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Cumulative Impact Analysis in NEPA Climate Assessments

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ARTICLE

CUMULATIVE IMPACT ANALYSIS IN NEPA CLIMATE
ASSESSMENTS

FREDERIC MAUHS*

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INTRODUCTION

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The modern era of federal environmental regulation arguably began when Congress passed the National Environmental Policy Act of 1969 ("NEPA").¹ With 16 sections, NEPA is one of the shortest federal environmental statutes. This is unsurprising, as its mandate is also one of the simplest: governmental agencies should assess the environmental impact of their actions² in the proposal stage.³ Because NEPA's central command seems logical and intuitive is probably the reason why, after NEPA's enactment, both international⁴ and foreign⁵ environmental law have adopted the requirement of environmental assessments.⁶

The Council on Environmental Quality ("CEQ"), established under NEPA to advise the federal government on environmental matters,⁷ issued guidelines in 1971 to assist federal

¹ National Environmental Policy Act of 1969 § 101, 42 U.S.C. §§ 4321–4347 [hereinafter NEPA]; e.g., John Toll, *The Modern Era of Environmental Regulation*, 16 INTEGRATED ENV'T ASSESSMENT & MGMT. 807 (2020).

² This article adopts the broad definition of "action" contained in the first regulations promulgated under NEPA.

(National Environmental Policy Act Implementing Regulations, 40 C.F.R. §§ 1500–1508.28 [hereinafter 1978 Regulations]) ("Actions include new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by federal agencies; new or revised agency rules, regulations, plans, policies, or procedures; and legislative proposals (§§ 1506.8, 1508.17).").

³ NEPA § 4332(C)(i)–(v).

⁴ See, e.g., Directive 2001/42, of the European Parliament and of the Council of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment, annex 1, Paragraph (f), 2001 O.J. (L 197) 30, 36 [hereinafter European Parliament Directive].

⁵ See, e.g., NEPA, *International Environmental Impact Assessment*, DEPT. OF ENERGY, <https://ceq.doe.gov/get-involved/international-impact-assessment.html> [https://perma.cc/26TF-LVED] (providing a list of EIA offices of other nations and non-governmental bodies).

⁶ This article will use the term "environmental assessment" to refer generally to any evaluation of the environmental impact of governmental action, whether part of an environmental impact statement or otherwise. "EA" on the other hand will refer to the specifically required stage under NEPA (defined in the 1978 Regulations, Section 1508.9) in which an initial "significance" assessment is made to determine whether to prepare an environmental impact statement ("EIS") or to issue a Finding of No Significant Impact ("FONSI"). 1978 Regulations, *supra* note 2 (40 C.F.R. § 1508.9.).

⁷ NEPA § 4344(4).

agencies in interpreting NEPA (the “1971 Guidelines”).⁸ These Guidelines emphasized the need to be sensitive to the *cumulative effects* of agency action, as “the effect of many Federal decisions about a project or complex of projects can be individually limited but cumulatively considerable.”⁹ Cumulative impact analysis (“CI analysis”) is thus appropriate for any major federal action whose impact, viewed in isolation, is immaterial, but when viewed collectively with the impact of related actions is significant.

This article argues that CI analysis is a critical tool for addressing global warming. This is because the largest anthropogenic sources of greenhouse gas (“GHG”) emissions in the U.S. each contributes a vanishingly small portion of global GHG emissions, which alone cannot rise to NEPA’s threshold of “significance” requiring a “detailed statement...on the environmental impact of the proposed action,”¹⁰ i.e., an environmental impact statement (EIS). Yet there is no pollution today in greater need of assessment and understanding than GHG emissions, given the urgency of the impending catastrophe that global warming could mean for our planet.¹¹

Accordingly, this article attempts to illustrate the centrality of cumulative impact in a NEPA analysis of the effect of GHG emissions on global warming.¹² The article challenges the wisdom and the legality of the Trump-era CEQ’s 2020 repeal of CI analysis contained in the regulations under NEPA, which have been in place since 1978 (the “1978 Regulations”¹³). It also argues, however, that the 1978 Regulations do not adequately address climate analysis, and that the Biden Administration should now

⁸ Council on Environmental Quality, *Statements on Proposed Federal Actions Affecting the Environment*, 36 Fed. Reg. 7724–29 (Apr. 23, 1971) [hereinafter, 1971 CEQ Guidelines] (The 1971 Guidelines were later revised in 1973 (38 Fed. Reg. 20549–62 (Aug. 1, 1973)) (codified at 40 C.F.R. § 1502)).

⁹ 1971 CEQ Guidelines, *supra* note 8, at § 5(b).

¹⁰ NEPA § 102(2)(C)(i).

¹¹ *IPCC Report: ‘Code red’ for Human Driven Global Heating, Warns UN Chief*, UN NEWS (Aug. 9, 2021), <https://news.un.org/en/story/2021/08/1097362> [<https://perma.cc/UHG3-NJ4A>].

¹² The NEPA process is just as critical for evaluating the effects of climate change on agency actions (for the purpose of *adapting* agency action to climate change) as it is for determining the effects of agency action on climate change (for the purpose of *mitigating* climate change). This article focuses solely on NEPA’s use in climate mitigation, not climate adaptation.

¹³ See 1978 Regulations, *supra* note 2, at §§ 1508.7, 1508.18(a).

undertake an entirely separate and new approach to climate-related assessments. The new regulations should handle climate assessments in a separate, streamlined way to produce the most meaningful information on federal agencies' individual and collective contribution to global warming. In doing so, the Administration will be giving itself a powerful tool to reach its highly ambitious targets¹⁴ for overall GHG reductions from the U.S. economy.

Part I of this article gives a brief history of the cumulative impact concept in federal NEPA interpretation, attempting, in particular, to demonstrate how the idea is inherent in the statute itself and inseparable from it. Part II describes the special role that CI analysis must play in analyzing GHG emissions in order to make meaningful and informative environmental assessments of global warming. It also reviews CEQ's and the courts' understanding of the role CI analysis plays in climate-related NEPA assessments. Part III suggests a path forward that the Biden Administration could adopt, through new NEPA regulations, that would bolster, harmonize, and streamline the agencies' NEPA analyses of GHG emissions.

The issues discussed here, and in particular the recommendations made in Part III, are not purely academic, nor are they of merely procedural concern to federal agencies. Instead, they go to the heart of the substantive, "action-forcing" purposes of NEPA, as applied to the most critical environmental problem facing the world today. The U.S. federal government, through direct and indirect agency action, is responsible for enormous quantities of GHG emissions.¹⁵ Our government is therefore a major contributor to what one federal circuit court has warned might be an impending "apocalypse."¹⁶ There is no tool more powerful than NEPA for assessing and communicating our government's contribution to that potential apocalypse. Yet federal

¹⁴ See Lisa Friedman, Somini Sengupta, & Coral Davenport, *Biden, Calling for Action, Commits U.S. to Halving Its Climate Emissions*, N.Y. TIMES (Apr. 22, 2021), <https://www.nytimes.com/2021/04/22/climate/biden-climate-change.html?searchResultPosition=6> [https://perma.cc/FZ9E-8W2P].

¹⁵ See SABIN CENTER FOR CLIMATE CHANGE LAW, CLIMATE REREGULATION IN A BIDEN ADMINISTRATION 1 (Michael Burger & Daniel J. Metzger eds., 2020).

¹⁶ *Juliana v. United States*, 947 F.3d 1159, 1164 (9th Cir. 2020).

agencies have generally failed to engage in that communication largely because, in their NEPA assessments, they often declare that the effects of any particular agency action on global climate is too small to measure and even matter. This failure to fully disclose our government's role in climate change is a moral failing, and it is a clear violation of NEPA's requirement to assess the *cumulative* effects of an agency's environmental harm when combined with other related action. The Biden Administration can remedy this dereliction with a fresh approach to climate-directed NEPA assessments that force the agencies to make robust and informative disclosures about their GHG emissions.¹⁷ NEPA can then become a powerful tool in the Administration's wheelhouse to inform and drive its overall climate program.

I. The Definition and Development of Cumulative Impact in NEPA Assessments

This part of the article introduces the history and development of CI analysis. It begins with a brief discussion of CI analysis in the context of an agency's NEPA process. There follows a description of the history of the idea, from the legislative history of NEPA as recognized by two federal courts, through CEQ's initial, 1971 Guidance and the early cases that considered CI analysis, culminating with the U.S. Supreme Court's consideration of CI analysis in *Kleppe v. Sierra Club*. The section describes cumulative impact as mentioned in several sections of the 1978 Regulations, and concludes with a brief description of the treatment of CI analysis in CEQ guidance. One objective of this

¹⁷ It should be noted that while the U.S. government is a major direct and indirect emitter of greenhouse gases "GHGs"), it also has an enormous capacity to remove carbon from the atmosphere, given its ownership, stewardship and regulation of vast forests and agricultural land that can store, or "sequester," carbon. The sequestration of a volume of carbon over a period of time is just as relevant in a NEPA analysis as is the emission of that same volume over the same time period. Indeed, "emission" and "sequestration" can be seen as flip sides of the same coin. Although this article does not explicitly refer to carbon sequestration, all references here to "GHG emissions" or "net GHG emissions" are intended to mean "GHG emissions net of sequestration," and therefore admit of the possibility of negative emissions when gross sequestration exceeds gross emissions. This is particularly relevant in the hypothetical case study involving the U.S. Forest Service (the "USFS") in Part III of this article, because of the USFS's management of U.S. forests, an important carbon sink. See *infra* Part III.

section is to demonstrate that CI analysis is inherently a part of NEPA and NEPA assessments, and has been recognized as such by the federal judiciary.

A. The Nature of CI Analysis and its Role in NEPA Assessments

The success and influence of NEPA may lie in its simplicity. Its core “action-forcing” intent is to force¹⁸ federal government agencies to “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...[on] the environmental impact of the proposed action.”¹⁹ The straightforwardness of the statute derives from its seemingly non-controversial proposition: federal agencies must consider the potential environmental harm that might arise from all proposed actions—NEPA’s “look before you leap” mandate.

NEPA requires federal agencies to implement its policy through adopting regulations. The 1978 Regulations codified and harmonized agency practice in this regard.²⁰ These Regulations require all federal agencies to engage in an initial environmental assessment (“EA”) at the inception of a proposal for any agency action.²¹ If the EA results in a determination that the action could “significantly” impact the human environment,²² then the agency must prepare a more detailed environmental impact statement (EIS) that compares possible environmental impacts from the proposal with other alternative actions, including a “no-action”

¹⁸ See *Minn. Pub. Int. Rsch. Grp. v. Butz*, 498 F.2d 1314, 1320 (8th Cir. 1974) (labelling this requirement of NEPA as “action forcing”).

¹⁹ NEPA § 102(2)(C).

²⁰ NICHOLAS C. YOST, NEPA DESKBOOK 9 (Env’t Law Inst., 4th ed. 2014) (“CEQ’s 1978 NEPA regulations encapsulate the various procedural requirements, in large part codifying case law and the administrative experience of NEPA’s early years”).

²¹ 1978 Regulations, *supra* note 2, at § 1503.

²² The “significance” determination should be made as to the context and intensity of the impact. The intensity of the impact is evaluated according to a ten-factor test, the seventh factor of which is “[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts.” 7 C.F.R. § 650.4(k)(2)(vii) (2021). As will be discussed in this article, CI analysis should play a central role in determining the “significance” of an impact and, therefore, whether the agency must compile an EIS. See discussion *infra* Part III (C).

proposal—i.e., the possibility of undertaking no action at all.²³ If no “significant” impacts are identified, the agency may issue a Finding of No Significant Impact, or “FONSI”.²⁴ The information produced in the EIS then becomes part of a “record of decision” that documents how the information produced in the EIS factored into the agency’s decision to proceed.²⁵

The 1971 Guidelines established much of the NEPA process that was adopted into the 1978 Regulations. The Guidelines copied NEPA’s simple, intuitive and non-controversial style, and introduced concepts that seemed naturally part of the NEPA mandate to give a “hard look”²⁶ at possible environmental impacts of proposed federal action. Those concepts have been reinforced, not just in the 1978 Regulations, but also by the federal judiciary, including the determination of a lead agency for the environmental review, establishing the timing of the review “as early as possible,” and a broad definition of federal “actions” to which NEPA applies.²⁷

The 1971 Guidelines included the concept of “cumulative impact”—the notion that “the effect of many Federal decisions about a project or complex of projects can be individually limited but cumulatively considerable.”²⁸ A hypothetical proposal to build a highway in segments is often used as an example²⁹ to illustrate CI analysis.³⁰ If one were to consider the impacts associated with the construction of each highway segment in isolation, one might

²³ The 1978 Regulations also envision the possibility of “tiering” whereby agencies produce general, programmatic EISs discussing the impacts of broad agency programs or policies, so that the agency does not have to repeat that research with every new agency action. 1978 Regulations, 40 C.F.R. § 1502.20. The “programmatic EIS” can then be incorporated by reference into any project- or site-specific EIS. 1978 Regulations, *supra* note 2 at § 1508.28.

²⁴ 1978 Regulations, *supra* note 2 at § 1508.9(a)(1).

²⁵ 1978 Regulations, *supra* note 2 at § 1502.20.

²⁶ See *Natural Res. Def. Council, Inc. v. Morton*, 458 F.2d 827, 838 (1972) (adopting the phrase “hard look” from *WAIT Radio v. FCC*, 418 F.2d 1153, 1160 (D.C. Cir. 1969)).

²⁷ See 1971 CEQ Guidelines, *supra* note 8.

²⁸ *Id.*

²⁹ *E.g.*, *Named Individual Members of San Antonio Conservation Soc. v. Texas Highway Dep’t*, 446 F.2d 1013, 1014 (1971) (NEPA review of highway constructed in three segments).

³⁰ See *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 994 (9th Cir. 2004) (using the hypothetical deposition of sediment in a river to illustrate CI analysis).

conclude that no segment will result in a significant impact, and thus no EIS is required. A more logical approach, however, would be to assess the cumulative impact of all the segments together, because that impact is highly relevant to the decision whether to build the highway in the first place. (The practice of attempting to avoid drafting an EIS by treating its constituent parts as independent, unrelated activities is sometimes called “segmentation.”³¹)

It should come as no surprise, then, that CI analysis has been easily adopted in subsequent CEQ guidelines, in the 1978 Regulations, and by the federal judiciary. It has also been adopted in both international law³² and in the EIA law of foreign countries³³. Although there has been debate over the years as to the scope of impacts that should be included in the definition of “cumulative impact,” the concept itself was never seriously questioned until the promulgation of revised NEPA Regulations in 2020 by the Trump-era CEQ (the “2020 Regulations”).³⁴

B. Early use of the words “cumulative impact”

1. Legislative history of NEPA cited by two federal courts

Although NEPA does not mention the need for CI analysis explicitly, the entire Act responds to Congressional concern that the environmental problems facing the nation at the time were caused by incremental acts that collectively degrade the environment. For this reason, two federal courts have concluded that CI analysis is part of the NEPA statute itself.

³¹ “Segmentation” is a concept often referred to in connection with New York’s “Little NEPA,” the N.Y. State Environmental Quality Review Act. State Environmental Quality Review Act, N.Y. COMP. CODES R. & REGS. Tit. 6, § 617.2 (2020) [hereinafter SEQRA]; see N.Y. STATE DEP’T OF ENV’T CONSERVATION, THE SEQRA HANDBOOK 53 (N.Y. State Dep’t of Env’t Conservation, 4th ed. 2020).

³² See, e.g., HUSSEIN ABABA, RON BISSET & BARRY SADLER, ENVIRONMENTAL IMPACT ASSESSMENT AND STRATEGIC ENVIRONMENTAL ASSESSMENT: TOWARDS AN INTEGRATED APPROACH 41 & 52–56 (UNEP 2004).

³³ See, e.g., European Parliament Directive, *supra* note 4.

³⁴ *Resources Ltd. v. Robertson*, 35 F.3d 1300, 1306 (9th Cir. 1994) (“The Forest Service says that cumulative impacts from non-Federal actions need not be analyzed because the Federal government cannot control them. That interpretation is inconsistent with 40 C.F.R. § 1508.7 [of the 1978 Regulations] which specifically requires such analysis.”).

S.C.R.A.P. v U.S.

The first was the D.C. Circuit Court when, in 1974, it reviewed *Students Challenging Regulatory Agency Procedures (S.C.R.A.P.) v. United States* (“*S.C.R.A.P. v. U.S.*”).³⁵ The Court had previously ordered the Interstate Commerce Commission (the “ICC”) to prepare an EIS in connection with its decision to increase the rates charged for shipping both virgin and recycled materials.³⁶ The EIS was supposed to analyze the environmental harm caused by charging more for shipping recycled materials—i.e., harm caused by increasing the cost of beneficial recycling.³⁷ In response to the court order, the ICC prepared a cursory statement that studied only the effect of the proposed 3% increase in rates for recycled materials, and concluded it was insignificant.³⁸ The D.C. Circuit held that the ICC should employ CI analysis to determine the effects of the overall rate structure on the shipping of recycled materials compared to virgin material.³⁹ In the Court’s words, the ICC should not have limited its analysis “to the marginal impact of the most recent rate increase with no discussion of whether the underlying rate structure itself significantly affects the environment.”⁴⁰ The Court held this to be a failure to perform a “cumulative impacts” analysis and thus a violation of NEPA.⁴¹ Importantly, the Court did not cite to the 1971 Guidelines (discussed in the next subsection) as authority for requiring the CI analysis, but rather cited Congress’s intent in passing NEPA itself. Referring to NEPA’s legislative history, the Court wrote:

Such cumulative impacts must be considered in NEPA statements. The Senate report on the passage of NEPA makes this clear:

“Environmental problems are only dealt with when they reach crisis proportions. Public desires and aspirations are seldom

³⁵ *Students Challenging Regul. Agency Proc. (S.C.R.A.P.) v. U.S.*, 371 F. Supp. 1291 (D.D.C. 1974), *rev’d sub nom*, 422 U.S. 289 (1975). This was in fact the third time that the case had come before the D.C. District Court, and the third opinion authored by the Court in the case.

³⁶ *Id.* at 1293–94.

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.* at 1304.

⁴⁰ *Id.*

⁴¹ *Id.*

consulted. Important decisions concerning the use and the shape of man's future environment continue to be made in small but steady increments which perpetuate rather than avoid the recognized mistakes of previous decades."⁴²

The Court further stated that the requirements around CI analysis contained in CEQ's 1971 Guidance merely responds to the Congressional mandate to address the problem of the "small but steady increments which perpetuate" environmental errors.⁴³

NRDC v. Callaway

The Second Circuit, too, has grounded CI analysis in the statute itself, giving the concept of cumulative impact a major boost. In *Natural Resources Defense Council, Inc. v. Callaway*,⁴⁴ the U.S. Navy prepared an EIS in advance of its plan to discharge highly polluted dredge material from the Thames River near the Naval Base in Groton, Connecticut into Long Island Sound near Fishers Island. The NRDC and other environmental groups sued, claiming the toxins would disburse from the aquatic dumpsite and result in massive fish kills.⁴⁵ They alleged that the Navy's EIS was insufficient in a number of respects, in part for failing to include the cumulative effects from discharges of other dredging that the Navy contemplated.⁴⁶ The U.S. District Court for the District of Connecticut, however, had found for the Navy⁴⁷ on virtually all issues presented, including the issue of cumulative impact, stating that "[t]he duty to discuss the impact of all possible pollutants cannot be imposed on each isolated project."⁴⁸ The Second Circuit, however, emphatically rejected this view:

We believe that this represents too constricted a view of the informative function of an EIS and of the duty of the responsible agency in preparing it. . . . [A]n agency may not . . . treat . . . a project as an isolated 'single-shot' venture in the face of persuasive evidence that it is but one of several substantially similar

⁴² *Id.* (citing S. REP. NO. 91-296, at 5 (1969)).

⁴³ *Id.* ("The advisory guidelines for implementation of NEPA issued by CEQ are responsive to this congressional intent.").

⁴⁴ *Natural Res. Def. Council, Inc. v. Callaway*, 524 F.2d 79 (2d Cir. 1975).

⁴⁵ *Id.* at 82, 85.

⁴⁶ *Id.* at 87.

⁴⁷ *Natural Res. Def. Council, Inc. v. Callaway*, 389 F. Supp. 1263, 1292 (D. Conn. 1974), *rev'd in part*, 524 F.2d 79 (2d Cir. 1975).

⁴⁸ *Id.* at 1280.

operations, each of which will have the same polluting effect in the same area. To ignore the prospective cumulative harm under such circumstances could be to risk ecological disaster.⁴⁹

Like the *S.C.R.A.P. v. U.S. Court*, the Second Circuit did not cite to 1971 CEQ Guidelines in making this determination. Rather, it cited the same legislative history of NEPA as the *S.C.R.A.P. v. U.S. Court* (the Senate Report's "steady increments" language) had for implicitly mandating cumulative analyses in environmental assessments:

As was recognized by Congress at the time of passage of NEPA, a good deal of our present air and water pollution has resulted from the accumulation of small amounts of pollutants added to the air and water by a great number of individual, unrelated sources.

"Important decisions concerning the use and the shape of man's future environment continue to be made in small but steady increments which perpetuate rather than avoid the recognized mistakes of previous decades."

S. Rep. No. 91-296, 91 Cong., 1st Sess. 5 (1969).

The Second Circuit then continued:

NEPA was, in large measure, an attempt by Congress to instill in the environmental decision-making process a more comprehensive approach so that long term and cumulative effects of small and unrelated decisions could be recognized, evaluated and either avoided, mitigated, or accepted as the price to be paid for the major federal action under consideration.⁵⁰

In other words, the requirement for federal agencies to undertake analyses of the cumulative effect of their decisions in appropriate cases is inherent in NEPA itself.

2. First CEQ Guidelines on NEPA assessments

⁴⁹ *Callaway*, 524 F.2d at 88.

⁵⁰ *Id.*

As stated in Section A, the first guidelines that CEQ issued in connection with the Act in 1971 (the “1971 Guidelines”)⁵¹ mention the concept of cumulative impact in ways that suggest the idea is central to NEPA analysis.⁵² The Guidelines were issued primarily for the purpose of codifying agency practice with respect to interpreting and elaborating on various terms used in the statute.⁵³ Although the phrase “cumulative impact” is not contained in NEPA, CEQ determined that the concept is implicit in the words “major action significantly affecting,” in NEPA Section 102(2)(C):

[This phrase] is to be construed by agencies with a view to the overall, cumulative impact of the action proposed . . . and of further actions contemplated In considering what constitutes major action significantly affecting the environment, agencies should bear in mind that the effect of many Federal decisions about a project or complex of projects can be individually limited but cumulative considerable.⁵⁴

The 1971 CEQ also used the word “cumulative” in interpreting Section 102(C)(iv) of the Act, which essentially requires that environmental impact statements adopt a long-term view of impacts:

“The Congress authorizes and directs that, to the fullest extent possible . . . (2) all agencies of the Federal Government shall- . . . (C) include in every recommendation or report...a detailed statement by the responsible official on-- . . . (iv) *the relationship between local short-term uses of man’s environment*

⁵¹ CEQ revised the 1971 Guidelines on August 1, 1973. 38 Fed. Reg. 20551 (Aug. 1st, 1973); The provisions on cumulative impact largely remained the same. *See, e.g.*, 40 C.F.R. § 1500.6(a) (“In considering what constitutes major action significantly affecting the environment, agencies should bear in mind that the effect of many Federal decisions about a project or complex of projects can be individually limited but cumulative considerable.”).

⁵² The word “cumulative” is used two times and “cumulatively” is used two times in the 1971 Guidance. 1971 Guidelines, 36 Fed. Reg. at 7724–25.

⁵³ Yost, *supra* note 20 at ix.

⁵⁴ 40 C.F.R. § 1500.6(a). Here, the CEQ gives the first indication of what actions should be jointly considered so that their impacts can be collectively studied: a “complex of projects” should be considered together in one assessment; *Id.*

and the maintenance and enhancement of long-term productivity . . .”⁵⁵

In explaining the meaning of the statutory words “the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity,” the Guidelines state that this relationship requires agencies to employ CI analysis.⁵⁶ “This in essence requires the agency to assess the action for cumulative and long-term effects from the perspective that each generation is trustee of the environment for succeeding generations.”⁵⁷

The cumulative effects of agency actions, rather than their isolated effects, are more likely to be of consequence to future generations. Thus, CEQ emphasizes here the need to forecast the cumulative or total impact that will arise in the long term through government action that is repeated into the future.

3. First cases mentioning “cumulative impact”

CEQ’s guidelines are advisory only and do not bind the agencies⁵⁸ or the courts.⁵⁹ Nonetheless, courts have regularly held that CI analysis is a natural and necessary element of NEPA assessments. They have consistently required federal agencies in appropriate circumstances to engage in CI analyses and to review related actions or proposals as part of the analysis.

Two such cases have been described in Section B(1), *Natural Resources Defense Council, Inc. v. Callaway* and *S.C.R.A.P. v. U.S.* Both cases held that CI analysis was suggested in the legislative history of NEPA.⁶⁰ A close reading of the remaining opinions on CI analysis reveals that they seldom cite a direction or mandate from CEQ to apply CI analysis. Rather, many courts simply cite the CEQ’s *statement of fact*: “[T]he effect of many Federal decisions about a project or complex of projects can be

⁵⁵ 42 U.S.C. § 4332(C)(iv) (2012) (emphasis added).

⁵⁶ 1971 CEQ Guidelines, *supra* note 8 at 7725.

⁵⁷ *Id.*

⁵⁸ Subsequent CEQ guidance normally contains a disclaimer that it is not legally binding. See, e.g., COUNCIL ON ENVIRONMENTAL QUALITY, CONSIDERING CUMULATIVE EFFECTS UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT iii (1997) [hereinafter 1997 HANDBOOK].

⁵⁹ *Callaway*, 524 F.2d. at 6 n.8.

⁶⁰ *S.C.R.A.P.*, 371 F. Supp. at 1293-94; *Callaway*, 524 F.2d at 88.

individually limited but *cumulatively considerable*.⁶¹ Thus, the requirement to use CI analysis flowed from the courts' agreement with the statement of fact that a compartmentalized review of impacts can be misleading, not with a legal conclusion.⁶² Three cases basing CI analysis on NEPA itself are discussed below.

The first case to quote the "cumulatively considerable" language from the 1971 Guidance was *Boston v. Volpe* in 1972.⁶³ In that case, the City of Boston filed for an injunction against the Port Authority to halt expansion of an airport within the city, claiming in part that the Port Authority failed to undertake a NEPA review of the proposal. The First Circuit, holding for the defendant, found that the federal government was insufficiently involved in the project to trigger NEPA review.⁶⁴ But in *dicta*, appearing in a footnote without any comment, the Court recited CEQ's "cumulatively considerable" statement, apparently as a caution that separate federal actions, when viewed collectively, *can* in other cases be significant enough to be "federal action" under NEPA.⁶⁵

The need for a discussion of cumulative impact in EISs was judicially ordered in a case as early as 1973. In that year, a federal court in North Carolina reviewed a petition by the Natural Resources Defense Council (the "NRDC") against the United States Department of Agriculture's Soil Conservation Service (the "SCS") to enjoin the construction of a watershed project involving the channelization of a 66-mile stretch of the Chicod Creek.⁶⁶ Although the SCS had prepared an EIS describing the environmental impacts of the project, the court held the EIS to be deficient for several reasons.⁶⁷ Among them was the failure to discuss the cumulative effects of the project when considered with other channelization projects in eastern North Carolina.⁶⁸ The Court noted the possible cumulative effects that similar projects on other

⁶¹ 1971 CEQ Guidelines, *supra* note 8, at 7724 (emphasis added).

⁶² A LexisNexis search on April 21, 2021 revealed that 14 federal cases have used the cited statement on cumulative impact dating originally from the 1971 Guidance. Some of these cases did not identify the source of the statement.

⁶³ *City of Boston v. Volpe*, 464 F.2d 254 n.5 (1st Cir. 1972).

⁶⁴ *Id.* at 255-56.

⁶⁵ *Id.*

⁶⁶ *Nat. Res. Def. Council v. Grant*, 355 F.Supp. 280, 283 (E.D.N.C., 1973).

⁶⁷ *Id.* at 286-90.

⁶⁸ *Id.* at 286-90.

streams would have on the sedimentation and the accumulation of nutrients in the Tar-Pamlico River Basin, as well as the cumulative impact of the drainage projects on hardwood timber and groundwater resources.⁶⁹ In doing so, it quoted the CEQ's factual statement that the effect of a decision about a project or a complex of projects "can be individually limited but cumulatively considerable."⁷⁰

Another 1973 case mentioning the need for CI analysis is *Jones v. Lynn*.⁷¹ This case involved a series of related building projects in Boston that were supported in part by federal financing through the Department of Housing and Urban Development ("HUD").⁷² Although the First Circuit cited to the 1971 Guidelines, it ultimately found that simple logic and expediency required CI analysis; "[i]n such a case [of future planned building construction], it would not seem sensible to adopt the piecemeal approach which HUD seeks to adopt."⁷³

4. *Kleppe v. Sierra Club*

Kleppe v. Sierra Club represents the first opportunity for the U.S. Supreme Court to weigh in on the meaning of "cumulative impact."⁷⁴ In that case, the Sierra Club and other environmental organizations had brought suit in the U.S. District Court for the District of Columbia, seeking to compel the Department of the Interior to produce a region-wide comprehensive EIS on its plans to lease lands for coal mining in the Northern Great Plains.⁷⁵ The plaintiffs lost before the District Court and appealed.⁷⁶ Before the D.C. Circuit Court issued its opinion, the Defendant proceeded to approve plans for mining in the Powder River Coal Basin in the region in question, but based on an EIS that covered just the

⁶⁹ *Id.* at 288–89.

⁷⁰ *Id.* at 288.

⁷¹ *Jones v. Lynn*, 477 F.2d 885, 890 (1st Cir. 1973).

⁷² *Id.* at 886–87.

⁷³ *Id.* at 891. Other early NEPA cases requiring CI Analysis include *Swain v. Brinegar*, 517 F.2d 766, 775 (7th Cir. 1975) ("[C]umulative effects can and must be considered on an ongoing basis") and *Minn. Pub. Int. Rsch. Grp. v. Butz*, 541 F.2d 1292, 1294 (8th Cir. 1976) (requiring CI Analysis of multiple logging projects in the Minnesota Boundary Waters Canoe Area).

⁷⁴ *Kleppe v. Sierra Club*, 427 U.S. 390 (1976).

⁷⁵ *Id.*

⁷⁶ *Id.* at 395.

Basin.⁷⁷ The Circuit Court issued an injunction against the Defendant and remanded the case to the District Court for further proceedings on whether a region-wide EIS was required.⁷⁸ Upon petition, however, the Supreme Court stayed the injunction and granted certiorari to decide, *inter alia*, whether the Interior Department should have produced the region-wide EIS.⁷⁹

The Supreme Court held that the region-wide comprehensive EIS was not required, because no proposals were pending to develop mining in the region beyond the four in the Powder River Coal Basin.⁸⁰ Nonetheless, the Court, in *dicta*, reaffirmed the basic principle that a comprehensive EIS is required when multiple proposals are on the table:

“We begin by stating our general agreement with respondents’ basic premise that [NEPA] section 102(2)(C) may require a comprehensive impact statement in certain situations where several proposed actions are pending at the same time. NEPA announced a national policy of environmental protection and placed a responsibility upon the Federal Government to further specific environmental goals by ‘all practicable means, consistent with other essential considerations of national policy.’***Thus, when several proposals for coal-related actions that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together. Only through comprehensive consideration of pending proposals can the agency evaluate different courses of action.”⁸¹

Once again, a court—this time the highest in the land—affirmed the concept that cumulative impact is an inherent part of the NEPA environmental assessment process. In doing so, it cited only the text of NEPA itself, without reference to CEQ guidance or any other authority. It found that the requirement for cumulative effect analysis flows from the statutory mandate to use “all practicable means” to further NEPA’s environmental goals.⁸²

⁷⁷ *Id.*

⁷⁸ *Id.* at 395-96.

⁷⁹ *Id.* at 395.

⁸⁰ *Id.* at 414.

⁸¹ *Id.* at 409-10 (1976).

⁸² *See id.* at 409.

5. Post *Kleppe*

The requirement of an EI assessment, at least in principle, has been adopted into the holding of virtually all NEPA cases that have considered the issue since then. The concept has also found reception by courts confronted with the obligation of federal agencies to evaluate the effects of GHG emissions under NEPA.⁸³ A few of these climate change NEPA cases are discussed in Part II, below. This part of the article will first discuss the 1978 Regulations and then the further refinement of the definition of cumulative impact under subsequent CEQ guidance.

C. The 1978 Regulations on Cumulative Impact

CEQ promulgated the first NEPA regulations in 1978.⁸⁴ Like the NEPA statute, they are a model of brevity and clarity, particularly when compared to other environmental regulations. Because drafting the regulations occurred only a short time after the 1976 decision in *Kleppe*, the regulations were heavily influenced by that decision.⁸⁵

The regulations are divided into nine different parts.⁸⁶ Part 1502 sets forth the requirements of an environment impact statement (an “EIS”).⁸⁷ Section 1502.1, “Purpose,” states simply that an EIS “shall provide full and fair discussion of significant

⁸³ See Jessica Wentz & Michael Burger, *Five Points About the Proposed Revisions to CEQ’s NEPA Regulations*, COLUM. L. SCH.: CLIMATE L. BLOG (Jan. 10, 2020), <http://blogs.law.columbia.edu/climatechange/2020/01/10/five-points-about-the-proposed-revisions-to-ceqs-nepa-regulations/> [https://perma.cc/L5E4-AX8G].

⁸⁴ *CEQ NEPA Regulations*, NEPA.GOV, <https://ceq.doe.gov/laws-regulations/regulations.html> [https://perma.cc/H87X-CJHB].

⁸⁵ See 1971 CEQ Guidelines *supra*, at 8 (demonstrating that CI assessment has been understood to be part of NEPA itself, in part because of legislative concern about “incremental” nature of environmental harm); see COUNCIL ON ENV’T QUALITY, GUIDANCE ON THE CONSIDERATION OF PAST ACTIONS IN CUMULATIVE EFFECTS ANALYSIS (2005) [hereinafter 2005 CEQ GUIDANCE] (citing portions of *Kleppe v. Sierra Club* and showing where they are incorporated into the 1987 regulations). But see Edward McTiernan et. al, *CEQ Finalizes Comprehensive Changes to NEPA Regulations*, ARNOLD & PORTER: ENV’T EDGE (July 30, 2020), <https://www.arnoldporter.com/en/perspectives/publications/2020/07/ceq-finalizes-changes-to-nepa-regs> [https://perma.cc/3CW7-YP5Q] (observing that the 1978 Regulations include the concept of cumulative impacts because it was mentioned in *Kleppe v. Sierra Club*).

⁸⁶ 1978 Regulations, 40 C.F.R. §§ 1500.1-1508.28.

⁸⁷ *Id.* at §§ 1502.1-1502.25.

environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”⁸⁸

The final part of the 1978 Regulations is entitled “Terminology and Index.”⁸⁹ CEQ used this section to deliver much of the substance of the Regulations. It is here that the concept of cumulative impact⁹⁰ is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.”⁹¹

The word “cumulative” is mentioned in other sections of the 1971 Regulations that are important for an understanding of the use of CI analysis. Perhaps the most critical section is that which defines the “significance” threshold that must be met before requiring the drafting of an EIS.⁹² That threshold is set forth in NEPA Section 102(2)(C): The federal action must be “significantly” affecting the quality of the human environment.⁹³ The 1978 Regulations set forth factors that must be weighed to determine “significance,” and the concept of cumulative impacts plays a role.⁹⁴ Accordingly, subsection 1508.27(b)(7) defines one factor to weigh in determining the “intensity” of the impact to be “[w]hether the action is related to other actions with individually insignificant but *cumulatively* significant impacts.”⁹⁵ This clause is also important because it defines the scope of actions that must be considered collectively under a cumulative impact assessment: The actions must be “related” to the federal action under consideration.

⁸⁸ *Id.* at § 1502.1.

⁸⁹ *Id.* at § 1508.

⁹⁰ 1978 Regulations, *supra* note 2, at § 1508.8(b) (explaining “[e]ffects and impacts as used in these regulations are synonymous.”).

⁹¹ 1978 Regulations, *supra* note 2, at § 1508.7.

⁹² See YOST, *supra* note 20, at 13 (“The term ‘significantly’ presents the threshold for the EIS requirement, and no other term in NEPA has been the subject of more attention.”).

⁹³ 42 U.S.C. 4332(c).

⁹⁴ 1978 Regulations, *supra* note 2, at § 1508.27.

⁹⁵ 1978 Regulations, *supra* note 2, at § 1508.27(b)(7) (emphasis added).

Unfortunately, however, the Regulations give no guidance on the meaning of “related.” This, then, became the task of future CEQs, as discussed in Section (D), below.

When these Regulations were promulgated in 1978, this definition of “cumulative impact” was hardly controversial, because it followed the definition of cumulative impact first introduced in the 1971 Guidelines and adopted by the agencies and the courts. One possible exception to this might be the inclusion of the words “or person” to describe the scope of the actors whose “actions” might be included in a cumulative impact assessment.⁹⁶ In other words, an EIS must, where appropriate, consider non-governmental actions in a cumulative impact assessment, provided the other requirements for including impacts are met. The Ninth Circuit reinforced this requirement in *Resources Ltd., Inc. v. Robertson* when it rejected the U.S. Forest Service’s argument that it did not need to consider private action in its CI analysis because it had no control over private actions.⁹⁷

D. Subsequent definition of “cumulative impact”

1. Clinton-era CEQ Handbook on EI analysis

The Clinton-era CEQ took a major step forward in promoting CI analysis by issuing a handbook focused exclusively on that analysis (the “Handbook”).⁹⁸ This 122-page document brought the understanding of CI analysis to an entirely new level of science and thoughtfulness. These qualities are on display in the definition of cumulative impact which the guidance offers: “Cumulative effects result from spatial (geographic) and temporal (time) crowding of environmental perturbations. The effects of human activities will accumulate when a second perturbation occurs at a site before the ecosystem can fully rebound from the effect of the first perturbation.”⁹⁹

⁹⁶ 1978 Regulations, *supra* note 2, at § 1508.7.

⁹⁷ *Resources Ltd. v. Robertson*, 35 F.3d 1300, 1306 (9th Cir. 1994) (“The Forest Service says that cumulative impacts from non-Federal actions need not be analyzed because the Federal government cannot control them. That interpretation is inconsistent with 40 C.F.R § 1508.7 [of the 1978 Regulations] which specifically requires such analysis.”).

⁹⁸ See generally 1997 HANDBOOK, *supra* note 58 (calling it a handbook, CEQ means to give it less authority than even guidance).

⁹⁹ *Id.* at 7.

In the Handbook, CEQ paints the breadth of CI analysis for NEPA assessments, emphasizing that it has a role in several NEPA stages, such as defining the affected environment, determining environmental consequences and comparing alternatives.¹⁰⁰ The Handbook systematically tackled for the first time some of the most difficult issues that CI analysis entails, in particular the issue of scoping, or determining the universe of other actions that should be included in the CI analysis.¹⁰¹

In many ways, scoping is the key to analyzing cumulative effects. It provides the best opportunity of identifying important cumulative effect issues, setting appropriate boundaries for analysis and identifying relevant past, present and future actions. "Scoping allows the NEPA practitioner to 'count what counts.'"¹⁰²

The Handbook speaks only in passing about the role of CI analysis or even NEPA generally in dealing with climate impacts of federal action.¹⁰³ Some might argue this is in keeping with the Clinton Administration's general ambivalence toward climate change.¹⁰⁴ But the Handbook's deconstruction of the EI process highlights the uneasy fit between climate change and traditional CI analysis, and this could also be the reason that climate change is not materially addressed in the Handbook.¹⁰⁵ Nonetheless, some of the suggestions developed around EI analysis in the Guidelines

¹⁰⁰ *Id.* at v.

¹⁰¹ *See id.* at 11-21.

¹⁰² *Id.*

¹⁰³ *Id.* at 7 (identifying climate change as a problem suited for CI analysis) ("Nonetheless, the importance of acid rain, climate change, and other cumulative effects problems has resulted in many efforts to undertake and improve the analysis of cumulative effects.").

¹⁰⁴ *See* SHEILA M. CAVANAGH ET AL., NATIONAL ENVIRONMENTAL POLICY DURING THE CLINTON YEARS 1-7 (2001).

¹⁰⁵ *See* 1997 HANDBOOK, *supra* note 58, at vi ("Determining the cumulative environmental consequences of an action requires delineating cause-and-effect relationships between the multiple actions and the resources, ecosystems, and human communities of concern. Analysts must tease from the complex networks of possible interactions those that substantially affect the resources."). This article will argue in the following part, *infra* Part II, that "delineating cause-and-effect relationships" between GHG emissions and climate changes is an exceedingly difficult endeavor best left to specialized organizations of climate scientists.

are applicable in the analysis of GHG emissions,¹⁰⁶ as is discussed in more detail in Part III.

2. Bush-era CEQ Guidance on cumulative effects

In 2005, the George W. Bush-era CEQ issued “Guidance on the Consideration of Past Actions in Cumulative Effects Analysis” (the “2005 CEQ Guidance”).¹⁰⁷ Unlike the Handbook, this short Guidance does not mention climate change at all, but it repeats several times a theme, grounded in a “rule of reason,” that should be useful in assessing climate effects. Deciding the extent to which an agency should include past actions in its CI analysis depends on “the extent that they [i.e., past actions] are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for action and its alternatives may have a continuing, additive and significant relationship to those effects.”¹⁰⁸ In a different passage, citing the 1978 Regulations, the CEQ says: “Agencies should ensure that their NEPA process produces environmental information that is useful to decisionmakers and the public by reducing the ‘accumulation of extraneous background data’ and by ‘emphasiz[ing] real environmental issues and alternatives.’”¹⁰⁹

Indeed, there is probably no aspect of a NEPA analysis where application of the rule of reason is more critical than in CI analysis. This is particularly true of scoping for CI analysis. Any rule-based, prescriptive regulation applicable to the scoping of CI analyses is likely to fail. One must find a golden mean on a case-by-case basis between the extremes of over-inclusiveness and under-inclusiveness, both of which will produce meaningless results. The correct scope must always be that which produces the most important and meaningful information to the reader.¹¹⁰

II. The Special Role of CI Analysis in Climate-Related Assessments, and the Acknowledgement of that Role by the CEQ and the Courts.

¹⁰⁶ 1997 HANDBOOK, *supra* note 58, at v.

¹⁰⁷ See 2005 CEQ HANDBOOK, *supra* note 85.

¹⁰⁸ *Id.*

¹⁰⁹ 2005 CEQ GUIDANCE, *supra* note 85, at 2 (citing 1978 Regulations, 40 C.F.R. § 1500.2(b)).

¹¹⁰ *Infra* Part III.

A. The analytical issue: The One Percent Problem

As demonstrated by NEPA's history, the purpose behind introducing CI analysis into an EIS is to obtain a meaningful understanding of the environmental impact of a federal action when combined with other related government or private actions. By requiring CI analysis, the law guards against the human tendency to compartmentalize or "segment" environmental review in order to focus on the environmental consequence of only one agency action and to miss the bigger picture of the effect of combined actions.

The human tendency to discount or ignore segmented environmental harms is nowhere more evident than in the political discussion of climate change. One argument often repeated to dismiss concern over GHG emissions is that any individual source is always responsible for an insignificantly small portion of global GHG emissions.¹¹¹ The argument is applied not only to counter objections to further emissions of GHGs, but also in opposition to measures to reduce emissions. In addition, the argument is not limited to the political sphere but is also found in scholarly, or scholarly-looking, articles.¹¹²

In 2011 two Vanderbilt Law professors gave the problem an apt name: "The One Percent Problem."¹¹³ The opening paragraph of their article succinctly describes the underlying argument and its fallacy when applied to the problem of climate change:

Parties frequently seek exemption from regulation on the ground that they contribute only a very small share to a problem.

¹¹¹ See MADELEINE SIEGEL & ALEXANDER LOZNAK, SURVEY OF GREENHOUSE GAS CONSIDERATIONS IN FEDERAL ENVIRONMENTAL IMPACT STATEMENTS AND ENVIRONMENTAL ASSESSMENTS FOR FOSSIL FUEL-RELATED PROJECTS 2017-2018 27-28 (2019).

¹¹² See KEN GIRARDIN & ANNETTE BROCKS, GREEN OVERLOAD: NEW YORK STATE'S RATEPAYER-ZAPPING RENEWABLE ENERGY MANDATE 9 (2016), (attacking New York State's efforts to transition to renewable energy with the predictable argument and comparison to China) ("Yet even taken on its own terms, the new policy's impact will be microscopic in global terms. When fully implemented, the Clean Energy Standard is expected to reduce carbon dioxide emissions in 2030 by 23.6 million metric tons—an amount that, while seemingly impressive, equates to less than 0.3 percent of CO₂ emissions in China alone as of 2014").

¹¹³ Kevin M. Stack & Michael P. Vandenberg, *The One Percent Problem*, 111 COLUM. L. REV. 1385 (2011).

These “one percent arguments” are not inherently questionable; it can be efficient to exclude relatively small contributors. These arguments also garner broad acceptance in part because they exploit cognitive biases that induce individuals to discount or ignore small values. But, when a regulatory problem can be solved only by regulating small contributors, accepting one percent arguments creates what we call the one percent problem. This Article shows that this general problem for regulation has particularly damaging effects on climate change policy: The global character of the climate change problem allows many sources of carbon emissions to make one percent arguments, but the climate problem cannot be solved without attending to these sources.¹¹⁴

Thus, if the One Percent Argument is allowed into any global warming debate, it nullifies objections to even the largest emitters of GHGs in the U.S. or anywhere else, simply because any particular project emits less than one percent of all GHG emissions worldwide.¹¹⁵ The argument also thwarts any finding of “significance” in any climate change-related EA under NEPA, thus becoming a pretext for issuing a FONSI. On the other hand, when the requirement of CI analysis compels federal agencies to describe cumulative harm caused by more contributors than just the one agency action under review, it is forcing them away from the “cognitive biases that induce individuals to discount or ignore small values,” and counter the human tendency to view small environmental impacts as “essentially zero.”¹¹⁶

The remainder of this Part II describes the recent history of NEPA climate assessment. It demonstrates how opponents of climate assessment employ the One Percent Argument—i.e., how they “exploit cognitive biases that induce individuals to discount

¹¹⁴ *Id.* at 1385.

¹¹⁵ See CENTER FOR GLOB. DEV., *CGD Ranks CO₂ Emissions from Power Plant Worldwide*, EUREKALERT! (Nov. 14, 2007), https://www.eurekalert.org/pub_releases/2007-11/cfgd-crc111207.php [https://perma.cc/W79J-83V9]. To help grasp the magnitude of the One Percent Problem, compare, for example, the CO₂ emissions of the largest single power plant in the U.S. with total worldwide power plant emissions of CO₂: The largest single source of CO₂ emissions in the U. S. in 2007 was estimated to be the Scherer electric power plant in Juliet, Georgia, at 25.3 million tons; *Id.* at 2. Power generation throughout the world that year emitted approximately 10 billion tons. Scherer’s contribution was thus “only” 0.253% of the total CO₂ emissions. *Id.*

¹¹⁶ Stack & Vandenberg, *supra* note 113, at 1385, 1401.

or ignore small values.”¹¹⁷ The next subsection, subsection B, demonstrates how CEQ has used CI analysis to combat those biases; and the following two subsections describe how federal agencies and federal courts, respectively, have done the same. Subsection E demonstrates how the Trump-era CEQ “repealed” CI analysis in its effort to weaken or even eliminate NEPA review related to climate change.

B. CEQ’s Acknowledgement of the One Percent Problem in the 2016 Guidance

The CEQ under President Obama was the first to fully acknowledge the importance of CI analysis for any environmental assessment related to climate change (a “climate assessment”) and GHG emissions. In 2016, the CEQ issued NEPA guidance dedicated to the issue of climate change, entitled “Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews” (the “2016 Guidance”).¹¹⁸ In it, the CEQ recognized and eloquently addressed the One Percent Problem head-on:

Climate change results from the incremental addition of GHG emissions from millions of individual sources, which collectively have a large impact on a global scale. CEQ recognizes that the totality of climate change impacts is not attributable to any single action, but are exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make a

¹¹⁷ *Id.*

¹¹⁸ COUNCIL ON ENV’T QUALITY, EXEC. OFF. OF THE PRESIDENT, GUIDANCE ON CONSIDERATION OF GREENHOUSE GAS EMISSIONS AND THE EFFECTS OF CLIMATE CHANGE IN NATIONAL ENVIRONMENTAL POLICY ACT REVIEWS [hereinafter 2016 GUIDANCE].

relatively small addition to global atmospheric GHG concentrations that collectively have a large impact.¹¹⁹

CEQ later addressed the centrality of CI analysis for GHG emissions, stating that “all GHG emissions contribute to cumulative climate change impacts...[T]he analysis of the effects of GHG emissions is essentially a cumulative effects analysis.”¹²⁰

The 2016 Guidance acknowledges that emission volumes are a “proxy” for climate change impacts.¹²¹ This is a logical consequence of the fungible nature of GHG emissions—the fact that emissions anywhere contribute to the same impacts. Since volumes should be “proxies” for climate change impacts, CEQ recommended that the agencies provide only a “qualitative summary discussion” of the impacts of GHG emissions on climate, and to base this discussion on authoritative reports.¹²² This, too, is sensible, since it relieves each agency from the redundant task of linking specific net GHG emissions to specific climate consequences—an exercise that scientists at such organizations as the Intergovernmental Panel on Climate Change (the “IPCC”) or the United States Global Change Research Program (USGCRP)¹²³ are far better equipped to undertake. Lightening the burden of describing climate impacts permits the agencies to focus on the more critical task of employing quantification tools to estimate GHG emission volumes.¹²⁴ A better solution might be to implement a tiered approach, assigning to the USGCRP or to CEQ itself the task of drafting a programmatic EIS¹²⁵ that matches net GHG volumes with specific climate consequences, based upon

¹¹⁹ *Id.* at 10–11.

¹²⁰ *Id.* at 17.

¹²¹ *Id.* at 10.

¹²² *See, e.g., Id.* at 10.

¹²³ *See generally* DONALD J. WUEBBLES ET AL., CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT, VOL. I (Linda O. Mearns et al. eds., U.S. GLOB. CHANGE RSCH. PROGRAM 2017) (exemplifying an organization that expertly links GHG emissions to specific climate consequences through a cooperative effort of thirteen agencies that produces reports on global changes generally, including climate change) [hereinafter USGCRP 2017].

¹²⁴ *See* 2016 GUIDANCE, *supra* note 118, at 12 (discussing “quantification tools”).

¹²⁵ *See* 1978 Regulations, *supra* note 2, at § 1502.20 (showing that the 1978 Regulations and the CEQs of all administrations have encouraged the practice of “tiering” multiple EISs from broad, “programmatic” environmental assessments associated with, for example, agency policy positions, to specific assessments, such as for site-specific projects).

authoritative sources; the agencies could then incorporate the programmatic description of climate impacts by reference. Part III of this article explores this possibility.

Unfortunately, other than stating that all climate assessment necessarily is cumulative impact assessment and exhorting the agencies to focus on calculating net volumes on GHG emissions and not climate effects, the 2016 Guidance went no further in breaking new ground for climate assessment under NEPA.¹²⁶ For example, it declined to establish or give guidance on volumetric thresholds of GHG emissions that “significantly affecting the quality of the human environment,” the threshold for drafting an EIS under NEPA Section 102(2)(C).¹²⁷ It also declined to give guidance on how to “scope” the CI Analysis of Climate Assessments—i.e., what other sources of sources of GHG emissions should be considered in defining “cumulative” effect. CEQ’s hesitancy might have stemmed from its reluctance to appear to make binding decisions for the agencies, when it does not have that authority.¹²⁸

That hesitancy is perhaps best represented in the 2016 Guidance in its occasional references to the discretion that the agencies have in the NEPA process. For example: “Agencies have discretion in how they tailor their individual NEPA reviews to accommodate the approach outlined in this guidance, consistent with the CEQ Regulations and their respective implementing procedures and policies.”¹²⁹ As the Guidance itself states,¹³⁰ there are well-established methodologies and tools developed by the scientific community for determining volumes of net GHG emissions for many practices common to the agencies, particularly emissions from fossil fuel combustion. But to grant the agencies broad discretion in fashioning all aspects of their Climate Assessments simply invites them to define key terms (such as “significance” and “scope”) in such a way as to avoid Climate Assessments altogether.¹³¹

¹²⁶ See generally 2016 GUIDANCE, *supra* note 118.

¹²⁷ See generally *id.*

¹²⁸ See *Callaway*, 524 F.2d 86 n.8.

¹²⁹ 2016 GUIDANCE, *supra* note 118, at 3.

¹³⁰ *Id.* at 12.

¹³¹ This is what happened in the years following issuance of the 2016 Guidance.

Whatever its flaws, the 2016 Guidance represents a significant first step in analyzing how NEPA can best be used in climate assessments, especially with its insight that all NEPA climate assessment is CI analysis.¹³² Unfortunately, as discussed below in Subsection D, the Trump-era CEQ derailed development of both CI analysis and NEPA review of climate impacts generally by revoking the 1978 Regulations and replacing them with a revision that is hostile to both. The CEQ undertook this revision in spite of – and arguably, because of – ongoing judicial development of CI analysis for NEPA climate reviews, a development which is discussed in the Subsection D, below.

C. Agency Adoption of CI Analysis for Climate Impacts of Federal Action

A full review of how federal agencies have dealt with climate change in their NEPA assessments, as well as the extent to which they adopted principles from the 2016 Guidance into their own procedures, is beyond the scope of this article. Happily, however, the Sabin Center for Climate Change Law (the “Sabin Center”) has produced an excellent survey of the agencies’ diligence in assessing the GHG emissions from fossil fuel-related projects between 2017 and 2018 (the “Sabin Center Survey”).¹³³ Given the GHG-intensive nature of fossil fuel projects and the record levels of U.S. fossil fuel production in 2018,¹³⁴ this survey might shed light on the extent to which the federal government in general has embraced NEPA climate assessments and how much it contributed to global warming in those years.

¹³² See generally *id.* This idea, if one takes it seriously (as one should, given its inherent logic), could itself revolutionize current NEPA climate assessments; For example, it would reverse the decisions involving forest practices by the USFS in *Hapner v. Tidwell*, 621 F.3d 1239, 1245 (9th Cir. 2010) (upholding USFS’s cursory treatment of climate effects of logging and burning in an environmental assessment on the grounds that the action was “small,” without applying any cumulative impact analysis.), and *Swomley v. Schroyer*, 484 F. Supp. 3d 970, 977 (D. Colo. 2020), *appeal docketed*, No. 20-1335 (declining to require the USFS to discuss climate change impacts in great detail in the EA (citing *Hapner*, 621 F.3d at 1242, 1245)).

¹³³ Siegel & Loznak, *supra* note 111, at 7.

¹³⁴ Michael Burger & Jessica Wentz, *Evaluating the Effects of Fossil Fuel Supply Projects on Greenhouse Gas Emissions and Climate Change under NEPA*, 44 WM. & MARY ENV’T. L. & POL’Y REV. 423, 426–27 (2020).

The study reveals a significant degree of foot-dragging on NEPA compliance. No federal agency in the selected time period concluded that an emissions impact would be significant or prepared an EIS that discussed global warming.¹³⁵ This includes the Bureau of Land Management (the “BLM”), which during this period engaged in extensive leasing of federal land to fossil fuel companies for purposes of exploration and extraction.¹³⁶ One would expect outsize GHG emissions from these activities. For example, the problem of venting and flaring of natural gas has been well-documented,¹³⁷ and the deleterious effects of escaping methane on the Earth’s climate is well understood.¹³⁸ In addition, the “downstream” emissions resulting from these activities—i.e., the transportation, distribution and especially combustion of the fuels—release enormous quantities of GHG emissions into the atmosphere.¹³⁹ The “upstream” activities—e.g. transportation to and construction of the projects—may also release their own large quantities of GHG emissions.¹⁴⁰

Yet all of the EAs conducted in connection with these projects concluded that their climate effects were “not significant.”¹⁴¹ Unsurprisingly, the agencies also “rarely” engaged in CI analysis in their NEPA reviews, not even to add other recent

¹³⁵ Siegel & Loznak, *supra* note 111, at 10.

¹³⁶ See Burger & Wentz, *supra* note 134, at 427 (“[T]he federal government has never conducted a programmatic analysis to evaluate the cumulative effects of its leasing decisions or transport approvals on fossil fuel use and GHG emissions. The result is a patchwork of project-level NEPA documentation that provides only pieces of insight on how federal decisions about fossil fuel supply infrastructure affect fossil fuel use and GHG emissions.”).

¹³⁷ Blake A. Watson, *Nullify, Postpone, Suspend, Stay, and Replace: The Trump Administration and the Methane Waste Prevention Rule*, 44 DAYTON L. REV. 363, 378–79 (2019).

¹³⁸ See Steven Hamburg, *What science is saying about methane pollution, and how the world is finally listening*, EDF (Aug. 10, 2020), <https://www.edf.org/blog/2020/08/10/what-science-saying-about-methane-pollution-and-how-world-finally-listening> [https://perma.cc/M2DJ-F3HY].

¹³⁹ See *Sierra Club v. FERC*, 867 F.3d 1357, 1371 (D.C. Cir. 2017) (requiring emissions from downstream combustion of natural gas be considered in NEPA climate assessments natural gas pipeline projects).

¹⁴⁰ Siegel & Loznak, *supra* note 111, at 3–4.

¹⁴¹ See *Id.* at 28 (“the agencies’ decisions to produce EAs rather than EISs as their NEPA documentation demonstrate the conclusion that the proposed projects’ environmental impacts were determined to be not significant and thus their GHG emissions were determined to be not significant.”)

and reasonably foreseeable federal leases for fossil fuel production to the scope of inquiry. It is highly doubtful that a study of the cumulative results of all fossil fuel leases on U.S. government land over the lifetime of the reserves, including their associated upstream and downstream emissions, is an “insignificant” portion of total world anthropogenic emissions of GHGs.¹⁴² The failure to produce this information as required by NEPA has deprived the public of a valuable and necessary understanding of the climate impact of government activities. It has also resulted in substantial litigation, as environmental NGOs have brought one lawsuit after another against the federal government, attempting to force the agencies to comply with NEPA.¹⁴³

The foregoing discussion on the failure by federal agencies to adopt CI Analysis in their Climate Assessments has focused exclusively on fossil fuel projects because the Sabin Center’s report studied only federal action related to such projects.¹⁴⁴ Nonetheless, this article describes a similar lack of diligence by the U.S. Forest Service in applying CI analysis in its NEPA climate assessments.

Why has the federal government been slow to embrace proper climate assessments? One obvious answer might be simply that the federal administration at the time of the Sabin Center Survey belittled both climate science and efforts to avert climate change. One might ask, however, whether the result would have been the same had either the 2016 Guidance or the NEPA Regulations themselves been more explicit about how federal agencies must acquit their duty to undertake climate assessments

¹⁴² Available data would suggest that such aggregate GHG emissions from U.S. government fossil fuel reserves is in fact a significant percentage of world totals. See, e.g., *California v. Bernhardt*, 472 F. Supp. 3d 573, 625 (N.D.Cal. 2020) (“Between 2003 and 2014, approximately 25% of all United States and 3–4% of global fossil fuel greenhouse gas emissions were attributable to federal coal, oil, and gas resources leased and developed by the Interior Department.” (citations omitted)); See also *WildEarth Guardians v. BLM*, 870 F.3d 1222, 1228 (10th Cir. 2017) (noting that just the three BLM leases at issue, involving coal mines in the Powder River Basin of Wyoming, “would result in 382 million tons of annual carbon dioxide emissions from electricity generation, which is the equivalent of roughly 6% of the United States’ total emissions in 2008.” (citations omitted)).

¹⁴³ *Burger & Wentz*, *supra* note 134, at 427–28.

¹⁴⁴ See Siegel & Loznak, *supra* note 111; Kate Aronoff, *There’s a climate crisis – but Trump’s cabinet continues to backtrack on science*, *Guardian* (May 29, 2019), <https://www.theguardian.com/commentisfree/2019/may/29/climate-crisis-science-trump-cabinet> [https://perma.cc/EGE2-3QZM].

under NEPA. If the Regulations had explicitly set forth what CI analyses are required for climate assessments, provided binding guidance for specific activities (such as the leasing of federal land), required upstream and downstream analyses and, in general, removed agency discretion in climate assessments, then an administration that was hostile to environmental protections would have had a harder time avoiding those assessments.

This circumstance, too, should guide the Biden Administration in its deliberations over the future of NEPA regulations. The Administration should not just strengthen the regulations but should also consider ways to “hard-wire” them against future hostile administrations.

D. Judicial Acceptance of CI Analysis in NEPA Reviews of Climate Impacts

Part I of this article illustrates how, within less than a decade after NEPA’s enactment, the U.S. judiciary became comfortable with the idea that CI analysis is inherently part of NEPA environmental assessment. It comes as no surprise, then, that many courts are equally satisfied with the centrality of CI analysis in understanding the nature of climate change.

For example, in 2008, the Ninth Circuit found that CI analysis was a necessary requirement in a NEPA review related to climate change. In *Center for Biological Diversity v. National Highway Transportation Safety Administration*,¹⁴⁵ eleven states and four public interest groups had brought suit against the National Highway Transportation Safety Administration (NHTSA), challenging its emissions regulations (Corporate Average Fuel Economy, or “CAFE” standards) for light trucks for the manufacture years (“MYs”) 2005 to 2011. While NHTSA acknowledged in its EA that passenger vehicles emitted GHGs (mainly CO₂) which contribute to global warming, it did not factor global warming into the cost benefit analysis in its EA, arguing “[t]he value of reducing emissions of CO₂ and other greenhouse gases [is] too uncertain to support their explicit valuation.”¹⁴⁶ The court found this failure to be arbitrary and capricious, since the

¹⁴⁵ *Ctr. For Biological Diversity v. Nat’l Highway Transp. Safety Admin.*, 538 F.3d 1172, 1181 (9th Cir. 2008).

¹⁴⁶ *Id.* at 1192.

reduction in carbon emissions was “the most significant benefit of more stringent CAFE standards,”¹⁴⁷ and it remanded the case to NHTSA, directing it to include a monetized value for CO₂ emissions reduction. It also criticized NHTSA for failing to consider the incremental impact of its standards in light of other past, present and reasonably foreseeable actions, such as establishing emissions limits for other light trucks and passenger automobiles,¹⁴⁸ stating that “[t]he impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”¹⁴⁹ It therefore directed the agency to provide “the necessary contextual information” about the cumulative impacts of its regulation “in light of other CAFE rulemakings and other past, present and reasonably foreseeable future actions regardless of what agency or other person undertakes such other actions.”¹⁵⁰

Thus, the court ordered NHTSA to cast a wide net in scoping its CI analysis. The Court did not, however, give explicit guidance on what the scope should be, other than to suggest that other light truck and passenger automobiles should be included.¹⁵¹ Determining the proper scope of CI analysis is never easy, and in the case of GHG emissions it is particularly difficult. As explained in Part III of this article, agencies should apply a rule of reason in determining the proper scope for CI analysis. This means they should select a range of different sets of GHG sources for their CI analysis that produce the most useful information to the agency and to the public for understanding the climate threat to which the agency action is contributing.

In the decade since the Ninth Circuit’s decision in *Center for Biological Diversity v. National Highway Transportation Safety Administration*, federal district courts, taking direction from the Ninth Circuit and from other federal circuit courts,¹⁵² have become very comfortable with CI analysis in NEPA climate assessments and adept at imposing it. In the 2020 case *California v.*

¹⁴⁷ *Id.* at 1199.

¹⁴⁸ *Id.* at 1216.

¹⁴⁹ *Id.* at 1217.

¹⁵⁰ *Id.*

¹⁵¹ *Id.* at 1216.

¹⁵² *See, e.g.,* Klamath-Siskiyou Wildlands Center v. BLM, 387 F.3d 989 at 997 (9th Cir. 2004) (holding tiering EAs did not cure deficiencies in cumulative impact analysis).

Bernhardt,¹⁵³ for example, the State of California and various environmental groups challenged the decision of the Bureau of Land Management (“BLM”) to rescind the Methane Waste Prevention Rule, a rule promulgated under the prior (Obama) Administration’s BLM to limit the leakage of methane, a dangerous GHG, from natural gas wells on federal land.¹⁵⁴ The plaintiffs alleged, in part, that BLM’s EIS describing the effects of the rescission did not take into consideration its cumulative effects “when combined with [the BLM’s] nationwide oil and gas program.”¹⁵⁵ BLM countered that projected emissions caused by the rescission of the Rule amounted to “less than 1% of total United States methane emissions.”¹⁵⁶ The Court rejected that excuse and, citing other Federal district court decisions - rather than the 1978 Regulations,¹⁵⁷ required the BLM to study the cumulative impact of the rescission “when combined with its nationwide oil and gas program, also known as the ‘fossil fuel program.’”¹⁵⁸

Similarly, in *San Juan Citizens Alliance v. United States Bureau of Land Management*, the U.S. District Court for the District of New Mexico, reviewing the BLM’s proposal to lease out 13 parcels of federal land in the San Juan Basin, rejected the BLM’s EA for not considering downstream emissions (largely combustion by customers) and for a weak cumulative impact analysis.¹⁵⁹

The two cases mentioned above, *California v. Bernhardt* and *San Juan Citizens Alliance v. United State Bureau of Land Management*, are significant in that they were decided during a

¹⁵³ *California v. Bernhardt*, 472 F. Supp. 3d 573, 582 (N.D. Cal. 2020).

¹⁵² *See id.*

¹⁵⁴ *See Watson*, *supra* note 137, at 365–66.

¹⁵⁵ *Bernhardt*, 472 F. Supp. 3d at 625.

¹⁵⁶ *Id.* at 623.

¹⁵⁷ *E.g.*, *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 75–77 (D.D.C. 2019) (requiring BLM to include its nation-wide leasing program in an NEPA assessment); *Ctr. For Biological Diversity*, 538 F.3d 1172, 1217 (9th Cir. 2008) (“The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”).

¹⁵⁸ *Bernhardt*, 472 F. Supp. 3d at 625.

¹⁵⁹ *San Juan Citizens All. v. U.S. Bureau of Land Mgmt.*, 326 F. Supp. 3d 1227, 1248 (D.N.M. 2018) (“Without further explanation, the facile conclusion that this particular impact is minor and therefore ‘would not produce climate change impacts that differ from the No Action Alternative,’ is insufficient to comply with [the 1978 Regulations] Section 1508.7 [the definition of cumulative impact]”).

time when the Administration, including the political appointees of federal agencies, was highly dismissive of climate change. The federal judiciary demonstrated unwavering resolve in demanding from the agencies the same “hard look” at the effects of GHG emissions from agency action as they would with respect to the effects of any other pollutant. In doing so, the courts reinforced the importance of CI analysis. Nonetheless, as will be seen in the next section, the Administration was determined to bring an abrupt end both to NEPA Climate Assessments and to the judiciary’s consistent support thereof, and it would accomplish this by abolishing the concept of “cumulative effects” from NEPA jurisprudence.

E. Development Arrested: Trump-era CEQ Regulations

On January 10, 2020, in the last full year of the Trump Administration, CEQ published a notice of proposed rulemaking in the Federal Register proposing to “update” the NEPA Regulations.¹⁶⁰ The proposal was nothing less than breathtaking for its sweep of proposed revisions. The “update” revised every section of the Regulations. The effect of virtually each revision was the same: to weaken NEPA for the purpose of eliminating or drastically simplifying the process of environmental assessment to the extent CEQ deemed legally possible. The proposal generated over one million comments, mostly critical of the changes.¹⁶¹ After an unusually accelerated comment period, CEQ issued final regulations on July 16, 2020, less than six months after the initial proposal.¹⁶² Most of the critical comments had been ignored, and little of the initial proposal had been changed.¹⁶³ The new regulations effected an astounding setback to five decades of the development of NEPA law.

¹⁶⁰ Update to the Regulations Implementing the Procedural Provisions of the NEPA, 85 Fed. Reg. 43,304 (Jul. 16, 2020) (to be codified at 40 C.F.R. §§ 1500–1508.2) [hereinafter Updated Procedural NEPA].

¹⁶¹ See *id.*; see also Council of Env’t Quality, RIN 0331-AA03, Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, Final Rule Response to Comments, at 4 (June 30, 2020), <https://www.regulations.gov/document/CEQ-2019-0003-720629> [<https://perma.cc/SMA8-8ESJ>].

¹⁶² Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43304 (July 16, 2020) (to be codified at 40 C.F.R. §§ 1500–1508, 1515–1518).

¹⁶³ See generally *id.*

Significantly, the CEQ eliminated the distinctions among “direct,” “indirect” and “cumulative effect,” and combined the three into “reasonably foreseeable effects.”¹⁶⁴ Clearly, however, “cumulative effects” are an entirely different kind of “effect.” They are included in the 1978 Regulations to force an entirely different kind of analysis than that for direct/indirect effects—namely, to require the agencies to aggregate the effects of related actions. Thus, “simplifying” the definition of “effects” to eliminate cumulative effects results in the rejection of that additional analysis entirely. In case the goal of the “simplification” might be too subtle, the new Regulations state in the definition of “effects or impacts”: “Cumulative impact, defined in 40 CFR 1508.7 (1978), is repealed.”¹⁶⁵

The 2020 Regulations were, of course, legally able to repeal the 1978 Regulations on cumulative impact, but what about the substantial case law that requires CI analysis in appropriate instances? The CEQ believed it could overturn that entire jurisprudence, too, simply by deleting the definition of “cumulative impact” from the definitional section of the Regulations. It reasoned that all NEPA case law derives from the 1978 Regulations, and thus can be changed or eliminated simply by amending the Regulations.¹⁶⁶ As CEQ stated in the release accompanying the 2020 Regulations:

Existing NEPA case law inevitably rests directly on interpretive choices made in the 1978 regulations or on cases that themselves through some chain of prior cases also trace to the 1978 regulations. Yet consistent with *Chevron*, CEQ's NEPA regulations are subject to change.¹⁶⁷

Regarding “cumulative effects,” the CEQ says:

Nor are the terms “direct,” “indirect,” or “cumulative” included in the text of the statute. CEQ created those concepts and included them in the 1978 regulations.¹⁶⁸

¹⁶⁴ See Updated Procedural NEPA, 85 Fed. Reg. at 43,331 *supra* note 160. See also SABIN CTR. FOR CLIMATE CHANGE, *supra* note 15 at 47.

¹⁶⁵ 40 C.F.R. § 1508.1(g)(3) (2020).

¹⁶⁶ See Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43305 (July 16, 2020).

¹⁶⁷ Updated Procedural NEPA, 85 Fed. Reg. at 43,342 *supra* note 160.

¹⁶⁸ *Id.* at 43,343.

As this article demonstrates, however, both of the above statements are inaccurate. Many if not most federal courts had some role in creating case law directly out of the NEPA statute before the 1978 Regulations were promulgated.¹⁶⁹ CI analysis is part of that case law.

It is clear that the Trump-era CEQ was targeting, at least in part, the elimination of climate assessments in its “repeal” of CI analysis. As illustrated above, it is difficult if not impossible under NEPA to require an assessment of the climate effects of only one particular agency action or even “connected”¹⁷⁰ actions, because even the largest sources of GHG emissions in the U.S. represent a vanishingly small percentage of all global warming and related phenomena.¹⁷¹ For this reason, any EA assessment of just one source of GHGs always fails the “significance” threshold and leads to a FONSI. Thus, the Trump-era CEQ’s elimination of CI analysis has the effect of also eliminating climate assessment from the purview of NEPA.¹⁷² In making this change, the CEQ essentially hardwired the One Percent Problem into NEPA.

F. The Biden Administration promises a broad revision.

Immediately upon taking office on January 20, 2021, President Joe Biden issued several executive orders establishing a strong commitment to the environment generally and to the fight against global warming in particular. One such executive order was EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis,¹⁷³ the first section of which establishes the Administration’s policy of “listen[ing] to

¹⁶⁹ See *infra* Part I.B.

¹⁷⁰ 40 C.F.R. § 1508.25(a)(1) (1978) (defining “connected actions” as “closely related and therefore should be discussed in the same impact statement. Actions are connected if they: (i) Automatically trigger other actions which may require environmental impact statements, (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously, or (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.”).

¹⁷¹ See *Global Greenhouse Gas Emissions Data*, EPA, <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data> [<https://perma.cc/5QMQ-WKFB>].

¹⁷² See *generally id.*

¹⁷³ Exec. Order No. 13,990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, 86 Fed. Reg. 7,037 (Jan. 20, 2021).

the science” in order to reduce greenhouse gas emissions, among achieving other environmental goals.¹⁷⁴ Section 2 of the executive order requires federal agencies to review their regulations for consistency with the policies established in Section 1.¹⁷⁵ The fact sheet accompanying the executive order explicitly states that CEQ will review the 2020 Regulations for consistency with the new policies.¹⁷⁶

One might have expected CEQ to swiftly begin the process of revoking the 2020 Regulations and to either re-implement the 1978 Regulations or develop new NEPA regulations. Instead, however, CEQ’s efforts to address the 2020 Regulations have been begun tepidly. On June 29, 2021, CEQ issued an interim final rule that extended from September 14, 2021 to September 14, 2023, the deadline for federal agencies to conform their NEPA Regulations to the 2020 Regulations.¹⁷⁷ Then, on October 7, 2021, CEQ filed a Notice of Proposed Rulemaking¹⁷⁸ that constitutes what it calls “Phase 1” in its plan to develop new NEPA regulations (the “Phase 1 NPRM”). This Phase would modestly make only three amendments to the 2020 Regulations, the third of which, in substance, reinstates the definitions of “direct effect,” “indirect effect” and “cumulative effect” to those contained in the 1978 Regulations.¹⁷⁹

According to the Phase 1 NPRM, in Phase 2 CEQ will more broadly revisit the 2020 NEPA Regulations and propose further revisions to ensure that the NEPA process provides for efficient

¹⁷⁴ *Id.*

¹⁷⁵ *See id.* at 7,037-39.

¹⁷⁶ Press Release, The White House, Fact Sheet: List of Agency Actions for Review (Jan. 20, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/fact-sheet-list-of-agency-actions-for-review> [https://perma.cc/N4X2-MXF8]; Exec. Order No. 14,000, Tackling the Climate Crisis at Home and Abroad, 86 Fed. Reg. 7,619, 7,626 (Jan. 27, 2021) (on January 27, the White House issued an additional executive order, which directs the CEQ and the Office of Management and Budget to ensure that all federal infrastructure projects reduce greenhouse gas emissions and that climate considerations factor into all agency decisions).

¹⁷⁷ Deadline for Agencies to Propose Updates to National Environmental Policy Act Procedures, 86 Fed. Reg. 34,154 (June 29, 2021) (amending 40 C.F.R. § 1507.3).

¹⁷⁸ National Environmental Policy Act Implementing Regulations Revisions, 86 Fed. Reg. 55,757 (proposed Oct. 7, 2021).

¹⁷⁹ *See infra* Part I.B.

and effective environmental reviews that are consistent with the statute's text and purpose, provides regulatory certainty to Federal agencies; promotes better decision making consistent with NEPA's statutory requirements; and meets environmental, climate change, and environmental justice objectives.¹⁸⁰

This statement, then, gives the welcome impression that the Biden-Era CEQ will modernize NEPA's regulations to better address current environmental problems—important among them, global warming. The 2021 NPRM takes the first step in this direction with the proposal to reinstate the definition of “cumulative effects” in the regulations and thereby restore CI Analysis as a necessary part of NEPA assessments. Without CI Analysis reassuming its natural place the NEPA process, true NEPA climate assessments would be impossible.

The next part of this article will recommend that CEQ, in Part 2 of its overhaul of the NEPA regulations, dedicate a section specifically tailored to the development of climate assessments.

III. Whither NEPA Climate Assessments? *Towards a Revised Approach*

This article has sketched the development of the concept of CI analysis from its origins in the first CEQ guidance issued to interpret NEPA. It has demonstrated that courts have treated the tool as implicitly part of a meaningful environmental assessment process. Moreover, as public awareness of and concern over global warming has grown, CEQ has recommended, and certain federal courts have insisted on, CI analysis in assessing federal actions causing GHG emissions. An important contribution in this regard was the Obama-era CEQ's Guidance on climate assessment. It recognized that all climate assessment is CI analysis and urged federal agencies to focus on estimating net GHG emissions from their activities.¹⁸¹

The Biden Administration inherited NEPA Regulations, proposed and promulgated by the CEQ of the last Administration, that vitiate CI analysis and cripple, perhaps fatally, any NEPA review related to climate change. Proposing new NEPA

¹⁸⁰ National Environmental Policy Act Implementing Regulations Revisions, 86 Fed. Reg. 55,757 at 55,759 (no date has been given for the start of Phase 2).

¹⁸¹ 2016 GUIDANCE, *supra* note 118, at 17, 26.

regulations and enacting them through the process established in the Administrative Procedure Act (APA) would seem CEQ's natural response, but will be so draining in terms of resources (e.g. time and staff attention) that the Administration might have been tempted to simply reinstate the 1978 Regulations. Had it done so, however, the Administration would have missed an opportunity to advance the law of NEPA climate assessments.

Fortunately, we now know this will not be the case. As mentioned in Subsection II (F), CEQ has announced its intention to "broadly revisit" the 2020 Regulations and propose revisions that meet "environmental, climate change and environmental justice objectives."¹⁸² This will occur in Phase 2 of the process initiated with the Phase 1 NPRM, and has the potential for constituting a fresh approach for assessments of climate change impacts and freeing them from some of the difficulties noted herein.

This article will next discuss the following issues that might guide the development of a new set of NEPA regulations focused on climate assessments: (A) why agency climate assessments should not have to address the ultimate, indirect effects of GHG emissions; (B) how to determine, or "scope," the universe of sources that should be considered in CI analysis, and (C) how to determine the threshold of "significance" of likely climate effects for purposes of determining whether an EIS must be prepared pursuant to NEPA Section 102(2)(C).

A. Agencies should not have to research the ultimate effects of their actions on the Earth's climate; they should instead incorporate by reference a pan-agency programmatic EIS for this information.

GHGs are fungible, in that their cumulative effects on the environment are the same regardless of the source of the emission, where it is located, or which federal agency bears responsibility for them.¹⁸³ A given volume of, say, CO₂, emitted over a given period

¹⁸² See *Global Greenhouse Gas Emissions Data*, EPA, <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data> [https://perma.cc/Y4XE-QMD2].

¹⁸³ *Emissions Trading in the U.S.: Experience, Lessons, and Considerations for Greenhouse Gases*, Ctr. for Climate & Energy Sols.,

of time, mixes with all other CO₂ volumes in the entire atmosphere circling Earth, and adds to the greenhouse effect that is warming the entire planet.¹⁸⁴ As stated in the Obama-era Guidance, emissions are a proxy for those effects. They have been well studied by legions of climate scientists around the world, and are the subject of many thorough, well-regard reports, such as the reports written by the IPCC and the USGCRP.¹⁸⁵ It is therefore pointless for each federal agency to research anew what these effects are. A “programmatic Climate EIS” that describes the climate effects of net GHG emissions would increase the efficiency and accuracy of this part of the NEPA process for climate assessments.

Moves toward programmatic EISs concentrating on the climate effects of net GHG emissions have already been well under way. For example, the George W. Bush-era CEQ encouraged tiered approaches to CI analysis,¹⁸⁶ and many agencies themselves already engage in it. But the process can become more streamlined by the development of only one programmatic Climate EIS for the benefit of all federal agencies. The USGCRP is an excellent candidate for the task, because it is an interagency organization that already supplies climate change information to the agencies.¹⁸⁷ USGCRP authorship has the political advantage of being a domestic organization (unlike the IPCC), and it has already demonstrated independence from the U.S politics (unlike most federal agencies, including the CEQ and the EPA).¹⁸⁸

<https://www.c2es.org/document/emissions-trading-in-the-u-s-experience-lessons-and-considerations-for-greenhouse-gases/> [https://perma.cc/HPH6-7EZY].

¹⁸⁴ See 2016 GUIDANCE, *supra* note 118, at 10-11.

¹⁸⁵ Reports, IPCC, <https://www.ipcc.ch/reports/> [https://perma.cc/N5S9-2PAB]; Reports Library, U.S. Global Change Rsch. Prog., <https://www.globalchange.gov/browse/reports> [https://www.globalchange.gov/browse/reports].

¹⁸⁶ The 2005 CEQ Guidance on cumulative impact does not mention climate assessments, but implicitly provides some support for a programmatic EIS on climate effects. See 2005 CEQ GUIDANCE, *supra* note 85, at 2, 3.

¹⁸⁷ See USGCRP 2017, *supra* note 123.

¹⁸⁸ The USGCRP’s 2017 special report on climate change, which was researched and published during the Trump Administration, concludes, “[s]ince [our prior report], stronger evidence has emerged for continuing, rapid, human-caused warming of the global atmosphere and ocean. This report concludes that ‘it is *extremely likely* that human influence has been the dominant cause of the observed warming since the mid-20th century. For the warming over the last

Freeing the agencies from the task of describing the climate effects of net GHG emissions would allow them to focus their NEPA climate assessments on predicting volumes of GHG gases emitted over given periods of time from proposed projects and other agency actions.¹⁸⁹ The alternatives analysis, for example, should logically compare volumes of net-GHG emissions, not effects on Earth's climate. Care should be taken, however, to ensure that the conclusions of the programmatic Climate EIS are not hidden from readers of project-specific EISs, in order to reinforce the real-world effect of the project's GHG emissions. The project-specific EIS should quote the programmatic EIS on the likely climate effects of cumulative GHG emissions, and electronic versions of the project-specific EIS should include links to relevant sections of the programmatic Climate EIS for easy reference.¹⁹⁰

B. The rule of reason should guide agency determination of the scope of GHG sources that must be considered for CI analysis.

As stated above, the new regulations for climate change review should closely align with the principles tentatively set forth by the Obama-era CEQ in its 2016 Guidelines. The most important of these principles includes the observation that there is no difference between the direct, indirect and cumulative effects of GHG emissions. All effects of GHG emissions are cumulative, because GHGs freely mix around the world and have a global

century, there is no convincing alternative explanation supported by the extent of the observational evidence." *Id.* at 12. In contrast, it is inconceivable that the CEQ would have made a similar statement in 2017, given the then-current politicization of the climate issue by the Administration it reported to.

¹⁸⁹ The Sabin Center's "Deep Decarbonization" Pathways Project goes farther, and recommends that, even outside of NEPA, all federal agencies should continually monitor the GHG emissions from projects over which they are responsible. ENVIRONMENTAL LAW INSTITUTE, LEGAL PATHWAYS TO DEEP DECARBONIZATION IN THE UNITED STATES 11–12, (Michael B. Gerrard & John C. Dernbach eds., 2018).

¹⁹⁰ Relieving agencies from having to study climate effects of their actions and to focus simply on calculating net GHG emissions has an additional benefit. Currently, some agencies avoid climate assessments, especially those using CI analysis, under the pretext that it is too difficult to predict climate effects from their actions. By assigning the description of climate effects to a third party, however, such as to the USGCRP, that pretext for inaction is eliminated. *See, e.g.*, U.S. FOREST SERV., CLIMATE CHANGE CONSIDERATIONS IN PROJECT LEVEL NEPA ANALYSIS 5 (2009).

impact, while no one source of emissions “significantly” impacts Earth’s climate when considered in isolation.¹⁹¹

The question remains, however, what to do with this fact, and, in particular, how to determine what GHG sources should be included in the cumulative impact review. The 1978 Regulations defined cumulative impact to include the impact of the action under review “when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) *or person* undertakes such other actions.”¹⁹² Obviously the words “or person,” without even any geographic restriction, has the potential to enormously expand the universe of potential sources to be studied. For climate change purposes, that universe could theoretically expand to billions of sources—e.g., to anything that emits a GHG. A scope for CI analysis that includes too many sources could result in a meaningless or useless EIS, thus violating the central tenet of the rule of reason.¹⁹³

The logical solution would be to limit, during the “scoping phase” of the NEPA process, the scope to those actions that are “related” to the Federal action under review.¹⁹⁴ New regulations, employing the rule of reason, should give agencies guidance in defining “related” in such a way so that the CI analysis is sufficiently broad but still relates relevant and meaningful information to the public and the agencies, permitting them to

¹⁹¹ See 2016 GUIDANCE, *supra* note 118, at 10-11.

¹⁹² 1978 Regulations, 40 C.F.R. §1508.7 (emphasis added).

¹⁹³ See *Ctr. For Biological Diversity v. NHTSA*, 538 F.3d 1172, 1216 (9th Cir. 2008) 1216 The Court in that case suggested that the NHTSA’s EA for CAFE standards for a certain class of light trucks consider the cumulative environmental effect of those standards when considered with “other past, present, and reasonably foreseeable actions such as other light truck and passenger automobile CAFE standards.” *Id.* Perhaps the CI scope could be expanded to include light trucks and passenger automobiles produced domestically and internationally for offshore markets, since those markets are influenced directly and indirectly by U.S. standards.

¹⁹⁴ 1978 Regulations, 40 C.F.R. §1508.25(a)(2). Under the 1978 regulations, “scope” incorporates a definition of “cumulative actions”: those actions “which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.” *Id.*

make informed judgments among alternative actions, including a no-action alternative.¹⁹⁵

For example, if the NHTSA has proposed CAFE standards for a particular class and model year (“MY”) of motor vehicle, “related” sources for the purpose of CI analysis might include (a) emissions from all U.S.-manufactured motor vehicles of all MYs of the particular class of vehicles, occurring in the past and the present, and are reasonably certain to occur in the future, or (b) all emissions from all U.S.-manufactured motor vehicles of all classes of vehicles, or (c) any combination of (a) and/or (b). Since technologies produced for once class of vehicle can be employed in other classes, perhaps a CI analysis should include multiple vehicle classes, including both technical/design enhancements of emissions control systems and improved gas mileage requirements. Moreover, U.S. automobile standards may exert such direct and indirect influence on foreign manufacturers as well as foreign regulators that a CI analysis should include automobiles produced around the world. Thus, where the NHTSA might be confronted with the narrow question whether all new light trucks of a given MY manufactured in the U.S. should be required to employ control system X, the CI analysis of that question should be much broader. It might become broad enough to include foreign markets influenced by the U.S. over, say, the next ten years. That analysis could produce information of interest to both NHTSA and to the public at large; under a rule of reason, this is a sufficient rationale to require it.

Scoping the CI analysis for Climate Assessments—that is, defining those world-wide GHG emissions that “accumulate” with the proposed project’s emissions for purposes of determining cumulative effect—is not straightforward. It would be impossible to prescribe a CI scope for all projects of all agencies, and yet leaving the scoping decision entirely to agency discretion would invite them to game the analysis. The only possible yardstick is

¹⁹⁵ It has long been well settled that a “rule of reason” should guide environmental assessments. This is usually understood as requiring environmental assessments and environmental impact statements to focus on providing useful information. See, e.g., *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 373–74 (1989); *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21 (1976) (describing the “hard look” tempered by a “rule of reason”); *Dep’t of Transp. v. Public Citizen*, 541 U.S. 752, 767 (2004).

found in the original purpose of NEPA, which is to produce useful information for decision-makers and the public. Ultimately, each federal agency must be required to define the CI scope to be those sets of emissions that, when CI analysis is applied to them, best guide the agency in the decisions it faces, in particular the choice among alternative actions.¹⁹⁶

C. “Significance” thresholds in NEPA climate assessments should be determined in a pan-agency programmatic EIS.

As previously discussed, NEPA requires an agency to prepare an EIS for all major agency actions that are “significantly affecting the quality of the human environment.”¹⁹⁷ “Significance” is typically determined in the EA stage of the NEPA process.¹⁹⁸ This section discusses how best to determine “significance” in climate assessments.

The 1978 Regulations state that “[s]ignificantly’...requires considerations of both context and intensity.”¹⁹⁹ “Context” means the “setting of the proposed action.” “²⁰⁰Intensity” is to be determined by application of a 10-part test related to the impacts of the proposed action.²⁰¹

Federal agencies should not be required to undertake “context” and “intensity” analysis with respect to each climate assessment they undertake. Since impacts of a given volume of GHG emissions are the same regardless of the source or the location of the source,²⁰² “significance” for purposes of climate assessments should simply be defined by stated volumes of each GHG (or by “CO₂-equivalent”—meaning, for any GHG, the equivalent volume of CO₂ that has the same warming potential as

¹⁹⁶ See 40 C.F.R. Section 1502.14 (1978) (“[Alternatives analysis] is the heart of the environmental impact statement.”).

¹⁹⁷ NEPA §102(2)(C).

¹⁹⁸ See 1978 Regulations, *supra* note 2, at §§ 1508.9, 1501.3 (defining “environmental assessment” and “when to prepare an environmental assessment”).

¹⁹⁹ 1978 Regulations, *supra* note 2, at §1508.27.

²⁰⁰ *Id.*

²⁰¹ 1978 Regulations, *supra* note 2, at § 1508.27(a)–(b).

²⁰² *Emissions Trading in the U.S.: Experience, Lessons, and Considerations for Greenhouse Gases*, Ctr. for Climate & Energy Sols., <https://www.c2es.org/document/emissions-trading-in-the-u-s-experience-lessons-and-considerations-for-greenhouse-gases/> [https://perma.cc/Z3ZJ-MQTG].

the GHG). This follows from the fungible nature of GHGs and the observation in the 2016 Guidance, discussed above, that, for GHGs, “volume is a proxy for impacts.”²⁰³ By focusing the “significance” inquiry on volumes of GHGs rather than ultimate climate effects, the agencies would be freed from having to undertake the complicated “significance” balancing test set forth in the 1978 Regulations in climate assessments.

Three sets of volumetric thresholds should be produced for each GHG. The first would be applied with respect to direct impacts—that is, to GHG emissions that are a direct result of the agency action; and the second would be applied to indirect impacts—for example, in the case of a BLM fossil fuel lease, “downstream” GHG emissions from fossil fuel extraction from the lease. Finally, volumetric “significance” thresholds should be applied to cumulative effects—e.g., to GHG emissions arising from same or similar types of agency practices as the individual action under review. This would have the advantage of preventing “segmentation” in the significance determination. For example, in *Hapner v. Tidwell*²⁰⁴ and *Swomley v. Schroyer*,²⁰⁵ both addressing the sufficiency of USFS NEPA reviews, neither court effectively applied the seventh factor (cumulative impact) of the significance determination before determining that certain logging and burning practices did not “significantly” affect global warming. Their FONSI may have been accurate with respect to the individual logging and burning plans at issue in each case. But the USFS should determine if the *types* of logging and burning practices it permits on U.S. forests produce *cumulative* GHG emissions that should be reviewed and compared to the emissions of alternative practices.

As mentioned in Section 2, above, the Obama-era CEQ was hesitant to prescribe or even suggest levels of GHG emissions that meet the threshold of “significance.”²⁰⁶ The result was that Trump-era agencies were highly inconsistent in the methodologies of determining the “significance” of their net GHG emissions, as demonstrated by the above-cited Sabin Center study into fossil-

²⁰³ 2016 GUIDANCE, *supra* note 118, at 51866.

²⁰⁴ *Hapner v. Tildwell*, 621 F.3d 1239, 1245. (9th Cir. 2010).

²⁰⁵ *Swomley v. Schroyer*, 484 F. Supp. 3d 970, 980 (D. Colo. 2020), *appeal docketed*, No. 20-1335 (10th Cir. Sept. 29, 2020).

²⁰⁶ *See generally* 2016 GUIDANCE, *supra* note 118.

fuel related NEPA inquiries between 2017 and 2018.²⁰⁷ Indeed, all of the agencies reviewed in the study determined that none of their emissions were “significantly affecting the human environment” and therefore did not require EISs.²⁰⁸ This result is simply inconsistent with the fact that U.S. agency actions are, in fact, a major contributor of world-wide GHGs,²⁰⁹ especially those agencies approving or otherwise facilitating fossil fuel projects in the years studied by the Sabin Center (2017 and 2018).

New NEPA regulations should remedy these weaknesses. One consequence of the fungible nature of GHG emissions is that the volume thresholds for “significance” can be determined in one process and applied to all NEPA climate reviews. Thus, the new regulations should “hard-wire” the “significance” determination in climate assessments across the federal agencies, preferably in the programmatic EIS recommended above. Just as an independent body, such as the USGCRP, should describe the climate impacts of given volumes of GHG emissions, that group should supply the scientific data to CEQ necessary to assign volumetric “significance” levels for each GHG in a programmatic EIS.²¹⁰ In doing so, CEQ may wish to refer to the ten factors set forth in the “significantly” definition of the 1978 Regulations.²¹¹ Developing threshold “significance” levels in a programmatic EIS (rather than, say, by regulation) has the additional advantage of permitting levels of significance to be more easily modified over time, as our understanding of the effects of GHGs on climate change becomes more advanced. By establishing generic volumetric levels of “significance,” the Administration will be harmonizing an approach to climate change across the federal government.

CONCLUSION

The Biden Administration now has an opportunity that prior administrations might have envied. Given the inherent weaknesses of the Trump-era NEPA Regulations currently in effect, it might be relatively easy to build political momentum

²⁰⁷ Siegel & Loznak, *supra* note 111.

²⁰⁸ *Id.* at 3.

²⁰⁹ See USGCRP 2017, *supra* note 123.

²¹⁰ This opens another line of inquiry: Whether Subchapter 2 of NEPA, which establishes the CEQ, can form the basis of CEQ’s authority to undertake its own NEPA review and author its own EIS. See 40 C.F.R. § 1500–08.

²¹¹ 1978 Regulations, *supra* note 2, at §1508.27(b).

behind new regulations. These new regulations can be sensibly adapted to and focused on the most serious environmental crisis facing the world: the climate crisis.

Those regulations and the robust climate EISs they should require could, in turn, build further momentum for our country to address global warming far more ambitiously than has hitherto been the case. A programmatic Climate Effects EIS—one that links the rates of cumulative GHG emissions resulting from specific agency actions to particular climate harms (rising sea levels, climate migrations, biodiversity loss, etc.)—could be an important catalyst for a nation-wide discussion of the outsize contribution our federal government has made and continues to make towards an impending climate disaster. At that point, the American public would be better equipped to understand the true environmental costs of individual agency projects and decisions. The information derived from this new NEPA process can soon enter the national debate on the federal government's response to the climate crisis at the very time our new U.S. President is calling our country to action.