NEPA and Climate Change: Are We at the "Tipping Point"?

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In 2000, Malcolm Gladwell wrote his best-selling book, *The Tipping Point: How Little Things Can Make a Big Difference*. Gladwell looked at both business trends and natural phenomena, such as viral epidemics, and postulated that in at least some instances "change happens not gradually but at one dramatic moment." Gladwell called that dramatic moment "when everything can change all at once" (in nature or business) the "Tipping Point." *Id.* at 9 (2002 ed.).

The National Environmental Policy Act of 1969, 42 U.S.C. § 4321 *et seq.*, (NEPA) requires the evaluation of various potential environmental consequences of a proposed federal project. Often a project's sponsor chooses to forego the rigor of a detailed "environmental impact statement" (EIS) based upon a threshold determination that the project will have no significant environmental impact, a "finding of no significant impact" (FONSI). Recent scientific data on climate change and a Ninth Circuit panel opinion, however, raise serious questions about whether there can be any "threshold" below which one can reasonably assert "no significant impact" for a project's emission of greenhouse gases (GHGs) that contribute to climate change. This article explores both the new science on "abrupt climate change" and "positive feedback loops" in climate change and the Ninth Circuit's decision in *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172 (9th Cir. 2008). As a practical matter, these two forces may generate a "tipping point" of their own that may well topple the traditional "no significant impact" analysis for many federal projects.

In *Center for Biological Diversity*, the Ninth Circuit analyzed legal challenges to the promulgation of a 2006 rule issued by the National Highway Traffic Safety Administration (NHTSA) establishing Corporate Average Fuel Economy (CAFE) standards for vehicles categorized as "light trucks." In the bureaucratic world where a word means what the bureaucrat says it means, no more and no less, the category of "light trucks" includes many SUVs, vans, and pickup trucks. NHTSA's 2006 final rule established a new CAFE standard for "light trucks" that only modestly increased the required fuel efficiency by moving from a required level of 22.5 miles per gallon (mpg) in model year 2008 to 23.5 mpg in model year 2010. NHTSA estimated that this action, together with earlier increases in early mileage years, would reduce carbon dioxide ($C0_2$) emissions of light trucks by 2.4–3.8 percent below the current level of allowable emissions at the current and lower mileage standards. The agency indicated that its final rule for the 2008–11 model years would result in a small, cumulative reduction in U.S. GHG emissions of 0.2–0.3 percent.

NHTSA prepared an environmental assessment (EA) of the potential environmental impacts of its final rule and concluded that because its final rule would result in a slight *decrease* in GHG emissions there would be "no significant impact" upon the environment. Thus, NHTSA concluded that it did not need to complete a full EIS but instead issued a FONSI based on its analysis in the EA. NHTSA also suggested that its regulations of carbon-dioxide-emitting light trucks were minimal compared to other global actions that were well beyond the agency's control or purview.

A bevy of environmental organizations led by the Center for Biological Diversity and the Sierra Club together with eleven states challenged NHTSA's final rule as both violating the federal Energy Policy and Conservation Act of 1975, 42 U.S.C. § 6201 *et seq.*, (EPCA) and NEPA. Setting aside the Ninth Circuit's lengthy discussion of EPCA and whether NHTSA properly exercised its discretion under the pertinent statutory limitations of that Act, this article will focus on the Ninth Circuit's holding that NHTSA failed to adequately address climate-change environmental impacts and its remand of the entire matter to NHTSA to address those impacts.

In deciding in favor of the petitioning environmental groups and states, the Ninth Circuit systematically demolished NHTSA's effort to truncate a full environmental analysis required by NEPA through its FONSI determination. The panel's initial opinion remanded the matter with instructions that NHTSA must conduct a full EIS of its final rule. 508 F.3d 508 (9th Cir. 2007). After a petition for rehearing was filed, the panel vacated its initial ruling and instead modified its remand order to give NHTSA the option of either supplementing its initial EA or conducting a full EIS. The panel opinion, authored by Judge Betty Fletcher, expressed considerable skepticism that NHTSA could in fact prepare an adequate EA in which it could conclude that its final rule still had no significant impact given all of the evidence demonstrating the "environmental significance of CO_2 emissions." 538 F.3d at 1179–80. Nonetheless, the revised panel opinion gave the agency the option on remand to determine how best to address the environmental concerns raised by the objectors—

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either by a modified EA or a complete EIS. The panel's modified opinion, which also denied the petition for rehearing, was published on August 18, 2008, and constitutes the final opinion of the court. *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172 (9th Cir. 2008), *vacating and superseding prior opinion* at 508 F.3d 508. The federal government has indicated that it will not seek Supreme Court review of the Ninth Circuit's final opinion.

Judge Fletcher, writing for the court, rejected out of hand NHTSA's claim that its obligations under NEPA were constrained by the EPCA. Judge Fletcher tartly observed that NHTSA wanted to claim both discretion in setting vehicle fuel economy standards under the Energy Act while asserting that it lacked power to evaluate the impact of its admitted discretionary decisions under NEPA. As Judge Fletcher put it, "NHTSA can't have it both ways." 538 F.3d at 1212.

The court first evaluated the "cumulative impacts" of NHTSA's rule upon climate change. The court held that NHTSA's EA was inadequate because it did not evaluate the "incremental impact" that the continuing GHG emissions from light trucks would have on the atmosphere in conjunction with other foreseeable actions, such as passenger automobile fuel efficiency standards. The court also rejected NHTSA's suggestion that its final rule would actually *decrease* GHG emissions; it noted that in fact NHTSA's final rule would only decrease the *rate* at which $C0_2$ was emitted into the atmosphere by light trucks. 538 F.3d at 1216. The court quoted NHTSA's own brief, which conceded that "the new CAFE standards will *not entirely offset* the projected effect of increases in the number of new trucks." Thus, even the agency projected that more trucks would be on the road, and although each truck would emit slightly less GHGs on average, the overall impact would still be an overall increase in $C0_2$ emitted into the atmosphere. More dramatically, the court stated:

> The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct. Any given rule setting a CAFE standard might have an "individually minor" effect on the environment, but these rules are "collectively significant actions taking place over a period of time."

538 F. 3d at 1217 (internal citation omitted).

The Ninth Circuit also found that NHTSA had artificially constructed a set of limited "alternatives" to its proposed rule for evaluating the environmental impact of its final rule. The court noted that EPCA encouraged consideration of energy conservation and, thus, that a more complete analysis of other, more aggressive energy-saving economy standards was perfectly compatible with both EPCA and NEPA's mandate to consider a reasonable range of alternatives to the agency's proposed action.

The Ninth Circuit's final comments on NEPA, however, raise the greatest potential concern for environmental lawyers. NHTSA's primary argument—that even a decrease in the rate of $C0_2$ gas emissions under its final rule would produce at least a minor beneficial environmental effect—was thoroughly rejected. Judge Fletcher for the court wrote:

> Petitioners presented evidence that continued increase in greenhouse gas emissions may change the climate in a sudden and non-linear way. Without some analysis, it would be "impossible for NHTSA to know. . . whether a chance in GHG emissions of 0.2% or 1% or 5% or 10% . . . will be a significant step toward averting *the 'tipping point'" and irreversible adverse climate change*.

States Gray Br. at 6. 538 F. 3d at 1221 (emphasis added).

Judge Fletcher for the court cited "compelling scientific evidence concerning 'positive feedback mechanisms' in the atmosphere." She cited in support of such "compelling evidence" the International Panel on Climate Change's (IPCC) Third Assessment Report and also a Working Group Technical Report to the effect that "the climate system involves many processes and feedbacks that interact in complex non-linear ways. *This interaction can give rise to thresholds in the climate system that can be crossed if the system is perturbed sufficiently.*" 538 F. 3d at 1222 (quoting TECHNICAL SUMMARY OF IPCC WORKING GROUP I REPORT at 53).

The Ninth Circuit's decision raises a potentially significant obstacle to any federal agency's determination that a project has "no significant impact" on GHG emissions. That is, if the project has *any* possible impact on GHG emissions, then how does the agency know if that additional incremental emission, no matter how slight, might cross a "tipping point," causing a sudden, accelerated, and irreversible change in the world's climate?

The Scientific Complexity of Predicting Climate Change Effects

The recent science on "abrupt climate change" and "positive feedback mechanisms" further demonstrates the extent of the challenge posed by climate change to federal agencies and NEPA practitioners. As environmental author James Lovelock put it in a 2004 article about global warming impacts:

> What makes global warming so serious and so urgent is that the great Earth system, Gaia, is trapped in a vicious circle of positive feedback. Extra heat, from any source, whether from greenhouse gases, the disappearance of the Arctic ice or the Amazon forest, is amplified, and its effects are more than additive.

James Lovelock, *Nuclear Power Is the Only Green Solution*, THE INDEPENDENT (May 24, 2004). "Positive feedback" is simply the notion that one aspect of the Earth system, such as an increased air temperature, affects another aspect, such as ocean water temperature. As the air temperature rises, the ocean temperature rises, and the oceans lose some of their ability to

capture and hold carbon as they get warmer. Thus, one part of what even President Bush's administration termed the "Earth's coupled ocean-atmosphere-land climate" system "feeds back" and amplifies the warmth created in another part of the system. U.S. Climate Change Science Program, Our Changing Planet: The U.S. Climate Change Science Program for Fiscal Year 2009 at 15 (Supp. to Presidential Budget for FY 2009) (Our Changing Planet).

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Recent scientific books and articles, however, go beyond the suggestion that there is a "positive feedback" mechanism that could amplify the effects of climate change in unpredictable but significant ways. Some scientists now suggest that "abrupt climate change" is not only possible but has been historically demonstrated throughout periods of significant ice ages in Earth's geological past. Wallace Broecker, a professor of earth and environmental sciences at Columbia University, has co-authored a book on climate change in which he flatly concludes that "abrupt climate change" has been well documented in prior climatic shifts in ice ages. As Professor Broecker puts it: "[W]e are close to dead certain, from the Greenland ice cores and other climate records, that abrupt climate changes did actually occur during the Ice Age. . . . The existence of abrupt climate change is by now more of an observational fact than a theory." W. Broecker & R. Kunzig, Fixing Climate: What Past Climate Changes Reveal about the Current Threat—and How to Counter It 129 (Hill & Wang 2008) (Fixing Climate).

The U.S. Climate Change Science Program, which describes itself as a coordinator of various federal governmental agencies studying climate changes, has recently confirmed that its review of actual data on the decline in the mass of Arctic sea ice compared with a variety of recent models demonstrates that "[a]ll models failed to produce the observed decrease in Arctic sea ice coverage, often substantially underestimating the decreases. This suggests that the Arctic could be seasonally free of sea ice earlier than IPCC projections." The U.S. Climate Change Science group spoke of the "rapid sea ice declines" in a report submitted by the secretaries of commerce, energy, and the director of the President's Office of Science and Technology to Congress in July 2008.

Moreover, the stronger scientific reality is that there is great uncertainty in predicting what the $C0_2$ "threshold" is. That is, what scientists do not know is whether there is a "tipping point" beyond which abrupt climate change occurs and is irreversible. As Broecker puts it: "We don't really know at what level the CO_2 concentration might become truly dangerous—at what threshold the climate might shift so that rapid melting of the ice sheets becomes unavoidable, say, or the intensity of the drought in the American West is incompatible with the civilization we have built there." Fixing Climate, 190.

As the IPCC stated in more turgid scientific prose in its *2007 Fourth Assessment Report*, "This positive carbon cycle feedback leads to larger CO_2 increase and greater climate change for a given [greenhouse gas] emissions scenario, but the strength of this feedback effect varies markedly among models [of climate change]." IPCC, Fourth Assessment Report, § 2.3 at 38. Later, the IPCC scientists warn that while "climate-carbon cycle coupling" is expected to increase the total amount of human-sourced GHGs in the atmosphere, the "mitigation studies have not yet incorporated the full range of these feedbacks." The implication, at least, according to the IPCC, is that we currently may be *underestimating* the amount of reduction of new GHG emissions that we will need in order to stabilize the amount of CO_2 and other GHGs in the atmosphere. IPCC, Fourth Assessment Report, § 5.4 at 67.

A more readable version of these scientific uncertainties comes in a new bestseller, Thomas Friedman's *Hot, Flat and Crowded* (Farrar, Straus & Giroux 2008). In analyzing how "irreversible" climate change is and how much it could impact our society and ecosystem, Friedman quotes Peter Gleick's classic summary: "There are degrees of screwed. . . [t]here is a huge difference between a two-foot sea level rise and a ten-foot." For all the time, money, and hard work spent on devising various models of what GHG level might trigger "only" a two-foot sea-level rise versus a ten-foot rise in the next hundred years, no one can say with certainty what that level might be, nor can anyone determine whether a particular model is underestimating that GHG level, given the enormous complexity of calculating positive feedback loops into an already complex system.

NEPA and Environmental Reviews of Climate Change

What do recent scientific publications about "positive feedback," "abrupt climate change," and the uncertainties of current scientific models mean to the lawyer diligently trying to apply NEPA a mere forty years after its original passage?

The Ninth Circuit's final decision in *Center for Biological Diversity*, combined with recent scientific articles regarding the possibility of abrupt and irreversible climate change in a complex interactive system, suggests that the role of NEPA lawyers has suddenly become much more challenging. Constructing a legal framework for NEPA and filing cases challenging early agency decisions not to utilize the NEPA process characterized the early phase of legal work during NEPA's formative years. Now, the lawyer practicing NEPA (or any of the state "mini-NEPA" statutes) faces a new and equally demanding challenge: How do you evaluate the environmental impact of a governmental project given the absence of clearly defined thresholds below which one can positively demonstrate that no "significant impact" will occur? How can an agency lawyer, for example, ever approve the issuance of a FONSI for any project that involves the increased use of energy (other than a completely carbon-neutral form of energy)? What project does not, in some area, involve some increased use of energy? To be sure, one can conceptualize the rare project that will produce a net reduction in carbon emissions, such as a federally funded new nuclear (or solar) power plant, or the construction of a new carbon sequestration facility deep in Earth's surface. But, many more federal projects are likely to involve short-term energy increases (in construction, power usage, transportation costs) in exchange for a promise of longer-term energy savings due to Leadership in Energy and Environmental Design (LEED) design or alternative energy sources for the new building or project. The Ninth Circuit, however, has already categorically rejected the notion that a mere decrease in the *rate* of carbon emissions from existing sources is sufficient to automatically declare a "no significant impact" under NEPA. The teaching of *Center for Biological Diversity* appears to compel agency lawyers (and those in environmental groups or others who seek to challenge them) to take the mandated "hard look" at a range of alternatives for a project's GHG emissions and to calculate precisely the net negative effect that the new project will have on emissions.

On the other hand, the NEPA practitioner also faces the possibility of differing standards in different circuits. In an opinion authored just two years before, the Eighth Circuit dismissively swept away the Sierra Club's challenge to the construction of a new rail line that would facilitate the extraction and use of coal, a "dirty" form of energy from a GHG perspective. In *Mayo Foundation v. Surface Transportation Board*, 472 F.3d 545 (2006), the Eighth Circuit approved a revised EIS that suggested that the federal agency could *not* evaluate local impacts on such anticipated coal use because of uncertainty about whether existing or new power plants would in fact use the new coal source and in what amounts. Moreover, the agency found that the impacts of the project in terms of coal consumption and resulting air emissions would be "small" on a national and regional basis. 472 F.3d 555–56.

Similarly, a NEPA challenge to projects with potential climate change impacts on such vulnerable species as polar bears has also been rejected based in part upon judicial deference to agency expertise and a notion of "little impact" on the totality of the global climate. *North Slope Borough v. Minerals Management Service*, 2008 WESTLAW 110889 at *3 (D. Alaska 2008) ("the rate and impact of climate change are largely independent of whether Lease Sale 202 is permitted to stand").

One possible source of guidance to the NEPA practitioner is the petition filed with the agency responsible for issuing regulations implementing NEPA, the Council on Environmental Quality (CEQ). In February 2008, the International Center for Technology Assessment, the Natural Resources Defense Council, and the Sierra Club filed a petition requesting an amendment to NEPA regulations to clarify that climate change analysis "be included." *Petition of International Center for Technology Assessment, et. al. to CEQ* (Feb. 28, 2008). It is likely that the Obama administration may well focus on this issue with its appointment of Nancy Sutley as chair of CEQ. Sutley was a deputy mayor in Los Angeles, California, a state that is at the forefront of climate change initiatives.

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While it remains to be seen whether all courts will follow the lead of the Ninth Circuit and adopt such notions as climatic "tipping points," "abrupt climate change," and "positive feedback," there can be no doubt that the pressure from environmental groups and some scientists to consider climate change as part of the NEPA process will continue. All of this means that the lawyers working with NEPA will face significant new challenges, challenges certainly not foreseen by NEPA's original authors in 1969 but ones that continue to demonstrate the relevance of the statute in 2009.