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Significant Impacts Under NEPA: The Social Cost of Greenhouse Gases as a Tool to Mitigate Climate Change

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SIGNIFICANT IMPACTS UNDER NEPA: THE SOCIAL COST OF GREENHOUSE GASES AS A TOOL TO MITIGATE CLIMATE CHANGE

*Sydney Hofferth**

The increased severity of the impacts of climate change demand a re-evaluation of the legal tools that could combat it. The National Environmental Policy Act (“NEPA”) was passed to force government agencies to account for the environmental impacts of their actions. However, as it exists today, NEPA fails to require agencies to consider how their actions will mitigate or exacerbate climate change. This Note argues that agencies should be required to consider the social cost of the greenhouse gases associated with potential major actions at various stages of NEPA analysis. This change would result in increased transparency and public engagement in the NEPA review process, furthering the original goals of the Act and hopefully resulting in more environmentally-friendly government actions in the future.

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INTRODUCTION

Climate change is an ever growing problem that needs no explanation.¹ As a party to the Paris Agreement, the United States has international and domestic motivations to decrease GHG emissions. President Biden has taken action on climate change starting on his first day in office. On January 20, 2021, he brought the United States back into the Paris Agreement.² On that same day, he signed Executive Order 13990, which directed federal agencies to account for the costs of GHG emissions and re-convened the Interagency Working Group (“IWG”) on the Social Cost of Greenhouse Gases (“SC-GHG”), which is tasked with developing interim and final valuations for the social cost of carbon (“SCC”), social cost of nitrous oxide (“SCN”), and the social cost of methane (“SCM”) for use by federal agencies in their decision-making.³ The SC-GHG is a monetary estimate of the costs associated with marginal increases in GHG emissions, and includes changes in things like net agricultural productivity, human health, and property damage.⁴

While the SC-GHG is controversial to some,⁵ and is not without its flaws, it is a valuable tool that has the potential to transform the nation’s fight against climate change.⁶ Guidance from the Council on Environmental Quality (“CEQ”) from as early as 2009 identified the importance of considering GHG emissions in agency decision-making.⁷ 2016 CEQ guidance recommends that agencies quantify both direct and indirect GHG emissions by utilizing tools that are suitable for evaluating agency action.⁸ In December 2021, the Biden Administration issued an

1. Intergovernmental Panel on Climate Change, Sixth Assessment Report, Climate Change 2021: The Physical Science Basis, Summary for Policymakers (2021) <https://www.ipcc.ch/report/ar6/wg1/#SPM> [hereinafter IPCC Summary for Policymakers].

2. Press Statement, U.S. Dept. of State, The United States Officially Rejoins the Paris Agreement (Feb. 19, 2021) <https://www.state.gov/the-united-states-officially-rejoins-the-paris-agreement/>.

3. Exec. Order No. 13,990, 86 Fed. Reg. 7,037 (Jan. 20, 2021).

4. *Id.*

5. *See* Complaint, Louisiana v. Biden, No. 2:21-cv-01074 (W.D. La. Apr. 22, 2021). (A group of ten states filed suit against the Biden Administration, targeting E.O. 13990 as a tool that would harm the states’ economies and that violates the Administrative Procedure Act. The lawsuit was filed in response to the interim estimates for the SC-GHG released by the IWG in February 2021).

6. Peter Coy, *The Most Important Number You’ve Never Heard Of*, THE NEW YORK TIMES (Sept. 17, 2021) <https://www.nytimes.com/2021/09/17/opinion/greenhouse-gas-cost.html>.

7. Exec. Order No. 13,514, 74 Fed. Reg. 52,117 (Oct. 8, 2009) (executive order that required agencies to measure, report, and reduce their GHG emissions); *see also* Memorandum for Heads of Fed. Dep’t and Agencies, Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, Council on Env’t Quality (Feb. 18, 2010) <https://ceq.doe.gov/docs/ceq-regulations-and-guidance/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf> [hereinafter 2010 CEQ Draft Guidance].

8. Memorandum for Heads of Federal Dept’ and Agencies, Final Guidance for Fed. Dep’t and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in Nat’l Env’t Pol’y Act Rev., Council on Env’t Quality (Aug. 1, 2016) <https://ceq.doe.gov/docs/ceq-regulations->

executive order directing all federal agencies to reduce their GHG emissions and update their policies and procedures in an effort to promote resiliency against climate change.⁹ As part of this mandate, the SC-GHGs is posed to help agencies transparently assess the true costs their actions have on the environment.

In order to accurately account for the impacts that federal agency actions have on GHG emissions, and thus on climate change, the SC-GHGs should be fully integrated into the NEPA process through CEQ rulemaking. This proposal aligns with the purpose of NEPA, as it will increase agency transparency, accountability, and public participation in the review process. Additionally, it complements NEPA case law and past and present CEQ guidance.

Part I of this paper will give an overview of NEPA: its history, purpose, and the process it outlines for federal agencies. Part II outlines the background of the IWG and the SC-GHGs and highlights where and how the SC-GHGs is already being used today. Part III proposes an integration of the SC-GHGs into the NEPA process, and explains how the integration aligns with NEPA's purpose, case law, and regulations.

I. NEPA PURPOSE AND PROCESS

NEPA is often referred to as the “Magna Carta” of environmental law.¹⁰ It forces federal agencies to review any proposed actions that may have a significant impact on the environment. The statute itself is quite short, with most enforcement originating from CEQ regulations and federal courts' interpretations of those regulations through challenges under the Administrative Procedure Act (“APA”). This section briefly outlines the history behind NEPA, the role of CEQ and the courts in enforcing the law, and the actual NEPA review process that agencies must follow before taking significant federal actions that have serious environmental impacts.

A. NEPA's History

President Nixon signed NEPA into law on January 1, 1970, making it the first of the major environmental laws passed in that decade. NEPA's stated purpose is to

[D]eclare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage

and-guidance/nepa_final_ghg_guidance.pdf [hereinafter 2016 CEQ Guidance]. (This guidance was withdrawn on Apr. 5, 2017 and is under review as of Feb. 19, 2021.)

9. Exec. Order No. 14,057, 86 Fed. Reg. 70,935 (Dec. 8, 2021).

10. CONG. RSCH. SERV., RL33152, THE NAT'L ENV'T POL'Y ACT (NEPA): BACKGROUND AND IMPLEMENTATION 2 (2011).

to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the nation; and to establish a Council on Environmental Quality.¹¹

The legislative history indicates that congressmen at the time were concerned by the lack of a coordinated national policy with respect to the environment.¹² Especially as compared to civil rights, education, and other then-major issues, representatives viewed the lack of a national environmental policy both as a major shortcoming and as an opportunity for action.¹³ In particular, it was federal agencies' consideration (or lack thereof) of the impacts their actions had on the environment that loomed large in the legislators' minds.¹⁴

NEPA, at its core, is "a declaration of policy with action-forcing provisions."¹⁵ It establishes a framework for federal agencies to integrate environmental considerations into their decision making. However, the law itself does not provide details for how federal agencies should integrate these considerations into their decision-making process.¹⁶ As such, federal courts and the CEQ have played significant roles in answering questions of NEPA procedure, implementation, and enforcement.¹⁷

B. *The Role of CEQ and the Courts*

Shortly after the passage of NEPA, President Nixon issued an executive order authorizing CEQ to issue regulations for the implementation of the procedural provisions of the Act.¹⁸ The executive order directed CEQ to develop regulations that would be

[D]esigned to make the environmental impact statement process more useful to decision makers and the public; and to reduce paperwork and the accumulation of extraneous background data, in order to emphasize the

11. 42 U.S.C. § 4321.

12. CONG. RSCH. SERV., RL33152, THE NAT'L ENV'T POL'Y ACT (NEPA): BACKGROUND AND IMPLEMENTATION 3 (2011).

13. *Id.* at 3-4.

14. *Id.* at 5.

15. *Id.* at 7.

16. FN about how NEPA doesn't include specific guidelines, only a general purpose of the law.

17. CONG. RSCH. SERV., *supra* note 15 at 8.

18. Exec. Order 11,514, 35 Fed. Reg. 4,247 (Mar. 5, 1970).

need to focus on real environmental issues and alternatives ... [and] require impact statements to be concise, clear, and to the point, and supported by evidence that agencies have made the necessary environmental analyses.¹⁹

Additionally, the executive order instructed federal agencies to promote public involvement in the NEPA process.²⁰ Critically, the executive order did *not* grant CEQ the authority to make their regulations legally binding; rather, they were to serve solely as guidance for compliance.²¹ President Carter later amended the executive order such that CEQ's regulations would be legally binding on federal agencies, effective July 1979.²²

CEQ regulations define and continue to shape the NEPA review process as we know it today. They serve three important functions: First, they provide a framework for the scoping process by which federal agencies identify important environmental issues before writing an environmental impact statement ("EIS").²³ Second, they require EISs to be prepared first as drafts and then as final documents.²⁴ Third, they specify exactly how federal agencies should involve the public in the NEPA review process, among other things.²⁵ Importantly, while CEQ has oversight over federal agencies' implementation of its regulations, it does not have power to *enforce* them.²⁶

Thus, NEPA enforcement has largely occurred through APA litigation in the federal courts, which interpret NEPA and ensure that agencies follow CEQ regulations.²⁷ One such interpretation was in the Supreme Court's seminal 1983 decision *Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*,²⁸ where it identified NEPA's "twin aims." The first is to force federal agencies to consider all significant aspects of the environmental impacts of a proposed action, and the second is to ensure that the agency informs the public that it has considered environmental concerns in its decision making.²⁹ In its opinion, the Court emphasized that

19. *Id.*

20. *Id.*

21. *Id.*

22. Exec. Order 11,991, 42 Fed. Reg. 26,967 (May 24, 1977).

23. 40 C.F.R. § 1501.9 (2022).

24. 40 C.F.R. § 1502.9 (2022).

25. Exec. Order 11,991, 42 Fed. Reg. 26,967 at 10 (May 24, 1977).

26. CONG. RSCH. SERV., *supra* at note 15, at 11.

27. *Id.* at 8.

28. 462 U.S. 87, 103 S. Ct. 2246, 76 L. Ed. 2d 437 (1983).

29. *Id.*

Congress in enacting NEPA [] did not require agencies to elevate environmental concerns over other appropriate considerations. Rather, it required only that the agency take a ‘hard look’ at the environmental consequences before taking a major action ... [] Congress intended that the ‘hard look’ be incorporated as part of the agency’s process of deciding whether to pursue a particular federal action.³⁰

The Supreme Court further defined NEPA as a procedural statute in *Robertson v. Methow Valley Citizens Council*; that is, that NEPA prescribes a process for federal agencies to follow and does not mandate particular results.³¹

Together, *Baltimore Gas & Electric Co.* and *Methow Valley Citizens Council* established that NEPA does not require agencies to “elevate environmental concerns over other appropriate considerations,”³² emphasizing the importance of agencies *explaining* their decision making through the “hard look” process. Indeed, while agencies are not bound to choose the most environmentally friendly option, they need to explain why they chose the selected action. This highlights how important it is that agencies are clear and accessible in their reasoning when going through the NEPA process. *Baltimore Gas & Electric Co.* identified informing the public of the agency’s consideration of environmental concerns as one of the twin aims of NEPA.³³

C. The NEPA Review Process

As defined in the statute, NEPA applies to major federal actions that have significant environmental impacts.³⁴ Within these federal actions, there are four categories that are expressly contemplated by NEPA. The first category covers actions that will clearly have significant environmental impacts. For those actions, the agency must prepare an EIS. The second category encompasses agency actions that may or may not have a significant environmental impact. The agency must complete an environmental assessment (“EA”) to determine whether or not the impacts will be significant. For actions that the agency determines will have no significant impacts on the environment. The next category includes actions that will not have a significant impact on the environment, which the agency identifies after the completion of an EA. Once the agency determines that the impacts will not be significant, it will make a finding of no significant impact (“FONSI”). If, however,

30. *Id.* at 100.

31. 490 U.S. 332, 109 S. Ct. 1835, 104 L. Ed. 2d 351 (1989).

32. 462 U.S. 87, 100 S. Ct. 2246, 76 L. Ed. 2d 437 (1983).

33. 462 U.S. 87, 103 S. Ct. 2246, 76 L. Ed. 2d 437 (1983).

34. 42 U.S.C. 55 § 4332.

the agency finds that the impacts will be significant after completing the EA, it must complete a full EIS. At the outset, if the agency determines that the environmental impacts will not be significant, then the agency can proceed with the action. Finally, some agency actions are statutorily defined as categorically excluded (“CE”) and are automatically classified as actions that do not have significant environmental impacts.

1. Major Federal Actions & Significant Impacts

First, in order to determine whether NEPA is applicable to an action, it is necessary to determine whether such action constitutes a *federal* action.³⁵ The Congressional Research Service identifies “federal” actions under NEPA as those which are “potentially subject to federal control and responsibility.”³⁶ Some examples of “federal” actions include “projects and programs entirely or partly funded, assisted, conducted, regulated, or approved by federal agencies.”³⁷ Thus, federal agency compliance with NEPA may be required for actions that require a federal permit or other regulatory decision to proceed.³⁸

Next, the agency must determine whether the action in question will have impacts “significantly affecting the quality of the human environment.”³⁹ CEQ regulations require agencies to analyze a proposed project’s impacts on a case-by-case basis, based on two factors—expected context and intensity.⁴⁰ “Context” denotes the significance of a project’s impacts on society as a whole, an affected region, impacted interests, or the locality⁴¹ whereas “intensity” refers to the *severity* of a project’s impacts, and CEQ requires that agencies evaluate certain baseline factors at a minimum.⁴² For example, the context analysis of a proposed project would show that

35. 40 C.F.R. § 1508.18 (2021).

36. CONG. RSCH. SERV., *supra* at note 15, at 11.

37. 40 C.F.R. § 1508.18(a) (2021).

38. 40 C.F.R. § 1508.18(b)(4) (2021).

39. 42 U.S.C. § 4332.(2)(C) (2021).

40. CONG. RSCH. SERV., *supra* at note 15, at 14.

41. 40 C.F.R. § 1508.27(a) (2021).

42. 40 C.F.R. § 1508.27(b) (2021) (“The following should be considered in evaluating intensity: (1) Impacts that may be both beneficial and adverse. [...] (2) The degree to which the proposed action affects public health or safety. (3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial. (5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. (6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. (7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. [...] (8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. (9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. (10) Whether the action

the impacts of a proposed project affecting one acre of a two-acre wetland would be larger than a project affecting one acre of a one-thousand acre wetland. The intensity analysis involves a more subjective analysis of the project's impacts. Take, for example, an agency action that involves cutting down trees in a national forest in order to reduce the risk of fire. The agency must evaluate the degree to which the action may adversely affect endangered or threatened species, and balance those risks with the potential benefits of the fuel reduction project. Individual agencies are encouraged to create a clear administrative record when evaluating a project's context and intensity, since the process requires subjective judgments. This is important because a clear record helps the agency demonstrate that it reached its conclusions as to a project's impacts appropriately.

2. EIS

Following a determination that a proposed action will have a significant environmental impact, an agency must prepare an EIS. An EIS is "a detailed written statement"⁴³ that includes a discussion of the environmental impact of the proposed action, any adverse effects the proposed action may have, alternatives to the action, and other factors.⁴⁴ Immediately after deciding that an EIS is necessary, the agency must publish a notice of intent in the *Federal Register* informing the public of the proposed action.⁴⁵ In conjunction with the determination that an EIS is needed, the agency must also determine the scope of the project.⁴⁶ Scoping is "an early and open process for determining the scope of issues to be addressed and for identifying the

threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.")

43. 40 C.F.R. § 1508.11 (2021). See *Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1114 (D.C. Cir. 1971) ("To ensure that the balancing analysis is carried out and given full effect, Section 102(2)(C) requires that all responsible officials of all agencies prepare a 'detailed statement' covering the impact of particular actions on the environment, the environmental costs which might be avoided, and alternative measures which might alter the costbenefit equation. The apparent purpose of the 'detailed statement' is to aid in the agencies' own decision-making process and to advise other interested agencies and the public of the environmental consequences of planned federal action. [...] [A]ll of these Section 102 duties are qualified by the phrase 'to the fullest extent possible.' We must stress as forcefully as possible that this language does to provide an escape hatch for footdragging agencies; it does not make NEPA's procedural requirements somehow 'discretionary.' Congress did not intend the Act to be such a paper tiger.")

44. 42 U.S.C. § 4332(2)(C) ("all agencies of the Federal Government shall—[...]include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on (i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.")

45. 40 C.F.R. § 1506.6(b).

46. CONG. RSCH. SERV., *supra* at note 15, at 16.

significant issues related to a proposed action.⁴⁷ During the scoping process, the agency must, among other things, (1) invite participation of affected agencies, Indian tribes and other interested persons,⁴⁸ (2) determine the scope and significant issues that will be analyzed by the EIS,⁴⁹ and (3) identify and eliminate issues which are not significant or which have been covered by prior environmental review.⁵⁰

Then, once the agency determines the scope of the proposed action, it begins preparation of the EIS. The draft EIS should be prepared in anticipation of the proposed project and must align with the requirements of § 102(2)(C) of the Act.⁵¹ The public must be provided an opportunity to comment on the draft EIS before it is finalized.⁵² After completing the draft EIS, the agency will prepare the final EIS, in which the agency responds to comments and addresses any deficiencies of the draft EIS.⁵³ Agencies are obligated to respond to comments when preparing a final EIS.⁵⁴ Occasionally, a supplemental EIS is required.⁵⁵ The EIS is made up of the following components: purpose and need statement,⁵⁶ alternatives,⁵⁷ affected environment,⁵⁸ environmental consequences,⁵⁹ a list of preparers,⁶⁰ and an appendix.⁶¹

The purpose and need statement is “the foundation on which [] the EIS [is] built.”⁶² As is true of many phases of the NEPA review process, there is no set form for the purpose and need statement. However, courts have determined that the statement cannot be so narrow as to define competing alternatives out of

47. 40 C.F.R. § 1501.7 (2021).

48. 40 C.F.R. § 1501.7(c) (2021).

49. 40 C.F.R. § 1508.25 (2021).

50. See 40 C.F.R. § 1501.7 (2021) for a complete list of scoping requirements.

51. 40 C.F.R. § 1502.9(a) (2021).

52. 40 C.F.R. § 1506.6(b).

53. 40 C.F.R. § 1502.9(b) (2021).

54. 40 C.F.R. § 1503.4(a).

55. 40 C.F.R. § 1502.9(c) (2021).

56. 40 C.F.R. § 1502.13 (2021).

57. 40 C.F.R. § 1502.14 (2021).

58. 40 C.F.R. § 1502.15 (2021). (The EIS “shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration.)

59. 40 C.F.R. § 1502.16 (2021). (This section “will include the environmental impacts of the alternatives including the proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, the relationship between short-term uses of man’s environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented.”)

60. 40 C.F.R. § 1502.17 (2021).

61. 40 C.F.R. § 1502.18 (2021).

62. CONG. RSCH. SERV., *supra* at note 15, at 16.

consideration.⁶³ The Congressional Research Service suggests that the “purpose” of an action might be a discussion of the goals the agency hopes to achieve, and the “need” might be a discussion of existing conditions that would benefit from improvement.⁶⁴

CEQ regulations describe the alternatives section as “the heart of the environmental impact statement.”⁶⁵ This section should compare and contrast the environmental impacts of the proposed action with alternative actions, based on the information and analysis presented in the affected environment and environmental consequences sections. It should also “provide a clear basis for choice among options by the decisionmaker and the public.”⁶⁶

Once the final EIS is approved and the agency decides to take action, it must prepare a record of the decision (“ROD”) to be made available to the public.⁶⁷ CEQ regulations mandate that RODs include a statement of the final decision, all alternatives considered by the agency in reaching its decision, and whether all practicable means to avoid or minimize environmental harm from the selected alternative have been adopted.⁶⁸ If the agency did not take all practicable steps to avoid or minimize potential environmental harm from the selected alternative, it must explain its reasoning.⁶⁹ Generally, once the agency issues the ROD, the action may proceed. In addition to the EIS and the ROD, the final procedural step in the NEPA process might include, but is not limited to, completing and compiling

63. *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 192 (D.C. Cir. 1991). (“The stated goal of a project necessarily dictates the range of ‘reasonable’ alternatives, and an agency cannot define its objectives in unreasonably narrow terms.”) *Friends of Southeast’s Future v. Morrison*, 153 F.3d 1059, 1066-67 (9th Cir. 1998). (Courts analyze purpose and need statements by determining whether or not it was reasonable).

64. CONG. RSCH. SERV., *supra* at note 15, at 17.

65. 40 C.F.R. § 1502.14 (2021).

66. 40 C.F.R. § 1502.14 (2021). (“In this section agencies shall: (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated. (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits. (c) Include reasonable alternatives not within the jurisdiction of the lead agency. (d) Include the alternative of no action. (e) Identify the agency’s preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference. (f) Include appropriate mitigation measures not already included in the proposed action or alternatives.”)

67. CONG. RSCH. SERV., *supra* at note 16, at 18; 40 C.F.R. § 1505.2 (2021). (“The record [...] shall: (a) State what the decision was. (b) Identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable. [...] (c) State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.”)

68. 40 C.F.R. § 1505.2 (2021).

69. *Id.*

“planning documents, notices, scoping hearings, documents supporting findings in the EIS, public comments, and agency responses.”⁷⁰

3. EA & FONSI

When a proposed agency action has uncertain environmental impacts, the agency will prepare an EA.⁷¹ On the one hand, if the agency determines that the proposed action will have significant environmental impacts during the EA process, it should begin preparation of an EIS.⁷² On the other hand, if the agency determines that the impacts will not be significant, it must prepare a FONSI.⁷³ The FONSI serves as the agency’s administrative record in support of its decision that a project will have non-significant environmental impacts, and it must be made available to the public.⁷⁴

4. Categorical Exclusions

CEs are statutorily-provided actions which do not “individually or cumulatively have a significant effect on the human environment.”⁷⁵ When an agency decides that a category of activities should be considered CEs, they submit the proposed CE to CEQ for review.⁷⁶ CEQ then evaluates the proposed CE for conformity with NEPA and CEQ regulations.⁷⁷ There is no data available on the number of CEs that agencies prepare, but a CEQ task force found that agencies tend to push the CE option to its limit and that they are generally confused about how

70. CONG. RSCH. SERV., *supra* at note 15, at 18.

71. 40 C.F.R. § 1508.9 (a) (2021). (An EA is “(a) a concise public document for which a Federal agency is responsible that serves to: (1) Briefly provide sufficient evidence and analysis for determining whether to prepare an [EIS] or a [FONSI]. (2) Aid an agency’s compliance with the Act when no [EIS] is necessary. (3) Facilitate preparation of a statement when one is necessary.” The document “[s]hall include brief discussions of the need for the proposal, of alternatives as required by section 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.”)

72. CONG. RSCH. SERV., *supra* at note 15, at 19.

73. *Id.*

74. 40 C.F.R. § 1508.13 (2021). (“Finding of no significant impact means a document by a Federal agency briefly presenting the reasons why an action, not otherwise excluded [], will not have a significant effect on the human environment and for which an [EIS] therefore will not be prepared. It shall include the [EA] or a summary of it and shall note any other environmental documents related to it[.]”)

75. 40 C.F.R. § 1508.4 (2021). (CEs are actions “which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations [] and for which, therefore, neither an [EA] nor an [EIS] is required. An agency may decide in its procedures or otherwise, to prepare [EAs] [] even though it is not required to do so. Any procedures under this section shall provide for extraordinary circumstances in which a normally excluded action may have a significant environmental effect.”)

76. 40 C.F.R. § 1507.3(a) (2021).

77. 40 C.F.R. § 1506.6 (2021).

CEs should be used.⁷⁸ Specifically, the task force found that agencies see the CE development and revision processes as cumbersome and difficult, resulting in the updating of CEs being very low on agencies' lists of priorities.⁷⁹ At the same time, agencies such as the United States Forest Service regularly take advantage of the CE option in order to avoid NEPA requirements.⁸⁰

The NEPA review process requires agencies to comprehensively evaluate the impacts of significant federal actions, with some exceptions. However, it lacks a mandate for agencies to evaluate the impacts of their actions in the context of climate change. The integration of the SC-GHG into the NEPA process thus represents an opportunity for agencies to estimate the social cost of their significant federal actions in terms of GHG emissions and their associated impacts on climate change.

II. THE INTERAGENCY WORKING GROUP AND THE SOCIAL COST OF CARBON

The SC-GHG has informed federal decision-making for over a decade. Established by the Obama Administration, the SC-GHG is a "monetary estimate of the economic impacts associated with emitting an additional ton of that GHG in a given year."⁸¹ The SC-GHG has inherent limitations as a modeling tool that attempts to predict the impacts of such a complex phenomenon as climate change.⁸² However, there is acknowledgement in the scientific and economic communities that the SC-GHG is the best available to account for the true environmental costs of

78. Daniel R. Mandelker, *The Nat'l Env'tl Pol'y Act: A Rev. of Its Experience and Probs.*, 32 WASH. U. J. L. & POL'Y 293, 298 (2010), https://openscholarship.wustl.edu/law_journal_law_policy/vol32/iss1/9. NEPA TASK FORCE, COUNCIL ON ENV'TL QUALITY, MODERNIZING NEPA IMPLEMENTATION, 58, 61, 62 (2003), <https://ceq.doe.gov/docs/ceq-publications/report/finalreport.pdf> (identifying issues agencies have with CEs, including a perception that they are difficult to revise, that the CE approval process is cumbersome, a general lack of resources and lack of clear guidance that results in the development or revision of CEs being pushed to the bottom of an agency's list of priorities.)

79. *Id.*

80. See Kevin H. Moriarty, *Circumventing the Nat'l Env'tl Pol'y Act: Agency Abuse of the Categorical Exclusion*, 79 N.Y.U. L. Rev. 2312, 2327 (2004) (Noting that initially, the Forest Service limited CEs to administrative activities like editing organization charts and taking inventory. However, after CEQ guidance issued in 1983 which recommended the expansion of CEs, the Forest Service expanded its CEs in a manner that has been unprecedented.) 36 C.F.R. § 220.6 (2022) (lists the categories of actions that qualify as CEs for the Forest Service, including the construction and reconstruction of trails, short-term mineral, energy, or geophysical investigations, the harvest of live trees not to exceed 70 acres, and the salvage of dead or dying trees not to exceed 250 acres.)

81. KATE C. SHOUSE, CONG. RSCH. SERV., IF11844, SOCIAL COST OF GREENHOUSE GASES: ISSUES FOR CONGRESS (2021).

82. See Robert S. Pindyck, *Climate Change Policy: What Do the Models Tell Us?* 51 J. OF ECON. LITERATURE 860 (2013).

federal actions and to prevent the worst impacts of climate change in the United States and around the world.⁸³

A. The Origins of the IWG: Center for Biological Diversity v. NHTSA

The IWG was born out of a decision from 2008 by the Ninth Circuit. In *Center for Biological Diversity v. the National Highway Traffic Safety Administration*, the Ninth Circuit ruled that the NHTSA was arbitrary and capricious when it failed to monetize the benefits of GHG emissions reductions in its EA analyzing a proposed rule which would set new corporate average fuel economy (“CAFE”) standards for light trucks.⁸⁴ Specifically, the Court observed, “while the record shows that there is a range of values, the value of carbon emissions reduction is certainly not zero,”⁸⁵ and it remanded the case back to the Department of Transportation so that the agency could “include a monetized value for this benefit in its analysis.”⁸⁶

Shortly after that decision, the Obama Administration created the IWG to “ensure that agencies were using the best available science and to promote consistency in the values used across agencies.”⁸⁷ In 2010, the IWG published estimates for the SCC, which were developed using three well-respected integrated assessment models (“IAMs”) “that estimate global climate damages using highly aggregated representations of climate processes and the global economy combined into a single modeling framework.”⁸⁸ In 2016, the IWG published estimates of the SCM and SCN using methodologies consistent with the SCC, and in January of 2017, the National Academies of Sciences, Engineering, and Medicine (NAS) “issued recommendations for an updating process to ensure estimates continue to reflect the best available science.”⁸⁹

83. See Richard L. Revesz and Max Sarinsky, *The Social Cost of Greenhouse Gases: Legal, Economic, and Institutional Perspective*, 39 Yale J. of Reg. (forthcoming 2022). (“The social cost of greenhouse gases provides the best available method to quantify and monetize the climate damages attributable to the emission of an incremental unit of heat-trapping pollution.”) See also *Base the Social Cost of Carbon on the Science*, 541 NATURE 260 (2017). (Identifying the SCC as “a way of accounting for the far-reaching impacts of [government] decisions.”)

84. *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008). (Specifically, the NHTSA “assigned no value to the most significant benefit of more stringent CAFE standards: reduction in carbon emissions [...] the agency refused to place a value on this benefit.”)

85. *Id.* at 1200.

86. *Id.* at 1203.

87. INTERAGENCY WORKING GROUP ON SOCIAL COST OF GREENHOUSE GASES, U.S. GOV’T TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF CARBON, METHANE, AND NITROUS OXIDE INTERIM ESTIMATES UNDER EXECUTIVE ORDER 13990 (2021) https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf [hereinafter 2021 INTERAGENCY WORKING GROUP ON SOCIAL COST OF GREENHOUSE GASES].

88. *Id.* at 2.

89. *Id.*

In March of 2017, with Executive Order 13783, the Trump Administration disbanded the IWG and ordered agencies to monetize the value of GHG emissions consistent with the guidance from the Office of Management and Budget's Circular A-4.⁹⁰ However, in January of 2021, President Biden issued Executive Order 13990, re-establishing the IWG and directing the group to provide recommendations for updated SC-GHG after considering the recommendations of the NAS 2017 report.⁹¹ Additionally, Executive Order 13990 instructs the IWG to publish interim SC-GHGs within 30 days of the executive order's signing, publish a final SC-GHGs no later than January of 2022.⁹² It also requires the IWG provide recommendations in two ways: first, regarding areas of decision-making, budgeting, and procurement by the Federal Government where the SC-GHGs should be applied no later than September of 2021; and second, to update the SC-GHG calculation to better account for climate risk, environmental justice, and intergenerational equity no later than June 1, 2022.⁹³

B. *The Intricacies of the SC-GHGs*

The SC-GHGs was designed to “quantify climate change damages, representing the net economic cost of carbon dioxide emissions.”⁹⁴ The IWG developed values for the SC-GHGs using the three most widely cited climate IAMs to link physical impacts to the economic damages of carbon dioxide emissions.⁹⁵ Estimates of the SC-GHGs are calculated in four steps using computer models.⁹⁶ First, the models predict future emissions based on a number of factors, including population and economic growth.⁹⁷ Second, the models predict future climate

90. Exec. Order No. 13,783, 82 Fed. Reg. 16,093, 16,095-96 (Mar. 28, 2017) (“The [IWG], which was convened by the Council of Economic Advisers and the OMB director, shall be disbanded[.] [...] Effective immediately, when monetizing the value of changes in greenhouse gas emissions resulting from regulations, including with respect to the consideration of domestic versus international impacts and the consideration of appropriate discount rates, agencies shall ensure, to the extent permitted by law, that any such estimates are consistent with the guidance contained in OMB Circular A-4[.]”)

91. Exec. Order No. 13,990, 86 Fed. Reg. 7,037 (Jan. 20, 2021) (Additionally, the Exec. Order directed the IWG to consider “other pertinent scientific literature; to solicit public comment; engage with the public and stakeholders; seek the advice of ethics experts; and ensure that the SCC, SCN, and SCM reflect the interests of future generations in avoiding threats posed by climate change.”)

92. *Id.*

93. *Id.*

94. INST. FOR POLICY INTEGRITY, SOCIAL COST OF GREENHOUSE GASES 1 (2017), https://policyintegrity.org/files/publications/Social_Cost_of_Greenhouse_Gases_Factsheet.pdf.

95. *Id.* (The three IAMs are known as DICE, FUND, and PAGE. Each has been extensively peer-reviewed and translates “emissions into changes in the atmospheric carbon concentrations, atmospheric concentrations into temperature changes, and temperature changes into economic damages.”)

96. Kevin Rennert and Cora Kingdon, *Social Cost of Carbon 101*, RESOURCES FOR THE FUTURE 2 (Aug. 1, 2019) https://media.rff.org/documents/SCC_Explainer.pdf.

97. *Id.*

responses like increases in temperature and sea level rise.⁹⁸ Third, the models assess the economic impact associated with the changes in climate on agriculture, health, energy use, and other factors in the economy.⁹⁹ Finally, the models convert the future damages into present-day values using discount rates.¹⁰⁰ While the climate models are highly regarded, the nature of modeling and predicting climate-related damages is inherently imprecise.¹⁰¹ A few sources of uncertainty associated with SC-GHG estimates are the quantification of the physical effects of GHG emissions, socioeconomic factors (e.g., economic growth), projected future GHG emissions, the role of adaptation, and translation of physical and climate impacts into economic impacts.¹⁰² This Note will discuss discounting and global versus domestic calculations in further detail as major variables to consider in the SC-GHGs.¹⁰³

1. Discount rates

Discounting is standard practice in cost-benefit analysis and has emerged as an area of contention in the use of the SG-GHGs.¹⁰⁴ It allows for apples-to-apples comparison of economic impacts that occur in different time periods and helps answer the question of how much future costs and benefits are worth today (also known as “present value”).¹⁰⁵ High discount rates give less present value to benefits and costs that accrue in the future, and low discount rates give more present value to those future costs and benefits.¹⁰⁶ Given the long time horizons involved in climate change analysis, SC-GHG estimates are extremely sensitive to the discount rate.¹⁰⁷

When using the SC-GHGs, decisionmakers can choose from multiple values based on different discount rates.¹⁰⁸ For instance, the federal SCC estimates contain a range of four estimates based on three different discount rates, plus a 95th

98. *Id.*

99. *Id.*

100. *Id.*

101. Revesz & Sarinsky, *supra* at note 82.

102. INST. FOR POLICY INTEGRITY, SOCIAL COST OF GREENHOUSE GASES 4 (2017), https://policyintegrity.org/files/publications/Social_Cost_of_Greenhouse_Gases_Factsheet.pdf.

103. SHOUSE, *supra* at note 69.

104. Simon Dietz et al., *Weighing the Costs and Benefits of Climate Change to Our Children*, 26 CHILD. AND CLIMATE CHANGE 133 (2016) (identifying the ethical difficulties that underly the process of discounting future benefits of making investments to mitigate climate change and noting that “people disagree considerably about the correct discount rate.”).

105. SHOUSE, *supra* at note 69.

106. *Id.*

107. *Id.* (“Discount rate selection is particularly challenging in climate change analyses because GHG emissions remain in the atmosphere for a long time—e.g., hundreds of years—which means the GHG impacts span generations of people. Observed market rates can inform this selection, but current markets do not capture intergenerational rates.”)

108. INST. FOR POLICY INTEGRITY, SOCIAL COST OF GREENHOUSE GASES 3-4 (2017), https://policyintegrity.org/files/publications/Social_Cost_of_Greenhouse_Gases_Factsheet.pdf.

percentile estimate representing catastrophic, low-probability outcomes.¹⁰⁹ The IWG uses discount rates of 5, 3, and 2.5 percent, and a fourth which is taken from the 95th percentile of the SCC in all models with the 3-percent discount rate. Agencies will frequently conduct economic analyses using a range of SCC values, but sometimes these analyses will focus on a “central” estimate of the SCC.¹¹⁰

Choosing an accurate discount rate is crucial to obtaining the best estimates of SC-GHG. ¹¹¹ A consensus has emerged among leading climate economists that a declining discount rate should be used for climate damages to reflect long-term uncertainty in interest rates, and the NAS January 2017 recommendations to the IWG support this approach.¹¹² Furthermore, because several types of damages from climate change are missing or are poorly quantified in the SCC estimates, the federal SCC estimate associated with a 3-percent discount rate should be considered a lower bound on the central estimate.¹¹³

2. Domestic vs. Global calculation

Another variable of SC-GHG usage is whether the impacts should be measured on a global versus a domestic level. While a domestic measurement of the SC-GHG would result in lower costs of federal actions in the United States, a global measurement would force agencies to account for the impacts that their major actions have on communities around the world. There are costs and benefits to either method, but this Note proposes that global calculations are preferable for measuring SC-GHG.

One benefit of using domestic values in SC-GHG analyses is that it eliminates the risk of the United States bearing the burden of slashing SC-GHG while foreign nations fail to reciprocate.¹¹⁴ However, the downside of relying on domestic values in SC-GHG analysis is the risk of failing to cut emissions early and

109. SHOUSE, *supra* at note 69.

110. INST. FOR POLICY INTEGRITY, SOCIAL COST OF GREENHOUSE GASES 4 (2017), https://policyintegrity.org/files/publications/Social_Cost_of_Greenhouse_Gases_Factsheet.pdf. (SCC estimates using the 3-percent discount rate are generally considered to be “central” estimates.)

111. *Id.*

112. *Id.* See also William Nordhaus, *Projections and Uncertainties about Climate Change in an Era of Minimal Climate Policies*, 10 Am. Econ. J.: Econ. Pol. 333 (2018). And see *Stern Review: The Economics of Climate Change* (2007) http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf.

113. *Id.* at 3. (“Damages currently omitted from the models include the effects of climate change on fisheries; the effects of increased pest, disease, and fire pressures on agriculture and forests; and the effects of climate-induced migration. Additionally, these models omit the effects of climate change on economic growth and the rise in the future value of environmental services due to scarcity.”) See also Peter Howard, COST OF CARBON PROJECT, OMITTED DAMAGES: WHAT’S MISSING FROM THE SOCIAL COST OF CARBON (2014), *available at* http://costofcarbon.org/files/Omitted_Damages_Whats_Missing_From_the_Social_Cost_of_Carbon.pdf.

114. SHOUSE, *supra* at note 69.

being stuck with irreversible effects of climate change. Another argument against the use of domestic values for SC-GHG analysis is that it would understate the benefits to the United States of reducing GHG emissions, because climate impacts that occur outside of a country's borders will still impact the welfare of residents and businesses within the United States. Consider the impacts of droughts and frost in Brazil, which led to the price of coffee rising 70 percent globally.¹¹⁵ Or the devastating impact of Super Typhoon Rai on both the people in the Philippines and on Philippine-Americans with friends and relatives who were impacted by the storm.¹¹⁶

In this way, there are three primary reasons why a global calculation would be preferable. First, most published estimates of the SC-GHG measure global impacts due to the fact that there is no clear distinction between domestic and global climate change impacts.¹¹⁷ The NAS 2017 recommendations advocate for a global damage calculation.¹¹⁸ Additionally, using a global SC-GHG might motivate other countries to follow the United States' lead and reduce their GHG emissions.¹¹⁹ Finally, due to the possibility that we have understated the low probabilities associated with the catastrophic risks of climate change, it would be best to rely on a global SC-GHG to ensure the protection of future generations.¹²⁰

C. Use of the SC-GHGs

Today, the SC-GHG tool is used by twelve state governments, thirteen large companies, and six countries.¹²¹ A number of federal agencies have used the SC-

115. Ana Swanson, *Food Prices Approach Record Highs, Threatening the World's Poorest*, NY TIMES (Feb. 3, 2022) <https://www.nytimes.com/2022/02/03/business/economy/food-prices-inflation-world.html> ("Food prices have skyrocketed globally because of disruptions in the global supply chain, adverse weather and rising energy prices[.]")

116. *Typhoon Rai wrecked 1.5 million houses in the Philippines: Report*, AL JAZEERA (Jan. 25, 2022) <https://www.aljazeera.com/news/2022/1/25/typhoon-rai-wrecked-1-5-million-houses-in-the-philippines-report>.

117. SHOUSE, *supra* at note 69.

118. NAT'L ACAD. OF SCI., ENG'G AND MED., *Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide*, National Academies Press (Jan. 2017).

119. *Id.*

120. See William D. Nordhaus, *An Analysis of the Dismal Theorem* (Cowles Foundation for Discussion Paper No. 1686, Jan. 2009) (Explaining Weitzman's Dismal Theorem, which proposes that "under limited conditions concerning the structure of uncertainty and preferences, society has an indefinitely large expected loss from high-consequence, low-probability events").

121. *States Using the SCC*, THE COST OF CARBON, a project of THE INSTITUTE FOR POLICY INTEGRITY, <https://costofcarbon.org/states> (last visited Dec. 11, 2021) (California, Colorado, Illinois, Minnesota, Maine, Maryland, Nevada, New Jersey, New York, Virginia, Vermont, and Washington use the SC-GHG tool to quantify state decision-making.); INST. FOR POLICY INTEGRITY, SOCIAL COST OF GREENHOUSE GASES 6 (2017), https://policyintegrity.org/files/publications/Social_Cost_of_Greenhouse_Gases_Factsheet.pdf. (Companies that use the SC-GHG include Microsoft, General Electric, Walt Disney, ConAgra Foods, Wells Fargo, Dupont, Duke Energy, Google, Delta Airlines, Walmart, PG&E, Exxon Mobil.)

GHGs in their decision-making,¹²² and some federal courts have both upheld challenges to agency action that inadequately analyzed the impacts of GHG emissions and have defended agency use of the SC-GHG tool. Four such cases will be discussed here: *Center for Biodiversity v. National Highway Traffic Safety Administration*,¹²³ *Montana Environmental Information Center v. United States Office of Surface Mining*,¹²⁴ *High Country Conservation Advocates v. United States Forest Service*,¹²⁵ and *Zero Zone, Inc. v. United States Department of Energy*.¹²⁶

In *Center for Biodiversity v. National Highway Traffic Safety Administration*, the Ninth Circuit Court of Appeals required the National Highway Traffic Safety Administration (“NHTSA”) to account for the economic effects of climate change in its impact analysis of new fuel efficiency standards.¹²⁷ States and public interest organizations challenged a final rule promulgated by the agency, which set new CAFE standards for light trucks. Petitioners argued that the rule “fail[ed] to take a ‘hard look’ at the [GHG] implications of its rulemaking and fail[ed] to analyze a reasonable range of alternatives or examine the rule’s cumulative impact,”¹²⁸ in violation of NEPA, and the Court agreed. The NHTSA did not assign any value to the benefits of the reduction in carbon emissions that would result from more strict

122. Roadless Area Conservation: National Forest System Lands in Colorado, 36 C.F.R. 294 (2017) (The Forest Services monetized the climate impacts associated with the projected GHG changes resulting from the project); U.S. POSTAL SERV., DRAFT ENV’T IMPACT STATEMENT FOR NEXT GENERATION DELIVERY VEHICLE ACQUISITIONS 4-15 (2021) (The Postal Service calculated the SCC in comparing a proposed action with potential alternatives). OFF. OF SURFACE MINING RECLAMATION AND ENF’T, U.S. DEP’T OF THE INTERIOR, ENV’T IMPACT STATEMENT FOR THE STREAM PROTECTION RULE 4-201 (2016); BUREAU OF LAND MANAGEMENT, U.S. DEP’T OF THE INTERIOR, ENV’T ASSESSMENT FOR LITTLE WILLOW CREEK PROTECTIVE OIL AND GAS LEASING (2015), DOI-BLM-ID-B010-2014-0036-EA. BUREAU OF LAND MANAGEMENT, U.S. DEP’T OF THE INTERIOR, ENV’T ASSESSMENT FOR OIL AND GAS LEASE PARCEL (2014), DOI-BLM-MT-C020-2014-0091-EA. U.S. COAST GUARD, U.S. DEP’T OF HOMELAND SECURITY, DRAFT ENV’T IMPACT STATEMENT, BLUEWATER SPM PROJECT (2020). NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., DRAFT ENV’T IMPACT STATEMENT FOR CORP. AVERAGE FUEL ECON. STANDARDS PASSENGER CARS AND LIGHT TRUCKS MODEL YEARS 2017-2025 (2011), NHTSA-2011-0056. BUREAU OF RECLAMATION & BUREAU OF INDIAN AFFAIRS, DEP’T OF THE INTERIOR, ENV’T ASSESSMENT FOR NAVAJO GENERATING STATION EXTENSION LEASE (2017). BUREAU OF OCEAN ENERGY MGMT., U.S. DEP’T OF THE INTERIOR, DRAFT ENV’T IMPACT STATEMENT FOR THE LIBERTY DEVELOPMENT PROJECT (2017). News Release, FERC, FERC Updates Policies to Guide Natural Gas Project Certifications (Feb. 17, 2022) (Announcing that FERC issued two policy statements providing guidance for future analysis of natural gas projects. They provide a framework to address the “environmental and public interest issues that arise when companies seek to build new natural gas facilities” and require a “certificate policy statement and interim greenhouse gas [] policy statement”).

123. 538 F.3d 1172 (9th Cir. 2008).

124. 274 F.Supp.3d 1074 (D. Mont. 2017), *amended in part, adhered to in part sub nom, Montana Env’t Info. Ctr. v. United States Off. of Surface Mining*, No. CV 15-106-M-DWM, 2017 WL 5047901 (D. Mont. Nov. 3, 2017).

125. 52 F.Supp.3d 1174 (D. Col. 2014).

126. 832 F.3d 654 (7th Cir., 2016).

127. 538 F.3d 1172 (9th Cir. 2008).

128. *Id.* at 1181.

CAFE standards. Rather, the agency argued that “the value of reducing emissions of CO₂ and other [GHGs] [is] too uncertain to support their explicit valuation and inclusion among the savings in environmental externalities from reducing gasoline production and use.”¹²⁹ However, the Court found the argument unpersuasive, noting that the NAS committee recommended a specific valuation for the social cost of carbon, \$50 per ton, which the agency failed to use.¹³⁰ The Court held that the NHTSA’s EA was deficient and ordered that the agency prepare either a revised EA or, if necessary, an EIS.¹³¹ In this case, the SC-GHGs would have been a useful tool for the NHTSA to utilize during its analysis of the proposed CAFE standards. While it is impossible to know how the outcome of the case would have changed based on the agency’s use of the tool, at the very least it would have shown that the agency took a “hard look” at the GHG implications of the rulemaking.

In *Montana Environmental Information Center v. United States Office of Surface Mining* (“MEIC”), the Federal District Court for the District of Montana, Missoula Division, held that an EA and FONSI prepared by the U.S. Office of Surface Mining (“OSM”) was deficient because it failed to take a “hard look” at a proposed project’s indirect and cumulative environmental effects.¹³² Petitioners argued that OSM should have used the SCC to expand upon the impacts that the GHG emissions from the project would have on the environment.¹³³ The Court agreed, concluding that OSM was arbitrary and capricious in “failing to adequately consider the costs of [GHG] emissions.”¹³⁴ The Court also held that OSM’s EA was insufficient in its analysis of foreseeable non-local non-GHG emissions that would result from the expansion of coal mining operations, finding that the impacts of non-local non-GHG emissions from coal combustion are “reasonably foreseeable” under NEPA, and their exclusion from the EA was arbitrary and capricious.¹³⁵ Petitioners argued that OSM failed to adequately analyze the context and intensity of the Mining Plan under NEPA, and the Court agreed.¹³⁶

129. *Id.* at 1200.

130. *Id.* at 1201.

131. *Id.* at 1227.

132. 274 F.Supp.3d 1074 (D. Mont. 2017), *amended in part, adhered to in part sub nom, Montana Env’t Info. Ctr. v. United States Off. of Surface Mining*, No. CV 15-106-M-DWM, 2017 WL 5047901 (D. Mont. Nov. 3, 2017).

133. *Id.* at 1093.

134. *Id.* at 1095.

135. *Id.* at 1094. (OSM claimed that evaluating the non-local effects of non-GHG emissions from the project “would be speculative due to the uncertainty regarding combustion locations, transport routes, and emissions controls and an absence of methods to reasonably evaluate specific impacts associated with the [project].” However, the Court determined that the issue was “whether the impacts of non-local non-[GHG] emissions from coal combustion are ‘reasonably foreseeable,’ and thus require examination, and concluded that they were indeed “reasonably foreseeable.”)

136. *Id.* at 1101-02 (For the context evaluation, the Court found that the FONSI arbitrarily and capriciously ignored regional and global impacts of the proposed action, and it failed to consider the size of the mine and its “harmful long-term impacts, including the eventual exhaustion of the coal resource

In *High Country Conservation Advocates v. United States Forest Service*, the Federal District Court for the District of Colorado found that the Forest Service and Bureau of Land Management (“BLM”) were arbitrary and capricious in their inadequate disclosure of the effects of GHG emissions that would result from a mining lease modification.¹³⁷ The EA included a general discussion of the effects of climate change in their analysis of the indirect effects of the project’s GHG emissions, but stated that the analysis of the impacts of GHG emissions from the project was “impossible.”¹³⁸ The Court disagreed, noting that the SCC was created for this very purpose—agency analysis of potential actions.¹³⁹ Indeed, the Forest Service and BLM had included the SCC protocol in their draft EIS.¹⁴⁰ In the FEIS, the agencies decided to remove the quantification of the costs of GHG emissions from the project, but kept the benefits associated with the proposed action.¹⁴¹ The Court ruled that the agencies’ accounting of the project’s benefits while ignoring the costs was arbitrary and capricious.¹⁴² Yet again, the SC-GHGs would have proved useful for the agencies to show they did an objective analysis and evaluation of the environmental impacts of the proposed action.

Finally, in *Zero Zone, Inc. v. United States Department of Energy*, the Seventh Circuit Court of Appeals upheld the Department of Energy’s (“DOE’s”) use of SCC in its analysis of a rule setting energy efficiency standards for commercial refrigeration equipment.¹⁴³ Petitioners challenged the DOE’s use of the SCC tool, its carbon analysis, and the discount rates used. The Court upheld the agency action, ruling that the agency’s inclusion of global benefits in its calculation of costs and

[which] will cause negative long term financial impacts” to the county. The Court determined that EA’s intensity evaluation failed to consider the following factors that agencies must consider when evaluating a project’s intensity: “(2) The degree to which the proposed action affects public health or safety[,] (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial[,] (5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks[,] (7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts[,] [...] [and] (9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.”)

137. 52 F.Supp.3d 1174 (D. Col. 2014).

138. *Id.* at 1189-90. (The FEIS notes that “[s]tandardized protocols designed to measure factors that may contribute to climate change, and to quantify climatic impacts, are presently unavailable....Predicting the degree of impact any single emitter of [GHGs] may have on global climate change, or on the changes to biotic and abiotic systems that accompany climate change, is not possible at this time. As such, ... the accompanying changes to natural systems cannot be quantified or predicted at this time.”)

139. *Id.* at 1190 (“[A] tool is and was available: the social cost of carbon protocol. [] The protocol—which is designed to quantify a project’s contribution to costs associated with global climate change—was created with the input of several departments, public comments, and technical models [and] was expressly designed to assist agencies in cost-benefit analyses associated with rulemakings.”)

140. *Id.* at 1191.

141. *Id.*

142. *Id.* at 1189.

143. 832 F.3d 654 (7th Cir., 2016).

benefits with the SCC model was neither arbitrary nor capricious, and finding that the agency's use of a particular pricing model was reasonable, and not arbitrary and capricious.¹⁴⁴ While this is not a NEPA case, *Zero Zone* represents an affirmation of agency use of the SC-GHG tool.

The aforementioned case law suggests that the legal barriers to integrating SC-GHGs will not be enough to halt their momentum in cases about climate change. There are three takeaways that can be derived from these cases. First, although it is impossible to know how the use of SC-GHGs would have impacted the outcome of the cases, it certainly would have strengthened the agency's argument that they had indeed taken a "hard look" at the cumulative and indirect of the proposed action. Second, in both cases the agencies failed to account for impacts that they deemed too uncertain¹⁴⁵ or far-removed¹⁴⁶ from the agency action in question. However, if they had used the SC-GHGs, the agencies would have been able to overcome those uncertainties by relying on the standards set by SC-GHGs. Finally, at least one federal court has demonstrated willingness to uphold agency use of SC-GHGs,¹⁴⁷ and three others have struck down agency actions that may have been upheld had the agencies used the tool.¹⁴⁸

Federal courts have upheld the validity of the SC-GHGs, both in challenging agency action that inadequately analyzed the impacts of GHG emissions from proposed projects and suggesting the SC-GHG as a potential tool, and in defending agency action when it used the tool to analyze the impacts of a potential action. Not all agencies use the SC-GHGs, but existing case law suggests that at least some federal courts would look favorably upon the expansion of its use by agencies, as long as they are reasonable, balanced, and transparent in their analysis and decision making. The next section outlines the process of integrating this tool into the NEPA review process.

144. *Id.* at 678-79. (Specifically, Petitioners challenged DOE's rulemaking because it failed to publicly disclose who worked on the SCC analysis, argued that the inputs used in the SCC were not "peer reviewed", and argued that the variables used in the model to analyze things like sea level rise were determined in an arbitrary manner. Petitioners also alleged that the DOE was arbitrary and capricious in calculating the global environmental benefits associated with carbon reduction while only considering national costs. The Court found this argument unpersuasive, noting that Petitioners failed to identify any global costs that should have been considered in the agency's analysis. Finally, Petitioners challenged the discount rate used by the DOE in its SCC analysis and argued that the agency should have considered a different analysis of costs during the notice and comment period. The agency responded to the comment defending its decision to use the Capital Asset Pricing Model, noting that it is among the most widely used models to estimate the cost of equity financing. The Court agreed, finding the agency's decision to use that model neither arbitrary nor capricious.)

145. 538 F.3d 1172, 1200 (9th Cir. 2008).

146. 274 F.Supp.3d 1074, 1094 (D. Mont. 2017).

147. 832 F.3d 654 (7th Cir., 2016).

148. 538 F.3d 1172 (9th Cir. 2008); 274 F.Supp.3d 1074 (D. Mont. 2017); 52 F.Supp.3d 1174 (D. Col. 2014).

III. INTEGRATION OF SC-GHGS INTO THE NEPA PROCESS

As discussed in the preceding section, the SC-GHGs has the potential to be a viable mechanism to regulate GHGs in the NEPA process. In order to adequately account for the full impacts that agency actions have on the environment and climate change more broadly, CEQ should promulgate a rule that integrates the SC-GHGs into the NEPA review process. Specifically, this Note proposes that the CEQ rule integrate the SC-GHGs into three sections of the NEPA review process: the significance determination, the EIS, and the EA. Finally, the rule should update existing CEQ regulations to recommend agency use of monetized cost-benefit analyses. There are three primary advantages that would arise from such a rule. First, it would standardize the NEPA process for agencies, making it more uniform and predictable. Second, it would also lead to more transparent agency decision making. Third and finally, it would make it easier for the general public to understand and engage with agency analysis and evaluation of potential actions. While there are potential flaws in the addition of the SC-GHGs in the NEPA process, including its sensitivity to inputs and manipulation by political influences, the potential benefits of including the tool outweigh the potential costs.

A. Significance Determination

Federal agencies evaluate the significance of a proposed action by assessing its context and intensity.¹⁴⁹ Existing CEQ regulations note that “in the case of a site-specific action, significance would usually depend upon the effects in the local area rather than in the world as a whole.”¹⁵⁰ However, the regulations go on to note that agencies should also consider both short- and long-term effects of the action, as well as the action’s significance to society as a whole, considering both national and human impacts. Because GHG emissions contribute to the intensification of climate change, they will have both local and wide-scale effects, both in the short- and long-terms. For that reason, the SC-GHGs of a proposed action should be included in the evaluation of both context and intensity.

The SC-GHGs of an agency’s proposed actions should be considered in its context analysis under § 1508.27(a). Doing so would shift the focus of the context analysis from the hyper-local evaluation of a project’s context to a broader understanding of the project’s SC-GHGs and their respective contributions to climate change. That way, the context analysis of actions that are “site-specific” would be analyzed through a global lens.¹⁵¹ For example, say the forest service has

149. See *infra* at Part I.C.

150. 40 C.F.R. § 1508.27(a) (2021).

151. The 2010 Draft CEQ guidance on GHGs emphasizes the global nature of climate change, and that it is a result of “numerous and varied sources, each of which might seem to make a relatively small addition to global atmospheric GHG concentrations. CEQ proposes to recommend that environmental documents reflect this global context and be realistic in focusing on ensuring that useful information is

proposed to cut down a swath of trees in a national forest. Including the SC-GHGs associated with the project, which might come from the emissions from the vehicles and equipment used to cut down the trees, and the loss of carbon stored in the previously standing trees, would lend itself to a transparent analysis of the project's context in the given environment. Without the SC-GHGs, perhaps the felling of trees would be considered low impact in the context of a large forest. However, including the SC-GHGs in that analysis would result in a clear picture of the impacts of the project locality and on the analysis of its impacts in the context evaluation.

The anticipated SC-GHGs of a proposed action should also be integrated into the intensity evaluation under § 1508.27(b) by explicitly listing it as an eleventh factor to consider when assessing a project's intensity. It would be especially useful to set an emissions threshold for agencies to use as a guideline of when a proposed action should be considered significant. Draft CEQ guidance from 2010 states: "if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO₂-equivalent GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public."¹⁵² The CEQ should even take its 2010 guidance a step further, and recommend that agencies consider actions that directly *and* indirectly emit 25,000 metric tons or more of CO₂-equivalent GHG emissions on an annual basis, that should be treated as an indicator that further assessment would be meaningful to stakeholders and the public at large. Not only would this guidance improve transparency in the impacts that agency actions have on the environment, but it would also make agency decisions more transparent in support of case law.

This proposed modification of existing guidelines for analyzing a proposed action's context and intensity aligns with case precedent. Specifically, under *MEIC*, agencies cannot arbitrarily and capriciously ignore analysis of a proposed action's context and intensity.¹⁵³ Thus, clarifying that a global lens is appropriate in the context analysis will make it easier for agencies to follow NEPA's guidelines. Including the SC-GHGs of a proposed action in the intensity factor further streamlines the process for agencies. Because they can use the 25,000 metric ton threshold, agencies will have clearer guidelines from which to make decisions about potential actions and their alternatives. Moreover, because the SC-GHGs factor is

provided to decision makers for those actions that the agency finds are a significant source of GHGs." Memorandum for Heads of Federal Dept' and Agencies, Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, Council on Env't Quality 2 (Feb. 18, 2010) https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf.

152. *Id.* at 1-2. (The draft guidance further notes that "long-term actions that have annual direct emissions of less than 25,000 metric tons of CO₂-equivalent, CEQ encourages Federal agencies to consider whether the action's long-term emissions should receive similar analysis.")

153. 274 F.Supp.3d 1074 (D. Mont. 2017), *amended in part, adhered to in part sub nom*, *Montana Env't Info. Ctr. v. United States Off. of Surface Mining*, No. CV 15-106-M-DWM, 2017 WL 5047901 (D. Mont. Nov. 3, 2017).

one of eleven total factors to consider when evaluating an action's intensity, agencies are not bound by the outcome of the SC-GHG valuation if other factors are more important.

B. Environmental Impact Statements

For the EIS process, the SC-GHGs should be integrated into three stages: scoping, alternatives, and environmental consequences. Scoping represents the first look that an agency takes at a potential significant action and including SC-GHGs in that process has the potential to set the tone for the NEPA review process and inform the public early on of the potential climate change impacts of the proposed action. The alternatives analysis requires agencies to compare and contrast different potential alternative actions and including the SC-GHGs of the alternatives would provide a useful common metric across alternatives. Finally, the SC-GHGs should be included in the environmental consequences section of the EIS. Because the SC-GHGs captures more long-term consequences associated with agency actions that are associated with climate change, they logically fit into the environmental consequences section, and would provide important information about the consequences associated with the proposed action.

1. Scoping

If an agency determines that a proposed action will have significant environmental impacts, it will begin preparation of an EIS.¹⁵⁴ The first step of that process is scoping, which is the process by which agencies determine the scope and significant issues that will be analyzed in the EIS.¹⁵⁵ Specifically, agencies consider actions, alternatives, and impacts that those actions and alternatives will have on the environment.¹⁵⁶ The SC-GHGs of a proposed action should be included in the scoping section of the EIS. Because scoping represents the first stage of public engagement on a proposed agency action, the inclusion of the SC-GHGs would be incredibly valuable. A valuation of a proposed action's SC-GHGs at the scoping stage would inform the public of the proposed action's emissions and thus on climate change in a transparent way. There are instances in which public participation under NEPA has led to a change in agency decision-making,¹⁵⁷ and including the SC-GHGs of proposed actions would give the public a better sense of the true impacts the action will have on the environment. It would also better enable community members to

154. See *infra* at Part I.C.

155. 40 C.F.R. § 1501.9(e) (2021).

156. *Id.*

157. See Carol J. Jorgensen, Dep't of Agric., *Forest Plan Amendment No. 11: Kuakan Timber Sale* (Mar. 28, 2000) (in which the Forest Service amended a logging plan after receiving public comments raising concerns about the construction of new roads in the proposed logging area).

advocate at the scoping stage for more specific information that should be analyzed in the EIS.

For example, if an agency is considering building a highway, inclusion of the estimated SC-GHGs of the project at the scoping stage would allow citizens to evaluate the project's potential environmental impacts on the community. The SC-GHGs could be used as a proxy for the other emissions that will be associated with the highway's construction, increasing the community's awareness of the increased air pollution that might result from the action. It would also allow the community to evaluate the project's impacts on the climate more broadly. For instance, if the proposed highway will be built in a community that is at high risk of flooding, perhaps the high SC-GHGs associated with the project would influence the public to advocate against the project, serving as another data point for the project's drawbacks. The clear communication of emissions associated with a proposed action would increase public engagement in the review process overall, furthering the goals of the Act.

2. Alternatives

As the "heart" of the EIS, the alternatives section is an excellent place for agencies to discuss the SC-GHGs of a proposed action and weigh it against alternatives. Here, the CEQ should instruct agencies to use the SC-GHGs in their comparison of proposed actions with various alternative actions. Agencies should calculate the SC-GHG of the proposed action as well as the SC-GHGs associated with each proposed alternative action. Since the goal of the alternatives section is to "provide a clear basis for choice among options by the decisionmaker and the public,"¹⁵⁸ including the direct costs associated with the GHG emissions of the action the agency chooses is a transparent way to engage the public and to bolster the agency's final decision.

For example, say an agency is considering logging a portion of a national forest, and is weighing two alternatives. Plan A has an estimated SC-GHGs of 40,000 tons of carbon dioxide, and Plan B has an estimated SC-GHGs of 25,000 tons of carbon dioxide. Alongside the other factors associated with each Plan, the SC-GHGs associated with each plan would represent yet another data point that the general public can use to compare the projects. Including the numerical value of the SC-GHGs associated with each alternative before the agency allows for an apples-to-apples comparison of the project's impacts on the environment, making the analysis more accessible to the general public.

158. 40 C.F.R. § 1502.14 (2021).

3. Environmental Consequences

The environmental consequences section of the EIS is a logical place for agencies to discuss the SC-GHGs associated with a proposed action, and CEQ should direct agencies to do so. The section includes discussions of direct and indirect effects, the significance of those effects, and the environmental effects of alternatives, among other things.¹⁵⁹ Discussion of a proposed action's SC-GHGs fits squarely within the purpose of the environmental consequences section, and CEQ regulations should make clear that SC-GHGs should be discussed when agencies compare direct and indirect effects of the proposed action and alternative actions. Although the direct effects of a proposed action might involve discussions of increased pollution, the SC-GHGs analysis fits into the discussion of indirect effects, which are those effects caused by the action that are "later in time or farther removed in distance, but are still reasonably foreseeable."¹⁶⁰ Comparing and contrasting the SC-GHGs associated with a proposed agency action and its alternatives is highly relevant to the agency's indirect effects analysis and should be included as part of the formal process of analyzing environmental consequences in the EIS.

C. Environmental Assessments

The SC-GHGs should be integrated into the EA drafting process. As EAs are written after an agency decides that the significance of an action is uncertain, the SC-GHGs would be particularly useful in its discussion of alternatives, as required by § 102(2)(E) of the Act. Specifically, the SC-GHGs of alternative actions should be calculated and discussed for purposes of the EA, such that agencies could then make apples to apples comparisons of all potential options. Comparing the SC-GHGs of a proposed action with the SC-GHGs of alternative actions at the EA stage provides agencies a clear framework within which it can make decisions such that the public and other interested parties will more clearly understand.

D. Updates to Monetization of Costs and Benefits in § 1502.23

The aforementioned CEQ updates to integrate the SC-GHG into the NEPA review process each implicate the express statement in § 1502.23 that monetary cost-benefit analyses of proposed actions are not required in the comparison of alternatives, and in some instances should *not* be used if other "qualitative" considerations are at play.¹⁶¹ In order to fully and honestly account for

159. 40 C.F.R. § 1502.16 (2021).

160. 40 C.F.R. § 1508.8(b) (2021).

161. 40 C.F.R. § 1502.23 (2021). ("If a cost-benefit analysis relevant to the choice among environmentally different alternatives is being considered for the proposed action, it shall be incorporated by reference or appended to the statement as an aid in evaluating the environmental consequences. To assess the adequacy of compliance with section 102(2)(B) of the Act the statement shall, when a cost-

the impacts that federal agency actions have on the environment, CEQ should update § 1502.23 to reflect the importance of monetizing the true costs of GHG emissions associated with significant agency actions. Since NEPA only covers agency actions that are determined to be “significant,” the use of SC-GHGs to monetize and compare the costs associated with GHG emissions of agency actions aligns both with the environmental protection purpose of NEPA as well as with the Biden Administration’s goals of reducing the carbon footprint of the executive branch and with the United States’ goals as a signatory to the Paris Agreement.

E. Challenges to SC-GHGs Addition to NEPA

While the integration of the SC-GHGs represents a promising tool with which agencies can make decisions and be held accountable for their actions, it is not completely without fault. This is because it can be sensitive to inputs and can be easily abused. There are a number of variables included in SC-GHG modeling, including predicted future emissions and modeling future climate responses like temperature increases and sea level rise.¹⁶² The uncertainty associated with these values makes the endeavor a challenge. For instance, when estimating population growth in the SC-GHGs in the calculation of predicted future emissions, models may not account for a global pandemic that results in the deaths of nearly six million people.¹⁶³ That event will surely impact future population levels, and yet it is likely to be missed in the SC-GHGs modeling. However, in order to account for the uncertainty associated with these inputs, the models used to calculate the SC-GHGs are run hundreds of thousands of times to account for a range of potential values, with the chosen value usually representing the average of all estimates at a given discount rate.¹⁶⁴

Abuse of the SC-GHGs represents another vulnerability. Inappropriate or misguided political influence on the SC-GHGs itself could easily render the tool toothless. For instance, selection of an appropriate discount rate used in the SC-GHG calculation represents a potential opportunity for abuse. If CEQ regulations do not specifically identify the appropriate range of discount rates that agencies should use in their SC-GHGs analysis, the agency may be swayed by corporate actors interested in using a large discount rate, thus leading to low SC-GHGs.

benefit analysis is prepared, discuss the relationship between that analysis and any analyses of unquantified environmental impacts, values, and amenities. For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. In any event, the [EIS] should at least indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision.”)

162. See *infra* at Part I.B.

163. Offering the COVID-19 pandemic as an example, which left 5.98 million people around the world dead as of March 2022. *Daily new confirmed COVID-19 deaths per million people*, OUR WORLD IN DATA, <https://ourworldindata.org/explorers/coronavirus-data-explorer> (last visited Mar. 4, 2022).

164. Kennert & Kingdon, *supra* note 101 at 3.

Alternatively, the agency might be inappropriately swayed by political actors who demand an inappropriately small discount rate, resulting in very high SC-GHG for proposed actions. Finally, shifts in presidential administrations and the associated changes in agency mandates represents a risk to CEQ, the IWG, and to the development of the SC-GHG tool. President Trump disbanded the IWG and the use of the SC-GHG a few short months into his administration,¹⁶⁵ and the current hyper-polarized political climate suggests that future administrations may follow suit when given a chance.

However, the vulnerability of the SC-GHG simultaneously acts to bolster its utility: it is nimble and can be adapted to accurately reflect our reality as the climate changes. Indeed, the SC-GHG has flaws but it nevertheless the best tool we have now to honestly account for the impacts that agency actions have on the environment. Including the SC-GHG in various stages of the NEPA review process represents an opportunity to increase transparency in decision making during preparation of and public commenting on EISs. Additionally, it would enhance the EA drafting process by giving agencies another metric by which to measure a proposed action's significance.

CONCLUSION

The integration of the SC-GHG into the NEPA review process represents a simple and straightforward path to improving federal agency decision-making in a way that mitigates future environmental harms. The wholesale acceptance and integration of the SC-GHG into the NEPA review process aligns with the Biden Administration's December 2021 executive order directing agencies to reduce their GHG emissions.¹⁶⁶ Certainly, this proposal is not without its potential weaknesses. However, it nevertheless represents a tangible and sensible way for federal agencies to honestly account for the impacts of their actions while increasing transparency and public participation in the NEPA review process.

165. See Exec. Order No. 13,783, 82 Fed. Reg. 16,093, 16,095-96 (Mar. 28, 2017) ("The [IWG], which was convened by the Council of Economic Advisers and the OMB director, shall be disbanded[.]")

166. Exec. Order No. 14,057, 86 Fed. Reg. 70,935 (Dec. 8, 2021).

