

Considering Climate Change in NEPA Implementation

By

Daniel Koski-Karell, Ph.D.

United States Coast Guard

Washington, DC

September 2012

Capstone paper submitted in partial fulfillment of the
Requirements for the Certificate in NEPA
Duke Environmental Leadership Program
Nicholas School of the Environment at
Duke University

2012

Abstract

Attention to anthropogenic aspects of global climate change has become widespread in the United States where concern for this and related issues such as greenhouse gas (GHG) emissions has increased through time from the 1990s to the present. This has been of increasing concern among federal agencies. A number of federal government undertakings have the potential to impact and be affected by this environmental aspect. The Council on Environmental Quality (CEQ) has highlighted a relationship between climate change and the National Environmental Policy Act (NEPA) by issuing draft guidance on how it may be considered under NEPA. This paper reviews how climate change has been considered in NEPA implementation in terms of CEQ guidance and a sample of environmental planning documents, along with important federal court decisions relating climate change to NEPA. It also provides information on recent federal executive branch and legislative activity concerning climate change and discusses the near future outlook for such action. I offer suggestions for how climate change may be addressed when preparing a NEPA categorical exclusion, environmental assessment, and environmental impact statement by considering climate change impacts separately from greenhouse gas emissions. While the principal climate change focus in the NEPA process has been GHG emissions and their relationship to global warming, it may be worthwhile to also consider natural variation.

Concern for anthropogenic aspects of global climate change became widespread in the United States during the last quarter of the twentieth century. This led to increased federal government attention including the President's Council on Environmental Quality (CEQ) which has oversight responsibility for the National Environmental Policy Act (NEPA) and its implementing regulations.¹ A variety of proposed actions that are funded, permitted, regulated, or assisted by the federal government and subject to the provisions of NEPA could be associated with significant environmental impacts relating to climate change. As a consequence, it has become established in NEPA implementation that environmental analysis of proposed actions should include consideration of potential climate change, along with anthropogenic greenhouse gas (GHG) emissions which have been linked to global warming.

This paper reviews how aspects of climate change have been considered in NEPA implementation from the 1990s to the present. I discuss federal agency guidance materials on climate change issued by the CEQ along with a sample of NEPA planning documents that include addressing climate change impacts. I also discuss important federal court decisions that influence how climate change is addressed in the NEPA process, review recent federal executive branch and legislative branch activity concerning climate change, and describe possible near future actions. I conclude with some suggestions for how climate change may be addressed when preparing the three levels of NEPA documentation. These include categorical exclusion (CE), environmental assessment (EA), and environmental impact statement (EIS).

The term "climate change" may be defined in a number of ways. It has been characterized in the past by significant shifts in the configuration, distribution, and manifestation of the Earth's climate zones associated with significant increases and decreases in average global temperature. Changes in climate generally become manifested over time periods ranging from decades to millennia. Since shifts in climate characteristics generally develop slowly within a regime of natural variation, except for occasional step-like changes, a period of 30 years is widely considered a reasonable interval for determining that significant changes in global, regional, or local climate have occurred.

Unusual short-term weather events are generally not demonstrative of climate change if they are consistent with historically documented phenomena including their parameters, frequency, and duration. Such events occurring during a normal predictive seasonal round

are usually associated with natural variation rather than significant climate change.

The term “climate change” is also frequently used a synonym for “global warming” or “anthropogenic global warming” (AGW). AGW refers to elevation in the Earth’s average temperature resulting from human activities such as adding unnatural amounts of greenhouse gases to the atmosphere. Concern about relationships between anthropogenic GHG emissions and increasing average global temperature has played a major role in the establishment of federal government policy. This includes how climate change has come to be considered as a potential impact in National Environmental Policy Act implementation.

The CEQ has addressed how climate change may be included under NEPA in the process of taking a hard look at potential environmental impacts associated with a proposed federal action. It has done this by issuing draft guidance in 1997 and 2010 that discusses climate change. Both draft guidance versions include discussion of GHG emissions in a manner that links them to climate change. Neither draft has been officially finalized.

The 1997 draft guidance is useful for considering relationships between climate change impacts and the NEPA process.² It calls attention to the issue of addressing potential effects to a federal action from global climate change. Thus, NEPA’s intrinsic orientation on direct, indirect, and cumulative impacts to the environment should include attention to impacts from the environment. Its inclusion of climate change impacts relating to greenhouse gas emissions promotes a systemic perspective by pointing to effects on GHG sinks, which are natural terrestrial and oceanic pathways of carbon/GHG absorption. While CEQ’s 1997 draft guidance brought attention to an area of increasing widespread interest, its influence on NEPA implementation was limited and varied across federal agencies.

In 2010, CEQ issued an expanded and more substantial version of draft guidance on considering climate change in NEPA implementation.³ As with its predecessor, this discusses GHG emissions, climate change, and links between them. The 2010 draft explicitly states that climate change is “a global problem that results from global GHG emissions.”⁴ This suggests that climate change is without any potential beneficial result and would not occur except for anthropogenic GHG emissions.

The 2010 draft guidance also reiterates the 1997 draft’s call for addressing effects from global climate change. It states that “...agencies should determine which climate change impacts

warrant consideration in their EAs and EISs because of their impact on the analysis of the environmental effects of a proposed agency action,” and “...the observed and projected effects of climate change that warrant consideration are most appropriately described as part of the current and future state of the proposed action’s affected environment.”⁵ The authority cited for this is NEPA regulation 40 CFR 1502.15 which addresses effects of action alternatives.

The 2010 draft guidance suggests that NEPA compliance should include identifying impacts from proposed federal actions through considering climatological changes that may occur in the human environment three decades or more in the future. These impact projections would include an assumption that global warming is inevitable. This approach would not identify alternative possible climatological environmental impacts related to stability with natural variation, or global cooling.

Issued in February 2010 as a memorandum for heads of federal departments and agencies, this CEQ draft guidance states a reasonable argument for considering climate change effects. However, the document’s final sentence states that the “CEQ does not intend this guidance to become effective until its issuance in final form.”⁶ This has not yet happened.

Even though the CEQ 1997 and 2010 drafts were not finalized, various federal departments and agencies have modified how they address climate change in the NEPA process accordingly. Three of these are the Departments of Energy, Interior, and Defense. EIS documents prepared by these departments from the 1990s to the present have addressed climate change. Recent ones indicate how climate change is currently being considered under NEPA. I have selected a sample of recent EISs from these departments to review for their content concerning climate change.

The U.S. Department of Energy (DOE) is responsible for NEPA compliance relating to actions throughout the United States. These include proposed actions of the Bonneville Power Administration (BPA), a DOE component in the Pacific Northwest. In 2011, the DOE published a draft Environmental Impact Statement for the proposed *Mid-Columbia Coho Restoration Program* which is designated DOE/EIS-0425.⁷ The coho is a species of salmon that has declined over time in rivers where the BPA operates hydroelectric facilities.

This NEPA document includes analysis of the proposed action’s potential impacts on GHG emissions relating to construction, operations, and maintenance. It provides calculations on

anthropogenic greenhouse gases these activities will emit, and concludes they will have a minor impact on atmospheric GHGs and an unquantifiable but non-significant effect on climate change. Measures to mitigate these anticipated impacts are listed for possible consideration.

The DOE EIS includes discussion of climate change that addresses environmental aspects of critical importance to the proposed action. These consist of water temperature, flooding, and reduced summer flow in the coho salmon's Columbia River drainage habitat. This climate change analysis is largely based on regional climate change models that utilize alternative GHG emission scenarios and project changes resulting from increased temperature that is primarily caused by "human-induced emissions of heat-trapping gases."⁸

The climate change emphasis in DOE/EIS-0425 is consistent with the CEQ's 1997 and 2010 draft guidelines on considering climate change under NEPA. Its linkage of anthropogenic GHG emissions with increasing global temperatures conforms to the assumption that climate change during the twenty-first century will be predominantly the result of AGW.

The U.S. Department of the Interior (DOI) is responsible for managing much of federal lands in the U.S. as well as mineral resources of submerged lands on the continental shelf. It has developed departmental-wide policies and procedures for considering climate change in management planning and operations and directs each DOI bureau and office to "consider and analyze potential climate change impacts...when making major decisions regarding...resources under the Department's purview."⁹ One of the department's components is the Bureau of Land Management (BLM). It administers vast federal land holdings that are potential locations for the development of alternative energy resources (i.e., energy sources other than fossil fuel). In 2008, the BLM published a Programmatic EIS for proposed *Geothermal Leasing in the Western United States*, which is designated FES 08-44.¹⁰ It examines leasing parcels of federal lands for commercial development of water heated by subsurface geological formations.

This NEPA document includes a detailed discussion of possible climate change in the twelve states covered by the proposed action, along with examination of the action's potential climate change impacts from geothermal energy development based on three alternatives. The alternative actions included are no-action, develop geothermal at any appropriate site, and develop geothermal only at sites near existing transmission lines.

The DOI EIS links anthropogenic GHG emissions with rising global temperature and discusses several environmental factors affected by present-day climate change which projections suggest will continue to change throughout the twenty-first century. The projections are based on reports from the Intergovernmental Panel on Climate Change (IPCC) and the U.S. Global Change Research Program. The climate-related environmental factors discussed include air temperature, extreme weather, wildfires, changes to the natural carbon cycle, anthropogenic fossil fuel development and use (including combustion engines), biological carbon sequestration changes due to land management activities, and changes in radiative forces and reflectivity (albedo). This EIS employs an ecosystem orientation in its consideration of climate change and addresses existing and anticipated effects of climate change to soil resources, water resources, vegetation, fish and wildlife, threatened and endangered species, wild horses and burros, livestock grazing, and the interests of Native American Tribes. Geothermal development's climate change effects are identified as having significant less environmental impacts than fossil fuel plants, especially as concerns GHG emissions.

The climate change emphasis in DOI EIS number FES 08-44-0425 is consistent with the CEQ's 1997 and 2010 draft guidelines on considering climate change under NEPA. Its treatment of climate changes includes informative background discussion, a perspective that is broad geographically (covering several western states and Alaska), and acknowledgment that the ability to perform qualitative and quantitative evaluations of potential climate change impacts is limited largely due to calculating GHG emissions that cannot currently be connected to future climate change on a local or regional level.

The Department of Defense (DOD) includes the Departments of the Navy (DON), Army, and Air Force. These components implement NEPA in conformance with over-arching DOD policy, including climate change policy. The DON recently completed an EIS for proposed actions in the Mariana Islands (Guam and the Commonwealth of the Northern Marianas/CNMI) relating to a proposed increase in U.S. military presence resulting from new construction and relocating forces from Okinawa, Japan. This final EIS covers *Guam and CNMI military relocation, relocating Marines from Okinawa, visiting aircraft carrier berthing, and Army air and missile defense task force.*¹¹

The consideration of climate change in the Navy's 2010 EIS is addressed as an element of cumulative impacts. The discussion of climate change links global warming with greenhouse gas emissions while acknowledging that GHG emissions have global and regional implications due to atmospheric mixing and are cumulative over time from all emission sources worldwide. Thus, GHG emissions of a particular proposed action, including the action being studied, are generally not large enough to have an appreciable effect on climate change. Even so, documenting projected GHG emissions in NEPA implementation may be necessary in order to comply with governmental administrative procedure based on legislation, regulatory rule-making, policy, or guidelines. Consequently, this EIS includes calculations for GHG emissions resulting from mobile and stationary fossil fuel combustion sources for construction and operations, and solid waste landfill. These calculations cover the years from 2011 through 2016 as well as 2017 and beyond.

In addition to GHG emissions, the DON EIS addresses other potential climate change aspects as they relate to cumulative impacts and adaptation. These include sea level rise which the EIS estimates will range from 7 to 39 inches by 2100. This could result in coastal erosion and inundation, along with seawater contamination of freshwater aquifers. Other potential climate change impacts may result from temperature-related weather events such as stronger typhoons with associated impacts from storm surge and wind. There may also be regional changes in rainfall amounts and seasonality which can influence the recharging of insular freshwater aquifers. Episodic storm-related flooding may cause significant damage as well as sewage dispersal contamination of freshwater sources. Oceanic impacts from climate change may include changes in seawater alkalinity leading to lower pH, and temperature-related coral reef bleaching.

The DON EIS relates these potential climate change impacts to the proposed action including waterfront facilities and population increase from additional military personnel. It also directs attention to the importance of adapting to these potential impacts by considering them in the development of relevant project design criteria as well as risk assessment methodologies and technologies. The EIS emphasizes the importance of adaptive strategies through attention to long-term monitoring of climate change as it relates to re-evaluating the consideration of risks,

and in developing policies and plans in collaboration with the host governments of Guam and the CNMI.

The inclusion of climate change considerations in these NEPA documents is consistent with recent federal court decisions that address GHG emissions and climate change.¹² Perhaps the most authoritative decision is the 2007 U.S. Supreme Court case of *Massachusetts v. Environmental Protection Agency* where the majority opinion stated that “a well-documented rise in global temperatures has coincided with a significant increase in the concentration of carbon dioxide in the atmosphere,” and “the harms associated with climate change are serious and well recognized.”¹³ This decision also stated that “while agency action may not completely reverse the effects of climate change, it does not relieve the agencies of the *responsibility to take action to reduce it*” (italics added).¹⁴

Another important decision resulted from the case of *Center for Biological Diversity v. National Highway Traffic Safety Administration*.¹⁵ The U.S. Court of Appeals for the Ninth Circuit found that “the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”¹⁶ In this case, the court’s review of available information concluded that there is a clear linkage between GHGs, global warming, and climate change. The outcome overruled the National Highway Traffic Safety Administration (NHTSA) determination that its Environmental Assessment justified a Finding of No Significant Impact (FONSI). The NHTSA was required to prepare an Environmental Impact Statement that included analysis of GHGs and climate change.

Federal executive branch and legislative branch developments relating NEPA and climate change have differed a great deal from one another during the past year. In the executive branch, NEPA implementation in 2012 has largely conformed to the 2010 CEQ draft guidance. In general, NEPA analysis of potentially significant impacts for Environmental Assessments and Environmental Impact Statements addresses climate change and its linkage to GHG emissions. The specific manner through which this analysis is accomplished varies from one agency to another and according to the character of the proposed action.

The situation in the federal legislative branch, where the 112th Congress is seated until the end of December 2012, is oriented to executive branch oversight and the possible passage of new laws. A number of House Resolutions and Senate Bills relating to various aspects of climate

change have been introduced since Congress convened in January 2011.¹⁷ Several of these are aimed at stopping or modifying the U.S. Environmental Protection Agency's regulatory measures on GHG emissions. However, control of the two houses of Congress is split with the Republican Party in charge of the House of Representatives and the Democratic Party in charge of the Senate. Initiatives concerning climate change by one house have been stalemated by opposition or inaction on the part of the other. Neither of the two opposing political parties is inclined to capitulate or agree to compromise that is contrary to constituent interests or core values. The result is that no legislation relating to climate change has been sent to the President of the United States for signature in 2012. Proposed legislation from the 112th Congress that has not been passed into law will expire upon final congressional adjournment, although it may be introduced again after the 113th Congress convenes in January 2013.

Congressional authorization and funding for federal governmental programs relating to climate change has been maintained. While political issues and the nature of the traditional federal budget process have served to block appropriation bills, federal agency funding in 2012 was achieved by means of continuing resolutions that authorize additional spending based on existing levels. This situation is likely to change in January 2013 due to presently established sequestration reductions, although modifications to the anticipated lesser spending may yet be passed into law.

The outcome of the November 2012 elections will influence the potential passage of future climate change-related federal legislation. If a gridlock situation of split control in Congress continues in the 113th Congress, it is likely to follow the pattern of the 112th Congress. In the event the election's outcome is that either the Democrats or Republicans control both houses of Congress, then the prospects for passing future climate change-related legislation are substantially greater.

The outcome of the 2012 Presidential election will also have substantial influence on prospects for the adoption of future federal law relating to climate, as well as possible changes to the Code of Federal Regulations. If the President and both houses of Congress are controlled by the same party, the enactment of legislation and its approval by the President are substantially greater than if either the House of Representatives or Senate is controlled by the other party.

The existing situation for federal agency NEPA implementation is that climate change has become institutionalized as an environmental impact category that must be addressed. This is likely to continue. The manner in which it is accomplished presently varies from one federal department to another, as well as among agencies. Standardization across the executive branch could be improved by various means including the issuance of finalized CEQ climate change guidance, amending existing NEPA regulations (which is probably unlikely due to potential controversy and opposition), or communication of a memorandum from the Chair of CEQ to the heads of federal agencies and departments. The latter means is perhaps the easiest to have effective results, especially if brevity and succinctness enhances its clarity.

I have some suggestions concerning how addressing climate change in NEPA implementation could be modified. These relate to the three categories of NEPA documentation.

Preparing a Categorical Exclusion (CE) may include the completion of an environmental checklist used to determine whether a proposed action merits a categorical exclusion determination or needs to be examined by means of an Environmental Assessment (EA). For such an environmental checklist, a relatively simple modification is to include two additional items. One is a question about whether the proposed action may have a significant impact upon climate change. The other is a similar question about whether currently projected future changes in climate, if they occur, would impact the proposed action during its planned operational duration. If the answer to either question is in the affirmative, then it may be appropriate to prepare an EA.

When an Environmental Assessment is undertaken, it is necessary to address potential impacts identified in the environmental checklist as possibly significant. This may or may not include climate change. A wide variety of proposed federal agency actions, however, will result in some amount of greenhouse gas emissions. Thus, addressing GHG emissions may be necessary even though not analyzing climate change impacts may be warranted. Most proposed actions will have no significant impact on climate change. However, a reasonable and defensible approach may be to always include at least a brief assessment of a proposed action's potential impacts upon and from climate change in the EA section covering cumulative effects.

When potential environmental impacts of a proposed action are examined by means of an EIS, it is necessary to analyze a wide variety of possible direct, indirect, and cumulative effects.

The impact of GHG emissions is one of these and climate change is another. Past federal court decisions relating to NEPA provide an impetus to include detailed analysis of significant and non-significant impacts of GHG emissions in the air quality section. Similar analysis covering climate change effects from and to a proposed action are appropriately presented under cumulative effects. Potential impacts should be characterized as significant or not, based on reasonable and sufficient evidence. This is especially important to programmatic EISs for federal programs from which subsequent individual project EISs would tier.

When addressing climate change in NEPA implementation, it may not be necessary or appropriate to assume an established link with GHG emissions. While greenhouse gases in the atmosphere are associated with global temperature, quantitative and qualitative GHG impacts on anthropogenic global warming for a specific proposed federal action cannot at present be established with certainty. The findings of scientific research concerning GHG emissions and AGW indicate a linkage, but its absolute proportional value in relation to climate change resulting from natural phenomena is not clear. Consequently, there may be circumstances when potentially significant impacts upon a proposed federal action from future climate change may be influenced to some degree by natural factors. This may be greater or lesser than effects from anthropogenic GHG emissions and should not be ignored.

Through time, climate change clearly includes natural fluctuations in the Earth's average temperature. These have been manifested in such phenomena as the Roman Warm Period, Dark Ages Cold Period, Medieval Warm Period, and Little Ice Age, as well as the twentieth century warm period associated with the 1930s Dust Bowl and the 1970s cold period that was incorrectly interpreted as indicating onset of an ice age. Cyclical increases and decreases in average global temperature have been associated with significant changes in the configuration, distribution, and manifestation of climate zones. Characteristics of the Earth's atmosphere are related to climate change, and greenhouse gases such as water vapor and carbon dioxide are integral to the manifestation of global temperature. However, climate changes are influenced by additional factors besides GHGs such as solar cycles.

In conclusion, it is clear and well established that considering future climate change in relation to potential environmental impacts from a proposed federal action and its alternatives is reasonable and necessary in NEPA compliance. Not addressing this when preparing an EA or

EIS would certainly be challenged, especially when a proposed action is programmatic or long-term in temporal character and where its cumulative effects may impact or be impacted by climatic changes.

Issuance of CEQ guidance is a standard procedure used to institutionalize changes and emphases in NEPA implementation. In the case of climate change, draft CEQ guidance has been provided but never finalized. Perhaps an alternative approach is for the Chair of CEQ to provide a concise, clear, and succinct memorandum to heads of federal departments and agencies that addresses differences between anthropogenic GHG emissions and climate change impacts. Both need to be analyzed under NEPA, but it may be better to consider them separately. Bifurcation of the linkage between these in NEPA implementation may allow for expanding the consideration of climate change to a range of potential influences beyond a restricted focus upon anthropogenic global warming.

References

- Columbia Law School (2012). Climate legislation tracker guide – 112th Congress (2011-2012). Available online at www.law.columbia.edu/centers/climatechange/resources/legislation, accessed September 16, 2012.
- Department of Energy (2011). Mid-Columbia coho restoration program draft environmental impact statement, DOE/EIS-0425. Bonneville Power Administration, June 2011.
- Department of the Interior (2001). DOI Secretary order number 3226, January 19, 2001.
- Department of the Interior (2008). Final programmatic environmental impact statement for geothermal leasing in the western United States, volume I: programmatic analysis, FES 08-44. Bureau of Land Management and US Department of Agriculture, United States Forest Service, October 2008.
- Department of the Navy (2010). Final environmental impact statement, Guam and CNMI military relocation, relocating Marines from Okinawa, visiting aircraft carrier berthing, and Army air and missile defense task force; volume 7: proposed mitigation measures, preferred alternatives' impacts, and cumulative impacts. Joint Guam Program Office, Naval Facilities Engineering Command, Pacific, July 2010.
- Kendall, Brent (2012). Court backs EPA on warming, decision on greenhouse-gas rules is victory for Obama, blow to coal industry. Wall Street Journal, July 26, 2012.
- McGinty, Kathleen A. (1997). Guidance regarding consideration of global climate change in environmental documents prepared pursuant to the National Environmental Policy Act. Memorandum for heads of federal agencies, October 8, 1997.
- Meltz, Robert (2009). Climate change litigation: a survey. Congressional Research Service Report for Congress 7-5700, April 15, 2009.
- Ninth Circuit (2007). Center for Biological Diversity v. National Highway Traffic Safety Administration, No. 06-71891. United States Court of Appeals for the Ninth Circuit.
- Supreme Court (2007). Massachusetts, et al., petitioners v. Environmental Protection Agency et al., No. 05-1120. Dated April 2, 2007. Supreme Court of the United States.
- Sutley, Nancy H. (2010). Draft NEPA guidance on consideration of the effects of climate change and greenhouse gas emissions. Memorandum for heads of federal departments and agencies, February 18, 2010.

¹ 42 U.S.C. 4321-4347; 40 CFR 1500-1508.

² McGinty, 1997.

³ Sutley, 2010.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.

⁷ Department of Energy, 2011.

⁸ Ibid., Appendix 11.

⁹ Department of the Interior, 2011.

¹⁰ Department of the Interior, 2008.

¹¹ Department of the Navy, 2010.

¹² Kendal, 2012; Meltz 2009.

¹³ Supreme Court, 2007.

¹⁴ Ibid.

¹⁵ Ninth Circuit, 2007.

¹⁶ Ibid.

¹⁷ Columbia Law School, 2012.