A NEPA CLIMATE PARADOX: TAKING GREENHOUSE GASES INTO ACCOUNT IN THRESHOLD SIGNIFICANCE DETERMINATIONS

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INTRODUCTION

The looming prospect of unprecedented, unrestrained global climate change has taken hold of the national consciousness as a crisis of epic proportion. In April 2008, the following declaration set the tone for a Time Magazine cover article: "The steady deterioration of the very climate of our very planet is becoming a war of the first order, and by any measure, the U.S. is losing. Indeed, if we're fighting at all—and by most accounts, we're not—we're fighting on the wrong side."[1] Perhaps a bit glibly, but reflecting rising and widespread attention to climate change concerns by the U.S. cultural mainstream, it has also been said that "[p]eople are beginning to think about their carbon footprint almost as much as their cholesterol level."[2] More gravely, former Vice President Gore—a longtime advocate for climate protection—stated in his Nobel Peace Prize acceptance speech that "[w]e, the human species, are confronting a planetary emergency—a threat to the survival of our civilization that is gathering ominous and destructive potential."[3] Despite these dire warnings, scientific research released in the fall of 2008 indicates carbon and other greenhouse gas (GHG) emissions are rising *even faster* than previously anticipated.[4]

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1. Bryan Walsh, *How to Win the War on Global Warming: Why Green Is the New Red, White, and Blue*, TIME MAGAZINE, Apr. 28, 2008, at 45.

2. Steven Burns, *Environmental Policy and Politics: Trends in Public Debate*, 23 NAT. RESOURCES & ENV'T 8 (Fall 2008).

3. Albert Gore, Former Vice-President, 2007 Nobel Lecture at Oslo, Norway (Dec. 10, 2007) (transcript available at http://nobelprize.org/nobel_prizes/peace/laureates/2007/gore-lecture_en.html).

4. According to updated research by the Global Carbon Project (an institution supported by the International Council for Science, that acts as the umbrella body for all national academies of science), "Anthropogenic CO_2 emissions have been growing about four times faster since 2000 than during the previous decade . . . ." GLOBAL CARBON PROJECT (2008): CARBON BUDGET AND TRENDS 2007, http://www.globalcarbonproject.org/carbontrends/index_new.htm. Reporting on the findings, the Washington Post stated, "The rise in global carbon dioxide emissions last year outpaced international researchers' most dire projections." Juliet Eilperin, *Carbon Is Building up in Atmosphere Faster than Predicted*, WASH. POST, Sept. 26, 2008, at A02. "This output is at the very high end of scenarios outlined by the Intergovernmental Panel on Climate Change (IPCC) and could translate into a global temperature rise of more than 11 degrees Fahrenheit by the end of the century. . . ." *Id.* At the same time, the IPCC has previously "warned that an increase of between

Given the very serious threats global climate change pose to the human environment and a rising tide of public concern, climate seems both an appropriate and obvious subject for consideration under the National Environmental Policy Act of 1969 (NEPA).[5] In fact, it would seem to be a "no-brainer." Over a decade ago, the Council on Environmental Quality (CEQ)[6] drafted guidance that found climate change reasonably foreseeable and an appropriate subject for NEPA assessment.[7] Likewise, none of the federal courts hearing NEPA climate-related challenges have expressed doubt that global warming presents a proper subject for analysis under NEPA (although some have ruled against NEPA impact statement preparation on other grounds).[8]

3.2 and 9.7 degrees Fahrenheit could trigger massive environmental changes, including major melting of the Greenland ice sheet, the Himalayan-Tibetan glaciers and summer sea ice in the Arctic." *Id.*

EPA data released in 2008 shows that total U.S. GHG emissions increased 14.7% from 1990 to 2006, while carbon dioxide emissions increased 19.3% over the same period. U.S. ENVTL. PROT. AGENCY, EXECUTIVE SUMMARY INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2006, at ES-4, ES-7 (April 2008), *available at* http://www.epa.gov/climatechange/emissions/downloads/08_ES.pdf [hereinafter U.S. ENVTL. PROT. AGENCY, EXECUTIVE SUMMARY].

5. National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-4370f (2000 & Supp. 2005).

6. NEPA establishes the Council on Environmental Quality (CEQ) in the Executive Office of the President to oversee the Act's implementation, to advise the President on the state of the environment, and to make recommendations for achieving NEPA's goals. *Id.* §§ 4342, 4344. In this capacity, CEQ has promulgated detailed regulations and issued numerous regulatory guidance documents. *See generally* 40 C.F.R. ch. V (2008).

7. *See* Draft Memorandum from Kathleen McGinty, Chairman of Council on Envtl. Quality, to all Federal Agency NEPA Liaisons (Oct. 8, 1997), *available at* http://www.mms.gov/eppd/compliance/reports/ceqmemo.pdf [hereinafter McGinty Memorandum]. According to CEQ's draft memorandum, climate is not only an appropriate consideration under NEPA, but "[t]he NEPA process provides an excellent mechanism for consideration of ideas related to global climate change." *Id.* at 1. Interestingly, CEQ never formally published the 1997 climate change guidance, which came to public attention only after being released and posted on the internet by another federal agency, the Minerals and Mining Service (MMS). *See* Memorandum from Nicholas Yost, former General Counsel CEQ, to Madeline J. Kass (Sept. 23, 2008) (on file with author).

Additionally, other CEQ guidance, which actually did issue in 1997, acknowledged climate change and GHG emissions as appropriate considerations of NEPA analysis. COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT 7, 38 (1997) [hereinafter COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS]. For example, this CEQ guidance document states: "Direct effects continue to be most important to decsionmakers, in part because they are more certain. Nonetheless, the importance of . . . climate change, and other cumulative effects problems has resulted in many efforts to undertake and improve the analysis of cumulative effects." *Id.* at 7 (emphasis added).

8. *See* Michael B. Gerrard, *Climate Change and the Environmental Impact Review Process*, 22 NAT. RESOURCES & ENV'T 20, 20-21 (Winter 2008) [hereinafter Gerrard, *Climate Change*]. Of the half dozen NEPA climate challenges to date, no federal court has ruled climate to be an

Yet, the fact that NEPA's relevance to the problem of climate change has legal grounding and common sense appeal does not make its application simple. Starting with the assumption that NEPA should and does extend to climate concerns, this Article examines some of the muddled, messy, and complicated aspects of actually integrating climate considerations into NEPA's procedural framework. Additionally, it offers some suggestions as to how to accomplish integration.[9]

I. THE NEPA CLIMATE CONNECTION

Described as an "environmental Magna Carta,"[10] Congress enacted NEPA

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inappropriate factor for NEPA consideration. *See* Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 508 F.3d 508, 552-58 (9th Cir. 2007) (discussing the need to prepare on environmental impact statement (EIS)), *vacated and superseded on denial of reh'g by* 538 F.3d 1172 (9th Cir. 2008) (modifying earlier decision in part only); Mayo Found. v. Surface Transp. Bd., 472 F.3d 545, 554-56 (8th Cir. 2006) (noting that air emissions from coal are not an inappropriate factor for NEPA consideration); Mid States Coal. for Progress v. Surface Transp. Bd., 345 F.3d 520, 549-50 (8th Cir. 2003) (noting that carbon dioxide levels in the air are not an inappropriate NEPA consideration); City of L.A. v. Nat'l Highway Traffic Safety Admin., 912 F.2d 478 (D.C. Cir. 1990) (noting that global warming is an appropriate subject for NEPA EIS consideration), *overruled on other grounds by* Fla. Audubon Soc'y v. Bentsen, 94 F.3d 658 (D.C. Cir. 1996); Friends of the Earth, Inc. v. Mosbacher, 488 F. Supp. 2d 889, 963-65 (N.D. Cal 2007) (discussing NEPA requirements and not expressing doubt as to appropriateness of climate change as a NEPA EIS factor); Border Power Plant Working Group v. Dep't of Energy, 260 F. Supp. 2d 997 (S.D. Cal. 2003) (discussing air pollutants as appropriate NEPA consideration).

State authorities have reached similar conclusions with respect to consideration of climate change pursuant to state environmental assessment laws (little NEPAs). *See generally* Michael B. Gerrard, *SEQRA and Climate Change*, 10 N.Y. ST. B.A. GOV'T LAW & POL'Y J. 68 (Summer 2008) (discussing authority of the New York State Department of Environmental Conservation to require consideration of climate change in EISs and that climate is already being considered in EISs by some lead agencies). For an alternative perspective, see Dave Owen, *Climate Change and Environmental Assessment Law*, 33 COLUM. J. ENVTL. L. 57, 96-118 (2008) (concluding that environmental assessment laws should play a role in addressing climate change but identifying various arguments against so doing).

9. This Article primarily focuses on applying NEPA's existing statutory framework to address climate change. For some recommendations on reforming NEPA to meet this challenge, see generally Lauren Giles Wishnie, Student Article, *NEPA for a New Century: Climate Change & the Reform of the National Environmental Policy Act*, 16 N.Y.U. ENVTL. L.J. 628 (2008).

10. Daniel R. Mandelker, NEPA Law and Litigation (West) § 1:1 (2008); *see also* Bradley C. Karkkainen, *Toward a Smarter NEPA: Monitoring and Managing Government's Environmental Performance*, 102 COLUM. L. REV. 903, 904 (2002) ("The National Environmental Policy Act (NEPA) of 1969, the statute that launched the 'environmental decade' of the 1970s, has been hailed as one of the nation's most important environmental laws. It has also been condemned with equal vigor on grounds that it imposes costly, dilatory, and pointless paper-shuffling requirements on federal agencies and, indirectly, on private parties." (footnote omitted)).

in 1969 in part to "encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation."[11] Towards these ends, NEPA calls for the preparation of a detailed analysis, known as an Environmental Impact Statement (EIS), for proposed legislative and major federal agency actions[12] "significantly affecting the quality of the human environment."[13] The EIS must include discussion of

(i) the environmental impact of the proposed action,

(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.[14]

The NEPA review process ideally serves an informational role[15] by encouraging informed federal decisionmaking[16] and promoting public awareness.[17] Secondary benefits include fostering collaborative government[18]

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11. 42 U.S.C. § 4321 (2000).

12. Subject "actions" include Federal agency projects, programs, and regulations as well as approvals, issuance of permits to, and funding of private (non-federal) actions. *See* 40 C.F.R. §§ 1508.4, 1508.18(a)-(b) (2008).

13. 42 U.S.C. § 4332(2)(C) (2000). Accordingly, NEPA's implementing regulations mandate that federal agencies address the reasonably foreseeable environmental impacts of their proposed programs, projects, and regulations. *See* 40 C.F.R. § 1502.4 (2008); *see also id.* §§ 1508.8, 1508.18, 1508.25.

14. 42 U.S.C. § 4332(2)(C)(i)-(v) (2000); *see also* 40 C.F.R. pt. 1502 (2008).

15. For a detailed discussion of such role, see Wishnie, *supra* note 9, at 631-38.

16. S*ee* 40 C.F.R. § 1500.1(b) (2008) (stating that environmental information must be provided to public officials "before decisions are made and before actions are taken"); *id.* § 1502.1 (stating that EIS "shall inform decisionmakers" and be used by Federal officials to "make decisions"); *see also* Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) (noting that NEPA's EIS requirement serves to ensure "that the agency in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts").

17. S*ee* 40 C.F.R. § 1500.1(b) (2008) (environmental information must be made available to "citizens" before actions are taken); *id.* § 1502.1 (requiring that the "EIS "shall inform . . . the

and participatory democracy.[19] Although the EIS is principally procedural in nature,[20] federal decisionmakers must fully consider[21] the final environmental statement before moving forward.[22] In turn, the ultimate goal of all this process is essentially to nip in the bud the detrimental effects of human activities on the environment.[23]

Human activities emitting GHGs[24] into the atmosphere link people to the

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public of reasonable alternatives").

18. Intergovernmental communication constitutes a secondary benefit of the NEPA process. *See* COUNCIL ON ENVTL. QUALITY, EXEC. OFFICE OF THE PRESIDENT, NATIONAL ENVIRONMENTAL POLICY ACT: A STUDY OF ITS EFFECTIVENESS AFTER TWENTY-FIVE YEARS, at ix (1997), *available at* http://nepa.gov/nepa/nepa25fn.pdf [hereinafter COUNCIL ON ENVTL. QUALITY, NATIONAL ENVIRONMENTAL POLICY ACT] ("The study participants felt that NEPA's most enduring legacy is as a framework for collaboration between federal agencies and those who will bear the environmental, social, and economic impacts of agency decisions."). Although not as often mentioned, NEPA does explicitly call for agency collaboration. 42 U.S.C. § 4332(C) (2000) ("Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved.").

19. S*ee* 40 C.F.R. § 1500.2(d) (2008) ("Federal agencies shall to the fullest extent possible . . . facilitate public involvement in decisions which affect the quality of the human environment."); *see also Robertson*, 490 U.S. at 349 (finding that NEPA's EIS requirement serves to guarantee that "the relevant information will be made available to the larger [public] audience that may also play a role in both the decisionmaking process and the implementation of that decision").

20. The statute is procedural in the sense that so long as an EIS is prepared and considered, NEPA does not mandate any particular result; the agency may choose to go forward with its preferred action regardless of identified environmental impacts or less damaging alternatives. *See Robertson*, 490 U.S. at 350; Strycker's Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223, 227 (1980).

21. *See* Grand Canyon Trust v. Fed. Aviation Admin., 290 F.3d 339, 340-41 (D.C. Cir. 2002) (stating that an agency hard look is required for environmental assessments); Or. Natural Res. Council v. Lowe, 109 F.3d 521, 526 (9th Cir. 1997) (noting that with respect to NEPA documents, agency must take a "hard look" at the impacts of its action); *see also* Citizens To Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 416 (1971) (noting that judicial review requires a "searching and careful" inquiry into agency decisions), *abrogated in part*, Califano v. Sanders, 430 U.S. 99 (1977). *See generally* Mandelker, *supra* note 10, §§ 3:7, 8:13 (noting and discussing "hard look" doctrine).

22. Calvert Cliffs' Coordinating Comm. v. U.S. Atomic Energy Comm'n, 449 F.2d 1109, 1115-17 (D.C. Cir. 1971).

23. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 46.

24. The most important anthropogenic GHG is carbon dioxide (CO_2), but methane (CH_4), nitrous oxide (N_2O), and certain classes of halogenated substances are also categorized as GHGs. *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE 2007: SYNTHESIS REPORT—SUMMARY FOR POLICYMAKERS 5 (2007), *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf [hereinafter IPCC]; U.S. ENVTL. PROT. AGENCY, EXECUTIVE SUMMARY, *supra* note 4, at ES-2.

problem of global warming.[25] The GHG emissions associated with federal actions, in turn, implicate various aspects of NEPA's regulatory process, including identification and quantification of environmental impacts; analysis of reasonable alternatives (including the climate consequences of taking no action); and, most importantly, threshold significance determinations.[26]

First, a compelling nexus exists between NEPA required impact analyses and project-related GHG emissions. In *Center for Biological Diversity v. National Highway Traffic Safety Administration*,[27] the Ninth Circuit ruled that the impact of GHG emissions on climate change is "precisely the kind of cumulative impact[] analysis that NEPA requires agencies to conduct."[28] Although the court subsequently vacated the decision to allow the agency the option of redoing its environmental assessment (EA) or preparing an EIS, the modified ruling retained this language and reiterated in unequivocal terms that the "intent of NEPA is to require agencies to consider and give effect to the environmental goals set forth in the Act."[29] Accordingly, several courts have found project-related GHG emissions and associated climate impacts as appropriately within the scope of NEPA required impact analyses.[30]

In contrast to factoring climate into threshold significance determinations, the climate impact analysis aspect of NEPA climate integration turns out to be relatively straightforward. Available computer modeling programs exist that allow for quantification of GHG emissions.[31] The impact question, however, is not without its own set of complications. One must examine questions of scope (what must be measured) and accountability (who must measure it). Also, data collection and analysis demand time and resources, burdens that may limit the government's ability to comply and offset the benefits of additional information.

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25. According to most recent report of the Intergovernmental Panel on Climate Change (IPCC), "[t]here is *very high confidence* that the net effect of human activities since 1750 has been one of warming" and "[m]ost of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic GHG concentrations." IPCC, *supra* note 24, at 5.

26. *See generally* Madeline J. Kass, *Little NEPAs Take on Climate Goliath*, 23 NAT. RESOURCES & ENV'T 40 (Fall 2008). This list is not exclusive; other areas will also be affected (e.g., scoping).

27. 508 F.3d 508 (9th Cir. 2007), *vacated and superseded on denial of reh'g by* 538 F.3d 1172 (9th Cir. 2008) (modifying other language).

28. *Id.* at 552-58.

29. *Ctr. for Biological Diversity*, 538 F.3d at 1215.

30. *See* Gerrard, *Climate Change*, *supra* note 8, at 20-21.

31. Examples of carbon dioxide emission modeling tools include the Urban Emissions Model (URBEMIS), the Sustainable Communities Model (SCM), the California Climate Action Registry Reporting On-Line Tool (CARROT), and Clean Air and Climate Protect (CACP) software. *See* CALIFORNIA GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, TECHNICAL ADVISORY: CEQA AND CLIMATE CHANGE: ADDRESSING CLIMATE CHANGE THROUGH CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REVIEW 15-17 (June 19, 2008), *available at* http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf.

In addition, failure of an agency's EIS to adequately discuss reasonably foreseeable impacts subject the federal agency to a NEPA legal challenge.[32] Several adequacy challenges—based on inadequate analysis of climate impacts—have also made their way into federal courts.[33] Lastly, but most critically, without rigorous parameters for content and consistency, climate impact discussions are unlikely to meaningfully inform decisionmakers, or the public, which is the ultimate goal of NEPA.

NEPA's alternative analysis provisions present a second compelling area for NEPA climate integration. At a time when climate disruption represents a leading environmental concern facing the nation, inclusion of alternatives with their associated GHG contribution levels as well as alternatives with lower GHG contributions would advance informed[34] environmental decisionmaking. Although self-evident from a statutory interpretation perspective, integrating climate into the NEPA alternatives analysis would benefit from uniform principles to guide agencies and project proponents. First, the lack of federal guidelines or guidance reduces the chances of standardized alternative analyses that meaningfully inform decisionmakers and the public of climate related alternatives. Without federal leadership, NEPA climate analyses requirements may be doomed to gradually evolve through piecemeal, case-by-case judicial interpretation, generating uncertainty and postponing coordinated policy implementation.[35] Second, aside from failing to meaningfully inform decisionmakers and the public, failure of an agency EIS to adequately discuss reasonable alternatives opens the agency to costly and resource-intensive NEPA legal challenges.[36] Adequacy challenges—based on inadequate analysis of various alternatives regarding their relative contributions to global warming—have also started working their way into federal courts.[37]

Most importantly, NEPA's required significance determination—an agency's decision as to whether a federal action will "significantly affect the human environment"[38] and so trigger EIS preparation—appears dependent, at least in

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32. Citizen opponents may challenge the adequacy of an agency prepared EIS as a violation of 42 U.S.C. § 4332(2)(C) (2000) of NEPA pursuant to the Administrative Procedures Act (APA), 5 U.S.C. § 702 (2006). For a discussion of standing in the environmental context, see generally Randall S. Abate, Massachusetts v. EPA *and the Future of Environmental Standing in Climate Change Litigation and Beyond*, 33 WM. & MARY, ENVTL. L. & POL'Y REV. 121 (2008).

33. *See, e.g.*, Nw. Envtl. Advocates v. Nat'l Marine Fisheries Serv., 460 F.3d 1125 (9th Cir. 2006).

34. If the EIS alternatives take into account relative GHG emission contributions, decision makers will be *informed* of available options, but given NEPA's procedural nature, they still will *not* be required to pick *the least damaging* climate alternative.

35. *See* Owen, *supra* note 8, at 84 (NEPA litigation "has not yet created a settled body of caselaw. The entire area is still subject to substantial debate." (footnote omitted)).

36. *See supra* note 32.

37. *See, e.g.*, Mayo Found. v. Surface Transp. Bd, 472 F.3d 545 (8th Cir. 2006) (involving whether the agency adequately considered coal emissions in a proposed rail extension project).

38. 42 U.S.C. § 4332(2)(C) (2000).

part, on whether and to what extent the proposed federal action will modify the atmosphere either by the addition of GHG emissions or the reduction of GHG sinks. Given documented global temperature increases, rising sea levels, and retreating glaciers; anticipated wildfire, weather,[39] water storage, species, ecosystem, and coastal land use threats; and potential for future catastrophic environmental devastation associated with anthropogenic GHG emissions,[40] it is difficult to see how a proposal's GHG emissions would not be a relevant factor in evaluating significance. Even if a proposal's GHG emissions are relatively insignificant globally (perhaps even indiscernible in their individual effect on climate),[41] a single project's GHG emissions may have cumulative, contextual, or other significant impacts.[42]

Yet, despite the apparent "no-brainer" nature of factoring GHG emissions into threshold significance decisions, doing so poses a serious legal conundrum for NEPA climate integration. Several confounding factors must be resolved to make sense of a climate trigger. Moreover, getting it wrong has costly litigation ramifications. As with the preparation of an inadequate EIS, a federal agency decision to forego EIS preparation entirely also subjects the agency to a potential NEPA challenge.[43] Such challenges—based upon an agency's failure to consider climate in determining whether to prepare an EIS—have already begun making their way into federal courts.[44]

To date, despite calls for federal leadership to resolve these troubling NEPA climate integration questions,[45] the Council on Environmental Quality has yet to

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39. United States' scientists expect more droughts, drenching rains, and stronger hurricanes in North America as a result of climate change. *See* U.S. CLIMATE CHANGE SCIENCE PROGRAM, WEATHER AND CLIMATE EXTREMES IN A CHANGING CLIMATE: REGIONS OF FOCUS: NORTH AMERICA, HAWAII, CARIBBEAN, AND U.S. PACIFIC ISLANDS 8 (June 2008) (finding it "very likely" that the frequency and intensity of heat waves and heavy downpours will rise).

40. *See* IPCC, *supra* note 24, at 2 (linking global climate change to human GHG emissions); Massachusetts v. EPA, 549 U.S. 497, 521-23 (2007) (acknowledging harms associated with climate change are "serious and well recognized" and already occurring).

41. *See* Burns, *supra* note 2, at 9 (noting that "businesses remain skeptical that domestic limits on greenhouse gas emissions can affect climate patterns discernibly, particularly as emission in fast-growing countries such as China continue to increase").

42. *See infra* Part II.B; *see also* Kass, *supra* note 26, at 41-42.

43. Citizen opponents may challenge an agency's decision not to prepare an EIS—often referred to as a NEPA Threshold Claim—pursuant to the Administrative Procedures Act (APA), 5 U.S.C. § 702 (2006).

44. *See* Gerrard, *Climate Change*, *supra* note 8, at 20-21.

45. The calls for federal action have included requests for a presidential executive order, CEQ regulatory changes, and federal guidance. *See generally* INT'L CTR. FOR TECH. ASSESSMENT ET AL., PETITION REQUESTING THAT THE COUNCIL ON ENVIRONMENTAL QUALITY AMEND ITS REGULATIONS TO CLARIFY THAT CLIMATE CHANGE ANALYSES BE INCLUDED IN ENVIRONMENTAL REVIEW DOCUMENTS (Feb. 2008), *available at* http://www.icta.org/doc/CEQ%20Petition%20Final%20Version%202-28-08.pdf; Ctr. for Am. Progress, *Idea of the Day: An Executive Order for the National Environmental Policy Act* (May 30, 2008), http://www.americanprogress.org/issues/ideas/

formally adopt its own decades-old NEPA guidance for climate assessment.[46] At the same time, litigation efforts to force climate impact assessments in NEPA-mandated project reviews, while meeting with some success, have not generated a systematic or uniform approach to incorporating climate change considerations into environmental assessments.[47]

To encourage and help smooth the progress of NEPA climate integration, the remainder of this Article focuses on resolution of the climate threshold determination paradox. Part II scrutinizes this particularly troubling dilemma, including problems described as *death-by-a-thousand-puffs* and *no-project-left-behind*. Part III presents options both for obtaining climate-based determinations of significance for federal actions contributing to greenhouse gas additions (or capture capacity reductions) and for restraining climate-based determinations of significance for some federal actions. The Article concludes with predictions on where we are headed—regulatory guidance, statutory reform, or neither.

II. CLIMATE THRESHOLD DETERMINATION BAMBOOZLERS

NEPA mandates the preparation of EISs for proposed legislative and major federal agency actions "significantly" affecting the human environment.[48] Accordingly, an EIS need only be prepared for federal actions anticipated to *significantly* affect the quality of the environment.[49] As a consequence, a significance determination stands as a critical preliminary step to report preparation[50] and to detailed analysis of climate change effects.[51]

2008/05/053008.html.

The petition filed by the International Center for Technology Assessment (ICTA), the Natural Resources Defense Council (NRDC), and the Sierra Club specifically requests that CEQ (1) amend the regulatory definitions of "significantly" and "effects" as well as the provision on environmental consequences to assure NEPA-implementing regulations require climate change effects be addressed in environmental assessments and environmental impact statements; (2) issue guidance to assure that climate change effects be addressed at each stage of the NEPA; and (3) issue a handbook to guide federal agencies in this process. INT'L CTR. FOR TECH. ASSESSMENT ET AL., *supra*, at 37-59.

46. *See supra* note 7 and accompanying text.

47. *See* Gerrard, *Climate Change*, *supra* note 8, at 20-21.

48. 42 U.S.C. § 4332(2)(C)(i) (2000); *see also* 40 C.F.R. § 1500.2 (2008).

49. *See* River Rd. Alliance, Inc. v. U.S. Army Corps of Eng'rs, 764 F.2d 445, 449 (7th Cir. 1985) (holding that EIS not required where agency finds action will not have a significant impact on the environment); *see also* Mandelker, *supra* note 10, § 8:34 (significance decision is "a major factor that determines whether a federal action requires an impact statement"). Note that the significance determination is not the only threshold criteria, but other trigger requirements include determination of whether an agency proposes a "major action" that is "federal" in nature. *See* 42 U.S.C. § 4332(2)(C) (2000).

50. Federal agencies typically prepare an EA, a type of mini-EIS, to accomplish this preliminary step. *See* 40 C.F.R. § 1508.9 (2008). The EA contains data and analysis for concluding either that an action may significantly impact the environment—triggering the EIS

Although NEPA does not itself define "significantly" for threshold determinations, CEQ regulations offer guidance for evaluating significance. The regulations explain that the term "significantly" calls for consideration of both "context" and "intensity."[52] According to NEPA's regulatory framework, the significance of an action "must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interest, and the locality."[53] Temporal (short and long-term) and spatial considerations thus play a role in the significance determination. In analyzing intensity—defined as the "severity of impact"[54]—agencies take into account the "magnitude, geographic extent, duration, and frequency of effects."[55] The implementing regulations additionally direct agencies to consider the following factors: (1) beneficial and adverse impacts;[56] (2) the degree to which the proposed action affects public health or safety;[57] (3) the unique characteristics of the geographic area;[58] (4) the degree to which the effects are likely to be highly controversial;[59] (5) "[t]he degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks";[60] (6) "[t]he degree to which the action may establish a precedent for future actions with significant effects or

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requirement—or a finding of no significant impact—relieving the agency of the EIS obligation. *See id.* § 1508.9(a)(1); *see also River Rd. Alliance*, 764 F.2d at 449 ("The purpose of an environmental assessment is to determine whether there is enough likelihood of significant environmental consequences to justify the time and expense of preparing an environmental impact statement.").

51. This analysis covers both whether a proposal will likely affect climate (through changes in GHG emissions and/or GHG sinks) as well as whether climate change will likely affect the proposal (through climatic environmental changes). *See* McGinty Memorandum, *supra* note 7, at 1, 5. An example of the former would be whether and to what extent a U.S. Forest Service road development proposal would likely affect climate as a consequence of necessary forest clearing (GHG sink reduction) and anticipated energy use (GHG emissions). *See id.* at 5, 7. An example of the latter would be whether and to what extent an anticipated sea level rise (due to global warming) would likely affect a proposed U.S. Navy base development at the shoreline. *See id.* Both types of findings would also play a role in shaping development of mitigation (avoidance and adaptation strategies) and project alternatives in a required EIS.

52. 40 C.F.R. § 1508.27 (2008).

53. *Id.* § 1508.27(a).

54. *Id.* § 1508.27(b).

55. COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 44. CEQ defines the noted parameters as follows: "[T]he *magnitude* of an effect reflects relative size or amount of an effect. *Geographic extent* considers how widespread the effect might be. *Duration and frequency* refers to whether the effect is a one-time event, intermittent, or chronic." *Id.*

56. 40 C.F.R. § 1508.27(b)(1) (2008).

57. *Id.* § 1508.27(b)(2).

58. *Id.* § 1508.27(b)(3).

59. *Id.* § 1508.27(b)(4).

60. *Id.* § 1508.27(b)(5).

represents a decision in principle about a future consideration";[61] (7) "[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts";[62] (8) "[t]he degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources";[63] (9) "[t]he degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act";[64] and (10) "[w]hether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment."[65] The list, however, is nonexclusive; other considerations may influence and be determinative in a finding of significance.[66]

A. Integration Dilemmas and Bamboozling Factors

Generally speaking, despite CEQ's guidance and judicial decisions, and even without taking into account the peculiar aspects of climate change, the threshold determination presents a rather dicey area of NEPA compliance. One explanation lies in the inherent subjectivity of evaluating significance,[67] a problem NEPA leaves to agency discretion.[68] Moreover, significance is a relative concept requiring judgment not merely of impact or no impact, but impact exceeding other often unspecified, undefined points.[69] The need to make such

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61. *Id.* § 1508.27(b)(6).

62. *Id.* § 1508.27(b)(7).

63. *Id.* § 1508.27(b)(8).

64. *Id.* § 1508.27(b)(9).

65. *Id.* § 1508.27(b)(10).

66. A federal agency's own NEPA regulations may identify project types for which an EIS is normally required. *See* CHARLES H. ECCLESTON, NEPA AND ENVIRONMENTAL PLANNING: TOOLS, TECHNIQUES, AND APPROACHES FOR PRACTITIONERS 160, Table 6.6 (2008) (recommending ten additional factors for evaluating significance).

67. *See id.* at 156 ("Experts, let alone the public, often disagree on the significance or nonsignificance of an impact. To a certain extent, the interpretation of significance is in the eye of the beholder."); Wishnie, *supra* note 9, at 647 (noting that significance thresholds, of necessity, are somewhat arbitrary); *see, e.g.*, River Rd. Alliance, Inc. v. U.S. Army Corps of Eng'rs, 764 F.2d 445, 451 (7th Cir. 1985) (holding that significance of aesthetic impacts is "inherently subjective"). The subjectivity problem may be magnified by manipulation. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 51 (stating that "intentional or unintentional manipulation of assumptions can dramatically alter the results of aggregated indices").

68. However, the degree of deference courts give to agency determinations varies. *Compare* Spiller v. White, 352 F.3d 235, 240 (5th Cir. 2003) (granting agency decisions a "considerable degree of deference"), *with* Grand Canyon Trust v. Fed. Aviation Admin., 290 F.3d 339, 341 (D.C. Cir. 2002) (granting only "substantial deference").

69. *See, e.g.*, *River Rd. Alliance*, 764 F.2d at 449 (finding that the concept of significant impact "has no determinate meaning" and that "to interpret it sensibly in particular cases requires

judgments, in comparison to sometimes difficult to quantify baseline conditions[70] and within various, fuzzy contextual categories,[71] adds to and complicates the already subjective, comparative nature of this evaluation.

The intensity factors helpfully identify relevant considerations, but offer limited guidance on the level of intensity necessitating a significance determination.[72] For example, the guidance leaves unanswered and is silent as to *the degree* a proposal must impact human health to trigger EIS preparation, *how great* the impact on an endangered species or its habitat would need to be to require an EIS, or *at what point* multiple factors (and/or other unlisted factors) may operate interdependently or collectively to propel the project into the significance range.[73]

As a practical matter, the call often comes down to whether the lead agency identifies statutory or regulatory standards of other environmental or health and safety laws that are predicted to be exceeded.[74] If an action as proposed will violate applicable limitations of other regulatory programs, the agency may find the significance threshold met; if not, a finding of non-significance follows.[75] This approach ignores the additive quality of apples and oranges type impacts, each of which may individually fall below a regulatory limitation but together have serious consequences. For example, when does a proposed action with some impact on species, some impact on historic sites, some impact on noise, some impact on wetlands, plus some impact on climate add up to a significant effect on the environment? Not surprisingly, one NEPA consultant has observed that "[a]rguably, the concept of significance is the single most complex, elusive

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a comparison that is also a prediction: whether the time and expense of preparing an environmental impact statement are commensurate with the likely benefits from a more searching evaluation than an environmental assessment provides").

70. *See* ECCLESTON, *supra* note 66, at 161. Moreover, when courts do not make use of a comparative baseline, the decisions can seem random or arbitrary. *See* Mandelker, *supra* note 10, § 8:34 ("When courts do not explicitly identify a baseline on which they make their significance determination, they necessarily make this decision on a case-by-case basis that gives an ad hoc flavor to the significance decision.").

71. *See* 40 C.F.R. § 1508.27(a) (2008) ("Significance varies with the setting of the proposed action."); Simmans v. Grant, 370 F. Supp. 5, 15 (S.D. Tex. 1974) (citing Hanly v. Mitchell, 460 F.2d 640, 646-47 (2d Cir. 1972) (recognizing importance of locale for significance determination)).

72. *See River Rd. Alliance*, 764 F.2d at 450 (noting that CEQ regulations defining "significant" are of little help in making significance determination); *see also* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 49 ("Analyzing cumulative effects under NEPA is conceptually straightforward but practically difficult.").

73. One NEPA consultant recommends evaluating "[t]he degree to which a multiple number of different and substantial but individually nonsignificant impacts affect the environment" because the individually nonsignificant impacts might collectively generate "an overall significant impact." *See* ECCLESTON, *supra* note 66, at 160.

74. *See id.* at 158.

75. *See id.*

concept in NEPA." [76]

Federal courts have reiterated the need for consideration of contextual and severity factors, but arguably have done little to meaningfully clarify the statutory standard.[77] With respect to judicial review, federal courts have generally decided cases on an "ad hoc" basis—without illuminating any criteria for determining the environmental significance of the federal action[78]—and have split even as to the proper role of CEQ's intensity factors in agency decisions.[79] Adding to the confusion, the federal courts disagree as to the certainty of significance required, with some courts requiring EIS preparation only where "substantial questions" exist as to whether an action "may" have a significant effect on the environment.[80] Accordingly, it has been noted that "[p]robably no other concept has elicited as much confusion or litigation."[81]

B. The New Wrench in the Works: Climate Impact Significance

Tossing climate into the mix, significance factors appear to exacerbate and complicate these existing analytical difficulties. Making contextual judgments,

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76. *Id.* at 156.

77. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 4 ("Court cases throughout the years have affirmed CEQ's requirement to assess cumulative effects of projects but have added little in the way of guidance and direction."); *see also River Road Alliance*, 764 F.2d at 450 (noting that case precedent offers little help in making a significance determination). In *River Road Alliance*, the court explained the lack of judicial clarification as follows: "So varied are the federal actions that affect the environment—so varied are the environmental effects of those actions—that the decided cases compose a distinctly disordered array." *Id.* (referencing WILLIAM H. RODGERS, HANDBOOK ON ENVIRONMENTAL LAW 756-61 (1977)); *see also* ECCLESTON, *supra* note 66, at 156 ("In many instances, the courts have done little more than redefining significance in terms of other equally enigmatic concepts or wording. For example, the courts have variously defined significantly to mean 'not trivial,' 'appreciable,' 'important,' and 'momentous.'").

78. *See* Mandelker, *supra* note 10, §§ 8:49, 8:50 (explaining "ad hoc" nature of significance determinations and listing numerous examples).

79. *Compare* Ocean Advocates v. U.S. Army Corps of Eng'rs, 361 F.3d 1108, 1125 (9th Cir. 2004) (holding that one intensity factor is enough to mandate EIS preparation), *amended by* 402 F.3d 846, *with* Curry v. U.S. Forest Serv., 988 F. Supp. 541, 553 (W.D. Pa. 1997) (stating the presence of only one intensity factor "does not mandate" EIS preparation). At least one court has held CEQ's factors are merely guides or aids for agency decisionmaking. *See, e.g.*, Advocates for Transp. Alternatives, Inc. v. U.S. Army Corps of Eng'rs, 453 F. Supp. 2d 289, 301 (D. Mass. 2006).

80. *See* Save Our Ten Acres v. Kreger, 472 F.2d 463, 467 (5th Cir. 1973); *see also* Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 508 F.3d 508, 552 (9th Cir. 2007) (citing several Ninth Circuit decisions following such standard), *vacated and superseded on denial of reh'g by* 538 F.3d 1172. It has also been suggested that the meaning of "significant" be fixed at the lower end of the spectrum that runs from "not trivial" to "momentous." Hanly v. Kleindienst, 471 F.2d 823, 837, 839 (2d Cir. 1972) (Friendly, C.J., dissenting).

81. ECCLESTON, *supra* note 66, at 156.

sussing out significant impacts, and identifying relevant resource thresholds seem just a bit more befuddling in the climate change context.

1. Death-by-a-Thousand-Puffs.—Given documented global temperature increases,[82] rising sea levels[83] and retreating glaciers;[84] anticipated wildfire,[85] extreme weather,[86] water storage, species,[87] ecosystem,[88] and coastal land use threats; and potential for worldwide catastrophic environmental devastation and epidemic public health implications[89] associated with anthropogenic GHG

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82. IPCC, *supra* note 24, at 2 ("Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level.").

83. *Id.* at 6 ("Human influences have: *very likely* contributed to sea level rise during the latter half of the 20th century . . . .").

84. According to Nobel Peace Prize winner and former Vice President Albert Gore:

> Scientists with access to data from Navy submarines traversing underneath the North polar ice cap have warned that there is now a 75 percent chance that within five years the entire ice cap will completely disappear during the summer months. This will further increase the melting pressure on Greenland. According to experts, the Jakobshavn glacier, one of Greenland's largest, is moving at a faster rate than ever before, losing twenty million tons of ice every day, equivalent to the amount of water used every year by the residents of New York City.

Albert Gore, Former Vice-President, Address at Daughters of the American Revolution Constitution Hall: A Generational Challenge to Repower America (July 17, 2008) (transcript and video available at http://www.algore.org/generational_challenge_repower_america_al_gore).

85. Interestingly, scientists anticipate both that rising global temperatures are likely to increase the number of wildfires and that wildfire smoke may blunt the pace of increasing temperatures. Lauren Morello, *Forests: Wildfire Smoke Could Briefly Dampen Arctic Warming, Study Finds*, CLIMATEWIRE, July 23, 2008, http://www.eenews.net/climatewire/2008/07/23/archive/3?terms=wildfire.

86. *See, e.g.*, IPCC, *supra* note 24, at 2 ("There is observational evidence of an increase in intense tropical cyclone activity in the North Atlantic since about 1970.").

87. *See* Chris D. Thomas et al., *Extinction Risk from Climate Change*, 427 NATURE 145, 145 (2004).

88. *See, e.g.*, IPCC, *supra* note 24, at 9 (identifying particular ecosystems especially likely to be affected by climate change).

89. "[T]here will be serious consequences for human health, including the spread of infectious and respiratory diseases, if worldwide emissions continue on current trajectories." Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 508 F.3d 508, 523 (9th Cir. 2007), *vacated and superseded on denial of reh'g by* 538 F.3d 1172. Adverse health impacts will not be limited to areas outside the United States. *See, e.g.*, Tom H. Brikowski et al., *Climate-related Increase in the Prevalence of Urolithiasis in the United States*, 105 PNAS 9841, 9841-42 (July 15, 2008) (finding kidney stones likely to become more common in southeastern United States as a result of global warming); *see generally* IPCC, *supra* note 24, at 13, Table SPM.3 (listing examples of possible human health impacts as a result of global warming); KRISTIE L. EBI ET AL., U.S. ENVIRONMENTAL PROTECTION AGENCY, U.S. CLIMATE CHANGE SCIENCE PROGRAM, ANALYSES AND EFFECTS OF GLOBAL CHANGE ON HUMAN HEALTH AND WELFARE AND HUMAN SYSTEMS, ch. 2, 2-1

emissions,[90] it is difficult to see how GHG contributions from proposed federal actions do not demand consideration as part of a NEPA contextual and intensity analysis.[91] And yet, any single project's GHG emissions—even a very large or long-term project—will likely be relatively minor, even indiscernible, globally.[92] By way of illustration, worldwide combined manufacturing and construction industries contributed just 10% of total GHG emission in 2000,[93] meaning any single individual manufacturing facility project would represent a minute fraction of a minor percentage of total emissions. From another perspective, the United States—now the second largest contributor of worldwide GHG emissions[94]—contributes approximately 20% of worldwide GHG emissions per

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to 2-78 (July 2008) (noting that global warming is likely to lead to an increase in heat-related deaths, as well an increase in cardiopulmonary illness from ozone pollution, and foodborne diseases).

90. *See* Massachusetts v. EPA, 549 U.S. 497, 523 (2007) ("EPA does not dispute the existence of a causal connection between man-made greenhouse gas emissions and global warming."); IPCC, *supra* note 24, at 5 ("Most of the observed increase in global average temperatures since the mid-20th century is very *likely* due to the observed increase in anthropogenic GHG concentrations.").

91. CEQ regulations clarify that "reasonably foreseeable" impacts, for purposes of triggering NEPA consideration, include those impacts which "have catastrophic consequences, even if their probability of occurrence is low, provided the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason." 40 C.F.R. § 1502.22(b)(4) (2008). In addition to buy-in of well-respected international associations, scientists worldwide, and even a reluctant President, the Supreme Court has acknowledged that harms associated with climate change are "serious and well recognized" and already occurring and that "the risk of catastrophic harm, though remote, is nevertheless real." *Massachusetts*, 549 U.S. at 521.

92. Several academics and legal practitioners have come to a similar conclusion. *See, e.g.*, Wishnie, *supra* note 9, at 644 ("[T]he only thing that is clear from the case law is that it will be extremely hard, in the vast majority of cases, to show that a federal project that produces GHG emissions meets the significance requirement. Most projects, regardless of their size, will be objectively insignificant."); Michael H. Zischke & Sarah E. Owsowitz, *Climate Change and the California Environmental Quality Act*, COX, CASTLE & NICHOLSON LLP 6-8 (July 2007), *available at* http://www.coxcastle.com/images/ps_attachment/attachment204.pdf (determining whether emissions are significant for California Environmental Quality Act (CEQA) Environmental Impact Report (EIR) will remain difficult until regulatory thresholds set).

93. KIRSTIN DOW & THOMAS E. DOWNING, THE ATLAS OF CLIMATE CHANGE: MAPPING THE WORLD'S GREATEST CHALLENGE 41 (2007).

94. China overtook the United States as the leading emitter of carbon dioxide (by volume) in 2008; however, U.S. per capita emissions still exceed China's per person contributions. *See* Gillian Murdoch, *China Top Carbon Emitter, Beijing Under Pressure*, REUTERS NEWS SOURCE, June 13, 2008, *available at* http://www.reuters.com/article/environmentNews/idUSL131912 4020080613?sp=true; *see also Netherlands Environmental Assessment Agency, Global CO_2 Emissions: Increase Continued in 2007*, http://www.mnp.nl/en/publications/2008/GlobalCO2 emissionsthrough2007.html (last visited Jan. 26, 2009).

year.[95] If all U.S. sources combined (land use, forestry, transportation, energy, manufacturing, construction, agriculture, shipping, aviation, industrial processes, etc.) make up just a fifth of worldwide emissions, any one U.S. emitter, in any one sector, will undoubtedly be truly minuscule by comparison. Applying this approach, a proposal for a discount superstore estimated to emit 16,000 metric tons of carbon dioxide equivalents per year, when compared to aggregate emissions of twenty-six gigatonnes of carbon dioxide per year,[96] would represent a mere .0061% of worldwide emissions.[97] By way of a more concrete example, in the late 1980s, the National Highway Traffic and Safety Administration (NHTSA) found that a "maximum, hypothetical fraction of *one percent* change in carbon dioxide" produced by a proposed rulemaking action for nationwide vehicle fuel economy standards too insignificant to trigger EIS preparation.[98] NHTSA used a similar argument, albeit less successfully, to support a finding of non-significance with respect to a later rulemaking for fuel economy standards for light trucks.[99] In both instances the agency made the *too small* argument despite the fact that transportation accounts for approximately 28% of all GHG emissions in the United States.[100]

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95. Percentage based on year 2000 data. KENNETH BAUMERT ET AL., PEW CTR. ON GLOBAL CLIMATE CHANGE, CLIMATE DATA: INSIGHTS AND OBSERVATIONS 4, fig. 1 (2004). *But see* DOW & DOWNING, *supra* note 93, at 40-41 (U.S. emissions approximately 27% of total emissions).

96. A "gigatonne" is a billion metric tones. ROBERT HENSON, THE ROUGH GUIDE TO CLIMATE CHANGE: THE SYMPTOMS, THE SCIENCE, THE SOLUTIONS 32 (2006). The twenty-six gigatonne figure comes from 2002 data drawn from analyses by the Intergovernmental Panel on Climate Change (IPCC) and the Pew Center on Global Climate Change (PCGCC). *Id.*

97. The projected estimate for this illustration came from an example project calculation prepared by the California Air Pollution Control Officers Association (CAPCOA) for a discount superstore commercial project: 241,000 square feet, employing 400 people, and located in San Joaquin Valley. *See* GREG THOLEN ET AL., CAL. AIR POLLUTION CONTROL OFFICERS ASS'N, CEQA & CLIMATE CHANGE: EVALUATING AND ADDRESSING GREENHOUSE GAS EMISSIONS FROM PROJECTS SUBJECT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT 62-3 (Jan. 2008), *available at* http://www.climatechange.ca.gov/publications/others/CAPCOA-1000-2008-010.PDF.

98. NHTSA calculated the less than 1% increase as follows:

> NHTSA concluded that a one mile per gallon reduction would result in an increase in carbon dioxide emissions of 17.75 billion pounds over the fleet's 20-year lifespan. It then compared this substantial net increase to the total amount of carbon dioxide that would be emitted into the global atmosphere anyway. Using that calculus, the 17.75 billion pounds represented a less than one percent increment over existing emissions.

City of L.A. v. Nat'l Highway Traffic Safety Admin., 912 F.2d 478, 500 (D.C. Cir. 1990) (Wald, C.J., dissenting), *overruled on other grounds by* Fla. Audubon Soc'y v. Bentsen, 94 F.3d 658 (D.C. Cir. 1996).

99. Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 508 F.3d 508, 554 (9th Cir. 2007), *vacated and superseded on denial of reh'g by* 538 F.3d 1172 (9th Cir. 2008) (replacing other language). The agency also argued the rules impact on global warming too speculative for NEPA review. *Id.*; *see also infra* notes 138-43 and accompanying text.

100. The court voted 2-1 to accept the agency's finding. *See City of L.A.*, 912 F.2d at 500

Thus, while *consideration* of climate effects is plainly warranted as part of any significance evaluation, an *actual determination* of significance—due to climate effects—seems implausible in-fact. This situation epitomizes the long recognized NEPA quandary known as the "tyranny of small decisions."[101] Thousands of federal actions,[102] each contributing a relatively wee fraction of worldwide GHG emissions, combine to increase the likelihood of devastating global climate change related impacts,[103] yet fall below the bar for EIS preparation.

Other factors also complicate climate significance determinations. First, no accepted method for tracing specific GHG emissions to specific climate impacts currently exists.[104] Second, less certainty exists as to the predicted effects of climate change, in contrast to the degree of certainty regarding global warming itself. As a consequence, linking a specific proposal's GHG emissions to particular environmental impacts associated with climate change may appear speculative[105] or attenuated.[106] Judicial adoption of this view can be

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(Wald, C.J., dissenting).

101. *See infra* notes 117-20 and accompanying text. The catchphrase "tyranny of small decisions" puts a name to the acknowledgment that "the most devastating environmental effects may result not from the direct effects of a particular action, but rather from the combination of individually minor effects of multiple actions over time." COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 1 (quoting William E. Odum, *Environmental Degradation and the Tyranny of Small Decisions*, 32 BIOSCIENCE 728, 728 (1982)); *see also* ECCLESTON, *supra* note 66, at 241 ("[T]he greatest single adverse environmental impact actually tends to be the result of an incessant multitude of relatively small actions, which together extract a horrific toll on environmental resources.").

102. According to CEQ, federal agencies make thousands of small decisions annually. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 4 (noting roughly 45,000 EAs prepared annually).

103. *See* DANIEL B. FAGRE ET AL., U.S. CLIMATE CHANGE SCI. PROGRAM, SYNTHESIS AND ASSESSMENT PRODUCT 4.2: THRESHOLDS OF CHANGE IN ECOSYSTEMS 5-7 (public review draft Aug. 14, 2008). According to the draft report, even slight warming may push ecosystems across thresholds that would render restoration extremely difficult or impossible. *Id*. at 5. As an example, the draft report offers the melting of arctic tundra snow due to climate change. *Id.* at 6. With melting, reduced snow cover exposes dark vegetation that absorbs heat from the sun more than snow, which leads to greater warming. *Id.* This fosters invasion of shrubs into the tundra, which in turn further adds to warming. "The net result is a relatively sudden domino-like conversion of the arctic tundra triggered by a relatively slight temperature increase." *Id*. at 6-7.

104. *See* HENSON, *supra* note 96, at 31. Note, this tracing limitation must be distinguished from the scientific consensus concerning the facts that (1) global warming is occurring and (2) anthropocentric GHG emission are contributing to the problem.

105. *See* Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 538 F.3d 1172, 1221 (9th Cir. 2008) (noting that the NHTSA argued a rule making's impact on global warming was "too speculative"). In California, state agencies faced with a significance determination under the state's NEPA equivalent, the California Environmental Quality Act (CEQA), have come to this "too speculative" conclusion. *See* Zischke & Owsowitz, *supra* note 92, at 4 ("One approach that

determinative because NEPA lead agencies need not consider highly speculative (purely conjectural) effects in determining whether to prepare an EIS.[107] Relied on by various agencies, the "too speculative" position has not yet proven particularly successful in avoiding review of climate related GHG impacts under NEPA. In a case before the Ninth Circuit, the NHTSA took precisely this position—unsuccessfully—in declining to prepare an EIS for GHG impacts associated with its proposed corporate average fuel economy (CAFE) standards for light trucks.[108] The Eighth Circuit also initially rejected the "too speculative" justification made by the Surface Transportation Board for its failure to consider carbon dioxide emissions in an EA for a rail line construction project.[109] The "too speculative" position, however, has been moderately more successful in avoiding close review of climate related GHG impacts under state NEPA laws

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some agencies have taken is to disclose climate change issues with some level of qualitative discussion and then conclude that any determination of significance would be speculative.").

106. The too attenuated or too remote position stems from a NEPA regulatory provision that only "reasonably foreseeable" impacts come within NEPA's scope. *See* 40 C.F.R. § 1508.7 (2008); *see also* Wishnie, *supra* note 9, at 639 (describing a "reasonably close" relationship requirement in NEPA analogous to tort doctrine of proximate cause).

107. CEQ regulations distinguish between addressable uncertainty and pure conjecture with respect to uncertainties associated with relevant information in an EIS. *See* 40 C.F.R. § 1502.22 (2008); *see also* No GWEN Alliance, Inc. v. Aldredge, 855 F.2d 1380, 1385 (9th Cir. 1988) (holding that agencies are not required to analyze "remote and highly speculative" impacts that bear only an attenuated relationship to the proposed action (citing Trout Unlimited v. Morton, 509 F.2d 1276, 1283 (9th Cir. 1974))); *see generally* City of Riverview v. Surface Transp. Bd., 398 F.3d 434, 442 (6th Cir. 2005) (noting that environmental analysis was not needed since any such analysis would be based surely on conjecture). *But see* Am. Pub. Transit Ass'n. v. Goldschmidt, 485 F. Supp. 811, 833-34 (D.D.C. 1980), *overruled on other grounds by* Am. Pub. Transit Ass'n v. Lewis, 655 F.2d 1272 (holding that an EIS was required despite the Department of Transportation's inability to forecast all environmental effects where the proposed regulations were "presently susceptible to assessment").

108. *See Ctr. for Biological Diversity*, 538 F.3d at 1221, 1227 (court required a revision of Agency's EA that disregarded global warming as "too speculative"); *see also infra* notes 139-43 and accompanying text.

109. Mid States Coal. for Progress v. Surface Transp. Bd., 345 F.3d 520, 548-50 (8th Cir. 2003) (EA held inadequate for failure to examine effects of increase in coal consumption and board's argument that such effects were too speculative rejected). Plaintiffs challenged the agency's EA for failing to consider the increased supply of low-sulfur coal and the resulting air pollutant emissions (including carbon dioxide emissions) associated with the proposed rail line's improved access to such coal. *Id*. at 548. The court, however, subsequently found adequate the board's EIS, which noted in a rather summary fashion that any potential local air quality impacts were "speculative" and "ultimately unforeseeable" based on modeling data. *See* Mayo Found. v. Surface Transp. Bd., 472 F.3d 545, 556 (8th Cir. 2006). Unlike the Ninth Circuit's ruling, discussed *supra* note 108 and *infra* notes 139-43 and accompanying text, the Eighth Circuit did not explicitly address the global climate effects of carbon dioxide emissions, but rather focused on U.S. air quality impacts of the emissions in both decisions. *Id.*

(little NEPAs) in cases where agencies prepared environmental impact documents.[110]

The consequences of the seemingly inconsequential contributions of any individual project emissions to global atmospheric GHG levels and the inability to link project emissions to any specific climate effects are twofold. First, for proposed actions that would not otherwise cross the significance threshold, no EIS evaluating adverse or beneficial project effects relating to climate change, assessing less climate impacting alternatives, or identifying climate related mitigation options, need be prepared.[111] Second, even if other, non-climate related impacts trigger EIS preparation, the lead agency need not evaluate (or closely evaluate) climate related impacts[112]—and may even deem it inappropriate

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110. *See* El Charro Vista v. City of Livermore, No. RG07342392 (Cal. Super. Ct. Alameda County July 28, 2008) (rejecting a climate change challenge to an environmental impact review statement on jurisdictional grounds but noting evidence in the record supported city's determination that such impacts are too speculative for further evaluation); Santa Clarita Oak Conservancy v. City of Santa Clara, No. BS084677, 2007 WL 5084459 (Cal. Super. Ct. L.A. County Aug. 15, 2007) (California CEQA EIR analysis for a proposed industrial park project adequately evaluated the impact of climate change on water supply for the project. The analysis concluded that the impact of climate change on water supply was too speculative to conduct a quantitative review of the specific impacts). *But see* Ctr. for Biological Diversity v. City of Desert Hot Springs, No. RIC 464585 (Cal. Super. Ct. Riverside County Aug. 6, 2008) (EIR required under CEQA for a large residential and commercial development held inadequate for, among other things, failing to "make a meaningful attempt to determine the project's effect upon global warming before determining that any such analysis would be speculative").

111. For an example of this type of NEPA climate outcome, see *City of L.A. v. National Highway Traffic Safety Administration*, 912 F.2d 478, 501 (D.C. Cir. 1990) (Wald, C.J., dissenting), *overruled on other grounds by Florida Audubon Society v. Bentsen*, 94 F.3d 658 (D.C. Cir. 1996).

112. S*ee Mayo Found.*, 472 F.3d at 555-56. After an initial holding that the agency's EIS for a proposed rail line to transport coal to power plants was inadequate for failing to consider carbon dioxide emissions at all in its EIS, the agency noted in a supplemental EIS that, based on modeling data, anticipated carbon dioxide emissions would be small and potential local air quality impacts "speculative." *Id*. The Eighth Circuit approved this rather skimpy climate analysis as adequate. *Id*. at 556 ("We . . . believe that the Board more than adequately considered 'reasonably foreseeable significant adverse effects . . . .'"). Similarly, California agencies have used the "too speculative" position to successfully avoid close analysis of climate impacts in environmental review reports required by the CEQA. *See El Charro Vista*, No. RG07342392 (court noted evidence in the record supported city's determination that such impacts are too speculative for further evaluation); *Santa Clarita Oak Conservancy*, No. BS084677, 2007 WL 5084459 (EIR analysis concluding that the impact of climate change on water supply was too speculative to conduct a quantitative review of the specific impacts found to adequately evaluate the impact of climate change on water supply for the project). *But see City of Desert Hot Springs*, No. RIC464585 (EIR required under CEQA for a large residential and commercial development held inadequate for, among other things, failing to "make a meaningful attempt to determine the project's effect upon global warming before determining that any such analysis would be speculative").

to do so—under the existing CEQ regulations that require preparers to focus on "significant" impacts.[113]

Thus, like death by a thousand cuts—or more aptly *death-by-a-thousand-puffs*—climate impacts seemingly would never—or almost never—trigger and/or be subject to evaluation in a NEPA EIS and, contrary to the primary policy objectives of NEPA—informing decisionmakers and reducing adverse environmental effects[114]—the devastating, potentially catastrophic, environmental impacts associated with climate disruption, the availability of less impacting alternatives, and opportunities to mitigate climate changes escape the attention of decisionmakers and the public. Moreover, the potential for using NEPA's detailed statements for new purposes, such as a collective informational database of climate information, would be lost.[115] Chief Judge Wald of the D.C. Circuit posed the quandary this way: "If global warming is the result of the cumulative contributions of myriad sources, any one modest in itself, is there not a danger of losing the forest by closing our eyes to the felling of the individual trees?"[116]

2. The Cumulative GHG Impacts Bamboozler—No-Project-Left-Behind.— Consideration of cumulative effects appears to offer a way around the tyranny of small GHG decisions, yet this poses its own confounding dilemma. At first glance, cumulative analysis of the GHG emissions of agency actions seems to require EIS preparation for every, or almost every, conceivable agency proposal. Whereas evaluating proposed GHG emissions with global levels would seem *never* to lead to EIS preparation, cumulative analysis would seem *always* to lead to EIS preparation.

NEPA's implementing regulations define "cumulative impact" 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 . . . or person undertakes such other actions."[117] The regulations clarify that individually insignificant but cumulatively significant impacts justify EIS preparation.[118] The existence of cumulatively significant impacts, in turn,

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113. The CEQ regulations provide that in preparing an EIS agencies "shall focus on significant environmental issues" and "[i]mpacts shall be discussed in proportion to their significance. There shall be only brief discussion of other than significant issues. As in a finding of no significant impact, there should be only enough discussion to show why more study is not warranted." 40 C.F.R. §§ 1502.1, 1502.2(b) (2008); *see also id.* § 1500.4(c).

114. *See supra* notes 15-22 and accompanying text.

115. *See* Wishnie, *supra* note 9, at 638 ("EISs can become a collective resource of information on the GHG impacts of government activities," a "knowledge base" for "build[ing] our understanding of global warming").

116. *City of L.A.*, 912 F.2d at 501 (Wald, C.J., dissenting).

117. 40 C.F.R. § 1508.7 (2008). According to CEQ, "[c]umulative effects result from spatial (geographic) and temporal (time) crowding of environmental perturbations." COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 7.

118. *See* 40 C.F.R. §1508.27(b)(7) (2008) ("Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment.").

depends predominantly on comparison with baseline conditions and relevant resource thresholds and on contextual considerations.[119] Thus, the tyranny of small decisions predicament receives regulatory attention and potential resolution through the lens of cumulative effects.[120] However, it is just never quite as simple as it seems.

3. If the Cumulative Analysis Shoe Fits . . . .—The collective, additive nature of GHG emissions on climate change supports cumulative impacts analysis as a means for crossing the significance barrier to EIS preparation. A scientific consensus exists that, due to past and continuing accumulations of atmospheric GHGs, worldwide temperature is rising.[121] It follows that each proposed federal action—which directly or indirectly emits GHGs[122] or eliminates GHG sinks—will affect atmospheric GHG levels and may likely[123] cause reasonably foreseeable climate impacts.[124]

As a consequence of this causal link, project related GHG emissions readily fall into several recognized types of cumulative effects to be considered by agencies under NEPA. First, project related GHG emissions mimic "time crowding" cumulative effects by virtue of their repetitive, additive effects on

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119. COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at vi. Determining cumulative significance can present unique analytical difficulties. *Id*. at vi-vii. In addition, determining the significance of cumulative effects suffers from the same hitches as does determining significance of direct effects: subjectivity, relativity, and geographic disconnectivity. *See supra* Part II.A.

120. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 1 ("NEPA provides the context and carries the mandate to analyze the cumulative effects of federal actions."). According to CEQ, "[t]he passage of time has only increased the conviction that cumulative effects analysis is essential to effectively managing the consequences of human activities on the environment." *Id*. at 3. For cases recognizing a requirement for agency consideration of cumulative effects, see *Mountaineers v. U.S. Forest Services*, 445 F. Supp. 2d 1235, 1247-50 (W.D. Wash. 2006); *Manatee County v. Gorsuch*, 554 F. Supp. 778, 793-94 (M.D. Fla. 1982); *Sierra Club v. Bergland*, 451 F. Supp. 120, 129 (N.D. Miss. 1978) (all holding that cumulative impacts was required in significance determination). *See also* Mandelker, *supra* note 10, § 8:37 ("NEPA's purposes would be frustrated if a federal action could be considered in isolation without regard to its cumulative effects.").

121. *See supra* text accompanying notes 82-90.

122. Very few, if any, agency actions will land outside this grouping because the primary source of GHGs is energy use, something likely common to most every project or program proposal.

123. A fuzzy "may likely" is used here (rather than a more macho "will") only because some proposed actions may incorporate carbon off-setting strategies so as to create a carbon neutral effect on atmospheric GHG levels. *See* Owen, *supra* note 8, at 86 ("Unless its emissions are effectively offset, every individual GHG-emitting project contributes to climate change." (footnote omitted)).

124. *See id.* ("Although those individual contributions might seem small, and articulating a causal chain between individual contributions and particular storms or droughts is impossible, scientists generally agree that the more GHGs are emitted into the atmosphere, the more temperatures will rise, with corresponding increases in adverse consequences.")

climate.[125] Like forest harvesting rates that exceed regrowth rates,[126] project GHG emission rates exceed rates of atmospheric assimilative capacity because GHGs are already above sustainable levels. According to U.S. government scientists "emissions of carbon dioxide and other heat-trapping gases *have warmed* the oceans and led to an energy imbalance that *is causing* and will continue to cause, significant warming, increasing the urgency of reducing CO2 emissions."[127] Second, project related GHG emissions produce "time lag" cumulative effects by virtue of their snow-balling impact on climate (albeit an inappropriate simile).[128] Just as exposure to carcinogens may not produce identifiable health effects until many years after project initiation, project related releases of GHGs may not produce visibly extreme climate effects until several decades into the future.[129] Third, and practically by definition, agency actions with GHG emissions present "trigger and threshold" cumulative effects—effects characterized by "fundamental changes in system behavior or structure."[130] Findings by the IPCC support the potential for fundamental systemic changes: "Anthropogenic warming over the last three decades has *likely* had a discernible influence at the global scale on observed changes in many physical and biological systems."[131] CEQ, in fact, offers up "global climate change" to illustrate this category of cumulative effects.[132] In short, because past anthropocentric emissions have bumped atmospheric GHG levels at or above system capacity,[133] arguably, any and all new additions (including those from proposed agency actions) cumulatively exacerbate environmental effects of rising temperatures.[134] Moreover, consequence uncertainty does not automatically

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125. The concept of "time crowding" cumulative effects comes from CEQ informal guidance. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 7-9, Table 1-3; Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt., 387 F.3d 989, 994 (9th Cir. 2004) (noting that the "most obvious" way cumulative impacts of multiple projects can be significant is that "the greater total magnitude of the environmental effects . . . may demonstrate by itself that the environmental impact will be significant").

126. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 9, Table-1-3.

127. Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 538 F.3d 1172, 1222 (9th Cir. 2008) (emphasis added).

128. The concept of "time lag" cumulative effects comes from CEQ informal guidance. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 9, Table 1-3.

129. The carcinogen analogy is also based on an example provided in CEQ guidance. *See id.*

130. *Id.* The concept of "triggers and threshold" cumulative effects comes from CEQ informal guidance. *See id.*

131. IPCC, *supra* note 24, at 6.

132. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 9, Table 1-3.

133. *See* FAGRE ET AL., *supra* note 103, at 75-77.

134. *See id.* at 77-79 (even slight warming may push ecosystems across thresholds that would render restoration extremely difficult or impossible); IPCC, *supra* note 24, at 7 ("Continued GHG emissions at or above current rates would cause further warming and induce many changes in the

prevent analysis.[135]

CEQ recognized the applicability of cumulative effects analysis to climate over a decade ago.[136] According to CEQ's 1997 Cumulative Effects guidance, "[d]irect effects continue to be most important to decisionmakers, in part because they are more certain. Nonetheless, the importance of . . . climate change, and other cumulative effects problems has resulted in many efforts to undertake and improve the analysis of cumulative effects."[137]

More recently, the Ninth Circuit has come to the same conclusion. In *Center for Biological Diversity v. National Highway Traffic Safety Administration*, the court announced: "The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct."[138] In the case, several state and public interest plaintiffs challenged a rulemaking by the NHTSA setting CAFE standards for light trucks. Plaintiffs alleged, inter alia, that NHTSA had violated NEPA by failing to take a hard look at the GHG implications of its rulemaking, examine the rule's cumulative impact, and prepare an EIS.[139] The NHTSA justified its finding of insignificant impact by arguing the projected carbon dioxide emissions associated with the rulemaking were "self-evidently" too small to have a significant impact on the environment and too speculative to require an EIS.[140] The court directly addressed the question of cumulative effects of GHG emissions on climate change in holding NHTSA's environmental assessment inadequate.[141] Specifically, the court rejected the agency's EA documentation because it had failed to adequately evaluate the incremental impact carbon dioxide emissions would have on climate change in light of "other past, present, and reasonably foreseeable actions," such as other CAFE rulemakings.[142] Even the fact that the NHTSA projected the rulemaking action would *decrease* carbon dioxide emission rates—as compared to the existing rule—did not alter the court's conclusion.[143]

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global climate system during the 21st century that would *very likely* be larger than those observed during the 20th century.").

135. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 46-47 (recognizing and addressing inherent uncertainties in cumulative effects analyses).

136. *Id.* at 7 (noting the effects of GHG emissions on climate change).

137. *Id.*

138. 538 F.3d 1172, 1217 (9th Cir. 2008); *see also* Owen, *supra* note 8, at 60 ("Climate change is a classic example of a 'cumulative' environmental impact . . . .").

139. *Ctr. for Biological Diversity*, 538 F.3d at 1181.

140. *Id*. at 1221.

141. *Id.* at 1182.

142. *Id*. at 1216.

143. The Ninth Circuit reasoned: "[S]imply because the Final Rule may be an improvement over the MY 2007 CAFE standard does not necessarily mean that it will not have a 'significant effect' on the environment . . . . NHTSA has not explained *why* its rule will not have a significant effect." *Id.* at 1224. According to the court, the agency had failed to explain why a small decrease in the growth of CO_2 emissions (as opposed to a greater decrease) would not have a significant

But herein lies the cumulative effects bamboozler: If past contributions are at, or have already exceeded, the atmosphere's assimilative capacities (meaning the existing global environmental baseline is already significantly impaired)[144] and must be reduced to avoid both further global temperature increases and the reasonably foreseeable colossal environmental wreckage associated with a warming earth, then every future GHG emitter contributes to an already cumulatively significant harm and should be required to prepare an EIS. Along these lines, Professor Owen has argued, with respect to climate considerations under the CEQA,[145] California's "little NEPA" statute,[146] that:

> Unless its emissions are effectively offset, every individual GHG-emitting project contributes to climate change. GHGs are generally long-lived and well-mixed, so there is no inconsequential location or time for GHG emissions to occur, and each GHG-emitting project inexorably adds to the worldwide total. No reasonable doubt exists that rising worldwide totals are already causing, and will continue to cause, severe and sometimes catastrophic consequences . . . . Every project that adds new GHG emissions therefore makes a serious environmental problem worse. Those incremental contributions cannot legally be dismissed as de minimis or inconsequential.[147]

At first glance then, it appears that using a cumulative effects analysis to avoid *death-by-a-thousand-puffs* may unintentionally lead directly to a *no-project-left-behind* situation—every (or practically every) proposed action would be subject to the NEPA EIS requirement.[148]

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impact on the environment and so its determination of insignificance was arbitrary and capricious. *Id*. at 1221-24. Specifically, the court noted, "[I]t is hardly 'self-evident' that a 0.2 percent decrease in carbon emissions (as opposed to a greater decrease) is not significant." *Id.* at 1223. At the same time, petitioners introduced enough scientific evidence—in light of compelling evidence of a "tipping point" for irreversible adverse climate changes—to pose a substantial question of the rule's potential for significant environmental degradation. *Id*. at 1221-22.

144. *See* Owen, *supra* note 8, at 86 ("No reasonable doubt exists that rising worldwide totals are already causing, and will continue to cause, severe and sometimes catastrophic consequences.").

145. CAL. PUB. RES. CODE §§ 21000-21177 (West 2007 & Supp. 2009).

146. Twenty-five states have NEPA-like statutes or executive orders in place, although several, including California's CEQA, have more substantive bite than their federal role model. *See* Kass, *supra* note 26, at 41.

147. Owen, *supra* note 8, at 86-87 (internal footnotes omitted); *see also* Wishnie, *supra* note 9, at 644 ("[S]traightforward application of cumulative impacts analysis could result in any federal project resulting in even the most minor emission of GHGs meeting the significance requirement"). Wishnie also notes, "Retaining the cumulative impacts requirement would create an unworkable burden for agencies . . . ." *Id.* at 646.

148. The Supreme Court foresaw the potential for such a cumulative impacts quandary in one of the early NEPA challenges before the courts. *See* Kleepe v. Sierra Club, 427 U.S. 390, 413-15 (1976); *see also* ECCLESTON, *supra* note 66, at 246-48 (identifying cumulative impact paradox where projects with small, even innocuous, incremental impacts on a resource trigger EIS

The consequences of *no-project-left-behind* are possibly as dire as those of *death-by-a-thousand-puffs*. If tens of thousands of yearly NEPA significance determinations that currently demand only EA preparation and result in findings of non-significance instead trigger full EIS preparation—due to the cumulative effects of GHG emissions—federal agencies will be burdened with a massive,[149] time[150] and resource consuming,[151] costly[152] documentation program. At least one court has opined (in a non-climate context) that such a burden could shut down government activity entirely:

> Although the statute does not indicate how lengthy or detailed an environmental impact statement must be, and the required length and detail will of course vary with the nature of the proposed action whose impact is being studied, the implementing regulations require a formidable document. It will often be multi-volume and cost the government and the private applicant (if there is one, as there is here) hundreds of thousands of dollars to prepare; $250,000 is the estimate in this case . . . . If such a statement were required for every proposed federal action that might affect the environment, federal governmental activity and the private activity dependent on it would pretty much grind to a halt.[153]

Even if the burgeoning numbers of EISs failed to shut down government entirely, federal resources that could be put toward direct, substantive mitigation programs or adaptation measures to address climate disruption might instead be needed and allocated to satisfy the procedural elements of NEPA statement preparation. The resources allocated for detailed statements might also drain

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preparation merely because the resource affected is one that has already suffered or will suffer a sustained significant cumulative impact as the result of past, present, and other reasonably foreseeable future activities).

149. CEQ reported in 1997 that of some 45,000 EAs carried out by federal agencies only 450 EIS resulted. *See* COUNCIL ON ENVTL. QUALITY, CONSIDERING CUMULATIVE EFFECTS, *supra* note 7, at 4; *see also* COUNCIL ON ENVTL. QUALITY, NATIONAL ENVIRONMENTAL POLICY ACT, *supra* note 18, at 19 (estimating annual EA preparation at about 50,000 per year). If each of these EA's instead triggered an EIS as a consequence of cumulative GHG impacts on climate, federal agencies would be saddled with preparing an incredible one hundred times as many detailed environmental statements.

150. *See* ECCLESTON, *supra* note 66, at 76 (Department of Energy reported an average EIS completion time of thirty months and Air Force estimated EIS completion times of "one or more years").

151. *See* Wishnie, *supra* note 9, at 644 (predicting a "crippling administrative burden" if traditional cumulative analysis is applied in GHG context).

152. *See* ECCLESTON, *supra* note 66, at 77 (cost of preparing an EIS "typically ranges from a couple hundred thousand dollars to several million dollars" and in "extreme cases, the cost of preparing a very complex and controversial programmatic EIS can cost tens of millions of dollars").

153. River Rd. Alliance, Inc. v. U.S. Army Corps of Eng'rs, 764 F.2d 445, 448-49 (7th Cir. 1985) (internal citations omitted).

agency resources from other important environmental projects, programs, or studies.[154] Further, NEPA—already demonized as a delay and paperwork statute[155]—would be certain to create additional project delays due to the vastly increased documentation demands. Not only would such an outcome conflict with paperwork reduction and delay avoidance policies,[156] but would likely generate substantial political backlash and could lead to the weakening of NEPA itself.

The next Part offers options around this apparent NEPA climate bamboozler where GHG emissions of major federal actions appear too individually insignificant ever to trigger EIS review of global climate effects and simultaneously too cumulatively significant ever not to trigger EIS review of global climate effects.

III. DODGING THE THRESHOLD DETERMINATION BAMBOOZLER

Faced with this seemingly irreconcilable regulatory conundrum, a critical NEPA question becomes how to avoid the highly undesirable, even heinous, policy outcomes of either *death-by-a-thousand-puffs* or *no-project-left-behind*. This section explores various options—interpretive, regulatory, and statutory—to compel NEPA findings of significance necessitating environmental review of climate impacts of some agency actions and yet avoid automatically triggering the costly, and perhaps administratively impossible, task of EIS preparation for every federal agency action.

A. Interpretive Fixes—The Emperor NEPA's New Clothes

NEPA's existing statutory and regulatory frameworks offer several options for dealing with the apparent NEPA climate paradox. First, contextual considerations may operate to make a federal action's GHG emissions significant, even though when viewed globally they appear insignificant or even indiscernible. Second, alternative significance factors already exist for triggering detailed review of seemingly minute GHG emissions (without resorting to cumulative impacts analysis) along with existing provisions for limiting unruly EIS proliferation. For these reasons, the cumulative impacts problem could turn out to be more of a run-of-the-mill NEPA problem rather than a unique GHG

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154. Despite the current focus on global climate warming, there remain plenty of other critical environmental problems that deserve, and continue to need, federal attention. *See generally* Joel Achenbach, *Global Warming Did It! Well, Maybe Not*, WASH. POST, Aug. 3, 2008, at B01 (discussing other environmental problems that are not necessarily caused by warming).

155. *See* Bradley C. Karkkainen, *Whither NEPA?*, 12 N.Y. UNIV. ENVTL. L.J. 333, 341-43 (2004) (discussing skeptics' views of NEPA).

156. *See* 40 C.F.R. § 1500.1(c) (2008) ("NEPA's purpose is not to generate paperwork—even excellent paperwork—but to foster excellent action."); *see also id.* §§ 1500.2(b) (agencies must implement procedures to reduce paperwork), 1500.4 (providing regulations for reducing paperwork), 1500.5 (providing that agencies must reduce delay), 1501.1(a) (noting the purpose to eliminate delay), 1502.1 (outlining purpose of an EIS).

conundrum and dealt with accordingly.

1. Triggering Climate Significance.—Even relatively minute contributions to atmospheric GHG levels from routine federal actions will not necessarily preclude a finding of significance under NEPA (even without taking account of cumulative impacts). Contextual considerations and any one[157] of several NEPA intensity factors[158] may justify and demand a finding of significance under the particular circumstances.

NEPA regulations not only allow, but already require, accounting for *context* in significance determinations. According to CEQ, the significance of an action "must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interest, and the locality."[159] For example, "[a] proposed power plant . . . might have a much greater impact on both the environment and human health if it is located in the middle of a large metropolitan area that already has substantial air quality problems, rather than if it is sited in a more remote area."[160] These authorities make clear that temporal and spatial considerations have relevance in significance determinations.

With respect to climate, context may at first seem an unlikely or irrelevant trigger for a significance determination. The reason is that from a purely scientific perspective, GHG emission impacts on climate warming are the same regardless of where such emissions originate.[161] As a consequence, federal actions with GHG contributions would not appear to have any site specific impacts triggering a local or regional determination of significance. And, if the global atmosphere serves as the relevant context, individual project contributions will no doubt seem trivial and insignificant as compared to planetary levels of GHG.[162] This perspective, however, arguably fails to fully take into account important contextual considerations bundled up with climate change.

Shifting perspectives, federal action GHG emissions may have contextually significant geographic area impacts to the extent they impede or interfere with achievement of local, state, or regional GHG reduction initiatives, policies, or plans—even aspirational, unenforceable goals. Where state or local governments have identified carbon reduction goals or targets, federal actions proposed in those localities may adversely impact achievement of such goals. That is, the amount of GHG emitted in a certain locale may have a relatively substantial

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157. *See* Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 508 F.3d 508, 553 (9th Cir. 2007) (action may be significant if one factor is met (citing Ocean Advocates v. U.S. Army Corps. of Eng'rs, 361 F.3d 1108, 1125 (9th Cir. 2004))), *vacated and superseded on denial of reh'g by* 538 F.3d 1172 (9th Cir. 2008) (retaining this proposition); Nat'l Parks & Conservation Ass'n v. Babbit, 241 F.3d 722, 731 (9th Cir. 2001) (noting that "[e]ither of [the discussed] factors may be sufficient).

158. *See* 40 C.F.R. § 1508.27(b) (2008); *see also supra* notes 51-66 and accompanying text.

159. 40 C.F.R. § 1508.27(a) (2008).

160. ECCLESTON, *supra* note 66, at 157.

161. *See* Wishnie, *supra* note 9, at 640-41. ("[I]mpact on climate is the same if one hundred facilities all over the world emit one unit of CO_2, or one facility emits one hundred units.").

162. *See supra* notes 4, 95-100 and accompanying text.

impact on that community or region's efforts to address climate change even if the very same amount is negligible relative to total global or national emissions. For example, in early 2007, Governor Gregoire of Washington State laid out state targets for reducing greenhouse gases in the form of a "Climate Change Challenge."[163] Analyzed in the context of Washington's climate targets, a federal action with GHG emissions—to be located or take effect in Washington State—could have a sizeable impact on the State's ability to achieve its reduction goals. If significantly large, the federal proposal's impact on the State goals would trigger EIS preparation as a contextual matter. Similar situations exist in other areas of the nation. For example, Massachusetts enacted a Global Warming Solutions Act[164] in 2008 that calls for setting a statewide GHG limit to be achieved by 2020[165] but does not call for adoption of GHG reduction measures until January 2011.[166] In the interim, federal project GHG emissions will effect the State's ability to achieve its 2020 goal.

Pursuing this argument one step further, climate triggered significance determinations become even more likely in the context of local government efforts to address climate change. Federal actions GHG emissions evaluated in the context of climate targets put in place by even smaller governmental units—say for example by the City of Seattle[167]—seem even more likely to

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163. *See* Wash. Exec. Order No. 07-02, Washington Climate Change Challenge (Feb. 2007), *available at* http://www.governor.wa.gov/execorders/eo_07-02.pdf. The Governor's order identified specific reduction targets and deadlines, but left to the state agencies the task of fleshing out specific actions and strategies needed to achieve these goals. *Id*. Specifically, the executive order established the following greenhouse gas emissions reduction and clean energy economy goals for Washington State:

- By 2020, reduce greenhouse gas emissions in the state of Washington to 1990 levels, a reduction of 10 million metric tons below 2004 emissions;
- By 2035, reduce greenhouse gas emissions in the state of Washington to 25% below 1990 levels, a reduction of 30 million metric tons below 2004;
- By 2050, the state of Washington will do its part to reach global climate stabilization levels by reducing emissions to 50% below 1990 levels or 70% below our expected emissions that year, an absolute reduction in emissions of nearly 50 million metric tons below 2004;
- By 2020, increase the number of clean energy sector jobs to 25,000 from the 8,400 jobs we had in 2004; and
- By 2020, reduce expenditures by 20% on fuel imported into the state by developing Washington resources and supporting efficient energy use.

Id.

164. 2008 Mass. Acts ch. 298 (to be codified at MASS. GEN. LAWS ANN. ch. 21N (Supp. 2009)).

165. *Id.* § 6 (codified at MASS. GEN. LAWS ANN. ch. 21N, § 4(a) (Supp. 2009)). The State Department of Environmental Protection must establish the "statewide greenhouse gas emissions limit . . . between 10 per cent and 20 per cent below the 1990 emissions level."

166. *Id.* § 17.

167. In 2005, Seattle's Mayor launched a "Climate Protection Initiative." *See* Seattle Climate

trigger contextual climate determinations of significance than regional or statewide initiatives (as a consequence of their proportionally larger share of a much smaller GHG emissions pie and many fewer emitters to share the reduction burden). Also, it should at least be noted that in contrast to climate change impacts *of* federal projects, climate change impacts *on* federal projects can have site specific impacts for contextual analysis.[168]

In addition to *contextual* considerations, certain regulatory *intensity* factors present options for triggering climate-based threshold determinations independently of a cumulative impacts rationale. These particular factors[169] require consideration of highly controversial and uncertain risks,[170] precedent setting actions,[171] related actions,[172] and threatened violations of other environmental laws.[173] Frustratingly, these factors often seem to run into the same muddy waters as cumulative impacts analysis: the triggering of EIS preparation for every, or almost every, agency proposal.[174]

First, federal agencies ordinarily[175] need to prepare an impact statement when the environmental effects of proposed agency action are "highly uncertain or

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Action Now, http://www.seattlecan.org/about/CPI.html (last visited Jan. 23, 2009) (The initiative pledges that the city—"the entire community not just City government"—would reduce greenhouse gas emissions to seven percent below 1990 levels by 2012).

168. For example, rising temperatures will affect specific projects in specific locations differently, including to a greater or lesser degree. Federal agencies proposing projects in coastal areas may need to consider rising tides, more frequent hurricane events, and other climate related wet weather events to a greater extent than proposals to be located in other areas to fully analyze the environmental impacts of project construction and operation. Similarly, agency projects to be located in historically dry regions may need to consider site specific drought and fire related impacts of climate change as part of their NEPA review. *See* 40 C.F.R. § 1508.27(b) (2008) (listing intensity factors).

169. Several other intensity factors are relevant, but pose the same difficulty as the basic quantitative effects analysis discussed *supra* notes 154-56 and accompanying text. Factors taking into account the degree a proposed action affects public health or safety, unique land or resource characteristics or historic sites, run up against the too small to be significant problem because they all focus on quantitative analysis of proposed emissions. *See* 40 C.F.R. §§ 1508.27(b)(1)-(3) (2008).

170. *See* 40 C.F.R. §§ 1508.27(b)(4) & (5) (2008).

171. *See id.* § 1508.27(b)(6).

172. *See id.* § 1508.27(b)(7).

173. *See id.* § 1508.27(b)(10).

174. For discussion of limit setting solutions to this excessive determination of significance problem, see *infra* Part III.A.2.

175. The "ordinarily" required language takes into account a jurisdictional split as to whether the intensity categories mandate EIS preparation or serve as authoritative guidelines. *Compare* Seattle Cmty. Council Fed'n v. Fed. Aviation Admin., 961 F.2d 829, 831 (9th Cir. 1992) (noting that the NEPA mandates EIS), *with* Comm. to Pres. Boomer Lake Park v. Dep't of Transp., 4 F.3d 1543 (10th Cir. 1993) (noting that EIS not mandated).

involve unique or unknown risks"[176] or "likely to be highly controversial."[177] Although the likelihood of some climate related change due to GHG emissions appears certain—in the sense that warming is already occurring—the extent and precise form of the impacts remain both uncertain, unknown and yet to be determined—in part because of scientific limitations and in part because the concerted efforts required to avoid the harshest warming consequences and adapt to the likeliest climate scenarios have yet to be determined. Thus, proposals directly or indirectly contributing to GHGs are—and perhaps even epitomize—actions with associated uncertain or unknown environmental risks, specifically uncertain and unknown risks to weather, flooding, species, human health, and climate. Moreover, while the effect of GHG emissions on climate is far from unique to any particular proposal, and rather unexceptional in its common, constant, and additive relationship with climate disruption, the predicted effects of global climate change are unprecedented in human history, exceptional in enormity of scope, singular in their capacity for human disruption, and so uniquely risky.

A number of courts construe the "highly controversial" intensity factor in a manner akin to the uncertainty factor.[178] Accordingly, a "controversy" becomes a NEPA significance trigger where the identified impacts are subject to debate in the scientific community (due to technical, methodology, or data disputes) as opposed to controversy in the public sphere (e.g., vocal local community opposition or sensitivity to a proposed action).[179] Climate effects generate controversial federal actions. Despite scientific consensus of a global warming phenomenon,[180] there remains significant scientific debate concerning the temporal and regional ramifications of warming, the extent of those ramifications on the quality of the human environment, the link between specific emissions and climate effects, and perhaps most importantly the level and pace of the U.S. GHG reduction effort needed to ward off, delay or reduce significant climate disruption.[181] Thus, every major federal action with direct or indirect GHG emissions conceivably raises "highly controversial" questions of scientific debate of major significance to the health of the human environment because it is

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176. *See* Nat'l Parks & Conservation Ass'n v. Babbit, 241 F.3d 722, 731-32 (9th Cir. 2001) (citing Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1213 (9th Cir. 1998)); *see also* 40 C.F.R. 1508.27(b)(5) (2008).

177. *See* 40 C.F.R. § 1508.27(b)(4) (2008).

178. *See, e.g.*, Found. for N. Am. Wild Sheep v. U.S. Dep't of Agric., 681 F.2d 1172, 1182 (9th Cir.1982); Rucker v. Willis, 484 F.2d 158, 162 (4th Cir. 1973).

179. *See Found. for N. Am. Wild Sheep*, 681 F.2d at 1182 ("[T]erm 'controversial' refers "to cases where a substantial dispute exists as to its size, nature, or effect of the major federal action rather than to the existence of opposition to a use." (quoting *Rucker*, 484 F.2d at 162)); Mandelker, *supra* note 10, § 8:47 (citing dozens of cases holding public opposition insufficient to trigger EIS); *but see Babbit*, 241 F.3d at 736-37 (taking into account "outpouring of public protest").

180. *See* IPCC, *supra* note 24, at 2; *see also supra* notes 82-90 and accompanying text.

181. *See* IPCC, *supra* note 24, at 3, 19-20 (noting only "high" or "medium" confidence as to these issues).

scientifically debatable whether each federal action represents a critical opportunity to prevent or moderate climate warming effects of unknown but enormous magnitude.[182] In practice, application of this significance trigger might require the corralling of comments by climatologists, biologists, conservationists, or other environmental experts in favor of EIS preparation on climate grounds.[183] Aside from this battle of experts hurdle, this intensity factor appears to solve the *death-of-a-thousand-puffs* problem. And yet, the quandary of *no-project-left-behind* remains. Applying this factor appears to result in an EIS for every federal action in which scientific support for a climate EIS can be brought to the attention of the lead agency.[184]

Under the sixth intensity factor, precedent setting agency actions can trigger NEPA environmental review.[185] Consideration of project and program GHG emissions may very well fall within this category of EIS triggering actions. At least one court has found that decisions with the potential to influence the outcome of future decisions at home or abroad qualify as precedent setting.[186] With respect to climate, the initial NEPA decisions analyzing GHG emissions have the potential not only to set the future model for all future federal agency review decisions, but also for many state agency actions subject to state environmental assessment requirements and an even greater number of foreign nations that have adopted environmental assessment laws following the United States' lead.[187] However, given the sluggish pace of federal action to address climate, as compared with several aggressive NEPA climate initiatives by state governments,[188] it seems as likely that state decisions will end up setting the precedent and direction of federal NEPA decisionmaking rather than vice-versa.[189] Interpreting factor six, the *Anderson* court also noted that an EIS may be required "[i]f approval of a single action will establish a precedent for other

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182. *See* FAGRE ET AL., *supra* note 103, at 14 (predicting that even slight warming may push ecosystems across thresholds that would render restoration extremely difficult or impossible).

183. *See Found. for N. Am. Wild Sheep*, 681 F.2d at 1182 (collecting comments from scientists in discussing the significance trigger).

184. For discussion of limit setting solutions to this excessive determination of significance problem, see *infra* Part III.A.2.

185. *See* 40 C.F.R. § 1508.27(b)(6) (2008).

186. *See* Anderson v. Evans, 371 F.3d 475, 493 (9th Cir. 2004) (finding potential for precedential impact because decision could be used by other countries to approve similar actions); *see also* Mandelker, *supra* note 10, § 8:35.1 ("The general rule appears to be that the failure to prepare an impact statement is precedential if the agency or other decision makers would be able to rely on this decision to make the same decision in future actions.").

187. Some eighty nations have followed the lead of the United States by enacting environmental assessment laws. *See* COUNCIL ON ENVIRONMENTAL QUALITY, THE NATIONAL ENVIRONMENTAL POLICY ACT, *supra* note 18, at 3. In a similar vein, Lauren Giles Wishnie argues that if Congress were to amend NEPA to explicitly require GHG analysis, the federal government could set a powerful precedent for state and foreign nations. *See* Wishnie, *supra* note 9, at 652.

188. *See* Kass, *supra* note 26, at 41.

189. *Id.* at 42.

actions which may cumulatively have a negative impact on the environment."[190] The now obvious cumulative nature of GHG emissions,[191] in combination with the global rather than localized effects of GHG emissions,[192] the mounting urgency to act to avoid or stall global warming, and the increasing calls for NEPA review of climate in the environmental review process, bestow a precedent setting quality to early attempts to address climate under NEPA. Although many (or perhaps even most) of the underlying federal actions are so run-of-the-mill as to seem anything but precedent setting (e.g., commercial development, construction projects, and routine rulemakings), the current state of the environment—with increasing climate warming levels of atmospheric GHGs—effectively transforms otherwise mundane federal decisions into important precedent setting decisions. Nevertheless, as with the intensity factors discussed so far, this triggering factor potentially runs amok by virtue of its seemingly non-selective triggering of the EIS requirement for all agency reviews initially taking into account climate.[193]

Last, but not least in importance, federal agencies need to consider whether their proposed action "threatens a violation of a Federal, State or local" environmental law.[194] Proposals anticipated to exceed non-NEPA environmental regulatory standards typically trigger EIS preparation.[195] This "other laws" factor might also trigger EIS preparation in situations where a proposal implicates a substantive environmental law but is *not* expected to violate such law.[196] First, relevant environmental standards may be set higher than the point of significance

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190. *Anderson*, 371 F.3d at 493.

191. *See supra* Part II.B.2.

192. The pure additive nature of anthropogenic GHG emissions to atmospheric accumulation of GHG emissions responsible for global warming set repetitive project emissions apart from situations involving repetitive or similar proposals with variable site specific impacts. In the latter situation, some courts have refused to find precedent setting actions. *See, e.g.*, Surfrider Found. v. Dalton, 989 F. Supp. 1309, 1325 (S.D. Cal. 1998) (noting that given the site specific nature of project impacts leads to no precedential impact necessitating EIS).

Although GHG contributions to the atmosphere emitted anywhere in the world all have equal and equivalent impact on global climate change, rising temperatures associated with global climate change may result in different, site specific adverse environmental impacts (e.g., predicted flooding in some regions but anticipated drought in others).

193. For discussion of limit setting solutions to this excessive determination of significance problem, see *infra* Part III.A.2.

194. 40 C.F.R. § 1508.27(b)(10) (2008).

195. *See* ECCLESTON, *supra* note 66, at 157. As suggested by the word "threatens," a determination of significance also may be called for in situations where some evidence exists that an agency action might exceed other laws. *See* Sierra Club v. U.S. Forest Serv., 843 F.2d 1190, 1195 (9th Cir.1988). In addition, agency proposals *not* expected to violate relevant environmental laws may also trigger EIS preparation. ECCLESTON, *supra* note 66, at 158. A common misconception held by decisionmakers and consultants "is that no significant impacts will occur as long as a project complies with all applicable environmental laws and regulations." *Id.*

196. ECCLESTON, *supra* note 66, at 158.

required for a NEPA EIS. For example, project emissions adjacent to a retirement community or discharges at a site with unique habitat features may have site specific and contextual significance without exceeding applicable emission or discharge standards.[197] Alternatively, absent a violation of any individual law, a collection of marginal or moderate impacts to various substantive environmental standards conceivably push a proposal past the significance threshold. In these situations, multiple, marginal environmental impacts collectively add up to a significant impact even if each alone does not breach applicable legal standards.[198] In this scenario individual impacts may be considered non-significant (as a consequence of falling below regulatory levels) but the impacts may be collectively significant (e.g., so many pollutant emissions near regulatory levels creates significant impact on air quality).[199]

"Factor ten" considerations offer an alternative trigger for NEPA climate review. First, although no comprehensive federal climate change legislation exists as yet, if Congress enacts such legislation[200] it will by definition become an "other environmental law" for purposes of NEPA review. With enactment of national climate legislation calling for mandatory GHG caps, GHG reduction goals, or even merely GHG reporting and monitoring, NEPA and climate will be married in a markedly new way. Anticipated GHG emissions of a major federal action exceeding the apportioned GHG limits or reporting quantities, hindering efforts to achieve the national climate goals, or threatening any of these scenarios seem likely to trigger significance determinations. Even without Congressional action, the U.S. Environmental Protection Agency (EPA) seems certain to regulate carbon dioxide (an important GHG) at some point in the not-too-distant future with similar NEPA climate implications.[201]

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197. Environmental Petitioners raised this argument in a NEPA challenge against the U.S. Forest Service, but the court rejected the position as inapplicable based on the facts in dispute. Envtl. Prot. Info. Ctr. v. Blackwell, 389 F. Supp. 2d 1174, 1198 (N.D. Cal. 2004) (holding for petitioners on other grounds).

198. *See* ECCLESTON, *supra* note 66, at 159-60, Table 6.6 (identifying the "Multiple Nonsignificant Impacts" significance factor).

199. *Id.* at 160, Table 6.6, ¶ 1.

200. Congressional and administrative support for national climate legislation seems to be building and legislation is likely to pass in the next several years. *See* Darren Samuelsohn, *Dems Take Separate Paths in Writing Renewable Energy, Cap-and-Trade Bills*, ENV'T & ENERGY DAILY (Feb. 11, 2009) ("Cap-and-trade legislation hit a high-water mark in the Senate with 43 votes in 2003, though a procedural vote last summer on global warming garnered 48 supporters, Senate sponsors hope to reach 60 [in 2009] . . . with help from the Obama administration and a coalition of moderate Democrats and Republicans."); *see also* Darren Samuelsohn, *Markey's New Subcommittee Examines Warming's Effects on Security, Health, Economy*, ENV'T & ENERGY DAILY (Feb. 9, 2009) (discussing efforts to pass climate change legislation in 2009).

201. In July 2008, EPA published an Advance Notice of Proposed Rulemaking (ANPR) providing information and requesting public comment on the Supreme Court's ruling in *Massachusetts v. EPA*, 549 U.S. 497 (2007), that the Clean Air Act regulates GHG emissions, but failed to include an endangerment finding called for by the Court's decision. *See generally*

Even in the absence of national climate legislation and EPA carbon regulation, state and local governments have already put in place climate protection laws and policies implicating NEPA factor ten triggers. Examples include the Global Warming Solutions Acts enacted in California and Massachusetts;[202] regional efforts including the Western Climate Initiative (WCI),[203] the Midwestern Greenhouse Gas Reduction Accord (Accord),[204] and the Northeastern and Mid-Atlantic Regional Greenhouse Gas Initiative (RGGI);[205] and local government initiatives such as the U.S. Conference of Mayors' Climate Protection Agreement,[206] the City of Seattle's Greenhouse Gas Assessment Ordinance,[207] and King County's Climate Action Plan.[208] Federal action GHG

Regulatory Greenhouse Gas Emissions Under the Clean Air Act, 73 Fed. Reg. 44,354 (July 30, 2008). Although the ANPR appeared to be a delaying tactic to avoid a carbon dioxide rulemaking until after the November 2008 election, it seems unlikely EPA can avoid complying with the Supreme Court's decision indefinitely and, under the direction of the Obama Administration, appears readying to take action in 2009. *See* John M. Broder, *E.P.A. Expected to Regulate Carbon Dioxide*, N.Y. TIMES, Feb. 19, 2009, at A15; Juliet Eilperin & R. Jeffrey Smith, *EPA Won't Act on Emissions This Year*, WASH. POST, July 11, 2008, at A01; Katherine Boyle, *EPA to Leave GHG Regs to Next Administration*, GREENWIRE (July 11, 2008), *available at* www.greenwire.com.

202. California Global Warming Solutions Act of 2006, CAL. HEALTH & SAFETY CODE §§ 38500-38599 (West 2006 & Supp. 2009); Climate Protection and Green Economy Act of 2008, MASS. GEN. LAWS ANN. ch. 21N, §§ 1-9 (Supp. 2009).

203. Western Climate Initiative (WCI), http://www.westernclimateinitiative.org/ (last visited Jan. 26, 2009). The WCI is a joint effort of mostly Western states and provinces established to develop regional strategies to address climate change. *Id.* Current WCI partners include Arizona, British Columbia, California, Manitoba, Montana, New Mexico, Ontario, Oregon, Quebec, Utah, and Washington. *Id*.

204. Midwestern Regional Greenhouse Gas Reduction Accord, Nov. 15, 2007, *available at* http://www.midwesternaccord.org/midwesterngreenhousegasreductionaccord.pdf [hereinafter Midwest Accord]. On November 15, 2007, five states (Iowa, Kansas, Michigan, Minnesota, Wisconsin), along with one Canadian province, entered the Accord. *See id.*; *see also* Midwest Greenhouse Gas Reduction Accord, http://www.midwestacord.org/ (last visited Jan. 26, 2009). Under the Accord, the signatories agreed to establish regional greenhouse gas reduction targets, develop a multi-sector cap-and-trade system, implement a greenhouse gas emissions reductions tracking system, and adopt other policies to aid in reducing emissions. Midwest Accord, *supra*, at 3-4.

205. Regional Greenhouse Gas Initiative (RGGI), http://www.rggi.org/home (last visited Jan. 26, 2009). RGGI is a cooperative effort of Northeast and Mid-Atlantic States to reduce carbon dioxide emissions from power plants in the region. *Id.* Signatories to RGGI's climate protection Memorandum of Understanding include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. *Id*. (follow "Participating States" link).

206. U.S. Conference of Mayors' Climate Protection Agreement, Mayors' Climate Protection Ctr., http://www.usmayors.org/climateprotection/agreement.htm (last visited Jan. 26, 2009).

207. Seattle, Wash. Ordinance 122,610 (Dec. 21, 2007).

208. KING COUNTY, 2007 KING COUNTY CLIMATE PLAN 4 (2007), *available at* http://www.

emissions that exceed such regional, state, or local GHG limits or reporting quantities; hinder efforts to achieve relevant regional, state, or local climate goals; or threaten the possibility of either scenario, call out for significance determinations.

Even without an actual or threatened violation of a new climate protection law, GHG emissions, in combination with other marginal or moderate impacts (similarly falling below legal standards), might combine to push an agency proposal across the significance threshold in any region, state, or locality subject to a climate protection initiative. Additionally, unlike the intensity factor analyses discussed previously, factor ten does not necessarily raise the *no-project-left-behind* concern. Instead, the subject actions will turn on the substantive standards set out in the new climate protections.

One potential complicating factor, however, will be the effect of nonbinding goals and targets[209] of various regional efforts, which presumably enjoy less weight in NEPA significance analysis than mandatory regulatory standards.[210] A second difficulty arises in the transition period during which regulatory agencies flesh out new climate protection legal authorities (e.g., How does a regional cap serve as a NEPA factor where the implementing authority has yet to set the cap? Or, where a legislative cap exists, how does a state or region-wide cap serve as a NEPA factor where the implementing authority has yet to determine sector or individual project allotments to allow for evaluation of exceedences?). Nevertheless, federal proposals with GHG emissions are more likely to appear significant in comparison to regional, state, or local caps and goals than when compared to worldwide emission levels.

2. Limiting Climate Significance Determinations.—Finding legal authority to compel NEPA findings of significance for climate impacts accomplishes only a partial solution to NEPA's climate threshold paradox. Finding NEPA authorities to avoid automatically triggering the EIS requirement for every federal agency action with GHG emissions is needed to untie the knot fully. This section sets out several options and combinations of options for limiting climate significance determinations.

a. The climate mitigated FONSI.—One option relies on the application of mitigation measures to limit climate determinations of significance. As interpreted by the courts, and in some circumstances CEQ, NEPA already allows for application of mitigation measures[211] to reduce significant environmental

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metrokc.gov/exec/news/2007/pdf/ClimatePlan.pdf (calling for an 80% reduction in countywide GHG emissions by 2050). *See also* King County, Wash., Exec. Order No. PUT 7-10-1 (Oct. 15, 2007) (empowering county departments to evaluate the climate impacts of their actions).

209. For a discussion of the contextual implications of such nonbinding goals and targets, see *supra* notes 161-66 and accompanying text.

210. The NEPA regulation calls for consideration of other environmental "law" or "requirements" as opposed to other environmental policies, plans, or good intentions. *See* 40 C.F.R. § 1508.27(b)(10) (2008).

211. NEPA regulations define "mitigation" to include measures that avoid, minimize, rectify, reduce, eliminate, or compensate for identified impacts. 40 C.F.R. § 1508.20 (2008).

impacts of a proposed action to the point of non-significance.[212] In situations where a proposal incorporates sufficient mitigation measures to reduce anticipated impacts below the significance threshold—referred to as mitigated FONSIs[213]—a NEPA EIS need not be prepared.[214]

In the same manner, climate-specific mitigation measures that reduce or offset a proposal's net GHG emissions to zero[215] can reduce significant climate environmental impacts to the point of non-significance.[216] Many climate mitigation measures and strategies already exist,[217] as do options for purchasing offsets[218] for GHG emissions. State regulators in California and Massachusetts have already developed rather extensive lists of climate mitigation measures available for addressing climate impacts associated with various state actions.[219]

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212. For federal decisions approving this practice, see generally *Spiller v. White*, 352 F.3d 235 (5th Cir. 2003); *Greenpeace Action v. Franklin*, 14 F.3d 1324 (9th Cir. 1992); *Audubon Society of Central Arkansas v. Dailey*, 977 F.2d 428 (8th Cir. 1992); *Roanoke River Basin Ass'n v. Hudson*, 940 F.2d 58 (4th Cir. 1991); *C.A.R.E. Now, Inc. v. Federal Aviation Administration*, 844 F.2d 1569 (11th Cir. 1988). For an extensive listing of decisions relying on mitigation measures to hold that federal actions did not require an EIS, see Mandelker, *supra* note 10, § 8:57 n.16.

In addition, CEQ guidance suggests that mitigation measures either in an original proposal or mandated by law can support an agency finding of non-significant impact. *See* Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,038 (1981) (answering question forty). Although initially taking the position that other mitigation measures could not be so relied on, CEQ seems to have moved away from this position. *See* Mandelker, *supra* note 10, § 8:57.

213. Federal agencies document determinations that an EIS is not required in a "Finding of no significant impact" (FONSI). *See* 40 C.F.R. § 1508.13 (2008).

214. *See supra* note 48 and accompanying text.

215. An "above zero" mitigation level could apply if regulators combine the mitigation option with other options described below for limiting significance determinations. *See infra* Part III.B.1 (threshold options) and Part III.B.3 (categorical exception option).

216. Depending on the situation, the proponent might alternatively, or additionally, need to incorporate mitigation measures to avoid or offset project-related GHG sink reductions (e.g., in the case of a major federal action proposing timber cutting and harvesting).

217. *See* IPCC, *supra* note 24, at 14-18.

218. Offsets allow proponents to neutralize the carbon dioxide anticipated to be produced from their proposals by financially supporting a variety of ongoing emission-reducing initiatives. For examples of currently available carbon offsets, see *infra* notes 223-26 and accompanying text.

219. *See* CALIFORNIA GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, *supra* note 31, at 18 (listing over thirty examples of GHG reduction measures); MASSACHUSETTS EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS (MEEA), (REVISED) MEPA GREENHOUSE GAS EMISSIONS POLICY AND PROTOCOL 9-10 (effective Feb. 3, 2009), *available at* http://www.mass.gov/envir/mepa/downloads/GHGPolicyRev/108.pdf [hereinafter MEEA, MEPA POLICY] (listing over fifty "Suggested Mitigation Measures" for GHG emissions associated with siting and site design, building design and operation, and transportation); *see also* THOLEN ET AL., *supra* note 97, at app. B (listing mitigation strategies relating to energy efficiency, transportation, construction, land use, development, building design, and public education); IPCC, *supra* note 24, at 14-18 (discussing

Similarly, advisory groups in New York and Washington have compiled lists of mitigation options.[220]

Identified mitigation measures range from suggestions for building design,[221] to strategies for energy conservation, to options for transit and transportation planning, to other GHG reducing measures.[222] At the same time, a number of private entities (including not for profit organizations) currently offer for sale carbon offsets to individuals and businesses.[223] Through such purchases,

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mitigation and adaptation measures).

220. *See* KATIE KENDALL, THE MUNICIPAL ART SOCIETY OF NEW YORK, SEQRA AND CLIMATE CHANGE app. B 35 (Working Draft July 2008) ("Suggested Mitigation Measures"); WASH. STATE ENVTL. POLICY ACT (SEPA) IMPLEMENTATION WORKING GROUP (IWG), FINAL DRAFT: SEPA MITIGATION STRATEGIES FOR CLIMATE CHANGE IMPACTS (Oct. 2008), *available at* http://www.ecy.wa.gov/climatechange/2008CATdocs/IWG/sepa/102108_revised_sepa_mitigation_table.pdf [hereinafter SEPA IWG].

221. For example, the Massachusetts Greenhouse Gas Emissions Policy and Protocol lists the following building design and operation mitigation strategies:

> Construct green roofs; use high-albedo roofing materials; install high-efficiency HVAC systems; eliminate or reduce use of refrigerants in HVAC systems; reduce energy demand using peak shaving or load shifting strategies; maximize interior daylighting through floor plates, increased building perimeter and use of skylights, celestories, and light wells; incorporate window glazing to balance and optimize daylighting, heat loss, and solar heat gain performance; incorporate superinsulation to minimize heat loss; incorporate motion sensors and lighting and climate control; use efficient, directed exterior lighting; incorporate on-site renewable energy sources into projects including solar, wind, geothermal, low-impact hydro, biomass, and bio-gas strategies; incorporate combined heat and power (CHP) technologies; use water-conserving fixtures that exceed building code requirements; re-use gray water and/or collect and re-use rainwater; provide for storage and collection of recyclables (including paper, corrugated cardboard, glass, plastic, and metals) in building design; re-use building materials and products; use building materials with recycled content; use building materials that are extracted and/or manufactured within the region; use rapidly renewable building materials; use wood that is certified in accordance with the Forestry Stewardship Council's Principles and Criteria; use low-VOC adhesives, sealants, paints, carpets, and wood; conduct third-party building commissioning to ensure energy performance; track energy performance of building and develop strategy to maintain efficiency; provide construction and design guidelines to facilitate sustainable design for build-out by tenants; purchase Energy Star-rated appliances with the lowest energy rating.

MEEA, MEPA POLICY, *supra* note 219, at app. 9-10; *see also* THOLEN ET AL., *supra* note 97, at app. B 13-33 (listing mitigation strategies for construction, development, and building design).

222. The California white paper offers pages of "Mitigation Strategies" relating to energy efficiency, transit, transportation, land use, and public education. *See* THOLEN ET AL., *supra* note 97, at app. B 1-13, 31, 34-45; *see also* MEEA, MEPA POLICY, *supra* note 219, at 9-10

223. For example, individuals and companies may purchase carbon offsets from organizations including Carbonfund.org, TerraPass, e-BlueHorizons, Sterling Planet, GreenLife, 3Degrees, and Renewable Choice Energy. *See* Environmental Defense Fund, The Carbon Offsets List, http://

interested entities may offset GHG emissions by helping to finance projects that capture and destroy methane emissions from landfills,[224] provide energy from wind farms,[225] or sequester carbon though reforestation.[226]

At least in theory, there seems to be no reason that proponents desiring to sidestep EIS preparation as a consequence of climate impacts could not embrace mitigation measures to avoid or offset their GHG emissions (or GHG sink modifications). This option encourages proponents of federal actions to incorporate global warming mitigation measures into their proposals and to think about climate change mitigation early on during project design. Small routine federal actions, with presumably trivial or very minor GHG contributions, should be most able to cost effectively mitigate GHG contributions and dodge the costs and delays associated with EIS preparation.[227] Large actions, presumably with much more substantial GHG contributions, might have greater difficulty offsetting GHG contributions to zero, but are already likely to trigger EIS review in any case. In a sense, the Climate Mitigated FONSI option operates to internalize climate-protection costs into governmental agency actions (as an alternative to EIS preparation).

One concern with a Climate Mitigated FONSI approach relates to an existing NEPA Achilles' heel: the lack of post-NEPA review follow-through. Scholars have long criticized NEPA's lack of post-review monitoring of, and post-review enforcement against, proponents who promise mitigation during NEPA review but fail to carry out promised measures after project approval.[228] Climate Mitigated FONSIs would seem subject to similar post-review compliance problems. Thus, special care would need to be taken to ensure proponents actually implement promised climate-related mitigation measures.[229]

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carbonoffsetlist.org (last visited Jan. 26, 2009).

224. *See e.g.*, Renewable Choice Energy Upper Rock Choice Carbon Offsets, http://www.renewablechoice.com/edf/ (last visited Jan. 26, 2009); e-BlueHorizon projects, at http://org.e-bluehorizons.net/offset/ (last visited Jan. 26, 2009).

225. *See, e.g.*, TerraPass, TerraPass Project Types, http://www.terrapass.com/projects/clean-energy.html (last visited Jan. 26, 2009).

226. *See, e.g.*, The Conservation Fund, Louisiana, http://www.conservationfund.org/southeast/louisiana (last visited Jan. 26, 2009).

227. The reason being that relatively simple steps (e.g., tree planting, landscaping, or low cost energy conservation measures) can be used to mitigate a small project to a zero net emissions level without large upfront investment and may even generate cost savings over the long term.

228. *See* Alyson C. Flournoy et al., *Harnessing the Power of Information to Protect Our Public Natural Resource Legacy*, 86 TEX. L. REV. 1575, 1585 (2008) ("Postdecision monitoring is widely viewed as a critical missing component in NEPA practice."); Karkkainen, *supra* note 10, at 936 ("One crucial problem with mitigated FONSIs is that NEPA itself does not clearly require that the promised mitigation measures actually be implemented, and CEQ guidance on the subject has been interpreted by the courts as nonbinding."); *see also* Dinah Bear, *Some Modest Suggestions for Improving Implementation of the National Environmental Policy Act*, 43 NAT. RESOURCES J. 931, 941-49 (2003) (proposing post-decision monitoring).

229. Concerns about post-decision follow-through might be ameliorated by conditioning

As a practical matter, various unknowns may also affect the viability of this option, including the actual cost of climate mitigation measures, effective demonstration of necessary reductions, and assumptions about the relationship between project size and GHG emissions. Offsetting every small project or program GHG emissions to zero might turn out to be prohibitively expensive and lead to the very same cost problems as requiring EIS preparation for every proposal.[230] It may also turn out that not all small federal actions have little, easily mitigated GHG contributions.[231] If so, many proposals that ordinarily would proceed without an EIS would be faced with either incorporating substantial mitigation or preparing a detailed statement.[232] Another concern is that even if mitigating GHG emissions to zero turns out to be feasible from a cost perspective, providing a persuasive demonstration of adequate mitigation may end up being impossible or infeasible.[233] If not prohibitively expensive or undemonstrable, mitigation to zero may still turn out not to be the most efficient or effective policy approach for curbing GHG emissions.[234] For these reasons, a Climate Mitigated FONSI approach could be a problematic solution, or at least an incomplete solution in certain circumstances.

Overall, given the many identified options for GHG mitigation, existing and developing methods for calculating and measuring GHG emissions, and the currently low cost of purchased offsets,[235] it seems premature to rule out the

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issuance of the Climate Mitigated FONSI on inclusion of identical climate mitigation conditions in the underlying permit, approval, or funding mechanism. Currently, following EIS preparation, agencies may provide for monitoring and other measures to assure compliance with promised mitigation identified in the EIS and final decision. *See* 40 C.F.R. § 1505.3(c) (2008). Similar conditions seem equally appropriate for mitigation measures contained in an EA leading to a FONSI.

230. At the 2008 ABA Environment, Energy, and Resources Law Summit: 16th Section Fall Meeting in Phoenix, Arizona, panelists discussing NEPA litigation issues briefly debated the practicalities of actually mitigating project GHG emissions to zero. NEPA Litigation Panel Discussion at the ABA Env't, Energy, and Resource Law Summit: 16th Section Fall Meeting (Sept. 18, 2008) [hereinafter ABA Summit]. Attorney panelist Alicia C. Guerra opined that this option would likely be impracticable from a cost perspective, whereas the panel moderator, Nicholas C. Yost, suggested otherwise, noting the current availability of very reasonably priced cost carbon offsets. *Id.*

231. *See* ECCLESTON, *supra* note 66, at 78 ("Some relatively small proposals can be much more complex or controversial than large projects" and "can substantially affect the cost and time required to comply with NEPA.").

232. Combining this option with a categorical exclusions approach might eliminate this concern. *See infra* Part III.B.3 (discussing the categorical exclusions option).

233. Panelist Guerra raised this concern during the NEPA Litigation panel at the ABA Summit. ABA Summit, *supra* note 230.

234. NEPA regulatory tools must be considered in the much larger overall context of the fundamental policy transofrmation required to address global climate change.

235. The retail price of carbon offsets sold for as low as four dollars per ton in 2006, whereas the cost of EIS preparation ranges from in the hundred of thousands to several million dollars.

Climate Mitigated FONSI approach as a solution to the significance paradox.

b. Tiered climate analyses.—Tackling NEPA climate review at the programmatic or planning level offers another option for side-stepping the problem of *no-project-left-behind*. By "tiering"[236] environmental review—consolidating climate impact review for groups of similar actions or geographically-related actions in a single broader scoped EIS—the number of individual project EISs can be reduced. NEPA regulations not only provide for such tiered reviews, but expressly encourage them.[237]

A tiered threshold approach has the benefit of allowing analysis of groups of related, similar, or co-located actions, with larger scale GHG emissions, at an earlier stage of decisionmaking. Unlike many situations where the lack of site-specific information limits the usefulness of tiered analysis, GHG emissions seem particularly suited for higher tier analysis because climate impacts tend to be relatively site-independent.[238] By analyzing climate impacts at a higher

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Compare Michael Vandenbergh & Anne Steineman, *The Carbon Neutral Individual*, 82 N.Y. UNIV. L. REV. 1673, 1721 (2007) (carbon offset costs), *with* ECCELESTON, *supra* note 66, at 78 (EIS preparation costs); *see also* Laurie A. Ristino, *It's Not Easy Being Green: Reflections on the American Carbon Offset Market*, SUSTAIN. DEV. LAW & POL'Y (Winter 2008) ("[H]igh quality offset projects can play a role in the near term to mitigate climate change by reducing net carbon emissions in a cost-effective manner.").

236. As defined by CEQ NEPA regulations,

> Tiering refers to the coverage of general matters in broader environmental impact statements (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basinwide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared.

40 C.F.R. § 1508.28 (2008).

237. According the CEQ NEPA regulations,

> Agencies are encouraged to tier their environmental impact statements to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review (§ 1508.28). Whenever a broad environmental impact statement has been prepared (such as a program or policy statement) and a subsequent statement or environmental assessment is then prepared on an action included within the entire program or policy . . . the subsequent statement or environmental assessment need only summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and shall concentrate on the issues specific to the subsequent action.

Id. § 1502.20. Although NEPA itself does not address consolidated reviews, the Supreme Court has upheld the approach. *See* Kleppe v. Sierra Club, 427 U.S. 390, 414-15 (1976).

238. GHG emissions *wherever emitted* contribute to global atmospheric levels that in turn influence climate. Nevertheless, project GHG emissions analyses can have site-specific components. For example, differences in employee commute distances and transportation options for different site locations can alter GHG emissions estimates for similar projects. Also the analysis of climate change *on* individual project proposals—a separate but important issue—will likely require site-specific analyses.

programmatic, policy, or landscape tier, the lower tier projects may avoid preparing individual EISs that would only re-evaluate previously identified climate impacts.[239] This approach offers some relief to individual project review burdens, offers regulators a bigger picture perspective of climate challenges, and can be combined with other strategies for addressing global warming. Success, however, hinges on thoughtful and comprehensive advance planning efforts by federal and state governmental entities (e.g., comprehensive local land use planning).

c. The "no-solution" solution—the climate EIS.—Another response would be a "no-solution" solution. Starting from the assumption that global climate change must be taken seriously and taken seriously now, a position exists that *all* major federal actions with GHG emissions should be subject to a NEPA EIS requirement to quantify their emissions, identify climate-related mitigations measures, and consider less climate-disrupting alternatives.

Agency officials in California recognized this possibility in interim guidance for CEQA[240] on climate integration.[241] Following passage of the California Global Warming Solutions Act of 2006, a cluster of cases litigating CEQA climate review, and pressure from the state's attorney general, the California legislature marked GHG emissions as within the parameters of CEQA by requiring development of CEQA guidelines for the mitigation of GHG effects by January 2010.[242] In January 2008, the California Air Pollution Control Officers Association (CAPCOA) issued a white paper as an interim "resource for local policy and decision makers" for integrating climate concerns into CEQA reviews until adoption of the statewide guidelines.[243] In the white paper, CAPCOA considered three different thresholds: a "[n]o significance threshold for GHG emissions," a "GHG emissions threshold set at zero," and a "GHG threshold set at a non-zero level."[244] Under the "zero threshold" option, any project-related increase in GHG emissions would be viewed as contributing "considerably to climate change and therefore would be a significant impact" for triggering EIR (similar to EIS) preparation.[245] California's "zero threshold" option represents

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239. California's Technical Advisory on CEQA and Climate Change adopts an analogous approach for climate change significance determinations under California's environmental review statute. *See* CALIFORNIA GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, *supra* note 31, at 6 ("CEQA authorizes reliance on previously approved plans and mitigation programs that have adequately analyzed and mitigated GHG emissions to a less than significant level as a means to avoid or substantially reduce the cumulative impact of a project.").

240. CAL. PUB. RES. CODE §§ 21000-21177 (West 2007 & Supp. 2009).

241. THOLEN ET AL., *supra* note 97, at 27-30.

242. *See* CAL. PUB. RES. CODE §§ 21083.05 & 21097 (West Supp. 2009); *see also* Gerrard, *Climate Change*, *supra* note 8, at 21-22; Kass, *supra* note 26, at 41-42.

243. THOLEN ET AL., *supra* note 97.

244. *Id.* at 2-3.

245. *Id.* at 27. Similarly, an expert advisory committee, convened by the Municipal Art Society in New York to examine environmental review of climate change under the New York State Environmental Quality Review Act (SEQRA), concluded that "GHG emissions should be treated

the "no-solution" solution.

Ideally, the "no-solution" solution need not leave federal agencies facing an intractable *no-project-left-behind* dilemma. For federal proposals with no significant non-climate impacts, preparation of an impact statement should be streamlined to climate concerns in accordance with NEPA's regulatory requirement for succinct statements focusing on significant impacts.[246] The result would be the issuance of what might be referred to as a "Climate EIS," a detailed assessment focused exclusively on climate matters. This targeted, more pithy EIS complies with both NEPA's informational objectives[247] and policy mandate of "promot[ing] efforts which will prevent or eliminate damage to the environment and biosphere,"[248] but without the same likelihood of bringing government to a halt as preparation of a traditional full-blown EIS for every federal action would. In a best case scenario, the Climate EIS data would be coordinated with and supplement national GHG data collection efforts.[249] In a worst case scenario, the regulatory burden of Climate EIS preparation would force congressional attention to NEPA reform and/or climate protection legislation, neither of which would necessarily be a bad thing.

B. Regulatory Fixes—Teaching an Old NEPA Dog New Tricks

Another range of options relies on regulatory fixes to NEPA's climate threshold paradox. CEQ has authority to make interpretive rules and issue NEPA guidance.[250] In addition, NEPA and CEQ call on other federal agencies to adopt agency specific NEPA procedures.[251] Pursuant to these authorities, federal agencies have openings to pursue various regulatory options for tackling the NEPA climate significance conundrum.

1. Climate Thresholds.—One such regulatory fix involves the setting of climate significance thresholds. As with other NEPA climate matters, however,

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as a non-threshold pollutant—meaning that any increase in greenhouse gas emissions above a zero-threshold will contribute to the adverse cumulative impact of global warming change." KENDALL, *supra* note 220, at ii. The group's working paper, however, also contains several specific recommendations for limiting EIS preparation due to climate effects. *See infra* notes 275-78 and accompanying text.

246. *See* 40 C.F.R. § 1502.1 (2008) ("Agencies shall focus on significant environmental issues . . . .").

247. *See supra* notes 15-23 and accompanying text.

248. 42 U.S.C. § 4321 (2000).

249. This notion comports with the informational objectives of NEPA. *See* Wishnie, *supra* note 9, at 648-51 (noting need for and benefits of national climate data repository).

250. *See* 42 U.S.C. § 4332 (2000); Exec. Order No. 11,514, 35 Fed. Reg. 4247 (Mar. 5, 1970), *as amended by* Exec. Order 11,991, 42 Fed. Reg. 26,967 (May 24, 1977) (providing authority to CEQ).

251. *See* 42 U.S.C. § 4332(2)(B) (2000); 40 C.F.R. § 1507.3 (2008); *see also* Exec. Order No. 11,514, 35 Fed. Reg. 4247 (Mar. 5, 1970) (directing Federal agencies to initiate measures needed to direct their policies, plans and programs so as to meet national environmental goals).

the setting of thresholds poses perplexing choices for agency decisionmakers. Climate thresholds can be set based on various measures of significance, including numeric limits (tons of GHGs to be emitted), quotas (GHG emissions as a percentage of global, national, regional or local emissions), or some combination of methods. State and local climate related environmental review initiatives have several of these regulatory approaches under consideration or already in place.[252]

a. Quantitative GHG significance thresholds.—Quantitative GHG emissions thresholds offer a way around the problems of too few and too many climate-based significance determinations. In setting bright-line thresholds by way of numeric limits, regulators obtain review of significant GHG emitters while limiting the regulatory burden associated with review of less significant emitters. Washington and California State advisory groups are looking at setting of quantitative climate significance thresholds. One approach under consideration in Washington would derive quantitative climate significance thresholds from state or regionally adopted GHG emissions caps or targets.[253] Another option would set numeric significance thresholds based on GHG reporting requirements under other climate protection laws.[254]

In either case, only state agency proposals with anticipated GHG emissions above the identified quantitative thresholds would trigger a detailed impact statement under the states' little-NEPA statute.[255]

California agency officials identified a similar approach in a white paper addressing climate and CEQA[256] integration.[257] Pursuant to one of several identified options, lead agencies would set thresholds *above zero* for GHG emissions based on existing thresholds, if any, or new rules, ordinances, or policies.[258] Proposals with projected GHG emissions below the identified thresholds would be viewed as "not contribut[ing] substantially to the global GHG budget" and, therefore, not constitute a considerable contribution to cumulative impacts triggering a full blown environmental assessment.[259]

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252. *See, e.g.*, KENDALL, *supra* note 220, at ii (discussing threshold options for New York); THOLEN ET AL., *supra* note 97, at 2-3 (discussing three potential thresholds in California).

253. *See*, WASH. STATE ENVTL. POLICY ACT (SEPA) IMPLEMENTATION WORKING GROUP (IWG), REPORT TO THE CLIMATE ACTION TEAM 10, *available at* http://www.ecy.wa.gov/climatechange/2008CATdocs/IWG/sepa/103008_sepa_iwg_report.pdf. [hereinafter REPORT TO THE CLIMATE ACTION TEAM].

254. *Id.* at 11 (noting that currently no numeric threshold is yet required but that such threshold "would be ground-breaking"). Note, a closely related option under consideration establishes numeric GHG emission threshold ranges. *Id.*

255. New York State Environmental Quality Review Act (SEQRA), N.Y. ENVTL. CONSERV. LAW §§ 8-0101-0117 (McKinney 2005 & Supp. 2009); Washington State Environmental Policy Act (SEPA), WASH. REV. CODE ANN. §§ 43.21C.010 to -.914 (West 1998 & Supp. 2009).

256. CAL. PUB. RES. CODE §§ 21000-21177 (West 2007 & Supp. 2009).

257. THOLEN ET AL., *supra* note 97, at 2-3.

258. *Id*. at 17, 31-57.

259. *Id*. at 31.

Consistent with the white paper guidance, California regulators are specifically considering a multi-layered approach[260] that includes numeric screening levels.[261] In California, as in Washington, only actions with anticipated GHG emissions above the regulatory established quantitative threshold could trigger climate analyses under the applicable state environmental review statute.[262]

Although CEQ has not yet moved in this direction, in certain respects the Ninth Circuit has embraced parameters for the setting of federal quantitative thresholds. In *Center for Biological Diversity v. National Highway Traffic Safety Administration*,[263] the court forcefully rejected NHTSA's position that the estimated lifetime emissions of carbon dioxide associated with its federally proposed fuel economy standards[264] failed to cross the significance threshold.[265] In so ruling, the court implicitly set a presumptive quantitative ceiling. Based on this precedent, future federal proposals with similar or greater estimated lifetime carbon dioxide emission levels would seemingly also trigger EIS review (at least in the Ninth Circuit). Whether project emissions below the identified emission level also trigger EIS preparation remains an open question, awaiting further judicial clarification.

The quantitative threshold approaches combat the *death-by-a-thousand-puffs*

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260. *See* Email from Norman F. Carlin, Partner, California Law Firm of Pillsbury Winthrop Stow Pittman LLP, to Michael B. Gerrard, Senior Counsel, Arnold & Porter LLP (Sept. 20, 2008, 17:30:44 PDT) (on file with author) [hereinafter Carlin Email]. Accordingly, if a proposal's GHG emissions come in below the numeric threshold, the climate impact would be found less than significant under CEQA, California's environmental review statute. *Id.* Note, actions with GHG emissions above the numeric threshold might yet avoid EIR review under another tier of the significance determination (e.g., a project above the threshold that provides offsets might also avoid EIR review). *See* DRAFT AQMD STAFF CEQA GREENHOUSE GAS SIGNIFICANCE THRESHOLD FLOW CHART (2008), *available at* http://www.aqmd.gov/hb/2008/December/081231a.htm (follow the "Attachments" link at bottom of page).

261. One screening level under consideration sets the significance threshold at 6500 metric tons per year carbon dioxide equivalents (6500 MT CO2e). Carlin Email, *supra* note 260. This numeric limit appears to derive from an existing regulatory threshold for nitrogen oxides. *Id*.

262. *See* REPORT TO THE CLIMATE ACTION TEAM, *supra* note 253; *see also supra* notes 253-54 and accompanying text.

263. 538 F.3d 1172 (9th Cir. 2008).

264. According to the Federal Highway Traffic Safety Administration's draft EA, estimated lifetime emissions of CO_2 for the proposal ranged from a baseline of 1341.4 million metric tons (mmt) to 1306.4 mmt and 1304.0 mmt respectively under the proposed alternatives. *See id.* at 1187.

265. *Id*. at 1227 (holding EA inadequate and substantial questions raised "as to whether the Final Action may have a significant impact on the environment"). Although on rehearing the court stepped back from requiring preparation of an EIS, the court appeared firmly convinced that NHTSA will eventually need to prepare an EIS. *See id.* at 1179 ("Petitioners' evidence demonstrates, overwhelmingly, the environmental significance of CO2 emissions and the effect of those emissions on global warming. How NHTSA can, on remand, prepare an EA that takes proper account of this evidence and still conclude that the 2006 Final Rule has *no* significant environmental impact is questionable.").

and *no-project-left-behind* problems practically, but imperfectly. With any quantitative threshold, the action proponent must quantify anticipated GHG emissions for comparison.[266] Once the agencies accomplish the rather formidable task of deciding how and where to set the quantitative thresholds[267] and the proponent provides an estimate of anticipated emissions, the application to specific proposals becomes rather straightforward. Projects with anticipated GHG emissions above the threshold trigger EIS preparation and those with emissions below the threshold do not. Furthermore, the higher the threshold, the fewer number of actions that would cross the significance threshold. Conversely, the lower the threshold, the greater the number of actions that would be swept across the significance threshold.

Despite benefits of this approach, quantitative, above zero GHG thresholds arguably will exclude some projects with significant cumulative impacts on climate change (creating an under-inclusiveness defect). Conversely, quantitative GHG thresholds set close to zero arguably will increase the number of projects subject to full environmental review and potentially impose burdensome documentation requirements on small projects proponents (creating an over-inclusiveness defect).[268]

Who should have responsibility for threshold setting presents another knotty matter. If individual federal agencies or courts take on threshold setting responsibility, the specter of inconsistent climate significance thresholds seem likely (especially if quantitative thresholds are applied).[269] If CEQ sets climate significance thresholds for all federal agencies, uniform thresholds result, but may fail to account for project specific considerations apparent to individual agencies with relevant project specific expertise. For these reasons, the best

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266. Conceivably, every federal EA could include a rough calculation of GHG emissions based on an approved methodology. *See e.g.*, NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION, PRELIMINARY REVIEW DRAFT—FULL ENVIRONMENTAL ASSESSMENT FORM 10, 24-25 (Sept. 2008) (requesting applicant information regarding tons/year of carbon dioxide, nitrous oxide, methane and other GHGs and asking specifically whether the proposed project would generate more than specified tons/year of these GHGs for projects requiring air emission permits); *see also* KENDALL, *supra* note 220, at ii, 29 (recommending a requirement for conducting GHG calculations as part of the EA but only for certain projects (e.g., combustion sources generating 25 MW or above)). To the extent different federal agencies adopt different methodologies, however, their calculations seem likely to create inconsistency, coordination, actual gerrymandering, and appearance of fairness concerns. For these reasons, it makes sense for CEQ to provide guidance on approved methodologies.

267. Although subject to judicial deference, agencies will need to brace themselves for inevitable challenges that the adopted thresholds are too high, too low, or both.

268. New York State's advisory group identified this problematic aspect of their "incremental threshold approach," but ultimately relied on considerations of "fairness and practicality" to justify their recommendation. *See* KENDALL, *supra* note 220, at 14.

269. Similar concerns arise regarding responsibility for setting climate categorical exclusions; however, NEPA regulations currently require consultations on categorical exclusions that may dampen inconsistencies among agencies. *See* 40 C.F.R. § 1508.4 (2008).

initial strategy may be CEQ threshold guidelines with individual agency set limits.

b. Project specific triggers based on significance thresholds.—A second but similar approach establishes climate significance thresholds based on action type. Here regulators identify particular actions that automatically trigger a climate significance determination. By targeting specific projects for climate EIS review, regulators can focus attention on the most significant GHG emitters while limiting the regulatory burdens associated with review of the less significant emitters.

Massachusetts has adopted, and a New York advisory group has proposed, project-based significance threshold approaches for integrating climate concerns into their respective state environmental review processes. In 2007, the Massachusetts Executive Office of Energy and Environmental Affairs began requiring certain types of state agency proposals to quantify GHG emissions and identify measures to mitigate such emissions[270] pursuant to the State's little-NEPA statute.[271] Specifically, the State's new climate assessment provisions apply only to projects requiring a state air quality or vehicular access permit that would otherwise trigger preparation of an EIR[272] under pre-existing threshold criteria.[273] Thus, the Massachusetts project-based threshold addresses the *no-project-left-behind* problem by restricting climate analyses to a limited subset of projects (projects requiring state air quality permits or vehicular access permits). Similarly, a New York advisory group has tentatively recommended adoption of project-based GHG thresholds[274] as part of its suggested approach for integrating climate considerations into environmental impact statements required by New York's State Environmental Quality Review Act (SEQRA).[275] Under the recommended approach, actions otherwise requiring an EIS that exceed established "project type" and "project size" thresholds would be required to include a quantitative analysis of GHG emissions in the EIS.[276] Actions otherwise requiring an impact statement, but below the project-based thresholds,

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270. MEEA, MEPA POLICY, *supra* note 219, at 2-3.

271. Massachusetts Environmental Protection Act (MEPA), MASS. GEN. LAWS ANN. ch. 30, §§ 61-62 (2001 & Supp. 2008).

272. The Massachusetts EIR document resembles and serves a similar purpose to the NEPA EIS. *Compare* MAS. GEN. LAWS ANN. ch. 30, § 62B (2001), *with* 42 U.S.C. § 4332(2)(C) (2000).

273. MEEA, MEPA POLICY, *supra* note 219, at 2. Subject projects must additionally trigger environmental review (EIR preparation) based on non-climate considerations and exceed a de minimus level of GHG emissions for the climate analyses to come into play. *See id.* at 1-2. Thus, Massachusetts combines a project-based thresholds approach with "otherwise significant effects" and "categorical exclusion" approaches discussed below. For discussion of these complementary regulatory strategies, see *infra* Part III.B.2-3.

274. *See* KENDALL, *supra* note 220, at 13 ("Therefore, we call upon DEC to promulgate thresholds for the types of projects that will likely be sizable enough to require a quantitative analysis of GHG emissions and mitigation measures.").

275. N.Y. ENVTL. CONSERV. LAW §§ 8-0101 to -0177 (McKinney 2005 & Supp. 2009).

276. *See* KENDALL, *supra* note 220, at 13, 29.

would need only include a qualitative analysis of the action's climate change impacts in the EIS.[277] And, for actions requiring an EIS, but *demonstrably* unlikely to result in any GHG emissions (e.g., certain rule-making actions), no climate analyses would be required at all.[278]

If CEQ opted for a project-type threshold approach, it could call on each federal agency to identify projects and programs posing the greatest risk to climate disruption (e.g., permitting of coal-fired energy facilities or transportation sector regulations).[279] Only the identified project types would trigger NEPA EIS climate review. Advantageously, project-based thresholds prioritize public and regulator attention on the climate effects of the most climate impacting proposals (ideally those offering the greatest bang for the buck). This upside is also a downside: project-based triggers are by design under-inclusive and exclude from review actions likely to have smaller but still arguably cumulatively significant impacts on climate change. The consequence of this under-inclusiveness not only creates an informational gap, but also the potential for challenges against federal agencies based on statutory violations of NEPA. In short, the NEPA climate significance paradox remains only partially resolved.

2. The Otherwise Significant Effects Limitation.—Another option for avoiding the problem of *no-project-left-behind* (too many EISs) simply restricts NEPA climate review to those actions that would otherwise require EIS preparation (irrespective of GHG contributions). Both Massachusetts regulators and New York's Advisory Group have adopted an "otherwise significant effects" approach to climate integration. Under the Massachusetts protocol, climate analyses come into play only if the proponent must prepare an EIR based on other environmental considerations (and the action exceeds the project-based thresholds).[280] Similarly, the New York Advisory Group recommends GHG analyses only for projects otherwise subject to a state EIS (that also meet project type and size thresholds), with a limited exception for certain generators and sewage treatment facilities.[281]

The "otherwise significant effects" approach offers a comforting bright-line test for climate integration and eliminates concern over too many additional EISs. However, if federal agencies limit climate analyses only to actions already requiring EIS preparation, actions with substantial direct or indirect GHG emissions—but no other significant environmental effects—would evade close scrutiny under NEPA. This option creates a potentially greater under-inclusiveness defect than posed by qualitative and project type thresholds (which

277. *Id.* at 29.

278. *Id*.

279. *See* 40 C.F.R. § 1507.3(b)(2)(i) (2008) (providing required agency procedures). Many federal agency regulations identify projects and program classes that normally trigger EIS review. *See, e.g.*, 23 C.F.R. § 771.115(a) (2008) (listing three examples of transportation projects triggering EIS review).

280. *See* MEEA, MEPA POLICY, *supra* note 219, at 2. Massachusetts' approach combines a "project-type" threshold with an "otherwise significant trigger."

281. *See* KENDALL, *supra* note 220, at 29.

might trigger an EIS for projects not otherwise subject to the EIS requirement).[282] Moreover, just as with the threshold approaches, this strategy for integrating climate impact consideration may create informational gaps and encourage legal challenges based on statutory violations of NEPA. In short, on its own the approach offers only a partial solution to the NEPA climate significance paradox.

3. Categorical Exclusions.—Another regulatory solution relies on NEPA climate categorical exclusions. CEQ defines a "categorical exclusion" as "a category of actions which do not individually or cumulatively have a significant effect on the human environment."[283] With respect to climate impacts, federal agencies may consider adopting GHG categorical exclusions to address the *no-project-left-behind* dilemma. Massachusetts has taken an analogous route by establishing a GHG de minimus exception, exempting target projects with trivial GHG emissions from otherwise required climate analyses.[284] Similarly, federal agencies could adopt categorical exclusions for agency actions by identifying GHG emission levels or project categories with GHG emissions too negligible, trivial, or minuscule to individually or cumulatively have a significant impact on global climate and the environment. Although, as a theoretical matter, this option can eliminate *no-project-left-behind* concerns, legal challenges to climate categorical exclusions seem inevitable, particularly regarding the absence of cumulative significance.

In sum, regulatory authorities present options for solving the NEPA climate significance threshold paradox, but raise many complicating and complex policy questions for administrative agencies.

C. NEPA Statutory Fixes—Brave New World

Statutory fixes can fill the gap where NEPA's existing authorities and permissible regulatory approaches cannot adequately resolve the NEPA climate significance paradox. First, NEPA amendments explicitly mandating climate analyses or requiring Climate EISs would shut down any lingering debate about the need for NEPA review as a general matter. Also, congressionally set NEPA climate significance thresholds and climate categorical exclusions can directly address the *no-project-left-behind* dilemma without subjecting federal agencies to the flood of litigation challenges opened by interpretive and regulatory fixes. Moreover, congressional NEPA reforms offer the possibility of uniform, national

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282. New York State's advisory group identified this problematic aspect of their recommended approach and included a partial solution. First, the group acknowledged that by limiting climate analyses to actions already requiring an EIS, certain actions with cumulative adverse impacts on climate change might avoid any appropriate review. *See id.* at 13. To address this potential under-inclusiveness problem, the group recommended that certain combustion and sewage treatment facilities not otherwise requiring an EIS be required to supplement their EAs with climate impact analyses. *Id*. at 29. This approach resembles the "no solution, solution" discussed previously. *See supra* Part III.A.2.C.

283. *See* 40 C.F.R. § 1508.4 (2008).

284. MEEA, MEPA POLICY, *supra* note 219, at 2.

NEPA climate provisions without the potential for the inconsistencies of agency-by-agency climate environmental review procedures.

Second, national climate protection legislation could help resolve the NEPA threshold paradox. A national climate protection act with GHG caps, GHG reporting requirements, industry or development GHG emission limits, or even GHG taxing thresholds could provide relevant legal standards for application to NEPA climate significance determinations without the need to amend NEPA itself. And yet, to the extent future climate legislation targets only certain sectors (e.g., agriculture or transportation but not industry), certain industries (e.g., energy but not timber), or certain GHGs (e.g., carbon dioxide and methane but not nitrous oxide), there may be gaps in the amount of relevant legislative guidance. Alternatively, national climate legislation could resolve the NEPA climate threshold paradox simply by exempting federal actions subject to new climate legislation from any compliance with NEPA. Such statutory exemptions already exist for certain federal actions subject to the Clean Air and Clean Water Acts.[285] Although expedient, this last option eliminates all informational and educational benefits of having NEPA.

With the end of the Bush Administration's control of the executive branch, the past reluctance of the federal government to legislatively address climate change seems unlikely to continue. Both the Democrat and the Republican 2008 presidential candidates indicated support for national climate legislation[286] and both seem in favor of some form of a cap and trade program for achieving GHG reductions.[287] Moreover, even prior to officially taking office, President-Elect Obama signaled his commitment to act on global warming nationally and internationally.[288] If enacted, such a federal statutory cap on GHG emissions would aid agency significance determinations under NEPA by establishing a national target by which to compare federal agency GHG emissions.

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285. Clean Air Act NEPA Exemption, 15 U.S.C. § 793(c)(1) (2006); Clean Water Act NEPA Exemption, 33 U.S.C. § 1371(c) (2000).

286. Although McCain opposed U.S. participation in the Kyoto Protocol in 1997, he co-sponsored the Lieberman-McCain Climate Stewardship Act in 2003, one of the earliest attempts at national climate legislation. *See* Michael B. Gerrard, *McCain vs. Obama on Environment, Energy, and Resources*, 23 NAT. RESOURCES & ENV'T 3, 3 (Fall 2008). Obama also opposed the Kyoto Protocol in the late 1990s, but has supported climate protection efforts since becoming a U.S. Senator. *Id*. at 3-4.

287. *Id*. at 4.

288. Reiterating his commitment to address climate change, then President-Elect Obama told attendees at the 2009 Global Climate Summit:

> I promise you this: When I am president, any governor who's willing to promote clean energy will have a partner in the White House. Any company that's willing to invest in clean energy will have an ally in Washington. And any nation that's willing to join the cause of combating climate change will have an ally in the United States of America.

President Elect Obama's Remarks to Governor's Global Climate Summit, http://climaticide chronicles.org/2008/11/18/obama-makes-powerful-statement-on-climate-change-promises-action/ (last visited Feb. 19, 2009).

By way of analogy, California agency officials identified an option for integrating consideration of climate impacts, CEQA (California's little-NEPA Act),[289] and the California Global Warming Solutions Act of 2006[290] (the State's climate protection legislation). Specifically, CAPCOA considered the implications of applying a "no significance threshold for GHG emissions."[291] Under the "no significance threshold" option, category-specific reduction targets established pursuant to California's Global Warming Solutions Act help determine whether a stationary source project's GHG emissions trigger CEQA's environmental report requirement.[292]

Even with a new administration less dismissive of climate concerns and national climate legislation visible on the horizon, a regulatory void will remain until Congress drafts[293] (or recrafts from earlier efforts[294]), enacts, and implements NEPA amendments or national climate legislation. With the extended attention on the nation's economic crisis, the multi-billion dollar government bailout, and efforts to re-regulate financial institutions, rightly or wrongly, climate change legislation may take a back seat to other legislative efforts. In the interim years,[295] federal agencies and the courts will continue to grapple with the NEPA climate threshold paradox on their own.

CONCLUSION

Little doubt exists that NEPA climate integration is "in the air" so to speak. How to do it well—meaning in a way that informs decisionmakers of significant climate consequences of their actions, averts paper work hell, and is not stymied by litigation challenges—remains an open, perplexing, but not insurmountable challenge. Interpretive, regulatory, and statutory opportunities exist to meet the challenge and the little-NEPA climate integration projects—pioneering and forward looking—offer worthy models for imitation at the federal level.

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289. California Environmental Quality Act (CEQA), CAL. PUB. RES. CODE §§ 21000-21177 (West 2007 & Supp. 2008).

290. CAL. HEALTH & SAFETY CODE §§ 38500-38599 (West 2006 & Supp. 2009).

291. THOLEN ET AL., *supra* note 97, at 2.

292. *Id*. at 16.

293. The 2008 Dingell-Boucher Climate proposal represents one such option for moving forward. *See* House Committee on Energy and Commerce, 110th Cong., Climate Change Legislation Discussion Draft (Oct. 7, 2008), http://energycommerce.house.gov/images/stories/Documents/PDF/selected_legislation/clim08_001_xml.pdf.

294. The 2007 climate bills might also offer a jumping off point for future efforts. *See, e.g.*, Lieberman-Warner Climate Security Act of 2007, S. 2191, 110th Cong. (as reported in Senate, May 20, 2008).

295. This view accords with business leader predictions of at least a five year delay until national climate legislation takes effect. *See* Nathanial Gronewold, *Wall Street Sees National Carbon Market at Least Five Years Away*, CLIMATEWIRE (Sept. 11, 2008).