

 Columbia Law School | COLUMBIA CLIMATE SCHOOL
SABIN CENTER FOR CLIMATE CHANGE LAW



EVALUATING CLIMATE RISK IN NEPA REVIEWS: CURRENT PRACTICES AND RECOMMENDATIONS FOR REFORM

**By Romany M. Webb, Michael Panfil, Stephanie H. Jones,
and Dena Adler
February 2022**



ABOUT THE SABIN CENTER FOR CLIMATE CHANGE LAW, COLUMBIA LAW SCHOOL

The Sabin Center for Climate Change Law develops legal techniques to fight climate change, trains law students and lawyers in their use, and provides the legal profession and the public with up-to-date resources on key topics in climate law and regulation. It works closely with the scientists at the Columbia Climate School and with a wide range of governmental, non-governmental and academic organizations.

Visit us at <https://climate.law.columbia.edu/>

Read our blog at blogs.law.columbia.edu/climatechange

 @SabinCenter

ABOUT ENVIRONMENTAL DEFENSE FUND

Environmental Defense Fund (EDF) is a non-partisan, non-governmental environmental organization representing over two million members and supporters nationwide. Since 1967, EDF has linked law, policy, science, and economics to create innovative and cost-effective solutions to today's most pressing environmental problems.

Visit us at <https://www.edf.org/>

Read our blog at <https://www.edf.org/blog>

 @EnvDefenseFund

ABOUT THE INITIATIVE ON CLIMATE RISK AND RESILIENCE LAW

The Initiative on Climate Risk and Resilience Law (ICRRL) is a joint initiative of Columbia Law School's Sabin Center for Climate Change Law, EDF, the Institute for Policy Integrity at New York University School of Law, and Vanderbilt Law School focused on legal efforts on climate risk and resilience. ICRRL is dedicated to driving recognition of climate risk and resilience through legal innovation, scholarship, and practice.

Visit us at <https://www.icrll.org/>

 @ClimateRiskLaw

Disclaimer: This paper is the responsibility of the Sabin Center for Climate Change Law and EDF, and does not reflect the views of Columbia Law School, Columbia University, or any ICRRL partner organization. This paper is an academic study provided for informational purposes only and does not constitute legal advice. Transmission of the information is not intended to create, and the receipt does not constitute, an attorney-client relationship between sender and receiver. No party should act or rely on any information contained in this paper without first seeking the advice of an attorney.

EXECUTIVE SUMMARY

In recent years, policymakers, practitioners, and scholars have increasingly considered how climate change should factor into existing environmental review obligations, including review of U.S. federal agency actions under the 1969 National Environmental Policy Act (“NEPA”).¹ Attention thus far has focused primarily on the critical question of how to account for an action’s contribution to climate change via direct, indirect, or cumulative greenhouse gas emissions.² However, less focus has been given to the equally critical question of how actions will be affected by, and can prepare for, the impacts of climate change.³ This paper combines an extensive review of previously conducted Environmental Impact Statements (“EIS”) with an examination of the legal framework, current practices, and next steps for integrating that latter category of climate effects—what we term “climate impact analysis”—into NEPA reviews.

The treatment of climate impacts in NEPA reviews is of increasing salience for several reasons. Climate change is now having a marked impact on historic weather patterns and environmental conditions, leading to higher average and extreme temperatures and associated sea level rise, for example. In addition to these slow onset changes, there has also been an increase in the severity of certain extreme weather events, including hurricanes. According to the National Oceanic and Atmospheric Administration, in 2021, “the U.S. experienced 20 separate billion-dollar weather and climate disasters that killed at least 688 people—the most disaster-related fatalities for the contiguous U.S. since 2011 . . . Damages from these disasters totaled approximately \$145 billion for all 20 events” which is a “record high.”⁴ More than “40% of Americans live in counties hit by climate disasters in 2021.”⁵

The impacts of climate change are increasingly foreseeable. Recent advances in climate detection and attribution science provide ever-growing information on how climate change

1 42 U.S.C. § 4321 et seq.

2 See, e.g., Aaron Flyer, *FERC Compliance Under NEPA: FERC’s Obligation to Fully Evaluate Upstream and Downstream Environmental Impacts Associated with Siting Natural Gas Pipelines and Liquefied Natural Gas Terminals*, 27 GEO. INT’L ENV’T L. REV. 301 (2015); Michael Burger & Jessica Wentz, *Downstream and Upstream Greenhouse Gas Emissions: The Proper Scope of NEPA Review*, 41 HARV. ENV’T L. REV. 109 (2017); James W. Coleman, *Beyond the Pipeline Wars: Reforming Environmental Assessment of Energy Transport Infrastructure*, 2018 UTAH L. REV. 119 (2018); Michael Burger & Jessica Wentz, *Evaluating the Effects of Fossil Fuel Supply Projects on Greenhouse Gas Emissions and Climate Change Under NEPA*, 44 WM. & MARY ENV’T L. & POL’Y REV. 423 (2020).

3 There is some scholarship on the requirement to consider climate change impacts in NEPA reviews, but it was published prior to significant case law and regulatory developments. See, e.g., Michael B. Gerrard, *Reverse Environmental Impact Analysis: Effect of Climate Change on Projects*, 247 N.Y. L. J., Mar. 8, 2012; Katrina Fischer Kuh, *Impact Review, Disclosure, and Planning*, in THE LAW OF ADAPTATION TO CLIMATE CHANGE 543 (Michael B. Gerrard & Katrina Fischer Kuh, eds. 2012); JENNIFER KLEIN & ETHAN STRELL, *LEGAL TOOLS FOR CLIMATE ADAPTATION ADVOCACY: NEPA* (2015), <https://perma.cc/5Z5E-KQSH>; JESSICA WENTZ, *ASSESSING THE IMPACTS OF CLIMATE CHANGE ON THE BUILT ENVIRONMENT UNDER NEPA AND STATE EIA LAWS: A SURVEY OF CURRENT PRACTICES AND RECOMMENDATIONS FOR MODEL PROTOCOLS* (2015), <https://perma.cc/2YNZ-SVQ8> [hereinafter “Wentz 2015”]; Jessica Wentz, *Planning for the Effects of Climate Change on Natural Resources*, 47 ENV’T L. REP. 10220 (2017) [hereinafter “Wentz 2017”].

4 Press Release, Nat’l Oceanic & Atmospheric Admin., U.S. saw its 4th-warmest year on record, fueled by a record-warm December (Jan. 10, 2022), <https://perma.cc/CBW2-AD6E>.

5 Sarah Kaplan & Andrew Ba Tran, *More than 40 percent of Americans live in counties hit by climate disasters in 2021*, WASH. POST (Jan. 5, 2022), <https://perma.cc/XR85-LH57>.

is contributing to extreme events and other weather and environmental changes. Advanced modeling techniques have also made highly detailed projections of future climate change impacts more readily available. For example, in recent years, various government and other bodies have published downscaled climate data and projections showing anticipated future conditions in specific local areas.⁶

Approach

Recognizing the significant and growing risks posed by climate change, in 2016, the Council on Environmental Quality issued guidance directing federal agencies to ensure “[f]ocused and effective consideration of climate change in NEPA reviews.”⁷ The 2016 guidance emphasized the need for federal agencies to consider “the effects of climate change on a proposed action and its environmental impacts” and noted that “climate change adaptation and resilience . . . are important considerations” in environmental reviews under NEPA.⁸ The courts have similarly confirmed that NEPA requires consideration of climate change impacts.⁹ Specifically, and at a minimum, federal agencies must analyze climate change impacts when (1) identifying the purpose of, and need for, a proposed action and defining alternative actions that could meet that purpose and need, (2) describing the area affected by the proposed action and alternatives, and (3) evaluating their impacts on the environment and measures to lessen those impacts.

This paper concludes that, in order for federal agencies to fulfill their legal obligations under NEPA, the EISs they prepare must contain a comprehensive climate impact analysis. Drawing on previously identified best practices,¹⁰ we define three key requirements for climate impact analysis, namely that the analysis be:

1. **Holistic**, meaning that it considers all reasonably foreseeable climate impacts and the risks they pose to all elements of the proposed action and alternatives.
2. **Specific**, which requires the use of climate data that is tailored to the proposed action’s area, timescale, and other relevant characteristics.
3. **Actionable**, providing the agency with the information it needs to take action to address climate-related risks.

⁶ See generally, Michael B. Gerrard & Edward McTiernan, *The Perils of Relying on FEMA Flood Maps in Real Estate Transactions*, N.Y. LAW J. (Sept. 2020).

⁷ Memorandum from Christina Goldfuss, Council on Environmental Quality, for Heads of Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews 3 (Aug. 1, 2016), <https://perma.cc/BUQ9-99JH>.

⁸ *Id.* at 20-25.

⁹ See e.g., *AquAlliance, et al., v. U.S. Bureau of Reclamation*, 287 F. Supp. 3d 969 (E.D. Cal. 2018); *National Wildlife Federation v. National Marine Fisheries Service*, 184 F. Supp. 3d 861, 875 (D. Or. 2016); *Friends of Wild Swan v. Jewell*, No. CV 13-61-M-DWM, 2014 U.S. Dist. LEXIS 116788, at *31 (D. Mont. Aug. 21, 2014); *Southern Utah Wilderness Alliance v. Burke*, 981 F. Supp. 2d 1099, 1110-1111 (D. Utah 2013).

¹⁰ Several U.S. jurisdictions have promulgated rules or issued guidance on incorporating climate change impacts into environmental reviews under laws similar to NEPA, including Massachusetts, New York State, New York City, Washington State, and King County, Washington. Relevant guidance has also been issued by foreign jurisdictions, including Australia, Canada (and the Canadian provinces of British Columbia and Nova Scotia), the European Union, the Netherlands, New Zealand, Spain, the United Kingdom. Legal scholars have also identified best practices for climate impact analysis. See e.g., Kuh, *supra* note 3; Wentz 2015, *supra* note 3; Wentz 2017, *supra* note 3.

Analysis

To determine whether federal agencies are conducting holistic, specific, and actionable climate impact analysis as required by NEPA, we reviewed all final EISs issued by federal agencies in connection with onshore energy projects in the five years from 2016 through 2020. We hypothesized that, because energy infrastructure is highly sensitive to climate change impacts (i.e., due to its place-based nature and condition-sensitive technology), energy-focused EISs should contain particularly high-quality climate impact analyses. Our review found the opposite: **None of the surveyed EISs contained sufficiently holistic, specific, and actionable climate impact analysis to inform agency decision-makers.** Among other things, the review showed that:

- While most EISs acknowledged that climate change would affect the local environment where a proposed action would occur, many did not take the critical next step of analyzing implications for the action or alternatives.
- Less than half of the reviewed EISs evaluated whether and how climate change might alter the environmental outcomes of the proposed action, and less than ten percent compared climate-related risks across alternatives.
- Even where federal agencies did analyze climate impacts, they often relied on outdated or incomplete data, limiting the usefulness of the analysis. Some federal agencies appear to be unaware of existing, publicly available data and tools that could enable a more robust analysis.

Recommendations

Given the clear relevance of climate change to the requirements of NEPA, **we recommend that CEQ and other federal agencies take immediate steps to ensure sufficiently holistic, specific, and actionable climate impact analysis is conducted in environmental reviews.** Specifically:

1. **CEQ should promulgate NEPA regulations and guidance that ensure climate impacts are considered in a holistic, specific, and actionable manner.** We recommend that CEQ promulgate new regulations to ensure that climate impacts relevant to federal actions are evaluated alongside other existing considerations in environmental reviews. At a minimum, the regulations should require federal agencies to account for climate impacts when defining the affected environment, and evaluating the environmental impacts of the proposed action and alternatives. To complement the new regulations, CEQ should issue updated guidance, identifying best practices for conducting climate impact analysis in NEPA reviews. This paper identifies existing guidelines and other resources that CEQ could use to formulate best practices. It also points to useful tools and data that CEQ could make available to federal agencies for use in the analysis (see recommendation 4 below).
2. **Federal agencies should review their own NEPA regulations and consider ways to improve NEPA implementation to better account for climate impacts.** CEQ

regulations should establish the floor, rather than the ceiling, for integrating climate impact analysis into NEPA reviews. Given the different ways climate change can impact different types of actions in different locations, individual agencies may encounter unique issues when conducting climate impact analysis. These are best addressed through agency-specific NEPA regulations or guidance. For example, agencies that deal with coastal infrastructure (e.g., the Federal Energy Regulatory Commission, Department of Transportation, and Army Corps of Engineers) could develop joint guidance that ensures use of the latest data and projections on sea level rise, as well as consideration of compound risks from that and other climate impacts. To reduce the burden of conducting climate impact analysis, federal agencies could also consider requiring project applicants to submit information on how the impacts of climate change will affect the project and the local area and possible actions to enhance resilience.

3. **CEQ should coordinate across federal agencies and relevant experts.** Multiple federal agencies have expertise relevant to climate impact analysis. CEQ should explore opportunities to coordinate with appropriate federal agencies, for example, through an Interagency Working Group or other mechanism to support coordination and collaboration. Such a mechanism could be convened to examine, among other things, the use of climate scenario analysis in environmental reviews under NEPA. This could in turn help to improve the consistency of NEPA reviews by ensuring all agencies use common scenarios. CEQ could also establish an expert advisory board to provide advice on scenario analysis or other topics.
4. **CEQ should create or support the creation of a publicly accessible centralized database of climate information relevant to NEPA analysis.** Government agencies and the public would benefit from improved access to information about the impacts of climate change. CEQ could help facilitate such access by creating or supporting the creation of a database of data and tools relevant to climate impact analysis. The database could also incorporate recommendations from technical experts, leveraging the work of an expert advisory board, for example (see recommendation 3 above).