result in a different present cost than discounting cumulative impacts from climate change over one hundred years, and of course the uncertainties in assessing those impacts will vary by the time period, as well.

In order to place those costs and benefits on an equal footing, the costs are “discounted” to a present value. A lower discount rate puts greater value on future impacts, whereas a higher discount rate places a higher value on the present.

That choice has a dramatic effect: an SCC of \$10 at a 5% discount rate becomes \$50 at a 2.5% discount rate. Adding to the complexity, uncertainties regarding future costs abound: Among many others, how big will the affected population be in 100 years, and what technological advances may occur affecting climate resiliency?

Likewise, two issues arise with regard to the global scope of climate change.

First, in making policy in the United States, the Trump Administration considered only the effects of climate change in the United States; costs imposed on those living outside of the United States, for example submerging Pacific Islands, were not taken into account. Not surprisingly, taking into account the costs imposed globally has a dramatic effect on the cost.

While no one disputes that carbon dioxide becomes well mixed in Earth's atmosphere, and sources of GHG emissions in the United States therefore contribute to global climate-change related impacts, it is a separate *policy* question whether federal agencies should consider the costs and benefits of their domestic regulations that accrue to countries and parties outside of the United States, or whether they should only consider the costs and benefits experienced within the United States.

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For example, should costs imposed by US regulation of greenhouse gases be justified by including in the benefits the reduction of climate change impacts outside of the United States?

Second, in determining the benefits (domestic or international), of reducing GHGs in the United States, the levels of non-US GHGs matter. Global climate change depends on the global concentration of GHGs in the atmosphere, which in turn depends on the level of global emissions, for which the United States has only a limited impact.

Since the incremental impacts of GHG emissions and global temperature rise are not necessarily constant – for example, temperature rise above 1.5-2.0° C may be more harmful than temperature rise up to that level – the SCC of US emissions may depend on assumptions regarding emissions in the rest of the world.

This itself requires predictions and assumptions regarding policy decisions of governments around the world and is a source of uncertainty.

HOW IS THE SCC USED TO MAKE POLICY?

Cost-benefit analysis has long been a key feature of rational government policymaking; who can argue against the wisdom

of requiring expenditures to control pollution that cost less than the resulting benefits for society or the arbitrariness of requiring expenditures that cost more than the resulting benefits?

At least theoretically, if experts can quantify the costs and benefits correctly, it is straightforward that the “right” policy choices will have benefits that outweigh the associated costs. In practice, of course, it is anything but straightforward.

In many situations, decisionmakers lack reliable information concerning the monetary value of environmental benefits; the benefits for vulnerable populations of reducing mercury³ (another global pollutant), for example, have been notoriously difficult to monetize comprehensively.

For the impacts of GHG emissions, the SCC offers at least one tool to guide decisions, and debates over its utility will likely play out in multiple arenas.

First, the SCC will be used to benchmark the benefits of agency regulations. Since the Reagan Administration, presidents have required by Executive Order that all major federal regulations, defined as those imposing a cost of \$100 million or more, must be supported by a cost benefit analysis.

The SCC surely will figure prominently in evaluating the benefits side of the equation in imminent rulemakings to revisit and extend GHG emissions standards for cars and trucks and methane emissions standards for oil and gas production, in developing new greenhouse gas standards for electric power generation, and in setting efficiency standards for all manner of consumer and household products, among many other climate-related regulations.

An important additional consideration will be the potential to use the SCC to add collateral or “indirect” benefits to justify non-GHG regulations. For example, recent attention has focused on tightening the National Ambient Air Quality Standards (NAAQS) for ozone smog, which is formed by atmospheric reactions on volatile organic compounds (VOCs) and nitrogen oxides (NOx).

Meeting more stringent standards does not directly require reductions in GHGs, but reducing sources of combustion that create NOx, such as fossil fuel combustion, indirectly may reduce greenhouse gas emissions. Counting the “indirect” GHG benefits of regulations necessary to reduce NOx may justify greater stringency.

Second, the SCC will play a role in environmental evaluations of various projects subject to environmental review and permitting. The National Environmental Policy Act (NEPA) establishes requirements for an environmental impact statement (EIS) to evaluate proposed federal actions and alternatives to those actions.

This includes projects that emit GHG, directly or indirectly, where the costs of those impacts may be monetized using the SCC, and then weighed against the societal benefits. Examples of such projects might include federal permitting actions or federal funding for oil pipelines, highways, airports and ports.

On the other hand, proponents of infrastructure projects to reduce GHG emissions, such as renewable energy projects and associated electric transmission lines, may seek to justify investments in reliance on the SCC.

A separate and critically important issue (not addressed here) is whether and to what extent federal agencies should be required to consider the indirect downstream and upstream GHG emissions that may be associated with energy infrastructure projects (e.g., whether an agency approving a natural gas infrastructure project must consider the emissions associated with end-use combustion).⁴

In many situations, decisionmakers lack reliable information concerning the monetary value of environmental benefits.

But even in circumstances where an agency must consider GHG emissions as part of an environmental impact statement under NEPA, the utility and appropriateness of relying on the SCC as part of the analysis is an open question, with the courts offering inconsistent views.⁵

The propriety of using the SCC for purposes of project-specific NEPA reviews will likely be addressed by the Biden-Harris Administration's Council on Environmental Quality (CEQ), as it seeks to replace the now-rescinded Trump Administration's proposed guidance for federal agencies regarding evaluation of GHG emissions under NEPA.⁶

CEQ also may address the SCC in the course of reconsidering the Trump Administration's comprehensive revisions to the NEPA implementing regulations, which are currently being challenged in multiple district courts around the country.⁷

Finally, in a noteworthy development, the Federal Energy Regulatory Commission — which is now run by a majority of Democratic-appointed Commissioners including Chairman Richard Glick, who has been outspoken on GHG issues — recently issued a Notice of Inquiry seeking public comment on a lengthy series of fundamental questions regarding GHG analysis and NEPA in the context of certifying new natural gas transportation facilities under Section 7 of the Natural Gas Act (NGA).

Comments in response to the Notice of Inquiry⁸ were due April 26, but may be extended in response to pending requests. Among other things, FERC is seeking input from stakeholders on whether and to what extent FERC is

required to consider the SCC in the course of issuing these certifications. The questions include:

- Does the NGA or NEPA authorize or mandate the use of the SCC metric by the Commission?
- Are there specific remedies the Commission may impose based on findings relating to the SCC?
- How can the SCC be used to evaluate whether a proposed project meets the public convenience and necessity standard?
- How can the SCC be used to evaluate whether a project has “significant” effects on climate for purposes of NEPA review?
- What are the appropriate discount rates the Commission should use in calculating the SCC?
- Are there alternatives to the SCC tool that the Commission should consider using?

The responses of various industry stakeholders and NGOs undoubtedly will tee up a significant debate over the value and utility of relying on the SCC as a tool in the context of project-specific environmental review.

The positions taken by major players in the industry, and the Commissioners' responses to same, likely will be the most important forum in which these issues will be debated during the early months of the Biden-Harris Administration.

Third, of course, federal actions end up in court. As noted, right off the bat, in *Missouri v. Biden*, twelve states challenged the Biden Administration's decision to rely on an interim SCC of \$51 per ton.

The states argue first that setting the SCC — with all of the uncertainties and policy implications involved — is an inherently legislative task and that the Biden Administration's calculation will be used to impose “trillions of dollars in regulatory costs on the American economy every year” without statutory or constitutional authority.

Because the interim SCC is mandatory and binding on federal agencies, the states assert, it will cause them harm and the SCC work group was required to undertake notice-and-comment rulemaking yet failed to do so. They also argue that the interim SCC figure is substantively arbitrary.

Factually, they assert that, applying the interim SCC and a three percent discount rate, the collective social costs of United States' emissions of carbon, methane and nitrous oxide in 2020 was approximately \$9.5 trillion.

There is a significant possibility this lawsuit will not proceed to the merits, given the temporary nature of the interim SCC figure, and in light of the government's likely defense that the

SCC is neither legally binding, nor final agency action, nor ripe for review.

Whether or not the states can challenge this government-wide benchmark, the same arguments are sure to appear over and over again when federal agencies apply the SCC to justify federal regulations and actions.

The total implied cost of current levels of US GHGs implies that staggering regulatory burdens would be justified to avoid such costs — four times the cost of the Biden Administration’s American Rescue Plan coronavirus relief bill.

Whether the court will reach the states’ contention in *Missouri* that the workgroup failed to consider the economic benefits of GHG emitting activities, the rationality of agencies’ weighing of the costs and benefits will be squarely presented in challenges to specific regulations.

THE SCC SHOULD NOT BE VIEWED IN ISOLATION

For all of the attention that the new administration’s action on the SCC is receiving, it is only one of a number of critical benchmarks in climate policymaking. Much attention also has been given to the administration’s “net zero” goal for “decarbonizing” the economy by 2050 and a goal of a “carbon free” electricity sector by 2035.

These goals further match commitments under the UNFCCC Paris Climate Agreement, which the Administration has reentered, and all together correspond to an imperative to share responsibility to avoid a global temperature rise above 1.5-2.0° C, viewed by climate scientists as a critical threshold to avoid catastrophic impacts.

The long-term goals are simple to articulate and imply a general glide-path for progress that requires massive action in the near-term to have a chance of success.

How does the SCC relate to these goals? Does case-by-case evaluation of the costs of various regulations and infrastructure investments against an interim \$51 SCC (or possibly different revised final SCC) match the steps needed to achieve these goals?

As each such action is considered, surely the regulatory costs will be elaborated and debated, and will evolve over time. Given all of the uncertainties involved, it would seem only a great coincidence if the SCC benchmark is precisely calibrated to achieve reductions that match these goals.

And what happens if the investments based on the SCC are not sufficient to achieve them? Will the SCC reinforce

the justification for these goals or conflict with them? How will regulators and courts consider these other benchmark imperatives as alternatives to the SCC?

And other questions abound: The American Petroleum Institute⁹ recently made headlines with its announcement that it endorses carbon pricing to support climate technology innovation. Should legislation that prices carbon across economic sectors — such as through taxation or carbon trading programs — take the SCC into account and, if so, how?

These are some of the questions to watch as the project of tackling the “climate crisis” unfolds.

Notes

¹ *Missouri v. Biden*, Civ. No. No. 4:21-cv-00287-SPM (E.D. Mo. March 8, 2021).

² <https://bit.ly/3aYITLF>

³ <https://bit.ly/3xlPTKZ>

⁴ See, e.g., Ethan Shenkman, FERC in Limbo on Greenhouse Gas Reviews Despite Court’s Mandates, *Env’tl. F.* (Sept./Oct. 2019); *Birckhead v. FERC*, 925 F.3d 510 (D.C. Cir. 2019); *Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017); <https://bit.ly/32RGA7e>.

⁵ See *Appalachian Voices v. Fed. Energy Regul. Comm’n*, No. 17-1271, 2019 WL 847199 (D.C. Cir. Feb. 19, 2019) (“the Social Cost of Carbon tool ... is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act”); *WildEarth Guardians v. Zinke*, No. 17-cv-80, 2019 WL 2404860 (D. Mont. Feb. 11, 2019), report and recommendation adopted sub nom. *WildEarth Guardians v. Bernhardt*, No. 17-cv-80, 2021 WL 363955 (D. Mont. Feb. 3, 2021) (finding reasons that the Office of Surface Mining Reclamation and Enforcement gave for not using SCC were arbitrary because they elected to evaluate the socioeconomic benefits of the proposed mine expansion project and failed to evaluate the costs of the GHG emissions).

⁶ For more information, see, e.g., Shenkman, et al., “CEQ’s Rescission of Trump’s Proposed NEPA Climate Guidance” (Feb. 23, 2021).

⁷ For more information, see, e.g., Shenkman, et al., “CEQ Finalizes Comprehensive Changes to NEPA Regulations” (July 30, 2020).

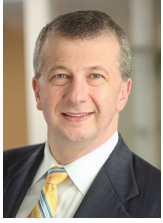
⁸ <https://bit.ly/3aGxS03>

⁹ <https://bit.ly/3sOyirz>

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