

PROPOSED FRAMEWORK FOR COMPLYING WITH COUNCIL FOR ENVIRONMENTAL QUALITY
GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE NEPA GUIDANCE THROUGH AN
EXAMINATION OF POLICIES, RESEARCH, AND LITIGATION

by

Rick Williams

Mentor and Reviewer: Rhey Solomon

A thesis submitted to Johns Hopkins University in conformity with the requirements for the
degree of Master of Science in Energy Policy and Climate

Baltimore, Maryland

December 2022

© 2022 Rick Williams

All Rights Reserved

Acknowledgements

My sincerest gratitude toward Rhey Solomon, Johns Hopkins University Adjunct Professor and Senior Partner of Environmental and Training Solutions, LLP. Mr. Solomon's more than 40 years of NEPA and federal policy experience provided great insight into key sources of information and policy guidance. His instruction of the Environmental Impact Assessment and Decision Method class was the primary inspiration for this study.

Special thanks to Michael Smith, Ph.D., National Practice Leader—Environmental Process and Policy at WSP, for providing recommendations of relevant research and journal articles, the Columbia Climate Law Center database, and sharing thoughts and discussion on a path toward developing a proposed framework for this study.

Acronyms and Abbreviations

BLM	Bureau of Land Management
BOEM	Bureau of Ocean Energy Management
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Cir.	Circuit
Cmm'n	Commission
D.C.	District of Columbia
Dept.	Department
DOE	Department of Energy
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
FAA	Federal Aviation Administration
Fed. Reg.	<i>Federal Register</i>
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
GHG	Greenhouse Gas
IPCC	Intergovernmental panel on climate change
IWG	Interagency Working Group
LNG	Liquified natural gas
Mgmt.	Management
MT CO ₂ e	Million tons carbon dioxide equivalent
NAEP	National Association of Environmental Professionals
n.d.	No date
NEPA	National Environmental Policy Act
PEIS	Programmatic Environmental Impact Statement
TVA	Tennessee Valley Authority
Twp.	Township
U.S.	United States
USACE	U.S. Army Corps of Engineers
USGCRP	U.S. Global Change Research Program
U.S.C.	United States Code
USFS	U.S. Forest Service

TABLE OF CONTENTS

Abstract	ii
Executive summary	iii
Introduction	1
Methods	4
Results	8
Discussion.....	13
Conclusion	24
References.....	28
Attachment A: Proposed framework.....	34
Endnotes	35

LIST OF TABLES

Table 1. Summary of literature review	9
Table 2. Summary of claims of 28 cases reviewed	11
Table 3. Examples of cases involving agencies that were challenged on the basis of not quantifying the effects of climate change	17
Table 4. Cases involving agencies that were challenged on their GHG emission estimates and/or rationale	19
Table 5. Cases involving agencies that were challenged on climate change evaluation methodology	23
Table 6. Proposed framework for complying with CEQ guidance for considering GHG emissions and the implications of climate change in NEPA reviews.....	34

LIST OF FIGURES

Figure 1. Breakdown by federal agency of 28 total NEPA climate change cases reviewed.....	11
Figure 2. NEPA climate change cases (2010-2021) shown by year and NEPA document type	13

Abstract

The President's Council on Environmental Quality published final guidance for evaluating climate change through the National Environmental Policy Act process in 2016, yet many federal agencies have demonstrated a lack of understanding on how best to consider the guidance, as substantiated through research and increased litigation. This study revealed two major litigation themes including 1) challenges to agency methodology for evaluating greenhouse gas emissions, and 2) challenges for not quantifying greenhouse gas emissions or for not conducting a meaningful climate change analysis. The objective of this study was to propose an easily referenced approach (framework) for complying with the 2016 guidance. This study involved a review of federal policy, published research, and a detailed examination of relevant Circuit Court and some District Court climate change litigation cases (2010 to 2021). All sources were reviewed for relevancy and whether the source was current. Cases were reviewed to identify major litigation challenge themes. Results revealed that just 9 of 440 federal agencies experienced litigation during the time period reviewed. None of the cases involved categorical exclusions; however, 13 cases (46%) involved Environmental Assessments, and 15 cases (54%) involved Environmental Impact Statements. Ample evidence was found within the guidance and also Executive Order 14008 to aid federal agencies in determining the circumstances requiring climate change analyses. The guidance further advised agencies on two distinct types of climate change analysis requirements with very different expectations and analysis issues, and which is often unmet by agencies; 1) the implications of climate change on a project now and in the future, and 2) the analysis of greenhouse gas emissions. A qualitative analysis was used to develop a proposed framework for complying with the 2016 guidance.

Executive summary

Congress passed the National Environmental Policy Act of 1969 (NEPA) (43 U.S.C. 4321-47) to ensure federal agencies consider the environmental effects of their actions to the human environment. Although NEPA was signed into law more than 50 years ago, the regulations for implementing the law (40 CFR Parts 1500-1508) were designed to ensure current environmental issues affecting the quality of the human environment are considered in federal decision making, so that an agency's evaluation and decisions remain contemporary and relevant. Additionally, agencies are encouraged to develop their own procedures that must complement the NEPA regulations and are useful for adapting the agency's unique mission within the procedural structure of NEPA and its implementing regulations. As new environmental issues emerge, federal agencies struggle with considering those issues within the NEPA process. The President's Council on Environmental Quality (CEQ) is responsible of advising agencies to integrate emerging issues into their decision making process, often through the development of policy guidance. The CEQ finalized greenhouse gas and climate change NEPA guidance in 2016, which was designed to instruct agencies on two distinct types of climate change analysis requirements; 1) the implications of climate change on a project, and 2) the implications of the project to climate, often through an analysis of greenhouse gas emissions.

There is ample evidence to suggest many federal agencies lack a comprehensive understanding of how best to execute the CEQ's climate change guidance and that relatively few agencies even evaluate climate change or greenhouse gas emissions as part of NEPA analyses. When agencies fail to consider policy guidance in the context of their mission and actions, litigation tends to shine a light on NEPA procedural vulnerabilities. This study was structured to

review applicable court cases to identify litigation themes and challenges federal agencies face with respect to climate change considerations and quantification of greenhouse gas emissions, and integrate information learned from those cases within the context of the 2016 CEQ greenhouse gas and climate change NEPA guidance, to improve agency compliance.

In all, 64 independent records were incorporated into this study including the CEQ 2016 guidance, executive orders, relevant research papers, NEPA implementing regulations, and applicable Appellate Court (Circuit Court) and some District Court cases.

Of the cases reviewed, 13 cases (46%) involved Environmental Assessments, and 15 cases (54%) involved Environmental Impact Statements. None of the cases involved Categorical Exclusions. Agencies experiencing litigation largely represented the energy, transportation, and land and resources management.

This study revealed two major litigation themes including 1) challenges to agency methodology for evaluating greenhouse gases, and 2) challenges for not quantifying greenhouse gas emissions or for not conducting a meaningful climate change analysis.

This study also found that the CEQ guidance and an Executive Order provided sufficient requirements for project types that are expected to evaluate climate change; however, according to at least one survey, only approximately 15% of agencies factor in climate change in the final agency action. Therefore, the requirement for agencies to evaluate the implications of climate change on a project is frequently unmet.

A qualitative analysis approach was used to develop a proposed framework for complying with the 2016 CEQ greenhouse gas and climate change NEPA guidance.

Introduction

All federal agencies must comply with the provisions of the National Environmental Policy Act of 1969 (NEPA) when proposing an agency action which may significantly affect “the quality of the human environment;”¹ and therefore, must follow the regulations established by the President’s Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508; 87 Fed. Reg. 23453). Agencies document their NEPA compliance through the preparation of Categorical Exclusions (CE),² Environmental Assessments (EA),³ and Environmental Impact Statements (EIS).⁴

Federal agency proposed projects may result in greenhouse gas (GHG) emissions from direct and indirect actions as well as induced growth effects,⁵ for example, through the land leases or permitting of energy projects or energy distribution structures; through infrastructure construction, operation, and maintenance; or through the release of carbon stocks such as from [disturbed] soils and forests.

Additionally, irrespective of the project type, the current and future effects of climate change may have implications to the probable success of the proposed action outcomes and the agency’s mission and authorities to respond to those likely climate change implications. As such, proposed projects and actions may be affected by long-term climate change; for example, from increased precipitation, sea level rise, or increased heat, which affect the long-term sustainability

¹ Sec. 102(2) of 42 U.S.C. § 4321 et seq.

² See 40 CFR § 1508.1(d)

³ See 40 CFR § 1508.1(h)

⁴ See 40 CFR § 1508.1(j)

⁵ See 40 CFR § 1508.1(g)

or resiliency of agency actions. These concerns should be addressed through the systematic and interdisciplinary NEPA approach (CEQ, 2016; 42 U.S.C. § 4321 *et seq.*).

Until 2010 there were no formal guidance for federal agencies on how to consider the environmental effects of climate change or GHG emissions in project proposals. In 2010, the CEQ issued its Draft Guidance for Consideration of the Effects of Climate Change and Greenhouse Gas Emissions [in NEPA reviews].⁶ In the years following, the guidance would be revised, finalized, rescinded by another presidential administration, and subsequently returned through executive order under the current presidential administration, with the “promise” to revise said guidance once again (86 Fed. Reg. 7037-7043 at 7042).⁷

This overall lack of consistent leadership and direction concerning climate change guidance left multiple federal agencies unclear on whether to evaluate climate change in NEPA reviews at all, as well as uncertainty on the process to follow to evaluate climate change.⁸ There is ample evidence to suggest federal agencies tend to be confused about whether to consider GHGs and climate change as part of the NEPA evaluation process (Wentz, 2016; Jain et al., 2017), and confusion about how to conduct such an analysis when one is determined to be needed (Wentz, 2015; Jain et al., 2017). According to Wentz (2015), who based some findings on a survey of EISs conducted from 2012 to 2014, only approximately 15% of federal agencies

⁶ See CEQ, 2010

⁷ The Trump administration withdrew the CEQ 2016 guidance on April 5, 2017 and replaced it with a more narrowly written set of “Draft Guidance” to agencies, removing key principles and loosening GHG emission calculation requirements. The Biden administration later published a rescission of the 2019 Draft Guidance and reinstated the original 2016 guidance. A thorough review was conducted to verify there has been no resulting fundamental change to the 2016 guidance.

⁸ Certain federal agencies including the Bureau of Land Management (BLM), U.S. Forest Service (USFS), and the Federal Energy Regulatory Commission (FERC) have established NEPA procedures for evaluating climate change. An estimated fewer than 5% of the roughly 440 federal agencies have established climate change NEPA guidance.

factored climate change or GHG emissions into the final agency action. Subsequently, federal agencies were left vulnerable to litigation for failing to adequately evaluate climate change as part of their NEPA analyses and documentation.

This paper offers a proposed approach (or framework) based on litigation reviews and research, which federal agencies may consider using to comply with the 2016 CEQ GHG and climate change NEPA guidance (aka, “2016 guidance” or “CEQ 2016 guidance”) in an effort to minimize uncertainty when preparing GHG emissions and climate change evaluations. The approach presented is intended to aid the federal agency in first understanding the circumstances when an agency’s proposed action should consider GHG emissions and climate change in a NEPA document, and when the agency does evaluate GHG emissions and climate change, a framework approach may help to reinforce the already established process for *how* an agency should consider GHG emissions and climate change based within the 2016 guidance—through the lens of the 2022 NEPA implementing regulations (CEQ, 2022; 87 Fed. Reg. 23453).

The proposed framework considers 12 years of litigation against agency NEPA decisions where GHG emissions and climate change was either a primary or secondary claim. NEPA litigation can be a useful litmus test for better understanding the aspects of the NEPA evaluations that were vulnerable to litigation. When there is greater awareness of the motivation and details behind litigation, this recognition of vulnerabilities can serve to formulate a more defensible framework for compliance. Those NEPA cases reviewed are referenced throughout the proposed framework and listed in the acknowledgments section.⁹

⁹ Credit is given to the National Association of Environmental Professionals (NAEP) for preparing and publishing Annual Reports, which in part, summarizes information on substantive cases involving NEPA that were argued before the U.S. Circuit Courts of Appeal. NAEP Web sites: <https://www.naep.org/nepa-annual-reports>

When evaluating NEPA litigation, two questions were explored, the answers to which are intended to assist in constructing a framework for improved compliance.

1. Why was litigation brought against those agencies' and their NEPA evaluations; in other words, what was deficient about those evaluations that ultimately resulted in litigation, or what was the perceived deficiency?
2. If an agency did not prevail in court, why did the agency not prevail and what steps (in hindsight) should those agencies have taken to improve their evaluations (was clarity added in the case decision)?

Where feasible, limited answers to these questions are discussed and also incorporated into the proposed compliance framework.

Methods

The development of a proposed framework relied on a qualitative approach involving preparation of an annotated outline from the CEQ 2016 guidance and coupled with a literature review of relevant documents. The methodology for considering a proposed framework for complying with the CEQ 2016 guidance consisted of the following elements:

Develop annotated outline for further analysis. This step involved review of the 2016 guidance and annotate an outline of the NEPA-based principles discussed throughout the document that are intended to facilitate a consistent GHG emissions and climate change-related environmental impact assessment process. The CEQ correlated each principle of its guidance to the procedural provisions of NEPA (42 U.S.C. § 4321 *et seq.*) including the [former] Regulations for Implementing the Procedural Provisions of NEPA (CEQ, 2005).

To ensure this paper proposes a more contemporary framework, each NEPA provision identified in the 2016 guidance was correlated to the most recently revised NEPA procedures (CEQ, 2022).¹⁰ Those provisions are clearly identified throughout the proposed framework, where applicable.

Literature Review. Steps of the literature review included a search for research, additional guidance, memoranda, policies, and relevant Circuit Court and some District Court cases. The literature search served to identify potential information sources from online search engines and databases (e.g., free, publicly available legal databases and repositories), and citations in relevant publications. Literature screening was conducted to designate information sources for inclusion or exclusion based on the following considerations:

- research papers that examined the CEQ 2016 guidance and any outcomes from implementing the “guidance” in NEPA documents;
- executive level documents instituting policy directives, orders, or guidance for federal agencies to follow regarding GHG, climate change, and NEPA policy (or related NEPA analysis actions);¹¹ and,
- legal evaluations of NEPA documentation involving climate change.

¹⁰ The procedural provisions of NEPA have undergone two revisions since 2005 including a substantial revision undertaken during the Trump administration (CEQ, 2020; 85 Fed. Reg. 43304), which could have been interpreted to eliminate GHG emission and climate change evaluation considerations in NEPA analyses and documentation. The Biden administration further revised the NEPA implementing regulations in 2022, walking back some of the 2020 changes while keeping others in place (CEQ, 2022; 87 Fed. Reg. 23453). The Biden administration indicated another revision is presently being considered (87 Fed. Reg. 23453).

¹¹ This study did not consider state environmental impact review requirements.

Review relevant research. This involved review of published research papers and those authors' interpretations of the CEQ 2016 guidance for the purpose of comparing the annotated outline from step 1 with the understandings and analysis of recognized NEPA practitioners and industry specialists. Such comparisons were important for refining the annotated outline and the proposed framework development. Resources were collected primarily from the Columbia Law School Climate Change Law Web site.¹²

Review relevant executive level policy and guidance. Certain EOs were reviewed as supporting documentation that were integral for reaffirming the 2016 guidance including 14008 *Tackling the Climate Crisis at Home and Abroad* (Exec. Order No. 14008, 2021), and 13990 *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* (Exec. Order No. 13990, 2021). Pertinent information to the 2016 guidance in these EOs were noted and, as appropriate, incorporated into the proposed framework. Prior relevant EOs were rescinded, and therefore were not reviewed. Additional EOs were noted when applicable to the framework. Other executive level type documents included multiple publications from the CEQ and associated *Federal Register* notices.

Evaluate relevant court cases. This involved a systematic review of NEPA cases argued before the U.S. Circuit Court of Appeals and some District Courts.¹³ This review began with

¹² For more information, visit the Web site at: <https://climate.law.columbia.edu/>

¹³ NEPA decisions are subject to judicial review under Sec. 10 of the Administrative Procedures Act (5 U.S.C. §§ 551-559), meaning that the final agency action is subject to public scrutiny. When a federal agency's decision is challenged, litigants must petition their case in a federal court. Most NEPA cases are heard in U.S. District Courts; however, cases that continue through the appeal process often tend to be considered substantive or set precedence. The term precedence refers to a decision that is "...considered as authority for deciding subsequent cases involving identical or similar facts" (Cornell Law, n.d.). Cases that set precedence (or that have the potential to do so) were deemed to have more value than cases heard in the lower court system. However, some of the relevant Circuit Court cases used in this analysis were unpublished (had no deemed precedential value).

case summaries that were published in NAEP Annual Reports.¹⁴ The review time period covered the years 2010 through 2021, whereas 2010 corresponds to the year the CEQ issued its draft guidance, and 2021 was the most recently published report. Twelve Annual Reports were reviewed for cases involving GHGs and climate change as either a primary or secondary claim. The following details were collected for each relevant case: case citation (identifying information), year the case was argued (corresponds to NAEP Annual Report year), number of relevant cases in each year (by NEPA document type), federal agency involved, type of NEPA document,¹⁵ whether the agency prevailed or did not prevail on some or all claims (including information from the decision), whether climate change was the primary or secondary claim, and general facts of the case. These aforementioned details were categorized and evaluated for relevance to the CEQ 2016 guidance. Those cases and their supporting information were counted, and comparisons were drawn against the total number of relevant cases for the number of unique federal agencies that experienced litigation and the relative percentage of NEPA document types.

Additional supporting information were collected from the online Casetext database for all cases reviewed and when additional clarity was needed to better understand a case decision, the facts of a case, when further context was considered necessary as to why a claim was brought, or to identify other potentially relevant substantive or precedential cases a judge relied upon during the decision process.

¹⁴ NAEP Annual Reports are published online at: <https://www.naep.org/nepa-annual-reports>

¹⁵ CEQ NEPA Procedures are established for Environmental Impact Statements (EIS), Environmental Assessments (EA), and actions that “Normally do now have significant effects and is categorically excluded...” (CE) (40 CFR § 1501).

For approximately 15% of cases reviewed (four cases), additional context was sought from the originating NEPA document to gain perspective on why a claim was made against the adequacy of the GHG emissions or climate change evaluation. Of those cases, only one NEPA document was located via an internet search. One request was submitted electronically to a government agency to obtain access to a NEPA document; however, the agency did not respond to the request.¹⁶

Results

Annotated outline results. The CEQ 2016 guidance document was predominantly structured to advise federal agencies on the methods to consider GHG emissions and climate change when preparing each phase of a NEPA evaluation. The CEQ's counsel and advise was considered to a great extent when preparing the annotated outline in a manner that could effectively convey guidance in the context of the NEPA regulations and insights of research and NEPA litigation results.

Literature Review Results. A total of 70 independent documents or records were examined for this research, of which, 64 records were considered relevant and applicable to the research.

Table 1 provides a summary of the literature review. The References section of this study includes citations for each record along with details from the NEPA litigation cases.

¹⁶ It was later determined during the analysis phase of this research that information obtained from the single NEPA document recovered was not useful to development of the proposed framework. Therefore, no citation was provided for the single NEPA document.

Literature collected & reviewed	Used in this study (did not use)
13 Research papers	(5) Research papers not used because either irrelevant to the subject matter or too narrowly focused on a single aspect of climate change NEPA evaluations. 8 Research papers used in support of this study
17 Executive level policy & guidance (i.e., Executive Orders, laws, NEPA guidance, policy technical support documents, memoranda, federal public notices)	(1) Policy guidance not used because that document was updated by more recent, relevant guidance. 16 Documents used in support of this study
12 NEPA Annual Reports providing case law summaries from a wider variety of NEPA Circuit Court cases	12 Documents used in support of this study
28 Full legal summaries of each NEPA climate change related case (from Casetext database)	28 Documents used in support of this study
70 total documents reviewed	64 documents used

Table 1. Summary of literature review

Thirteen research papers were initially reviewed, which included others' interpretations of the CEQ guidance, assessments of how certain types of NEPA analyses and documentation evaluated GHG emissions and/or climate change, and two other frameworks for evaluating GHG emissions and climate change. Of the 13 research papers reviewed, one included a visual framework for compliance with the CEQ guidance; however, that framework was specific to only EISs and included some potential misinterpretations of the guidance. Another study provided a step-by-step approach for compliance; however, that study was based on the 2010 draft guidance, which had been substantively revised by the time the final guidance was published. Eight of the 13 papers were cited within this study.

Executive level policy and guidance. Of 17 policy and guidance documents reviewed, only the 2010 CEQ draft NEPA guidance was not used because this draft was outdated and also

contained reference to metrics for federal agencies to use when considering if a project qualified for a GHG emissions analysis. Those metrics were removed from the final guidance.

Certain EOs were considered relevant because those orders directed agencies to use specific GHG emissions and climate change related guidance when considering infrastructure project decisions, reinstated past relevant EOs that had been rescinded by other presidents, or provided supporting guidance or instances for considering mitigations or adaptations that would be useful for implementing the 2016 guidance. Certain 2021 EOs issued guidance regarding best use of the social cost of carbon policy. A technical support memorandum to those EOs were also reviewed for this study.

The 2016 guidance heavily referenced the 2005 amended version of the NEPA regulations. The 2005 NEPA regulations were substantially updated in 2020 and revised again in 2022. The 2022 updates walked back some of the 2020 revisions and retained some of those revisions while also adding some new regulations. The proposed framework references only the most recent 2022 NEPA regulations. All three NEPA regulation guides (2005, 2020, and 2022) were reviewed to ensure the 2016 guidance retained a consistent reference to the most current NEPA regulations.

Evaluate relevant court cases. Substantive or precedential cases were first identified by reviewing NAEP NEPA Annual Reports over the time period from 2010 to 2022, corresponding to the years covered by some aspect of CEQ guidance. Through that time period, 12 reports were reviewed, which summarized a total of 292 cases. Of the 292 cases, 28 cases (nearly 10%) included GHG emissions and climate change as either primary or secondary claims.

Figure 1 shows a breakdown by federal agency in substantive related NEPA cases. Just nine of approximately 440 federal agencies experienced relevant litigation, with the Federal Energy Regulatory Commission (FERC), the Bureau of Land Management (BLM), and the U.S. Forest Service (USFS) experiencing the most litigation at 25%, 21%, and 11% of cases, respectively.

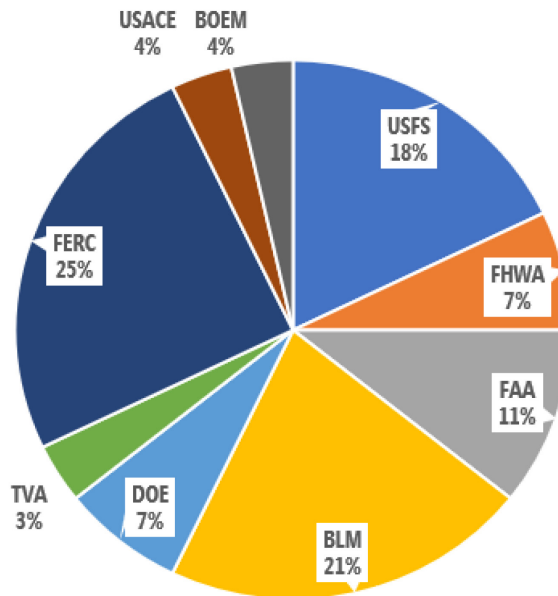


Figure 1. Breakdown by federal agency of 28 total NEPA climate change cases reviewed

Table 2 provides a high level summary of major GHG emissions and climate change related claims among the cases reviewed. Of all NEPA cases, federal agencies prevailed in 82% of cases and did not prevail in 18% of cases. In 64% of these same cases GHG emissions and climate change were a primary reason for litigation, whereas in 36% of cases GHG emissions and climate change were a secondary reason for litigation. Of the 28 relevant cases, GHG emissions evaluation was the

Table 2. Summary of claims of 28 cases reviewed

Overall success rate	Agencies prevailed	23, 82%
	Agencies did not prevail at all	5, 18%
TOTAL CASES 28		
Major claim 1	Plaintiff disagreed with agency GHG emission or climate change evaluation methodology	25
	Court sided with agency	21
	Court sided with plaintiff	4
	Agency did not prevail at all	3
	Agency prevailed on one claim but not GHG or climate change claim	1
Major claim 2	Plaintiff claimed agency did not quantify GHG emissions at all or conduct meaningful analysis	3

predominant concern (26 of the 28 cases, or 93%). In three of the 28 cases (11%), agencies failed to quantify GHG emissions or conduct any meaningful climate change evaluation.

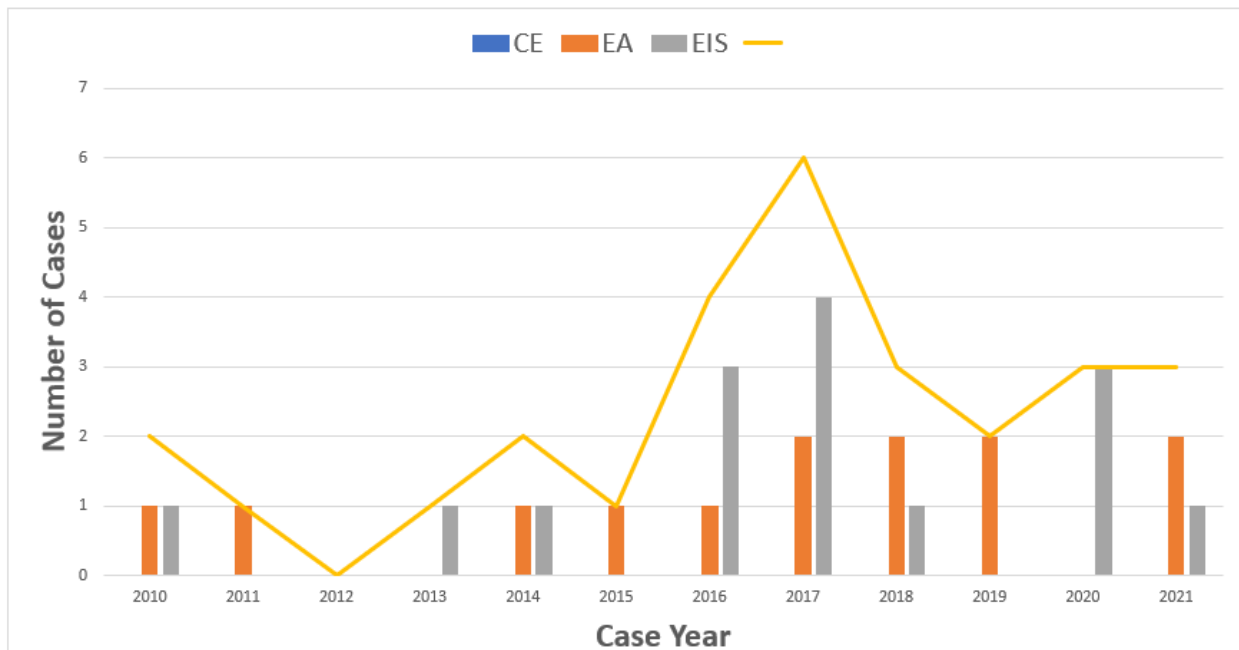
Agencies were most often sued on the premise they should have evaluated the effects from GHGs to climate change differently (methodology) (25 cases or 89.3%).¹⁷ Of the 25 cases where the agency was challenged on their evaluation methodology the court disagreed with the plaintiffs in all but four cases (found for the agency). In three of the four cases the agency did not prevail at all. In one of the four cases the agency prevailed on one NEPA claim but not on the claim involving GHG emissions or climate change.

There were two prevailing major claims: 1) those when plaintiffs disagreed with agency's GHG emissions evaluation methodology, and 2) when plaintiffs contended the agency did not quantify GHG emissions or did not meaningfully evaluate climate change (see **Table 2**).

Of the cases reviewed, 13 cases (46%) involved EAs, and 15 cases (54%) involved EISs. None of the cases involved CEs. **Figure 2** shows that generally cases were steady from year to year with a spike in cases in 2016 and 2017, and an overall trend of increased NEPA climate change litigation in the years 2016 to 2021 as compared to 2010 to 2015. The year 2017 experienced the most cases of any single year (seven cases, or 21% of all relevant cases).

¹⁷ Note that most cases involved more than one NEPA claim. In all the 28 cases reviewed in detail, one of the NEPA claims involved GHG emissions or climate change.

Figure 2. NEPA climate change cases (2010-2021) shown by year and NEPA document type



Discussion

The Discussion section is divided into two parts, which are important for later understanding how best to apply the proposed framework: 1) understanding the circumstances requiring the evaluation of GHG emissions and climate change in a NEPA analysis, and 2) identifying litigation themes and challenges that federal agencies face with respect to climate change considerations and the quantification of GHG emissions.

1) Circumstances requiring the evaluation of GHG emissions and climate change in a NEPA analysis

The CEQ 2016 guidance provides relevant action examples when agencies should evaluate GHG emissions from the agency action (including connected actions) and the implications of

climate change to the agency action. Those actions involve the use of water resources, ecosystems, forestry, agriculture, coastlines and floodplains, land management decisions (e.g., logging and forest thinning or prescribed burns), removal of wetlands, and projects affecting arctic regions of the United States (CEQ, 2016). The CEQ further advises agencies to use the guidance when actions involve socio-economically disadvantaged “vulnerable” populations and communities which may disproportionately be affected by projects that may be vulnerable to the effects of climate change (CEQ, 2016).

EO 14008 Section 213 requires that federal permitting decisions consider the effects of GHG emissions and climate change. Because NEPA requires federal agencies to consider anticipated permits in the NEPA document, then *potentially* all proposed projects involving federal permits are required to conduct a climate change analysis (EO 14008; 40 CFR §§ 1502.24(b), 1505.3(a), 1506.1(b)).¹⁸ This latter consideration may need additional coordination between agencies to come to an agreement on which agency will prepare the analysis if one is deemed necessary.¹⁹

2) Litigation themes and challenges federal agencies face with respect to climate change considerations and the evaluation of GHG emissions

This study primarily sought to answer two litigation-based questions that may be useful for preparing a framework for compliance with the CEQ 2016 guidance. When responding to these

¹⁸ Many projects involving permits (but not all) are included in the Permitting Dashboard for Federal Infrastructure Projects at the following Web site: <https://www.permits.performance.gov/about>

¹⁹ For example, when issuing a Section 410/404 permit, the Army Corps of Engineers will often prepare a NEPA document for the permitting action even when that agency is not the project proponent. The Army Corps of Engineers may also adopt the proponent’s NEPA document into their own permitting review process, if a NEPA document is available.

questions, which are restated below, it was important to provide context or insight from the substantive cases reviewed, and which is referenced or noted for each observation and recommendation.

1. Why was litigation brought against the agency's NEPA decisions, in other words, what was deficient about those evaluations that ultimately resulted in litigation, or what was the perceived deficiency?
2. If an agency did not prevail in court, why did the agency not prevail and what steps might those agencies have taken to improve their evaluations (was clarity added in the case decision)?

The results were overwhelmingly clear regarding question 1. In 89.3% of the 28 cases plaintiffs challenged agencies on their overall methodology for evaluating GHG emissions. To a lesser extent, in three cases (11%), agencies were challenged for declining to quantify GHG emissions or for not conducting any meaningful climate change analysis. Most often, cases involved a combination of more than one of the following themes:²⁰

Methodology

- Agencies were challenged on the basis of their GHG emissions evaluations.
- Agencies were challenged on their GHG emissions evaluation methodology.

Did not quantify GHG emissions or meaningfully evaluate climate change

- Agencies were challenged on the premise for not quantifying GHG emissions or evaluating the effects of climate change in any meaningful manner.

²⁰ Themes were exceedingly difficult to quantify without a detailed review of the entire case record, which is infeasible given access limitations to case records and time available for research.

These three aforementioned themes are explored in the discussion that follows, including through summarizing information from relative case files in Tables 3, 4, and 5 (corresponding to each theme). Tables provide examples of [themed] litigation reviewed; however, not every case that was reviewed was summarized here.

The response to question 2 (above) is not quantifiable but does lend itself to a certain amount of analysis. As such, Tables 3, 4, and 5 are accompanied by: 1) supporting general recommendations or observations, 2) NEPA requirements, and 3) case law citations.

Overall, fewer federal agencies experienced GHG emissions and climate change related litigation than was anticipated. As shown in **Figure 1** (Results section), agencies were largely representative of the energy, transportation, and land and resources management sectors. The list of agencies is not in itself surprising. The USFS, for example, manages more than 190 million acres of land in 43 states and balances missions of conserving forests and grasslands with other resources such as critical habitat for endangered species and human recreation. Ruple and Race (2019) found that the USFS was challenged on its NEPA decisions at more than twice the rate of other federal agencies. BLM manages approximately 10% of the land in the U.S. and 30% of the nation's minerals.²¹ Several of the other agencies listed in **Figure 1** have significant missions related to the nation's energy infrastructure and waterways.

There was no substantial difference between the number of cases involving EAs compared to those involving EISs (46% compared to 54%, respectively). The issue of whether the

²¹ Information on BLM and its mission may be found at the following Web page:
<https://www.blm.gov/about/what-we-manage#:~:text=The%20BLM%20manages%20one%20in,%2C%20arctic%20tundra%2C%20and%20deserts.>

agency should have prepared an EIS because the potential environmental effects was perceived to have been more significant than what was assessed in an EA, was raised on a number of cases involving other NEPA claims. None of those claims specifically involved GHG emissions or climate change. Therefore, any significance associated with GHG emissions or climate change effects did not factor into whether the agency should have prepared an EIS instead of an EA. The most important factor for GHG emissions and climate change NEPA claims involved the issues of methodology or not quantifying greenhouse gas emissions or conducting a meaningful climate change analysis.

Table 3 provides three distinct cases involving EAs when the agency declined to calculate GHG emissions or evaluate other related climate change impacts. Plaintiffs argued the agency should have quantified GHG emissions or made other reasonable estimates for estimating climate change implications.²²

Table 3. Examples of cases involving agencies that were challenged on the basis of not quantifying the effects of climate change

Challenged on the basis of not quantifying climate change analyses
<p><i>Swomley v. Schroyer</i>, D.C. No. 1:19-CV-01055-TMT, 2021 WL 4810161 (10th Cir. Oct. 15, 2021). USFS was challenged on its approval of a timber project in White River National Forest, CO. Appellants argued USFS' failure to evaluate indirect effects related to climate change would have revealed adverse effects to ecological diversity and thus, increase the risk of wildfire. It was unclear how the court would have considered claim because claim was dismissed due to a procedural technicality on appeal.</p>

²² Note that the CEQ 2010 guidance document set metrics, below which the agency was not required to quantitatively calculate GHG emissions (e.g., 25,000 MT CO₂e). These metrics were removed from the final guidance to allow agencies greater discretion for their GHG emissions and climate change evaluations based upon the nature of the agency action. Some of the cases reviewed for this study fell within the 2010 to 2016 timeframe; however, the issue of CEQ metrics was only raised in one case.

Challenged on the basis of not quantifying climate change analyses

Central Oregon Landwatch v. Connaughton, No. 15-35089, 696 Fed. Appx. 816 (9th Cir. Aug. 23, 2017). The USFS was challenged on its authorization of a nearby municipality's construction of a new water pipeline, upgrade of a water intake facility, and a continuation to operate the water supply system. Plaintiffs contended the agency should have conducted a quantitative climate change analysis, stating the agency failed to take the requisite *hard look* at this issue. The court found for the agency, indicating that impacts need only briefly discuss "other than significant issues" and as such, a quantitative analysis was not required. In this case, the agency explained their rationale for not quantifying impacts and further explained why any quantification method would have been unreliable.

Barnes v. U.S. Department of Transportation, F.3d (9th Cir. 2011). The FAA was challenged on an EA for not "conducting a meaningful climate change analysis." FAA qualitatively related its total expected emissions as a small percentage of total U.S. aviation emissions and as an even smaller proportion of global emissions. FAA indicated the effects to climate change were uncertain. The court found that FAA's emissions in this case did not compare to global aviation emissions and therefore, the FAA's analysis was adequate.

Recommendations

When feasible and reasonable, quantify direct and indirect GHG emissions (40 CFR §§ 1501.3(b) and 1508.1(g)(1) and (2)) as well as GHG emissions associated with connected actions (40 CFR § 1501.9(e)(1)). However, when quantification tools are not *reasonably* available, clearly explain the qualitative methodology used for analysis (40 CFR §§ 1502.21, 1502.23 & 1501.5(g)(1)). Include with the methodology discussion for why emissions quantification or data is not reasonable and cite any additional applicable supporting agency climate change policies or guidance (40 CFR § 1507.3).²³

It is necessary to only evaluate issues that [potentially] significantly affect the quality of the human environment (40 CFR §§ 1501.9(f)(1), 1502.1). Not all proposals may have a

²³ "While additional data might enable a more detailed environmental analysis, NEPA does not require maximum detail. Rather, it requires agencies to make a series of line-drawing decisions based on the significance and usefulness of additional information..." *Tinicum Twp., Pa. v. U.S. Dep't of Transp.*, 685 F.3d 288, 296 (3d Cir. 2012).

perceptible effect with respect to either GHG emissions or climate change implications, and agencies should eliminate from study non-significant issues (40 CFR 1501.9(a)). Even the process of preparing an EIS does not impose a substantive duty on the agency to discuss insignificant issues (40 CFR 1502.2(b)). However, many agencies do discuss less than significant effects in order to ensure these concerns are not raised in litigation.

If the agency decides to qualify GHG emissions or climate change implications in the analyses, whenever possible, consider implementing a monitoring program, which still can satisfy the requisite *hard look* approach.²⁴ Monitoring programs may assist the agency with making more detailed NEPA analyses in the future.²⁵

Table 4 provides supporting summaries from eight selected cases involving EAs and EISs when the agency evaluated GHG emissions and were challenged on their rationale and estimates.

Table 4. Cases involving agencies that were challenged on their GHG emission estimates and/or rationale

Agencies challenged on the basis of their GHG emissions evaluations
<i>Center for Biological Diversity v. Bureau of Land Mgmt.</i> , 833 F.3d 1136 (9th Cir. 2016). BLM’s rationale and models for estimating effects related to opening new land for off road vehicle was in stark contrast to rationale and estimates from a linked prior litigated NEPA document as well as the rationale used for estimating visitor use. The court found that “...BLM had the discretion to apply different models and assumptions in different circumstances...”; however, the court offered BLM several ways the agency could have improved its emissions analysis.

²⁴ “*Hard look*” refers to whether the agency took a reasonably thorough approach to consider the probable environmental consequences of the proposed action (*Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372, 1379 (9th Cir. 1998); *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97, 103 S.Ct. 2246 (1983)).

²⁵ *Central Oregon Landwatch v. Connaughton*, No. 15-35089, 696 Fed. Appx. 816 (9th Cir. Aug. 23, 2017).

Agencies challenged on the basis of their GHG emissions evaluations

WildEarth Guardians v. U.S. Bureau of Land Mgm't, 870 F.3d 1222 (10th Cir. 2017). The court recognized BLM used an emissions calculation model that irrationally applied logic associated with increased coal consumption from new coal mining leases and commented that the analysis BLM used was contradictive of its source information; “Choosing not to adopt a modeling technique does not render the BLM's EIS arbitrary and capricious; its irrational and unsupported substitution assumption did.”

Western Organization of Resource Councils v. Zinke, 892 F.3d 1234 (D.C. Cir. 2018). BLM prepared an original Programmatic EIS (PEIS) for its federal coal management program in 1979 and updated that document in 1985; however, the agency was challenged in part because the original climate change evaluation model and tools were outdated, and new *meaningful* information existed on climate change. The court found for the agency in that it did not require BLM to supplement its [older] PEIS but did require it to update the PEIS for climate change.

Birkhead v. Federal Energy Regulatory Comm'n, 925 F.3d 510 (D.C. Cir. 2019). FERC failed to calculate downstream emissions for a for new natural gas compression facility in TN, claiming such emissions are not reasonably foreseeable. “It should go without saying that NEPA also requires the FERC to at least attempt to obtain the information necessary to fulfill its statutory responsibilities.” (citing *Delaware Riverkeeper Network*, 753 F.3d at 1310). While the court found for FERC in this case, the court made it clear that FERC made no effort to obtain the missing information. The D.C. Circuit further disagreed with FERC's assertion that that downstream emissions are not reasonably foreseeable, for example, natural gas transported by the Project may displace existing natural gas supplies or higher emitting fuels [which may be estimated].

Earth Reports, Inc. v. Federal Energy Regulatory Comm'n, 828 F.3d 949 (D.C. Cir. 2016). FERC was challenged on the conversion of an LNG facility from a maritime terminal to a mixed use import and export terminal on the premise the agency should have estimated indirect effects from GHG emissions related to how exported LNG was used, and FERC did not estimate upstream natural gas production emissions. The court found for FERC because DOE, not FERC, has the legal authority to control LNG exports and also evaluate any indirect [GHG] effects.²⁶ Therefore, challenges should be directed to those agency's decisions.

²⁶ Note that multiple cases are linked to the same grouping of LNG projects and litigated on different aspects of the agency's authority and NEPA evaluation including *Sierra Club v. U.S. Dep't of Energy*, 867 F.3d 189 (D.C. Cir. 2017), *Sierra Club v. Federal Energy Regulatory Comm'n*, 867 F.3d 1357 (D.C. Cir. 2017), and *Sierra Club v. Federal Energy Regulatory Comm'n*, 867 F.3d 1357 (D.C. Cir. 2017).

Agencies challenged on the basis of their GHG emissions evaluations

Sierra Club v. U.S. Dep't of Energy, 867 F.3d 189 (D.C. Cir. 2017). FERC was challenged on an EIS to expand a liquefied natural gas (LNG) facility in Texas. FERC evaluated GHG emissions with several aspects of the project including indirect effects of most lifecycle emissions but did not evaluate certain downstream emissions related to the volume of LNG exported outside of the U.S. to Europe. The court sided with DOE because indirect emissions related to increased GHGs in foreign markets (and their production uses) were not reasonably foreseeable. Similarly, DOE did not evaluate GHGs associated with local-level emissions because such estimates would have been speculative and not reasonably foreseeable because, “[E]very natural-gas-producing region in the country is a potential source for new gas wells in order to meet export-induced natural gas demand . . .” Therefore, GHG impacts were generalized.

Sierra Club v. Federal Energy Regulatory Comm’n, 867 F.3d 1357 (D.C. Cir. 2017). FERC was challenged on its proposal to construct 3 new interstate natural gas pipelines in the Southeastern U.S., in part on a claim that the agency did not adequately evaluate GHGs. The court sided with plaintiffs stating FERC should have evaluated GHGs resulting from downstream emissions (burning the gas the pipelines carry) (i.e., pipelines were running directly to power plants, therefore, the use of the gas was reasonably foreseeable) and although FERC could not exactly predict energy demand and natural gas consumption, there was enough information to include some “reasonable forecasting.”

Appalachian Voices v. Federal Energy Regulatory Comm'n, No. 17-1271, Consolidated with 18-1002, 18-1175, 18-1177, 18-1186, 18-1216, 18-1223, 2019 WL 847199 (D. C. Cir. Feb. 19, 2019). FERC was challenged on the agency’s issuance of an EA and certificate to construct and operate a new 300 mile-long pipeline extending across state boundaries. Petitioners claimed FERC failed to evaluate downstream emissions from end of use combustion, which the agency considered to be not reasonably foreseeable, and also challenged on failing to apply the social cost of carbon to its evaluation. The court referenced *Sierra Club v. FERC*, 867 F.3d 1357, 1375 (D.C. Cir. 2017) in its decision: “(“FERC must either quantify and consider the project's downstream carbon emissions or explain in more detail why it cannot do so.”).” In this case, the court found for FERC because the agency provided adequate detail and justification for decision not to evaluate downstream effects.

Recommendations

Multiple agency actions drew litigation for failing to consider the indirect effects of GHG emissions from fossil fuel exports; however, NEPA does not require agencies to take action on

activities that are extraterritorial where the activities or decisions are “located entirely outside of the jurisdiction of the United States” (40 CFR § 1508.1(q)(1)(i)).^{27,28}

Agencies were often subjected to litigation for neglecting to evaluate downstream GHG emissions.²⁹ When agencies propose projects involving downstream effects in the local/state/region, such emissions should be considered and estimated when they are reasonably foreseeable.³⁰ Agencies should rely on their own policies and procedures when available; and when not available, clearly document the methodology used to qualify or quantify GHG emissions and climate change related effects and clearly state the rationale for the methodology (40 CFR §§ 1501.5(g), 1502.21 & 1502.23). Some available estimating tools are linked from the proposed framework (see **Attachment A**).

Burger and Wentz (2017) provide an approach for evaluating downstream and upstream GHGs, which is based upon their own reviews of NEPA regulation, procedures for how various agencies account for GHG emissions, relevant case law, and reviews of relevant NEPA

²⁷ “We hold that where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant ‘cause’ of the effect.” (*Department of Transportation v. Public Citizen*, 541 U.S. 752, 770 (2004)).

²⁸ In the light of considering emissions related to the manufacture and transportation of equipment required for a renewable energy power generation project...“...these emissions levels were largely outside the control of [the developer] and that attempts to estimate these amounts would be overly speculative.” (*Protect our Communities Found. V. Jewell*, 825 F.3d 571 (9th Cir. 2016)).

²⁹ Downstream emissions refer to those GHGs associated with the burning of fossil fuels resulting from activities that occur earlier in time and place (e.g., earlier actions may include but are not limited to the mining and transportation of fuels).

³⁰ “But we have previously held that NEPA analysis necessarily involves some ‘reasonable forecasting,’ and that agencies may sometimes need to make educated assumptions about an uncertain future.” “FERC must either quantify and consider the project’s downstream carbon emissions or explain in more detail why it cannot do so.” (*Sierra Club v. Federal Energy Regulatory Comm’n*, 867 F.3d 1357 (D.C. Cir. 2017) (Nicholson, 2017))

documentation. That approach attempts to aid agencies in resolving inconsistencies when evaluating downstream and upstream emissions.

Table 5 provides supporting summaries from three selected cases where plaintiffs challenged the agency on the methodology used to evaluate climate change effects in the litigated NEPA document.

Table 5. Cases involving agencies that were challenged on climate change evaluation methodology

Agencies were challenged on their climate change evaluation methodology
<p><i>Center for Biological Diversity v. Bernhardt</i>, 982 F.3d 723 (9th Cir. 2020). The Bureau of Ocean Energy Management (BOEM) was challenged on that agency’s approval of an offshore oil drilling facility in Alaska. Plaintiffs claimed BOEM relied on different methodologies for calculating lifecycle GHG emissions between the no action alternative and other alternatives, making alternatives “incomparable.” The agency clearly identified the necessity for different modeling strategies for site-specific drilling locations, the modeling used was insufficient to estimate key GHG predictive variables. The court found for BOEM on the claim of using different modeling techniques for each alternative but found for the plaintiffs on the modeling (missing information) claim. There is a process in NEPA to account for missing information.</p>
<p><i>Vecinos Para El Bienestar De Law Comunidad Costera v. Federal Energy Reg. Comm’n</i>, 6 F.4th 1321 (D.C. Cir. 2021). FERC was challenged on its authorization of construction and operation of three LNG terminals in Texas. Claimants contended that FERC’s assessment of impacts on climate change were deficient. FERC calculated emissions for project construction and operation; however, the agency determined it was unable to assign significance to its climate change effects stating, “it is not currently possible to determine localized or regional impacts from [greenhouse gas] emissions from the Project.” The court disagreed. FERC also failed to provide a response to substantive comments raised on FERC’s climate change analysis.</p>
<p><i>Oregon Wild v. Connaughton</i>, No. 14-35251, 2016 WL 6092397, - Fed. Appx. - (9th Cir. Oct. 19, 2016). The USFS prepared an EIS in 2004 for the proposed expansion of a ski area in Oregon. The agency was challenged because environmental groups claimed to have identified new information since 2004 that warranted preparation of a supplemental NEPA document. The new information included eight climate change studies and two climate change guidance documents. USFS experts reviewed the information and concluded a supplemental review was not required. The court found for the agency giving deference to the agency’s internal expertise.</p>

Recommendations

The agency is required to use reliable resources and statistical models; however, any differences between models or their statistical outputs should be clearly identified and discussed, as well as identifying any missing or incongruent variables that would help to calibrate results (40 CFR §§ 1502.21 & 23). Similarly, the agency should explicitly identify any methodologies used while also providing sources for conclusory statements relied on in support of its decision (40 CFR § 1502.23). Methodologies may be appended to the NEPA document.

Especially when GHG emissions and climate change analyses involve a high degree of scientific expertise, “courts must defer to the informed discretion of the responsible federal agency” ... “when specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts even if, as an original matter, a court might find contrary views more persuasive.” (*Marsh v Oregon Natural Resources Council*, 490 U.S. 360, 377 (1989))^{31,32}

Conclusion

This study was initiated with two goals in mind. The first to help the NEPA practitioner identify under what circumstances should GHG emissions and climate change implications be evaluated in a NEPA document. The second, to supplement existing guidance and aid the NEPA practitioner through the process of evaluating GHG emissions and considering the implications of climate change, when such an analysis is deemed necessary.

³¹ “Our deference to agency determinations is at its greatest when that agency is choosing between various scientific models,...” (*San Luis & Delta-Mendota Water Auth. v. Jewell*, 747 F.3d 581, 610 (9th Cir. 2014))

³² ““Deference towards the agency ‘is highest when reviewing an agency’s technical analyses and judgments involving the evaluation of complex scientific data within the agency’s technical expertise,’” citing *League of Wilderness Defenders Blue Mountains Biodiversity Project v. Allen*, 615 F.3d 1122, 1130 (9th Cir. 2010).”

With respect to the first goal, while it has been established through research and surveys that agencies confuse the circumstances when GHG emissions and climate change should be evaluated in NEPA, there are documented examples of actions as provided in the CEQ 2016 guidance and within EO 14008 that clarify this question.

No additional project examples were gleaned from litigation reviews in this study. The relatively small sample size of NEPA litigation cases reviewed was not statistically significant enough to develop any conclusions or general categories of proposed actions or projects that would “qualify” for a GHG emissions or climate change analysis or otherwise be eliminated from detailed study. CEQ leaves the discretion to the agency to make such decisions on a project-specific basis. In addressing whether a federal agency should evaluate GHG emissions and climate change as part of the NEPA document, CEQ’s own introduction to the 2016 guidance states [the guidance provides] “a common approach for assessing their proposed actions, while recognizing each agency’s unique circumstances and authorities.” (CEQ, 2016).

The CEQ makes clear that federal agencies may prepare NEPA evaluation guidance for evaluating GHG emissions and the implications of climate change that relate that agency’s mission and goals (40 CFR § 1507.3). Therefore, agencies updating their NEPA procedures should consider coordinating with CEQ on specific actions that normally do- and do not warrant GHG emissions quantification and potential significance thresholds (CEQ, 2016).

The second study goal was accomplished through preparation of the proposed framework (**Attachment A**). The CEQ 2016 guidance was lengthy (34 pages) and lacked any visual guides such as process charts that may be helpful to a reader for understanding the major tenets of the guidance in one succinct representation. While it is evident the CEQ guidance follows the

basic elements of the NEPA process, nuances are not provided which may be helpful to the NEPA practitioner. The following subsection discusses the proposed framework in more detail.

Proposed Framework

The proposed framework was prepared with the NEPA process in mind including scoping, alternatives development, affected environment, and environmental consequences (direct, indirect, and cumulative effects). The proposed framework also includes the important step of considering mitigations as defined in the NEPA implementing procedures (40 CFR § 1508.1(s)). Other considerations include adaptations and monitoring programs.

The proposed framework does not include information on NEPA decision documents (40 CFR §§ 1501.6 & 1505.2).³³ NEPA implementing regulations provide ample guidance for how best to prepare decision documents. The proposed framework also does not provide information on development of project files, which are not GHG or climate change specific.³⁴

Litigation and literature were reviewed in the context of the CEQ 2016 guidance and the 2022 NEPA implementing regulations (40 CFR Parts 1500-1508). It's worth noting that some of the litigation reviewed occurred in the years when only draft guidance was available. This was considered when developing the proposed framework. Litigation themes, recommendations, and NEPA regulation citations were incorporated into the proposed framework.

³³ Wentz (2015) discusses a survey conducted for EISs (2012-2014) by the Sabin Law Center that found approximately 15% of respondents indicated "climate change considerations factored into the final agency decision.." however, without reviewing the survey, it was unclear what *were* the proposed actions and if the action resulted in substantial volumes of GHGs (or not). All agency decisions should account for the specific potentially significant issues related to the proposed action. This is not inherently unique to GHG emissions or climate change.

³⁴ Also known as decision files, project records, administrative files, administrative records, etc.

The proposed framework was intended to briefly, and visually, complement the CEQ 2016 guidance. The proposed framework was also intended to recognize, where possible, certain differences in guidance between evaluations for EA and EIS level NEPA documents, particularly when planning alternatives and considering environmental effects.

The 2016 guidance addressed two forms of climate change evaluation. One aspect, *the effect from the proposed project to climate change* (i.e., GHG emissions), was substantially considered in this limited study. The other aspect, *the implications of climate change to the proposed project*, was not considered in detail. Few of the NEPA claims or cases reviewed specifically referenced the latter aspect. Jain et al. (2017) and Wentz (2015) discuss both aspects and the confusion that agencies experience when considering GHG emissions and climate change implications in NEPA analyses.³⁵

The proposed framework (**Attachment A**) was developed with both aspects of GHG emissions and climate change implications in mind. Any use of the proposed framework would require analytical tools and methods that are unique to the project and its emissions sources or climate change implications and geography.

³⁵ Jain et al. (2017) also provides a “rubric” that is intended to aid the NEPA practitioner preparing an EIS to consider the tenets of the CEQ 2016 guidance.

References

(NEPA) National Environmental Policy Act

42 U.S.C. § 4321 *et seq.* (1969). The National Environmental Policy Act, as amended.

(CEQ) Council on Environmental Quality

CEQ. 2022. National Environmental Policy Act Implementing Regulations. 40 CFR Parts 1500-1508 (May 20, 2022)

CEQ. 2020. National Environmental Policy Act Implementing Regulations. 40 CFR Parts 1500-1508 (May 20, 2020)

CEQ. 2016. Memorandum for Heads of Federal Departments and Agencies: Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. August 1, 2016.

CEQ. 2010. Memorandum for Heads of Federal Departments and Agencies: Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions. February 18, 2010.

CEQ. 2005. Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act. 40 CFR Parts 1500-1508 (2005)

(Fed. Reg.) *Federal Register*

87 Fed. Reg. 23453 *Final Rule: National Environmental Policy Act Implementing Regulations Revisions*. May 20, 2022

86 Fed. Reg. 7037 Executive Order: *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*. January 25, 2021.

85 Fed. Reg. 43304: *Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act*. July 16, 2020 (Effective September 14, 2020).

80 Fed. Reg. 68743: *Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment*. November 3, 2015.

76 Fed. Reg. 3843: *Final Guidance for Federal Departments and Agencies on the Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact*. January 21, 2011.

(U.S.C.) United States Code

5 U.S.C. §§ 551-559 *Administrative Procedures Act*. Public Law 404-79th Congress

(Cornell) Cornell Law School

Cornell. n.d. Legal Information Institute.

(EO) Executive Order

EO 14008 *Tackling the Climate Crisis at Home and Abroad*. January 27, 2021.

EO 13990 *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*. January 25, 2021.

EO 11988 *Floodplain Management*. May 24, 1977.

EO 13690 *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*. January 30, 2015. (Revoked by EO 13807 of August 15, 2017 and reinstated by EO 14030 of May 20, 2021).

(NAEP) National Association of Environmental Professionals Annual Reports

(Mahoney, 2010) Lisa Mahoney with contributions by Karen Vitulano, Grace Musumeci, Chuck Nicholson, Lucinda Low Swartz, David Contrada, Holly Reuter, Chris Conrad and Peter W. Havens. 2010. Annual NEPA Report 2010 of the National Environmental Policy Act (NEPA) Working Group. National Association of Environmental Professionals.

(Mahoney and Johnson, 2011) Lisa Mahoney and Karen Johnson with contributions by Karen Vitulano, Grace Musumeci, Lucinda Low Swartz, Ron Bass, Piet and Carole DeWitt, and Lara Jarrett. 2011. Annual NEPA Report 2011 of the National Environmental Policy Act (NEPA) Working Group. National Association of Environmental Professionals.

(Charles, Johnson, and Peters, 2012) Judith Charles, Karen Johnson, and Linda Peters with contributions by Ron Lamb and Joe Trnka, Karen Vitulano, Grace Musumeci, Lucinda Low Swartz, Ron Bass, Piet and Carole deWitt, Nancy Skinner, Dinah Bear, David Yentzer, Bob Cunningham and Judith Lee. 2012. Annual NEPA Report 2012 of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(Johnson, 2013) Karen Johnson with contributions by Ron Lamb and Joe Trnka, Ron Bass, Piet and Carole deWitt, Elizabeth Ellis, William G. Malley, Grace Musumeci, Charles P. Nicholson, Lucinda Low Swartz, Karen Vitulano. 2013. Annual NEPA Report 2013 of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(Johnson, 2014) Karen Johnson with contributions by Ron Lamb and Joe Trnka, Ron Bass, Ray Clark, Piet and Carole deWitt, Harold Draper, P. E. Hudson, David Mattern, Grace Musumeci, Charles P. Nicholson, Michael Smith, Lucinda Low Swartz, and Karen Vitulano. 2014. Annual NEPA Report 2014 of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(Johnson, 2015) Karen Johnson with contributions by Ron Lamb, Piet and Carole deWitt, Horst Greczmiel, Brock Heogh, P. E. Hudson, Charles P. Nicholson, Michael D. Smith, Lucinda Low Swartz, and Karen Vitulano. 2015. Annual NEPA Report 2015 of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(Nicholson, 2016) Charles P. Nicholson with contributions by Piet and Carole deWitt, Charles P. Nicholson, Lucinda Low Swartz, P. E. Hudson, and Michael Smith. 2016. Annual NEPA Report 2016 of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(Nicholson, 2017) Charles P. Nicholson with contributions by Marie Campbell, James Gregory, Piet and Carole deWitt, Charles P. Nicholson, P. E. Hudson, and Lucinda Low Swartz. 2017. 2017 Annual NEPA Report of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(Nicholson, 2018) Charles P. Nicholson with contributions by Marie Campbell, Ron Deverman, Liz Ellis, James Gregory, Piet and Carole deWitt, Charles P. Nicholson, P. E. Hudson, Lucinda Low Swartz and Roger Turner. 2018. 2018 Annual NEPA Report of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(Nicholson, 2019) Charles P. Nicholson with contributions by Betty Dehoney, James Gregory, Piet and Carole deWitt, Charles P. Nicholson, and P. E. Hudson. 2019. 2019 Annual NEPA Report of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(Nicholson, 2020) Charles P. Nicholson with contributions by Betty Dehoney, James Gregory, Piet and Carole deWitt, Charles P. Nicholson, and P. E. Hudson. 2020. 2020 Annual NEPA Report of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(Nicholson, 2021) Charles P. Nicholson with contributions by James Gregory, Piet and Carole deWitt, Charles P. Nicholson, Rona Spelleccacy, and P. E. Hudson. 2021. 2021 Annual NEPA Report of the National Environmental Policy Act (NEPA) Practice. National Association of Environmental Professionals.

(IWG) Interagency Working Group

IWG. 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990. Interagency Working Group on Social Cost of Greenhouse Gases, United States Government. February 2021. Accessed online at: https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf

Additional References

(Hein and Jacewicz, 2020) Hein, Jayni Foley and Jacewicz, Natalie. 2020. Implementing NEPA in the Age of Climate Change. Michigan Journal of Environmental and Administrative Law. Vol. 10. Pgs. 1-58

(Burger and Wentz, 2017) Burger, Michael and Wentz, Jessica. 2017. Downstream and Upstream Greenhouse Gas Emissions (mining, distributing, burning of fossil fuels): The Proper Scope of NEPA Review. Harvard Environmental Law Review. Vol. 41. Pgs 109-187

(Jain et al., 2017) Saloni Jain, Omri Klagsbald, Giovanna Leigh Crozier-Fitzgerald, Taylor Quinn, and Elana Sulakshana. 2017. How Did Federal Environmental Impact Statements Address Climate Change in 2016. Sabin Center for Climate Change Law. Accessed in: <http://www.ColumbiaClimateLaw.com>

(Ruple and Race, 2019) John C. Ruple, Kayla Race. 2019. Measuring the NEPA Litigation Burden: A Review of 1,499 Federal Court Cases. Environmental Law, Vol. 50:479, pgs. 479-522

(Wentz, 2016) Jessica Wentz. 2016. Accounting for the impacts of climate change on public lands and natural resources: Planning mandates and implementing actions (Background Paper). Sabin Center for Climate Change Law. Accessed in: <http://www.ColumbiaClimateLaw.com>

(Wentz, 2015) Jessica Wentz. 2015. Assessing the Impacts of Climate Change on the Built Environment: A Framework for Environmental Reviews. Environmental Law Reporter. Vol. 45. Pgs. 1015-1031

Reviewed Cases

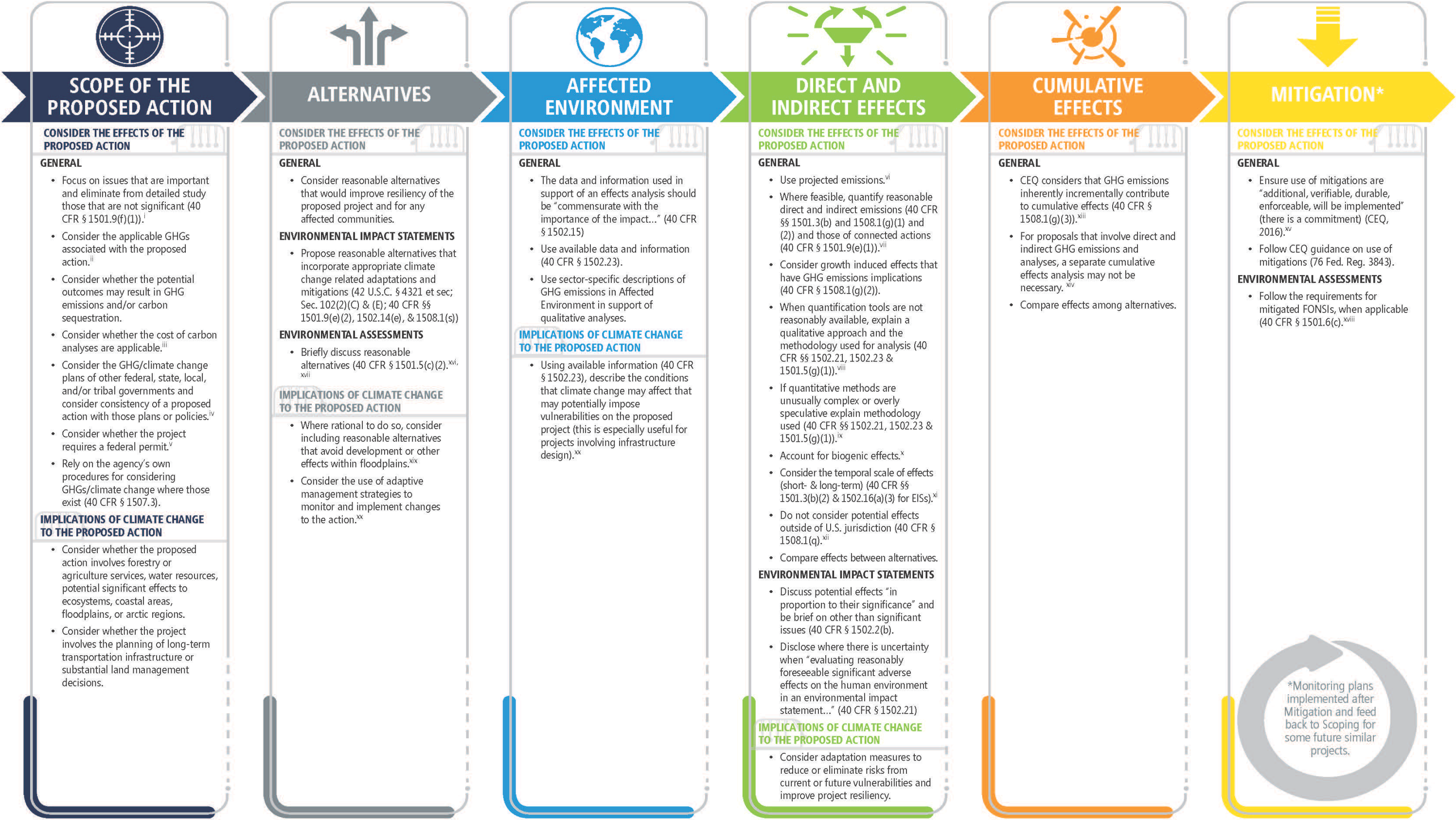
Case	Court & Year	Defendant Agency	NEPA Document	Outcome
Hapner v. Tidwell, 621 F.3d 1239	9 th Cir. 2010	USFS	EA	Agency prevailed

Case	Court & Year	Defendant Agency	NEPA Document	Outcome
North Carolina Alliance for Transportation Reform v. U.S. Department of Transportation, 713 F. Supp.2d 491	M.D. N.C. ³⁶	FHWA	EIS	Agency prevailed
Barnes v. U.S. Department of Transportation, F.3d	9 th Cir. 2011	FAA	EA	Agency did not prevail
WildEarth Guardians et al. v. Jewell et al., F.3d	D.C. Cir. 2013	BLM	EIS	Agency prevailed
Klein v. U.S. Department of Energy, 753 F.3d 576	6 th Cir. 2014	DOE	EA	Agency prevailed
Coalition for Advancement of Regional Transportation v. Federal Highway Administration, 576 Fed. Appx. 477	6 th Cir. 2014	FHWA	EIS	Agency prevailed
Kentucky Coal Ass'n v. Tennessee Valley Authority, 804 F.3d 799	6 th Cir. 2015	TVA	EA	Agency prevailed
Oregon Wild v. Connaughton, No. 14-35251, 2016 WL 6092397	9 th Cir. 2016	USFS	EIS	Agency prevailed
Earth Reports, Inc. v. Federal Energy Regulatory Comm'n, 828 F.3d 949	D.C. Cir. 2016	FERC	EA	Agency prevailed
Center for Biological Diversity v. Bureau of Land Mgmt., 833 F.3d 1136	9 th Cir. 2016	BLM	EIS	Agency prevailed
Protect our Communities Found. V. Jewell, 825 F.3d 571	9 th Cir. 2016	BLM	EIS	Agency prevailed
Sierra Club v. U.S. Dep't of Energy, 867 F.3d 189	D.C. Cir. 2017	DOE	EIS	Agency prevailed
Sierra Club v. Federal Energy Regulatory Comm'n, 867 F.3d 1357	D.C. Cir. 2017	FERC	EIS	Agency prevailed on some claims but did not prevail on GHGs
Sierra Club v. Federal Energy Regulatory Comm'n, 867 F.3d 1357	D.C. Cir. 2017	FERC	EIS	Agency prevailed on some claims but did not prevail on GHGs
Delaware Riverkeeper Network v. U.S. Army Corps of Eng'rs, 869 F.3d 148	3 rd Cir. 2017	USACE	EA	Agency prevailed on NEPA claim
WildEarth Guardians v. U.S. Bureau of Land Mgm't, 870 F.3d 1222	10 th Cir. 2017	BLM	EIS	Agency partially on some but not all NEPA claims

³⁶ Middle District of North Carolina. This was the only non-Circuit Court case evaluated for this project.

Case	Court & Year	Defendant Agency	NEPA Document	Outcome
Central Oregon Landwatch v. Connaughton, No. 15-35089, 696 Fed. Appx. 816	9 th Cir. 2017	USFS	EA	Agency prevailed
Western Organization of Resource Councils v. Zinke, 892 F.3d 1234	D.C. Cir. 2018	BLM	EIS	Agency prevailed
Vaughn v. Fed. Aviation Admin., No. 16-1377, 2018 WL 6430368, -- Fed. Appx.	D.C. Cir. 2018	FAA	EA	Agency prevailed
The Town of Weymouth, Massachusetts v. Fed. Energy Regulatory Comm'n, No. 17-1135 (consolidated with 17-1139, 17-1176, 17-1220, 18-1039, 18-1042), 2018 WL 6921213, -- Fed. Appx.	D.C. Cir. 2018	FERC	EA	Agency prevailed
Birckhead v. Federal Energy Regulatory Comm'n, 925 F.3d 510	D.C. Cir. 2019	FERC	EA	Agency prevailed
Appalachian Voices v. Federal Energy Regulatory Comm'n, No. 17-1271, Consolidated with 18-1002, 18-1175, 18-1177, 18-1186, 18-1216, 18-1223, 2019 WL 847199	D.C. Cir. 2019	FERC	EA	Agency prevailed
High Country Conservation Advocates v. U.S. Forest Serv., 951 F.3d 1217	10 th Cir. 2020	USFS	EIS	Agency prevailed on GHGs but not on alternatives claim
Center for Biological Diversity v. Bernhardt, 982 F.3d 723	9 th Cir. 2020	BOEM	EIS	Agency prevailed on one GHG claim but not on other GHG claim
Natural Res. Def. Council v. Bernhardt, No. 19-35006, 820 Fed. Appx. 520	9 th Cir. 2020	BLM	EIS	Agency prevailed
Center for Cmty. Action & Envtl. Justice v. Fed. Aviation Admin., 18 F.4th 592	9 th Cir. 2021	FAA	EA	Agency prevailed
Vecinos Para El Bienestar De Law Comunidad Costera v. Federal Energy Reg. Comm'n, 6 F.4th 1321	D.C. Cir. 2021	FERC	EIS	Agency did not prevail on NEPA claim
Swomley v. Schroyer, D.C. No. 1:19-CV-01055-TMT, 2021 WL 4810161	10 th Cir. 2021	USFS	EA	Agency prevailed

PROPOSED FRAMEWORK FOR COMPLYING WITH CEQ GUIDANCE FOR CONSIDERING GHG EMISSIONS AND THE IMPLICATIONS OF CLIMATE CHANGE IN NEPA REVIEWS



Endnotes

ⁱ There is no requirement to evaluate climate change in every EA or EIS. CEQ recommends that the agency evaluate resources that are potentially affected by the proposed action and alternatives (40 CFR § 1501.3(b)(1)).

ⁱⁱ CEQ defines GHGs as carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride, and sulfur hexafluoride. However, the agency may use metric tons of carbon dioxide (CO₂) equivalent, written as MT CO₂e, as a proxy for climate change effects (CEQ, 2016).

ⁱⁱⁱ Current guidance related to calculating the social cost of carbon indicate project-level evaluations are not appropriate for most proposals. Examples where evaluations of the social cost of carbon may be most appropriate when preparing NEPA are associated with agency rulemakings and regulatory analyses (CEQ, 2016; Hein and Jacewicz, 2020; IWG, 2021).

^{iv} Federal agencies often must consider the policies of other jurisdictions (local, state, regional) relevant to the proposed action (40 CFR § 1502.16(a)(5)). CEQ's NEPA Implementing regulations also directs agencies to consider connected actions, for example, those associated with climate change (40 CFR § 1501.9(e)(1)).

While some courts have determined that state laws “do not impose a duty on the federal government...” (see *Vaughn v. Fed. Aviation Admin.*, No. 16-1377, 2018 WL 6430368, -- Fed. Appx. --- (D.C. Cir. Nov. 30, 2018)), where EIS or complex EAs may be concerned, it may be necessary to consider relevant state/local/regional policies and utilize those policies as a means of calculating or comparing GHG emissions when GHG inventories are available (see *Center for Cmty. Action & Env'tl. Justice v. Fed. Aviation Admin.*, 18 F.4th 592 (9th Cir. 2021))

^v 14008 Section 213 requires that federal permitting decisions consider the effects of GHGs and climate change. NEPA requires, when appropriate, agencies should consider anticipated permits. Therefore, Projects involving federal permits may be required to conduct climate change analysis (EO 14008; 40 CFR §§ 1502.24(b), 1505.3(a), 1506.1(b)).

^{vi} Multiple GHG accounting or estimating tools exist for use in NEPA documents. Examples of tools can be found at the following Web site: <https://ceq.doe.gov/guidance/ghg-tools-and-resources.html>. Climate justice related tools may be found at the following Web site: <https://www.whitehouse.gov/ceq/news-updates/2022/02/18/ceq-publishes-draft-climate-and-economic-justice-screening-tool-key-component-in-the-implementation-of-president-bidens-justice40-initiative/>. One example of an environmental justice related climate mapping tool may be found at the following Web site: <https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5>.

^{vii} Note that GHG emissions or other actions that may affect the physical environment may increase a vulnerability. Tools may be available such as local, state, or regional climate change vulnerability assessments to help identify existing conditions that may be worsened by the proposed action or alternatives. EO 14008 Section 211 requires agencies to develop climate related plans that may help identify vulnerabilities and potential effects to federally owned property (EO 14008, 2021).

^{viii} “Furthermore, we allow agencies to describe environmental impacts in qualitative terms when they explain their reasons for doing so and ‘why objective data cannot be provided.’” (see *League of Wilderness Defs. -Blue Mountains Biodiversity Project v. U.S. Forest Serv.*, 689 F.3d 1060, 1076 (9th Cir. 2012))

^{ix} Also applies to EAs, where feasible, in accordance with 40 CFR § 1501.5(g).

^x Compare projected changes in carbon stocks, where applicable, with net GHG emissions. Such comparisons should be made between the no action (or otherwise baseline conditions) and any action alternatives (40 CFR §§ 1502.15 & 1507.3(c)(4)). Consider cumulative effects that may have longer term benefits from biogenic activities.

^{xi} Recall that there may be different scales and timeframes for emissions when considering construction, operation, and maintenance activities. Emissions should be considered for the lifetime of the project. In certain cases (e.g., habitat restoration) short-term adverse effects may yield long-term sequestration benefits (CEQ, 2016).

^{xii} Some litigants challenged an agency for not considering the downstream effects of GHGs including:

Sierra Club v. U.S. Dep't of Energy, 867 F.3d 189 (D.C. Cir. 2017).

Birckhead v. Federal Energy Regulatory Comm'n, 925 F.3d 510 (D.C. Cir. 2019).

Appalachian Voices v. Federal Energy Regulatory Comm'n, No. 17-1271, Consolidated with 18-1002, 18-1175, 18-1177, 18-1186, 18-1216, 18-1223, 2019 WL 847199 (D. C. Cir. Feb. 19, 2019).

Emissions associated with extraterritorial exports do not need to be considered where the activities or decisions are "located entirely outside of the jurisdiction of the United States" (40 CFR § 1508.1(q)(1)(i))"

"We hold that where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant 'cause' of the effect." (*Department of Transportation v. Public Citizen*, 541 U.S. 752, 770 (2004))

In the light of considering emissions related to the manufacture and transportation of equipment required for a renewable energy power generation project..."...these emissions levels were largely outside the control of [the developer] and that attempts to estimate these amounts would be overly speculative." (*Protect our Communities Found. V. Jewell*, 825 F.3d 571 (9th Cir. 2016)).

^{xiii} The CEQ 2016 NEPA guidance expressly contends that there is no expectation for the cumulative significance of global GHG emissions to "solely" be the basis for requiring an EIS. Such decisions should be made in the light of the magnitude of emissions related to the proposed action.

^{xiv} The CEQ 2016 NEPA guidance indicates the cumulative effects analysis may be "subsumed" within an adequately addressed direct and indirect effects analysis. In any such cases, the agency should clearly indicate the methodology used to support such a decision (40 CFR § 1502.23) and cite the CEQ guidance document.

^{xv} Additional guidance is available for mitigations that may be helpful in developing an effective GHG mitigation or monitoring program for the project (80 Fed. Reg. 68743; 76 Fed. Reg. 3843).

^{xvi} In the light of a choice between a no action and an action alternative, "An agency in general has wide discretion to choose the alternatives to evaluate in light of the project's purpose and environmental impacts. That is particularly true when an agency decides to prepare only an environmental assessment, which makes any "duty to consider environment-friendly alternatives" "less pressing." [citing] *Save Our Cumberland Mountains*, 453 F.3d at 342." (*Klein v. U.S. Department of Energy*, 753 F.3d 576 (6th Cir. 2014) – see NAEP 2014)

^{xvii} "[W]ith an EA, an agency only is required to include a brief discussion of reasonable alternatives," *N. Idaho Cmty. Action Network v. U.S. Dep't of Transp.*, 545 F.3d 1147, 1153 (9th Cir. 2008) (as cited from *Central Oregon Landwatch*)

^{xviii} CEQ has provided specific guidance to federal agencies for how best to address mitigated FONSIs (76 Fed. Reg. 3843).

^{xix} Ensure compliance with EO 11900 (1977) and EO 13690 (2015, reinstated 2021).

^{xx} See 2003 CEQ report for Modernizing NEPA Implementation.

^{xxi} CEQ recommends the agency provide a basis for comparing current climate-related conditions to future conditions (e.g., sea level rise, increased precipitation, increased temperature, decreased groundwater) as a means of revealing future potential vulnerabilities and assessing project resiliency and longevity. Tools and information are readily available to support multiple scales of projects and that provide at least two possible future scenarios each. These tools include reports and information from the Intergovernmental Panel on Climate Change (IPCC) (<https://www.ipcc.ch/>) and the U.S. Global Change Research Program (USGCRP) National Climate Assessments (<https://www.globalchange.gov/>).