



Full Disclosure

*An Executive Order to Require
Consideration of Global Warming Under
the National Environmental Policy Act*

Christopher Pyke and Kit Batten
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Introduction and Summary

The Earth's climate is changing due to the emission of greenhouse gases caused by the combustion of fossil fuels. This jeopardizes social and economic well-being and threatens global ecosystems. Avoiding the worst effects of global warming requires aggressive action to reduce greenhouse gas emissions and prepare for imminent changes in sea level, air temperature, and precipitation patterns.

The United States can and should take immediate action to address climate change through comprehensive domestic and international policy. The U.S. Congress is considering legislation that would implement a national carbon cap-and-trade system to begin to limit greenhouse gas emissions and facilitate a transition to a low-carbon economy. This transition offers profound opportunities for global leadership through policies that address climate change while providing solutions to long-standing social, economic, and environmental challenges.

It is not necessary, however, to wait for new legislation to take action. Existing federal and state environmental laws and regulations provide the authority and mandate to begin to understand and address greenhouse gas emissions and prepare for changing climatic conditions. The federal government, for example, has been repeatedly challenged to take action under the:

- *Clean Air Act*. In January 2008, California filed a lawsuit in conjunction with 15 other states to contest the Environmental Protection Agency's denial of California's waiver request to regulate tailpipe carbon dioxide emissions as a pollutant under the Clean Air Act.
- *Endangered Species Act*. In 2005, the Center for Biological Diversity petitioned the Secretary of the Interior to list the polar bear (*Ursus maritimus*) as a threatened species due to habitat loss and degradation associated with global warming, noting that "the species sea-ice habitat is literally melting away."

Congress has also recognized the need to use existing laws as the basis for federal action. In 2007, for example, Senator John Kerry (D-MA) proposed an amendment to the Water Resources Development Act that would have required the Army Corps of Engineers to assess costs and impacts related to global warming in all future water resources development projects. Unfortunately, the amendment was withdrawn before it could be voted on.

More promisingly, Senator Hillary Rodham Clinton (D-NY) earlier this year proposed a global warming amendment that made it into the FY 2008 Department of Defense Authorization Act that President Bush signed into law. This amendment requires the Department of Defense to consider the national security risks posed by global warming in the National Security Strategy, National Defense Strategy, and the Quadrennial Defense Review.

Unfortunately, executive branch agencies have largely failed to recognize and act to address the implications of climate change for their areas of responsibility. For example, the General Accountability Office recently discovered that the Department of Interior failed to consider climate change in a wide variety of planning documents—as required under a 2001 order by then-Secretary of the Interior Bruce Babbitt. The GAO concluded that federally managed lands are vulnerable to a wide variety of effects associated with global warming, but the GAO noted that the department has yet to finalize guidance for consideration of such effects more than seven years after the Secretarial Order was issued.

Indeed, the U.S. government currently lacks a systematic process for evaluating the consequences of federal actions for greenhouse gas emissions or vulnerability to changing climatic conditions. This situation contributes directly to a critical gap in information needed to make decisions about the costs and consequences of federal actions for global warming.

Over the past decade, the lack of such assessments might once have been accepted as a product of scientific uncertainty or, perhaps, personal or political ideology. Today, however, the failure to consider these issues approaches neg-

ligence in the stewardship of public resources. This paper examines how another foundational environmental law, the National Environmental Policy Act, should be applied to fill this critical information gap by requiring the consideration of global warming in environmental assessments of federal actions.

NEPA is designed to provide full disclosure of the environmental effects of federal actions to the government and to the public. The law is intended to ensure that decision-makers are armed with a complete understanding of the environmental impacts associated with such decisions. Failure to systematically consider global warming under NEPA undermines this goal. That's why the federal government must clarify NEPA's authority to ensure that global warming is systematically considered during environmental assessments of federal actions, rather than relying upon a series of litigation challenges to force attention to this issue, as is currently the case. The government should not waste its limited resources defending the notion that information about climate change is not relevant to decision-makers or the public.

In this paper, we outline an Executive Order that clarifies what we believe is already a requirement under NEPA—that federal agencies can and should explicitly assess the implications of their actions for greenhouse gas emissions and global warming. The consideration of global warming under existing NEPA authorities mandated by a new Executive Order would:

- Provide an essential foundation of public information
- Increase understanding of the costs and consequences of federal actions

Government responsibilities are jeopardized by the lack of information about the consequences of federal actions for the emission of greenhouse gases and adaptation to changing climatic conditions

- Encourage federal actions that reduce greenhouse gas emissions
- Promote investments that help adapt to the effects of global warming

This will ensure that the costs and consequences of climate change associated with federal actions are understood by decision-makers and disclosed to the public. Such a systematic federal approach will provide the foundation of information needed to identify opportunities to

reduce greenhouse gas emissions and prepare for changing conditions. The immediate and appropriate use of existing authorities such as the Clean Air Act, Endangered Species Act—and as highlighted here, the National Environmental Policy Act—will contribute to a comprehensive climate change strategy that complements efforts to achieve an economy-wide cap on greenhouse gas emissions, and demonstrates the leadership necessary for the United States to participate fully in international negotiations.

Climate Change and Federal Responsibilities

The American public has a reasonable expectation that the federal government understands the consequences of its actions with respect to climate change. Moreover, the public has an expectation that the federal government will take reasonable steps to avoid increasing greenhouse gas emissions and enable our nation to adapt to a changing environment.

Currently, however, the federal government is doing neither of these things. There is no systematic process requiring the federal government to consider how its actions contribute to greenhouse gas emissions, or to evaluate how its decisions change our society's vulnerability to the consequences of global warming. Nor are there any federal requirements to disclose any of this information to the public.

The lack of processes for assessment and disclosure puts the federal government behind prevailing practices in state and local government and private industry—where disclosure of greenhouse gas emissions and consideration of the effects of climate change have become a standard part of doing business. Consider the Carbon Disclosure Project, a coalition of 385 of the world's largest institutional investors with more than \$57 trillion in assets under management. Signatories to the CDP support the voluntary disclosure of risks and opportunities associated with climate change. Similarly, 72 percent of the world's 500 largest publicly-owned companies in 2006 provided information on their contributions to global warming or their exposure to changing conditions.

The federal government can and should take similar action. The examples that follow highlight instances where federal actions are associated with significant greenhouse gas emissions and offer important opportunities to facilitate adaptation to changing climatic conditions. These examples illustrate federal actions that have been called into question as a result of their failure to consider global warming, and, in several cases, instances where federal agencies have changed course with further consideration for climate change. These examples illustrate that it is possible to consider the implications of federal actions for global warming. They also show that information about greenhouse gas emissions and global warming can make a material difference in agency decision-making.

The Department of Agriculture Rural Utilities Service

This Depression-era program has spent billions of dollars in low-interest loans and loan guarantees to help rural cooperatives build conventional coal-fired power plants.

In March 2008, the federal government suspended this loan program, citing the increased risk associated with these loans due to climate change and rising construction costs. At the time of the loan program suspension at least four cooperatives had applications pending for loans totaling \$1.3 billion.¹

This reversal suggests that consideration of greenhouse gas emissions resulted in a substantial change in the agency's decision-making process. This outcome parallels circumstances in the private sector, for example when Bank of America recently decided to begin considering carbon costs when evaluating investments in coal-fired power plants.

The Export-Import Bank and Overseas Private Investment Corporation

The Ex-Im Bank and OPIC finance billions of dollars of exports by U.S. fossil-fuel energy and petrochemical companies. In 2007, the Ex-Im Bank provided support for \$1.3 billion in U.S. exports for oil and gas production and petrochemical projects. On average, the Ex-Im Bank alone provides 20 percent of the total cost of equipment and services for projects that directly contribute to the emission of 10.7 million metric tons of carbon dioxide per year.²

Non-governmental organizations have pressured the Ex-Im Bank to consider the implications of its actions for climate change, quantify and disclose associated greenhouse gas emissions, and take action to reduce its support for sources of global warming pollution. This has included legal action against the Ex-Im Bank such as *Friends of the Earth, Inc. v Watson, N.D.*

Cal. 2005. Following these challenges the Ex-Im Bank recently decided to set clean energy goals and more clearly articulate its environmental review procedures.

Specifically, the 2008 Department of State, Foreign Operations, and Related Programs Appropriations Act specifies a target for the Ex-Im Bank to direct 10 percent of its funding to clean energy. Again, information about emissions is clearly relevant to decision-making. Unfortunately, changes to the Ex-Im Bank's assessment processes appear to be taking place without the benefit of explicit guidance or coordination with other federal agencies.

The Water Resources Development Act of 2007

This Act provides \$23 billion to the Army Corps of Engineers to manage U.S. water resources and related facilities. From levies and harbors to floodplains and wetlands, the administration of U.S. water resources will increasingly bear significant new risks and environmental stresses brought on by global warming. The new law does not require that these effects be factored into the cost and benefits of project development and federal spending.

This is despite the fact that decisions by the Army Corps of Engineers are increasingly subject to legal challenge for failure to consider the implications of global warming. Actions by the Corps repeatedly appear to disregard relevant scientific findings by other federal agencies. For example, a study led by the U.S. Environmental Protection Agency recently examined the consequences of sea level rise for the Mid-Atlantic region and provided policy-relevant findings in the Synthesis and Assessment Prod-

uct 4.1 *Coastal elevations and sensitivity to sea level rise*. The study considered three sea-level-rise scenarios for the Mid-Atlantic ranging from 30 cm-to-40 cm to 100 cm-to-110 cm of rise by 2100, and recognized a wide variety of social, economic, and environmental consequences. The conclusions of this report mirror those going back for a least a decade. The lack of guidance and interagency coordination, however, continues to deprive decision-makers of important information and fails to promote action to reduce vulnerability to changing conditions.

Federal Highway Administration and National Highway Traffic Safety Administration

The FHWA and NHTSA have repeatedly been challenged to consider global warming in their decision making precisely because the two agencies provide critical opportunities to influence one of the fastest growing sources of greenhouse gas emissions: automobiles. One of the

most important lawsuits was a challenge to the NHTSA by a group of public interest organizations and 11 states. The petitioners argued that NHTSA's April 6, 2006 rules for fuel economy standards for light trucks were set without adequate consideration for the costs and benefits of alternative fuel economy standards for greenhouse gas emissions reductions. The Ninth Circuit Court found the NHTSA's rule was arbitrary and capricious, contrary to the Energy Policy and Conservation Act of 1975, and inadequate with respect to NEPA.

Federal policies subsidizing auto travel have historically distorted markets and artificially reduced the competitiveness of alternative modes of transportation. Court records suggest that the FHWA and NHTSA are struggling to understand their mandates for assessment and disclosure with respect to greenhouse gas emissions and face continuing legal challenges for their inaction or inadequate responses to global warming.

Time to Use Existing Federal Authority to Address Global Warming

The National Environmental Policy Act is the foundation for U.S. environmental policy. NEPA is based on the simple notion that the public has a right to information about the costs and consequences of federal actions. The law is the most appropriate mechanism for ensuring consideration of the implications of federal actions for global warming. NEPA provides the framework and authority for such assessments, yet federal agencies currently lack clear guidance and direction for the consideration of global warming in NEPA assessments.

Fortunately, this can be easily remedied. NEPA is the primary vehicle for assessing and managing environmental risks associated with federal activities through science-based analysis, deliberation, and public disclosure. NEPA requires federal agencies to analyze the consequences of their actions and make public disclosures of potential environmental impacts. The purpose of the Act is:

To declare a national policy which will 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; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

In practice, NEPA requires agencies to present information that allows stakeholders to understand the consequences of proposed actions for the environment.³ NEPA assessments include a comparison of reasonable alternative courses of action, with results presented in a comprehensive document called an Environmental Impact Statement. We propose that an analysis of the effects of federal actions on global warming—both the emissions resulting from actions and implications of changing climatic conditions for the actions—should be a mandatory part of any NEPA assessment process.⁴

In calendar year 2006, federal agencies filed a total of 542 EISs with the U.S. EPA under NEPA guidelines. The table on page 8 illustrates that the majority of NEPA filings are concentrated in the Departments of Agriculture, Interior, Transportation, Defense, and Energy. (The EPA itself is exempt from NEPA's procedural requirements). Agencies filing the majority of EISs under NEPA are the same agencies that have critical roles in determining consequences of federal actions for greenhouse gas emissions and vulnerability to changing climatic conditions. They are the agencies that can and should take global warming into account in their decision-making processes involving:

- Critical infrastructure construction and management
- Land use
- Wildlife and natural resource management
- U.S. national security-related operations

Programmatic EISs are described in Council on Environmental Quality regulations, and are used to cover a series of federal decisions at a high level, where individual agency actions may seem environmentally insignificant, but, together, have significant impacts. Programmatic EISs may be especially well-suited to assessing related federal actions that together may have, or be influenced by, the effects of global warming.

Federal agencies currently work together on programmatic EISs in a number of

contexts, and then conduct individual agency, project-specific EISs. When assessing the effects of global warming, for example, broad-based federal land management plans would be important candidates for a programmatic EIS. Similarly, if the Energy and Interior departments coordinated on financing, planning, and permitting a series of projects on federal lands (such as solar installations, wind farms, or oil and gas development), then a programmatic examination of the cumulative impacts on greenhouse gas emissions (positive and negative) would be appropriate.

We are not the first to identify the need for systematic disclosure of climatic risks and vulnerabilities through NEPA. In 1997, for example, Council on Environmental Quality Chairman Kathleen McGinty issued a draft finding for federal agency heads entitled, “Guidance Regarding Consideration of Global Climatic Change in Environmental Docu-

ENVIRONMENTAL IMPACT STATEMENTS BY AGENCY			
<i>Summary of Environmental Impact Statement filings for calendar year 2006</i>			
US GOVERNMENT AGENCY		NUMBER OF 2006 NEPA EIS FILINGS PER AGENCY	PERCENTAGE OF TOTAL EIS FILED
USDA	Department of Agriculture	157	29%
DOI	Department of Interior	117	22%
DOT	Department of Transportation	86	16%
DOD	Department of Defense	75	14%
DOE	Department of Energy	42	8%
Other	Other federal agencies, including the Nuclear Regulatory Commission, General Services Administration, and others	27	5%
DoC	Department of Commerce	23	4%
DHS	Department of Homeland Security	10	2%
HUD	Housing and Urban Development	2	0%
DOJ	Department of Justice	2	0%
VA	Veterans Affairs	1	0%
TOTAL		542	100%

Source: US EPA reporting to the Council on Environmental Quality, accessed from www.nepa.gov on March 16, 2008. The EPA is exempt from filing EISs under NEPA.

Excerpts from draft memo from Council on Environmental Quality Chairman Kathleen McGinty to the Heads of Federal Agencies entitled, “Guidance Regarding Consideration of Global Climatic Change in Environmental Documents Prepared Pursuant to the National Environmental Policy Act.”

The memo states: 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 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...

...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 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 to whether and to what extent its activities will be affected by the consequences of climate change.

ments Prepared Pursuant to the National Environmental Policy Act.” This memo recognized the problem of global warming and how federal agency actions “influence the emissions and sinks of greenhouse gases and how climate change could potentially influence such actions.”

The memo further described the need for a specific mechanism for consideration of climate change through NEPA. Since 1997, of course, the foundation of scientific information about climate change has increased significantly, as has the size and scope of federal action that contribute to climate change, yet the guidelines in McGinty’s memo have not been put into practice.

On February 28, 2008, the International Center for Technology Assessment, Natural Resources Defense Council, and Sierra

Club filed a petition with the Council on Environmental Quality to clarify that analyses of global warming be included in federal environmental review documents⁵ (see “Recent efforts to require assessments of global warming under NEPA” on page 10). What’s more, recent press reports indicate that “CEQ is working on guidelines” to help federal agencies address the global warming implications of federal actions under NEPA.⁶

Still, there is resistance from the Bush administration. In a speech on April 4, 2008, CEQ chairman James Connaughton stated that the government should not be using NEPA, the Endangered Species Act, or other statutes as a “back door way to regulate carbon emissions.”⁷ We reject the conclusion that consideration for these critical issues in important decisions is somehow

Recent efforts to require assessments of global warming under NEPA

On February 28, 2008, the International Center for Technology Assessment, Natural Resources Defense Council, and Sierra Club filed the following petition with the Council on Environmental Quality Chairman James Connaughton:

Petition requesting that the Council on Environmental Quality amend its regulations to clarify that climate change analyses be included in environmental review documents.

This petition documents the scientific evidence for global warming, details the known effects of global warming on human and environmental health as well as national security, and argues that climate change is “reasonably foreseeable” as understood in the context of NEPA and the CEQ regulations and, therefore, must be considered as part of the environmental review process.

The petition conducts a detailed review of existing CEQ NEPA regulations (40 CFR 1500) and concludes that as written these regulations already cover climate change but should be amended to make the inclusion of climate change explicit. In this regard, the petition suggests that the definition of “environmental effect” be revised to explicitly include climate change impacts; that the concept of “significantly affecting the environment” be clarified to include climate change; and that CEQ’s definition of the environmental consequences to be addressed in EIS’s reference climate change specifically.

The petition recommends that CEQ undertake the following:

- I. Amend CEQ’s NEPA regulations to include language clarifying that NEPA and CEQ’s implementing regulations require that climate change effects be addressed in NEPA compliance documents; and
- II. Issue a CEQ Guidance Memorandum clarifying that NEPA and CEQ regulations require that climate change effects be addressed in NEPA compliance documents. The Guidance Memorandum should include instructions to agencies on how, where, and when to best integrate climate change analyses into their respective NEPA processes.

backdoor regulation. Rather, consideration for greenhouse gas emissions and vulnerability to changing conditions is central to the goals of these policies and required to carry out their mandates. We argue that there is an immediate need for a clear leadership from CEQ in the development and implementation of guidance for the assessment of global warming through NEPA.

Using existing authority under NEPA is not “back door” regulation of green-

house gases. It is a necessary step to fulfill the statutory requirements of NEPA by providing essential information to decision makers and the public. Moreover, leadership by the CEQ will reduce unproductive delays associated with protracted legal challenges to programs or projects.⁸ The government should not devote taxpayer resources to defending the unsustainable proposition that the government does not need to consider the implications of its actions with respect to global warming.

INTERPRETING NEPA AUTHORITY TO INCLUDE ASSESSMENT OF GLOBAL WARMING

In Section 101(b) of NEPA (42 USC § 4331), the federal government is required to abide by the following specific provisions, all of which are closely associated with global warming

NEPA PROVISION	GLOBAL WARMING IMPLICATIONS
1 Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations	Global warming is an intergenerational challenge: actions today impinge on the liberties and quality of life of future generations.
2 Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings	Global warming creates or exacerbates threats to public health, such as air quality or risks of infectious disease and natural habitats.
3 Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences	Greenhouse gas emissions were never intended to harm people or the environment. However, our cumulative emissions are leading to a myriad of unintended, adverse consequences, including rising sea level, drought, food shortages, more severe storms, greater incidence of disease, and others. These consequences are particularly severe for the world's most vulnerable populations.
4 Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice	Global warming creates a wide range of new threats to national heritage (e.g., loss of glaciers in Glacier National Park) and cultural resources (e.g., risks to coastal cities, like New Orleans).
5 Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities	Global warming is likely to impose disproportionate costs on poor and vulnerable communities—impacts that are likely to adversely impact standards of living and quality of life.
6 Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources	Actions that promote the consumption of non-renewable fossil fuels do not "enhance" renewable resources or maximize resource recycling.

State governments are leading the way and are already taking action. State laws that mirror NEPA, so-called “mini-NEPAs,” have recently been interpreted to require the consideration of greenhouse gas emissions associated with a wide variety of public and private plans, programs, and actions. In April 2007, for example, the Massachusetts Executive Office of Energy and Environmental Affairs announced a new Greenhouse Gas Emissions Policy for projects undergoing review under the Massachusetts Environmental Policy Act. The policy requires projects to quantify greenhouse gas emissions and identify measures to avoid, minimize, or mitigate such emissions.

Similarly, in August 2007, California’s General Assembly passed and Governor Arnold Schwarzenegger signed Senate Bill 97 (SB 97). This legislation acknowledges that climate change is an important environmental factor that must be considered during environmental assessments required by the California Environmental Quality Act. Under this new

law, California must develop assessment guidelines and ensure that they enter into force by July 1, 2009.

California’s Attorney General, Jerry Brown, has already made it clear he believes these requirements already apply to a wide range of local government plans and programs, and he has pursued an aggressive program of comment letters and, in some cases, lawsuits to ensure consideration of global warming in both public and private decision making. The Attorney General’s challenges are explicitly based on the understanding that plans, programs, and projects cannot be allowed to undermine the State of California’s goals for greenhouse gas emissions reduction.

Experience in Massachusetts and California demonstrates that it is feasible to consider the implications of government actions for global warming through existing environmental assessment procedures. These state actions provide a roadmap for similar action under NEPA.

Using Executive Authority to Clarify Federal Authority under NEPA

The president has the authority to immediately require that *all* federal agencies assess and disclose the greenhouse gas emissions and global warming vulnerabilities associated with federal actions. The president should immediately issue an Executive Order mandating such assessments for all federal actions. These assessments should include a minimum of three components:

- A quantitative analysis of a federal action's direct and indirect contributions to greenhouse gas emissions
- An evaluation of the consequences of changing climatic conditions for a federal action
- Consideration of alternative actions and mitigation measures that could reduce greenhouse gas emissions and climatic vulnerability

For each step, the assessment protocols and procedures should be selected and, when necessary, developed through open, collaborative processes involving key public and private sector stakeholders.

Quantify and Disclose Greenhouse Gas Emissions

Federal agencies should be required to understand how their actions affect greenhouse gas emissions. Techniques for the assessment of greenhouse gas emissions will vary between federal actions, and many public and private groups are developing protocols and procedures for emissions accounting in different circumstances.⁹

Agencies will require guidance from the CEQ in the selection and, when necessary, development of protocols and procedures to guide comprehensive, quantitative assessments of greenhouse gas emissions for every action subject to NEPA. The process used to select protocols and procedures for use with NEPA should be explicitly designed to inform efforts to reduce emissions directly and indirectly associated with governmental actions—not simply to assign ownership of the emissions. These protocols should ensure that assessments provide transparent, reproducible, and scientifically-defensible estimates for direct and indirect emissions.

The Executive Agencies can and should initiate a comprehensive process to review the implications of federal actions on greenhouse gas emissions and vulnerability to the consequences of global warming

Assess Climatic Vulnerability

Federal agency decision-makers must understand the implications of changing climatic conditions on federal actions. They must understand the consequences of global warming-induced changes in temperature, precipitation, and sea level, among other factors, for government programs or projects.

Techniques for the assessment of climatic vulnerability will vary across different types of federal actions. Consideration for climatic vulnerability under NEPA will require CEQ to help agencies select and, when necessary, develop protocols and procedures to describe the vulnerability of actions to changing conditions. The protocols and procedures should ensure systematic and, when possible, quantitative assessment of vulnerability.

Consider Alternatives

Federal government agencies must consider reasonable alternatives to proposed actions and, when necessary, evaluate mitigation measures that can reduce greenhouse gas emissions and prepare for changing environmental conditions—just as they currently must do for other types of environmental impacts under NEPA.¹⁰ An assessment of alternatives and mitigation measures provides stakeholders with critical information about the relative performance and environmental impact of the government actions.

Strategies for developing and evaluating global warming-related alternatives will vary between federal actions, of course. That's why CEQ will need to help agencies select and, when necessary, develop protocols and procedures to develop alternatives, evaluate mitigation measures, and consistently communicate information to decision makers and stakeholders.

Proposed Executive Order

The Chairman of the Council on Environmental Quality shall issue a Guidance Memorandum that clarifies that global warming must be addressed in NEPA compliance documents and issue instructions to agencies on how, when, and where to include global warming assessments in NEPA processes. Additionally, the Chairman shall support formal rulemaking processes through which guidance shall be incorporated into agency policy.

In the Guidance Memorandum, the Chairman of the Council on Environmental Quality and the Administrator of the U.S. Environmental Protection Agency shall direct all agencies to require federal actions subject to NEPA to:

1. Explicitly define and interpret key NEPA terms and concepts, such as “environmental effect” and “significantly affecting the environment,” to include consideration for global warming.¹¹
2. Conduct assessments of greenhouse gas emissions, climatic vulnerability, alternatives, and mitigation measures guided by scientifically-based and peer-reviewed protocols and procedures established through open, stakeholder-oriented public processes led by the CEQ.
3. Assess consequences for agency actions¹² for the emission of greenhouse gases. This shall include, whenever feasible, a quantitative greenhouse gas assessment of direct and indirect emissions.
4. Evaluate the implications of climate change for the performance, cost, or efficacy of the action under changing climatic conditions, including but not limited to increasing temperatures, changes in precipitation regimes, rising sea levels, and other components of global warming-induced change.
5. Evaluate reasonable program or project alternatives and, when necessary, mitigation measures with the potential to reduce greenhouse gas emissions.
6. Evaluate reasonable alternatives to prepare for and adapt to changing climatic conditions as a result of global warming.

The Chairman of the CEQ and the Administrator of the EPA shall also be responsible for an annual report to the president providing a summary of the assessment of global warming through NEPA. The report shall be made available to the public through an EPA website. The report shall include:

1. An overall assessment of the efforts to implement this Executive Order in the last fiscal year and specific plans for improving effectiveness in the next fiscal year.
2. A quantitative summary of information on greenhouse gas emissions from all actions subject to NEPA.
3. A review of federal actions found to contribute to the nation's vulnerability to climatic change or support its preparation for changing climatic conditions.
4. A summary of circumstances when alternative actions were selected by agencies to reduce greenhouse gas emissions and/or climatic vulnerability.
5. A review of greenhouse gas mitigation techniques applied to federal actions.
6. The report shall include the following:
 - a. the number of actions that selected a proposed alternative (i.e., changed their planned course of action) due to consideration of climate change impacts, such as sea level rise.
 - b. the percentage of federal actions found to be sensitive to changes in climatic conditions.

Conclusion

Global warming presents a real and present danger to the responsibilities of the government of the United States. One of the first practical steps toward addressing this issue is to recognize that many federal actions influence greenhouse gas emissions and vulnerability to the effects of global warming. These actions provide opportunities to reduce emissions and prepare for changing climatic conditions—provided that decision makers and stakeholders understand the implications of federal actions and are presented with appropriate alternatives and mitigation options.

Acting on these opportunities requires a systematic process for assessing climate change risks, disclosing the impact of federal actions, and evaluating alternative actions and potential mitigation measures. The most practical vehicle for such assessments is the National Environmental Policy Act.

NEPA provides the authority and processes needed to immediately include consideration of the effects of global warming along with other important environmental issues already considered in environmental impact assessments. Consideration of global warming under NEPA will promote fiscal and environmental responsibility, reduce risks to taxpayer investments, avoid costly litigation, and provide the foundation for informed decision making and public dialog about the implications of federal actions.

Endnotes

- 1 "Citing climate change and costs, U.S. suspends loan program for rural power plants." *Greenwire*, March 5, 2008.
- 2 Export-Import Bank, "Fiscal Year 2007 at a Glance," available at: <http://www.exim.gov/about/reports/ar/ar2007/images/Year%20at%20a%20Glance.pdf>
- 3 Federal actions subject to NEPA typically fall into four categories (Section 1508.18): adoption of (1) official policy (including rules, regulations, interpretations, treaties and international conventions or agreements); (2) formal plans upon which future agency action will be based; (3) programs that implement a policy or plan or constitute a policy; and (4) approval of specific projects, such as construction or management activities in a defined geographic area.
- 4 Appendix A provides additional detail on the relationship between specific NEPA provisions and global warming.
- 5 International Center for Technology Assessment, Natural Resources Defense Council, and Sierra Club. "Petition requesting that the Council on Environmental Quality amend its regulations to clarify that climate change analyses be included in environmental review documents." February 28, 2008. Filed with: Mr. James L. Connaughton, Chairman, Council on Environmental Quality, Executive Office of the President, 722 Jackson Place, NW, Washington, DC 20503
- 6 "White House Said To Be Drafting Climate Change Guidelines Under NEPA." *Carbon Control News*, March 11, 2008.
- 7 "NEPA Guidance, Not." *Carbon Control News*, April 4, 2008.
- 8 The International Center for Technology Assessment, Natural Resources Defense Council, and Sierra Club 2008 petition provides a summary of recent legal action seeking the consideration of global warming in NEPA assessments.
- 9 Examples include the Greenhouse Gas Protocol (version 2.2) from the World Resources Institute/World Business Council for Sustainable Development, the General Reporting Protocol (version 2) from the California Climate Action Registry, and the ICLEI International Local Government Greenhouse Gas Protocol.
- 10 NEPA Section 1508.7 defines "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 (Federal or non-Federal) or person undertakes such action."
- 11 As suggested by the 2008 International Center for Technology Assessment, Natural Resources Defense Council, and Sierra Club petition.
- 12 A federal action is defined as any program, plan, or project with the potential to influence a combination of direct and indirect greenhouse gas emissions greater than or equal to a minimum level specified by the Chairman. This minimum level must be consistent with levels used in other national emissions reduction policies while recognizing distinct opportunities for NEPA to inform a wide-range of federal programs and projects. Consideration for global warming should be a feature of most NEPA assessments.

About the Authors

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Dr. Christopher R. Pyke is the Director of Climate Change Services for CTG Energetics, Inc. CTG's Climate Change Services help clients understand and reduce greenhouse gas emissions and prepare for changing climatic conditions through the design and operation of built environments. Prior to joining CTG, Dr. Pyke was an environmental scientist with the US EPA's Global Change Research Program and co-chair of the US Climate Change Science Program's Interagency Working Group on Human Contributions and Responses to Climate Change. Dr. Pyke received a B.S. in geology from the College of William and Mary and a M.A. and Ph.D. in geography from the University of California, Santa Barbara.

Dr. Kit Batten

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