

DRAFT

MEMORANDUM

FOR: Heads of Federal Agencies

FROM: Kathleen A. McGinty, Chairman

SUBJECT: Guidance Regarding Consideration of Global Climatic Change in Environmental Documents Prepared Pursuant to the National Environmental Policy Act

DATE:

Introduction

A growing body of scientific evidence supports the concern that global climate change will result from the continued build-up of greenhouse gases in the atmosphere. While uncertainties remain, particularly in the areas of the exact timing, magnitude and regional impacts of such changes, the vast majority of scientific evidence supports the view that continued increases in greenhouse gas emissions will lead to climate change.

Because of the potentially substantial health and environmental impacts associated with climate change, the Council on Environmental Quality is issuing this guidance today calling on federal agencies to consider, in the context of the NEPA process, both how major federal actions could influence the emissions and sinks of greenhouse gases and how climate change could potentially influence such actions.<sup>1</sup>

The NEPA process provides an excellent mechanism for consideration of ideas related to global climate change. The

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<sup>1</sup> While this guidance deals specifically with global climate change, it also serves as notice that issues related to stratospheric ozone protection should be considered in the context of the NEPA process. Stratospheric ozone depletion is a similar, though largely distinct environmental concern involving emissions of ozone-depleting substances (e.g., chlorofluorocarbons, halons, methyl chloroform, methyl bromide, and to a lesser extent, hydrochlorofluorocarbons). These compounds are already extensively regulated under Title VI of the Clean Air Act, and therefore detailed guidance, as contained in this notice for greenhouse gases, is not required.

federal government is a major energy consumer and therefore a major source of greenhouse gas emissions. It has adopted many innovative programs during the past years aimed at achieving energy savings with resulting decreases in energy costs and reductions in greenhouse gas emissions. In addition, many major federal actions are large-scale, often involving planning and operations over many decades. Consideration of the potential impact of climate change on these projects may be critical to avoiding costly operation and maintenance problems in future decades.

This notice first sets out the scientific basis for concern about global climate change. It then describes how NEPA and CEQ regulations call for consideration of this issue as part of the NEPA process, and how the NEPA process can be used to assess enhance federal decision-making is this critical long-term environmental issue.

Scientific Understanding of Climate Change

The basic theory suggesting that greenhouse gases in the atmosphere could be responsible for warming the planet can be traced back to the work of a Swedish chemist, Arrhenius, in 1896. Indeed, it is the presence of greenhouse gases in the atmosphere that warms our planet by 60 degrees F., making it inhabitable.

The primary basis for concern is that human activities have been altering the make-up of our atmosphere by rapidly increasing the amount of greenhouse gases. Carbon dioxide is the primary greenhouse gas and is primarily emitted through the burning of fossil fuels. Carbon dioxide levels have increased by 30 percent since the beginning of the Industrial Revolution. Methane levels have increased by double and nitrous oxide concentrations have increased by 15 percent during the same time period.

The latest international scientific assessment was released in 1995 by the Intergovernmental panel on Climate Change. Involving over 2,000 of the world's leading climate experts, this report provides the most authoritative and thorough assessment of issues related to climate science, impacts and mitigation. The IPCC report concluded:

- Average global temperatures have increased by 0.5 - 1.0 degrees F. over the past century.
- The earth's temperature is now warmer than at any period

since at least 1400 A.D.

-- The balance of evidence suggests that there is a discernible human influence on global climate.

-- Unless actions are taken to reduce the build-up of greenhouse gases, carbon dioxide levels are likely to reach 750 parts per million by the year 2100, almost triple pre-industrial levels (280 ppm).

-- Unless such actions are taken, global average temperatures are likely to increase an additional 2 - 6.5 degrees F. by 2100, a rate of warming faster than any experienced over the past 10,000 years.

-- Climate change impacts could adversely impact society in a number of areas:

- o increases in sea level could inundate coastal areas and salt water intrusion could degrade sources of drinking water,

- o changes in temperature and precipitation could cause shifts in agriculturally productive regions with particular harm in the tropics and sub-tropics,

- o climate changes could result in the spread of vector-borne infectious diseases (e.g., dengue fever and malaria).

While understanding of the force affecting climate change have improved significantly over the past years, substantially uncertainties remain and are being addressed by on-going research. Nonetheless, based on the best available evidence, it would be prudent to consider in the context of planning for major federal actions, both their potential impact on emissions of greenhouse gases and how climate change might itself affect major federal projects.

#### The Role of the NEPA Process

In enacting NEPA in 1969, Congress directed federal agencies to consider the effects<sup>2</sup> of their actions on all aspects of the

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<sup>2</sup>. In this memorandum, as in the CEQ regulations, "effect" is synonymous with "impact."

human environment. Among the many responsibilities set forth in the Act, NEPA requires federal agencies to "[i]nclude in every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment, a detailed statement" which addresses the environmental impact of the proposed action. NEPA, Section 102(2)(C). The CEQ regulations implementing this provision of NEPA mandate that federal agencies address all reasonably foreseeable environmental impacts of their proposed programs, projects, and regulations. See 40 CFR SS 1502.4, 1508.8, 1508.18, and 1508.25.

Whether climate change should be considered a "reasonably foreseeable" impact of emissions greenhouse gases is thus a threshold issue: if these impacts are reasonably foreseeable, then federal agencies must address them in NEPA documents; if not, then they do not come within the scope of a NEPA analysis.

The available scientific evidence, (e.g., as contained in the Second Assessment Report by the IPCC) indicates that climate change is "reasonably foreseeable" impacts of emissions of greenhouse gases, as that phrase is understood in the context of NEPA and the CEQ regulations. As described above, the IPCC assessment report states that "the balance of evidence suggests a discernible human influence on global climate" (Vol 1, pg. 4). As a result, climate change should be considered in NEPA documents.

Specifically, federal agencies must determine whether and to what extent their actions affect greenhouse gases. Further, federal agencies must consider whether the actions they take, e.g., the planning and design of federal projects, may be affected by any changes in the environment which might be caused by global climatic change.

It should be kept in mind that global climatic change is just one of many issues to be analyzed in NEPA documents.<sup>3</sup> By providing this guidance, the Council is not suggesting that the

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<sup>3</sup> The scope of NEPA and the CEQ regulations is broad enough to include global climate change and its predicted effects. For example, section 1508.8 defines "effects" to include ecological, aesthetic, historic, cultural, economic, social, or health effects. Thus, a regulatory change is not necessary in order to require federal agencies to consider global climate change in their NEPA documents.

global climatic change issue should be emphasized over other environmental effects, or that any emission, no matter how small of a greenhouse gas will trigger the requirement to prepare an environmental impact statement (EIS).

Rather, the Council recognizes that global climatic change is an issue of great significance on which scientific consensus has emerged leading to global actions to reduce emissions. Although very few federal agencies to date have focused on global climatic change in their NEPA documents, federal agencies should be aware of how their proposals may contribute to or be affected by climatic changes. Each agency must exercise its own independent judgment and discretion, however, to determine the extent to which it should assess global climate change in its NEPA documents.

#### Applying the NEPA Process

As noted above, there are two aspects of global climate change which should be considered in NEPA documents: (1) the potential for federal actions to influence global climatic change (e.g., increased emissions or sinks of greenhouse gases) and (2) the potential for global climatic change to affect federal actions (e.g., feasibility of coastal projects in light of projected sea level rise). As a first step, each federal agency should immediately review whether and to what extent its activities (both continuing and proposed) contribute, directly or indirectly, to the emission of greenhouse gases and thus to global climate change. Consideration should also be given as to whether and to what extent its activities will be affected by the consequences of climate change.

#### Federal Actions Influencing Global Climate Change

Clearly, both projects and programs proposed by federal agencies, including permits issued by federal agencies, can cause increased emissions or changes in sinks related to greenhouse gases. Analysis of the impacts of such emissions or sinks at the project level, however, would not provide meaningful information in most instances. Efforts would be better spent in assessing federal programs which may affect emissions or sinks of these gases. This type of approach recognizes that individual projects may increase greenhouse gas emissions by only marginal amounts, but that the cumulative effect of such emissions could be more dramatic.

It is long-range federal programs which have the greatest likelihood for influencing global climatic change. Thus, it is in programmatic NEPA documents where an analysis of global climatic change would be most useful. Proposals regarding long range energy, transportation, and forest management programs in particular are prime candidates for programmatic EAs or EISs which include an assessment of how the programs will contribute to (or reduce) emissions of greenhouse gases. Discussions of these issues in programmatic documents could then be incorporated by reference in (or "tiered" to) more site specific NEPA documents. See 40 CFR S 1508.28.

Federal agencies are reminded that their actions may directly, and indirectly, influence emissions or sinks greenhouse gases, and that the CEQ regulations require analysis of both direct and indirect, as well as cumulative, effects in NEPA documents. See 40 CFR SS 1508.8 and 1508.25.

#### Effects of Global Climate Change on Federal Projects

While analyzing how federal actions might contribute to global climate change will not be easy, examining the effects of global warming on proposed federal actions is an even more complex task. As discussed above, the hypotheses themselves are well supported, but the predicted effects are subject to substantial scientific uncertainty. For example, there currently is no consensus on the regional climate changes that might occur with increased greenhouse gas concentrations. However, analysis of the potential for long term climate changes can be done recognizing the substantial uncertainties that remain. Dealing with this type of uncertainty is discussed in 40 CFR S 1502.22. Under that regulation, if information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the costs of obtaining it are exorbitant or the means to obtain it are not known, the federal agency must include in its EIS a statement that such information is incomplete or unavailable, a statement of the relevance of the incomplete or unavailable information to evaluating the reasonably foreseeable adverse impacts, a summary of existing credible scientific evidence which is relevant to evaluating the reasonably

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foreseeable adverse impacts, and the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. The regulation also states that "reasonably foreseeable impacts" includes those which have catastrophic consequences, even if their probability is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on "pure conjecture," and is within the rule of reason.

Federal agencies must pay close attention to the research which is being conducted regarding climate change impacts. While such research will allow for better predictions in the future, this information is not presently available. In the meantime, the absence of this information will often require federal agencies to comply with the dictates of Section 1502.22. Agencies will need to continually review the available scientific evidence on the effects of global climatic change and determine which effects have a reasonable scientific basis and which are "pure conjecture."

The validity of using the NEPA process to assess the impacts of global climatic change on federal projects is dependent upon the duration of the action. For short-term actions, climatic conditions should not be sufficiently different from the current climatic situation as to require major modifications. Long-term actions, however, may need to be modified because of the anticipated effects of global climatic change. Agencies need to identify those projects and programs which are most sensitive to climate change effects such as higher temperatures, more severe storms, drier or wetter conditions, and sea level rise. Long range decisions concerning agriculture, forestry, and coastal zone resources, as well as decisions regarding sites for proposed facilities, need to be supported by EAs or EISs which analyze, to the extent possible, the reasonably foreseeable impacts of global climatic change.

For example, the IPCC report projects an additional 2-6.5 degree Fahrenheit temperature rise by 2100 if carbon dioxide emissions continue to rise at the current rate unabated. Sea level is also projected to increased by 6-38 inches by 2100. Thus, an agency proposing a long-term project in a coastal region should consider this potential impact in the NEPA document prepared for the project.

Conclusion

Global climate change is a serious environmental concern which, given the current state of scientific knowledge, must be viewed under NEPA as a reasonably foreseeable impact of continued emissions and changes in sinks of greenhouse gases. Thus, federal agencies must analyze the extent to which both their proposed and ongoing programs or other activities might influence such emissions and sinks, thereby contributing to, or reducing, the problems of global warming. Such analyses can~~y~~ best be done in the context of NEPA and should look at how federal actions may affect global climate change and, to the extent possible given the current state of scientific knowledge, how federal actions may be affected by global climate change.



EXECUTIVE OFFICE OF THE PRESIDENT  
COUNCIL ON ENVIRONMENTAL QUALITY  
WASHINGTON, D.C. 20503

TO: All Federal Agency NEPA Liaisons

FROM: Dinah Bear, General Counsel *Dinah Bear*

DATE: October 8, 1997

RE: Draft Guidance Regarding Consideration of Global Climatic Change in  
Environmental Documents Prepared Pursuant to the National Environmental  
Policy Act

CEQ is considering promulgation of the attached draft guidance. Please have the appropriate people in your agency review the draft and forward comments to CEQ by October 16, 1997. Comments may be sent to me at the above address or faxed to 456-0753. Questions may be directed to me at 395-7421 or to David Sandalow at 456-6543.