Evidence-Based Recommendations for Improving National Environmental Policy Act Implementation

John C. Ruple, Jamie Pleune & Erik Heiny*

The National Environmental Policy Act requires federal agencies to consider environmental impacts before acting. NEPA is the Magna Carta of U.S. environmental law, a topic of intense debate, and the subject of ongoing rulemaking efforts. Prior NEPA scholarship focuses almost exclusively on Environmental Impact Statements, which account for just 1% of all NEPA decisions. Little is known about the length of time required to complete the other 99% of agency decisions, which involve a more streamlined review. This is a critical gap in the literature because NEPA compliance involves an estimated 50,000 federal decisions annually. NEPA reform, we believe, should begin with a careful understanding of NEPA practice at all levels of review.

To help advance effective NEPA reform, we studied over 41,000 NEPA decisions completed by the U.S. Forest Service between 2004 and 2020. Using this data, we conducted a multivariate statistical analysis of the length of time required to complete the NEPA process at each level of review. We then investigated factors associated with longer decisionmaking times. Our model accounts for interactions between 3 levels of NEPA analysis, 43 activities involved in these decisions, 9 geographic regions, and the year of project initiation. Contrary to widely held assumptions, we found that a less rigorous level of analysis often fails to deliver faster decisions. Delays, we found, are often caused by factors only tangentially related to the Act, like inadequate agency budgets, staff turnover, delays receiving information from permit applicants, and compliance with other laws. Improving NEPA efficacy, we argue, should therefore focus on improving agency capacity. This approach, we believe, would improve the NEPA process and advance NEPA's mandate to engage with key stakeholders and carefully consider environmental impacts before making decisions.

I. Introduction 276

II. Background 281

A. NEPA's Regulatory Structure 282

B. Recent Regulatory Reforms 286

C. The Forest Service's Multi-Year Trend Report (MYTR) Database 288

D. Initial Observations Regarding Forest Service NEPA Practice 289

E. Decision-Making Times at Each Level of Analysis 292

F. Striking Difference Between Mean and Median Completion Times Shows Skewing by Anomalous, Lengthy Decisions 294

III. Regression Analysis of Trends in Decision-Making Times 297

A. Quality Assurance and Model Data 298

IV. Model Results 299

A. The Level of Analysis is an Imperfect Predictor of the Length of Time to Complete a Document 300

B. Some Activities Appear to Prolong Decision-Making Time, But Closer Analysis Suggests that Many Sources of Delay Are External to NEPA 304

1. Land Exchanges: Sources of delay identified in the land exchange process apply equally to the NEPA decision-making process 306

2. Oil: Abnormally long completion times for a small number of projects may be caused by external factors including operator priorities, market dynamics, and lease suspensions 310

3. Forest Plan Creation and Revision: Delays Caused by Compliance with Other Laws May Skew NEPA Compliance Time Data 317

C. Geographic Region Has a Significant Influence on Decision-making Time 322

1. Regression Model Results Regarding Forest Service Regions 323

2. Regional Differences Influence Decision-making Time 324

3. Wildfires May Have Disparate Fiscal Effects Across Regions 326

D. Background Factors Affecting NEPA Decision-making Timeframes 327

1. Budgetary Uncertainty Caused by Wildfire Borrowing Affects Program Efficacy, Including Planning and Environmental Analysis 327

1. Litigation Risk Aversion Causes Delay and Unwieldy Documents 330

V. Recommendations 332

A. Potentially Useful Changes to NEPA Practice 333

1. Ground Change in Good Information, Measure Changes, and Adapt as Needed 333

2. Focus on Improving Capacity, Not Downscaling Analysis 335

3. Increase and Stabilize Agency Capacity 340

4. Foster an Agency Culture that Incentivizes Action and Public Engagement 341

B. Changes to Avoid 344
1. Treating the Wrong Problem 344
2. Avoid Inviting Unintended Consequences 346
3. Avoid Diluting NEPA's Guiding Principles 348

VI. Conclusion 349

Appendix 1: The Regression Model 351

Appendix 2: Excerpt from PALS User Guide Providing Definitions of Project Activities 354

Appendix 3: Regression Model Results– Estimated Coefficients for Activities 357

I. INTRODUCTION

Since its passage fifty-one years ago, the National Environmental Policy Act (NEPA) has been incorporated into the fabric of the administrative state. Its look-before-you-leap mandate applies to all "major Federal actions significantly affecting the quality of the human environment,"[1] and is premised on the belief that a careful, transparent, and deliberative process will result in more environmentally sustainable decisions.

NEPA's implementing regulations utilize a tiered decision-making framework whereby decisions with the greatest impact undergo searching review, while more benign actions receive expedited analysis.[2] With hundreds of federal agencies making thousands of decisions annually, NEPA can drive vast individual, incremental, and cumulative changes to federal actions that result in reduced environmental impacts.[3] NEPA "has provided the foundation for countless improvements in our environmental laws. It gives us cleaner water, cleaner air, and a safer and healthier environment."[4] NEPA also affords the public a voice in decisions affecting them.[5] But, NEPA compliance "is never straightforward, and . . . epitomizes the long, messy arc of democracy."[6]

Moreover, NEPA does not operate in a vacuum. It interfaces with other laws. As the Congressional Research Service explains, "Most agencies used NEPA as an umbrella statute—that is, a framework to coordinate or demonstrate compliance with any studies, reviews, or consultations required by

---

* John Ruple is a Professor of Law (Research) and the Wallace Stegner Center Fellow at the University of Utah, S.J. Quinney College of Law. Jamie Pleune is an Associate Professor (Research) and a Wallace Stegner Center Fellow at the University of Utah, S.J. Quinney College of Law. Erik Heiny is a Professor of Mathematics and Statistics at Utah Valley University. This research effort was funded in part by the U.S. Forest Service, the Wilburforce Foundation, and the ESSR Wallace Stegner Endowment. None of the funders exercised editorial or substantive control over our analysis or development of this article. The views expressed herein do not necessarily represent the views of project funders, the state of Utah, Utah Valley University, or the University of Utah. The authors would like to thank Professors Forrest Fleischman and Daniel Mandelker for comments on early drafts of this article.

[1] 42 U.S.C. § 4332(2)(C).

[2] *See* 40 C.F.R. §§ 1501.4–1501.5 (2020) (discussing categorical exclusions and environmental assessments and identifying when the less intensive analysis contained in these documents is appropriate).

[3] *See generally*, U.S. GOV'T ACCOUNTABILITY OFF., GAO-14-370, NATIONAL ENVIRONMENTAL POLICY ACT: LITTLE INFORMATION EXISTS ON NEPA ANALYSES, 1 (2014) [hereinafter GAO, NEPA: LITTLE INFORMATION EXITS] (describing the NEPA process and concerns over compliance burdens). *See generally*, John C. Ruple & Mark Capone, *NEPA—Substantive Effectiveness Under a Procedural Mandate: Assessment of Oil and Gas EISs in the Mountain West*, 7 GEO. WASH. J. ENERGY & ENV'T L. 39 (2016) (documenting reductions in environmental impact that occurred between draft and final environmental impact statements).

[4] 113 CONG. REC. E1637 (daily ed. Nov. 12, 2013) (statement of Rep. Quigley).

[5] Robert W. Adler, *In Defense of NEPA: The Case of The Legacy Parkway*, 26 J. OF LAND, RESOURCES & ENV'T LAW 297, 317 (2006).

[6] Marna McDermott, *Streamlining Energy Dominance*, 36 THE ENV'T F. 27, 31 (2019).

any other environmental laws."[7] If NEPA were repealed, compliance with other environmental laws would still be required.[8] Even though NEPA is not the source of the obligation—and some delays attributed to NEPA may originate from sources external to the law itself—NEPA is often blamed for the perceived delay associated with compliance.[9]

The time and effort required to comply with NEPA has engendered heated debate.[10] Efforts to "streamline NEPA" abound, and sustained calls for reforms to the Act and its implementing regulations reverberate from both sides of the aisle. NEPA's detractors malign it as the source of delays, job losses, and failures to update infrastructure.[11] Other critics characterize NEPA as "bureaucratic red-tape,"[12] and as "the weapon of choice for opponents seeking to stop or delay an activity requiring federal action."[13]

---

[7] CONG. RSCH. SERV., RL33152, THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA): BACKGROUND AND IMPLEMENTATION 1 (2011) [hereinafter CRS, NEPA: BACKGROUND AND IMPLEMENTATION].

[8] *Id*. at 24–25. A natural experiment comparing critical habitat designations made with and without NEPA, noted that designations that were subject to NEPA review were completed an average of 93 days faster than those that were not subject to NEPA review. *See* John C. Ruple, et al., *Does NEPA Help or Harm ESA Critical Habitat Designations? A Review of 600 Critical Habitat Rules*, 46 ECOLOGY L. Q. 829, 842 (2019).

[9] CRS, NEPA: BACKGROUND AND IMPLEMENTATION, *supra* note 7, at 26 ("The perception that NEPA results in extensive delays and additional costs . . . can be magnified when compliance with multiple environmental laws and regulations is required. . . . The sometimes extensive reviews, documentation, and analysis required by agencies, such as the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Coast Guard, and the EPA, as well as various state regulatory and review agencies, add further to the perception that extensive delays are related to the NEPA process. Such 'delays' may actually stem from an agency's need to complete a permit process or analyses required under separate statutory authority (e.g., the Clean Water Act or Endangered Species Act), over which the lead agency has no authority."). *See also id*. at 27–28 (reporting the results of a survey of the Department of Defense, the Department of the Interior, and the Forest Service in which respondents identified "factors 'outside the NEPA process'" "as the cause of delay between 68% to 84% of the time").

[10] Debates about the efficacy of NEPA are not new. For an excellent historical review of the commentary (critiques and compliments), see DANIEL R. MANDELKER ET AL., NEPA LAW AND LITIGATION §§ 11:2–11:3 (2021) [hereinafter MANDELKER ET AL., NEPA LAW AND LITIGATION].

[11] Press Release, Sens. Ted Cruz, Mike Lee, and Kevin Cramer Introduce UNSHACKLE Act to Reform NEPA (Oct. 27, 2020), https://www.cruz.senate.gov/?p=press_release&id=5446 [https://perma.cc/RW2Y-N8QW] (quoting Sen. Cruz as saying, "For years, NEPA's burdensome requirements have left countless infrastructure projects in a state of judicial and bureaucratic limbo, stunting job creation and economic growth in communities across the country"); DIANE KATZ, HERITAGE FOUND., NO. 3293, TIME TO REPEAL THE OBSOLETE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) 1, 4 (2018), https://www.heritage.org/sites/default/files/2018-03/BG3293_0.pdf [https://perma.cc/YH8A-42T4]. *See also* GAO, NEPA: LITTLE INFORMATION EXISTS, *supra* note 3, at 1 (reporting views of detractors).

[12] Michael C. Blumm & Keith Mossman, *The Overlooked Role of the National Environmental Policy Act in Protecting the Western Environment: NEPA in the Ninth Circuit*, 2 WASH. J. OF ENV'T L. & POL'Y 193, 193 (2012) (citing NEPA's critics).

[13] Memorandum from the Majority Staff of H. Comm. on Nat. Res., Subcomm. on Oversight & Investigations, to the H. Comm. on Nat. Res. (Apr. 23, 2018), https://docs.house.gov/meetings/II/II00/20180425/108215/HHRG-115-II00-20180425-SD027.pdf#:~:text=Weaponization%20of%20the%20National%20Environmental%20Policy%20Act%20and,the%20National%20Environmental%20Policy%20Act%20%28NEPA%29%20requires%20federal [https://perma.cc/ZP5E-PDEC]

NEPA's admirers are no less passionate, heralding it as the Magna Carta of environmental law.[14] They believe that "public involvement and careful consideration of alternatives has produced better outcomes—for the agencies themselves, for the nation, and for the human environment."[15] Anecdotes, rather than data, however, drive these characterizations.[16] When asked to review various NEPA compliance issues, including (1) the number and type of NEPA analyses; (2) costs and benefits of completing the analyses; and (3) the frequency and outcomes of litigation, the Government Accountability Office concluded that very little information exists regarding these issues.[17] Absent information, most recommendations for NEPA reform have historically been loosely moored to empirical data. The research that does exist generally focuses on one aspect of the law—Environmental Impact Statements (EISs)—which constitute a very small percentage of the law's application.[18]

We endeavor to advance the debate by providing empirical evidence of how NEPA functions at all levels of analysis, studying more than 41,000 U.S. Forest Service NEPA decisions from 2004 through 2020. We describe Forest Service practice implementing the law, and we seek to identify sources of delay within the process by using a regression model that analyzes the year a project was initiated, the level of analysis applied,[19] the activities involved in the action, and the region conducting the analysis. We also explore indications that some sources of delay are external to the NEPA process. We then use those observations to provide recommendations for improving NEPA efficacy.

(pertaining to the Full Committee oversight hearing titled, "The Weaponization of the National Environmental Policy Act and the Implications of Environmental Lawfare").

[14] MANDELKER ET AL., NEPA LAW AND LITIGATION, *supra* note 10, § 1:1.

[15] Russell E. Train, *Foreword* to ENV'T L. INST., NEPA SUCCESS STORIES: CELEBRATING 40 YEARS OF TRANSPARENCY AND OPEN GOVERNMENT 3, 4 (2010).

[16] GAO, NEPA: LITTLE INFORMATION EXISTS, *supra* note 3, at 7 ("Governmentwide data on the number and type of most National Environmental Policy Act (NEPA) analyses are not readily available, as data collection efforts vary by agency.").

[17] *Id*. at *GAO Highlights* (sidebar describing "Why GAO Did This Study").

[18] *See generally* NAT'L ASS'N OF ENV'T PRO., 2019 ANNUAL NEPA REPORT OF THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA), https://naep.memberclicks.net/assets/annual-report/2019_NEPA_Annual_Report/NEPA_Annual_Report_2019.pdf [https://perma.cc/C9G4-57HD] (providing statistics on preparation times and other information for EISs filed in 2019 and providing link to archived reports from previous years).

[19] As described in more detail in Section II.A., NEPA requires different levels of analysis depending on the significance of environmental effects: (1) an Environmental Impact Statement (EIS), which is the most searching level of analysis preserved for actions with significant environmental impacts; (2) an Environmental Assessment (EA), a lower level of analysis for activities with less significant or uncertain environmental impacts; and (3) Categorical Exclusions (CE), the lowest level of review for activities that have been categorically excluded from detailed analysis through a regulatory or statutory determination that the effects of the action are unlikely to be significant.

Our analysis focuses on decision-making times; however, we embrace this framework with caution. Time is a convenient metric, but it is not the only metric for evaluating NEPA's effectiveness. The most important metric for regulatory reforms is how well proposed changes advance statutory objectives. The U.S. Supreme Court summarized these principles as first, "to consider every significant aspect of the environmental impact of a proposed action;" and second, to "inform the public that it has indeed considered environmental concerns in its decision-making process."[20] Regulatory reforms that do not advance these statutory aims will not help "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations."[21] While we believe that reducing the burden of NEPA compliance is an important objective, that goal should not displace statutory objectives.

Our research is presented as follows. After this introduction, Section II provides background information, summarizing NEPA's statutory and regulatory structure and the Forest Service's data collection system. To its credit, the Forest Service is one of the few agencies with a comprehensive database gathering information about the NEPA process at every level of review. This dataset provides a unique opportunity to observe NEPA's functionality in more detail than has been done in the past. Using this database, we describe the Forest Service's NEPA practice, including the number of documents completed annually, the level of analysis conducted,[22] the time required to complete the analysis, and trends over time.
Section III briefly describes a multi-variate regression model developed for this paper in order to test the influence of NEPA-specific factors on decision-making times.[23] It also describes quality control measures used in developing the model.

Section IV provides the regression model results. To our surprise, we discovered that the individual factors included in the regression model (level of analysis, activities involved in the action, geographic region, and year initiated) could only explain 25% of the variability in decision-making times. To understand this result, we carefully analyzed each individual factor within the regression model.

Section IV.A explores the effect of level of analysis on decision-making times. Specifically, we sought to understand whether there is a predictable increase in time when a project moves from a Categorical Exclusion (CE)—the least searching level of analysis—to an Environmental Assessment (EA),

---

[20] Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, 462 U.S. 87, 97 (1983).
[21] 42 U.S.C. § 4331(b)(1).
[22] Whether the action was analyzed in an EIS, EA, or a CE. See Section II.A. for background on these levels of analysis.
[23] The NEPA-specific factors are: (1) level of analysis; (2) year of initiation; (3) activities involved in a project; (4) region.

and then to an Environmental Impact Statement (EIS)—the most searching level of analysis. Predictably, we found that an EIS generally takes longer to complete than an EA, which generally takes longer than a CE, and that this relationship remained stable over the course of the study. We also found that level of analysis is an imperfect predictor of decision-making times—a result contrary to common assumptions. A surprising number of CEs take longer to complete than the median completion time for an EA, and a sizeable number of EAs also take longer than the median completion time for an EIS. Simply moving an activity into a more expedited level of review may therefore not result in faster decisions. Thus, common assumptions about "streamlining NEPA" by avoiding EISs or expanding the use of CEs may target the wrong problem.

Section IV.B probes whether the activities involved in a project influence decision-making times. To understand what might cause delay, we focused on the top three activities that the regression model associated with longer completion times. To understand the wide variability in completion times that we observed, we reviewed the statutory and regulatory structure governing each activity, reports from the Government Accountability Office (GAO) and the Congressional Research Service (CRS), industry analysis, and other scholarship, which provided further insight into the implementation of these three activities. Our research revealed that staff availability, a lack of expertise, inconsistent funding, market conditions, and compliance with other statutory and regulatory obligations are all common sources of delay in implementing projects for each activity. We conclude that these external factors are reflected in the NEPA process even though the delays are not necessarily caused by NEPA's regulatory structure. If NEPA were the sole source of delay, we would have expected to see more consistency in decision-making times for similar activities.

Section IV.C. describes the effect of Forest Service Region on decision-making times. The regression model revealed that the Forest Service Region where the analysis was conducted had an unexpected effect on decision-making times at each level of analysis. Because each Region implements the same laws, subject to the same regulations, and guided by the same policies, this regional variation cannot be attributed to the statutory or regulatory structure of NEPA.

Section IV.D. examines additional factors that likely affect the variability in decision-making times observed in our research. These factors may impact decision-making times for specific activities or Regions, but they are not captured by the Forest Service data.

Section V provides specific recommendations for regulatory and administrative reforms that are grounded in the results of our empirical research.

Although our observations are based on Forest Service practice, we believe that the observations and conclusions are applicable to other agencies.

II. BACKGROUND

The National Environmental Policy Act (NEPA)[24] was signed into law on January 1, 1970. Americans began to see the environment differently, and NEPA marked a sea change in federal environmental policy, declaring that it is our national policy to "encourage productive and enjoyable harmony between man and his [or her] environment; [and] to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man. . . ."[25]

Broad in scope and procedural in nature,[26] NEPA can be described as the hub from which the spokes of U.S. environmental law emanate.[27] Unlike other environmental laws that apply to specific resources like air, water, or wildlife, NEPA focuses less on the "what" and more on the "how."[28] NEPA mandates that federal agencies engage with the public, thoroughly consider the environmental impacts of their actions, and evaluate a range of alternatives before undertaking federal actions.[29] NEPA, however, "does not mandate particular results," nor does it require agencies to choose the least

---

[24] 42 U.S.C. §§ 4321–347.

[25] 42 U.S.C. § 4321.

[26] While often described as procedural in nature, Congress intended NEPA to produce substantively beneficial environmental effects. Indeed, NEPA's preamble makes this intent explicit, announcing a federal policy to "foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." 42 U.S.C. § 4331(a).

[27] MANDELKER ET AL., NEPA LAW AND LITIGATION *supra* note 10, § 1:1 (describing NEPA as an "environmental Magna Carta that has profoundly influenced decisionmaking by federal agencies"). *See also* Or. Nat. Desert Ass'n v. Bureau of Land Mgmt., 625 F.3d 1092, 1100 (9th Cir. 2010) (citing Calvert Cliffs' Coordinating Comm. v. U.S. Atomic Energy Comm'n, 449 F.2d 1109, 1111 (D.C. Cir. 1971) (describing NEPA as the "broadest and perhaps most important" of environmental laws)).

[28] MANDELKER ET AL., NEPA LAW AND LITIGATION, *supra* note 10, § 1.2; *Calvert Cliffs' Coordinating Comm*., 449 F.2d at 1112 ("NEPA, first of all, makes environmental protection a part of the mandate of every federal agency and department. . . . Perhaps the greatest importance of NEPA is to require . . . agencies to *consider* environmental issues just as they consider other matters within their mandates.").

[29] Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) ("The statutory requirement that a federal agency contemplating a major action prepare such an environmental impact statement serves NEPA's 'action-forcing purpose in two important respects. It ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision." (cleaned up)); Balt. Gas & Elec. v. Nat. Res. Def. Council, 462 U.S. 87, 97 (1983) ("NEPA has twin aims. First it places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed action. Second it ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process." (cleaned up)).

environmentally damaging alternative.[30] NEPA, in short, requires that agencies look before they leap, but it does not bar them from leaping. In addition to its environmental purpose, NEPA's procedures necessitate government transparency. In the words of Russell Train, the second Administrator of the Environmental Protection Agency, NEPA's procedures were "an experiment in governance" that brought about "a revolutionary change in governmental decisionmaking" and "opened up the federal [decisionmaking] process."[31] As the Congressional Research Service summarized, "one of the primary goals of NEPA is to give the public a meaningful opportunity to learn about and comment on the proposed actions of the federal government *before* decisions are made and actions are taken."[32]

A. NEPA's Regulatory Structure

NEPA's crosscutting approach imposes procedural requirements on all federal actions that potentially affect the environment. Before acting, agencies must undertake a "searching and careful"[33] inquiry into potential environmental impacts, a standard that is often referred to as a "hard look."[34] Furthermore, under NEPA, agencies are obligated to inform the public of major pending actions, provide the public an opportunity to offer input, and consider carefully any input received before making a decision.[35] Through this process, projects may be refined and environmental impacts avoided, minimized, or mitigated.[36]

---

[30] *Robertson*, 490 U.S. at 350 ("Although these procedures are almost certain to affect the agency's substantive decision, it is now well settled that NEPA itself does not mandate particular results, but prescribes the necessary process.").
[31] Train, *supra* note 15, at 3.
[32] CRS, NEPA: BACKGROUND AND IMPLEMENTATION, *supra* note 7, at 23.
[33] Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 416 (1971).
[34] *See, e.g.*, Marsh v. Or. Nat. Res. Council, 490 U.S. 360, 374 (1989) ("NEPA does require that agencies take a 'hard look' at the environmental effects of their planned action."); *Robertson*, 490 U.S. at 350 ("The sweeping policy goals announced in § 101 of NEPA are thus realized through a set of 'action-forcing' procedures that require agencies take a 'hard look' at environmental consequences."); Sierra Club v. U.S. Army Corps of Eng'rs, 803 F.3d 31, 36–37 (D.C. Cir. 2015) ("NEPA's mandate . . . serves the twin purposes of ensuring that (1) agency decisions include informed and careful consideration of environmental impact, and (2) agencies inform the public of that impact and enable interested persons to participate in deciding what projects agencies should approve and under what terms. The statute serves those purposes by requiring federal agencies to take a 'hard look' at their proposed actions' environmental consequences in advance of deciding whether and how to proceed." (citations omitted)).
[35] *See* cases cited *supra* note 34. *See also* 40 C.F.R. § 1501.9 (2020) (detailing agency obligations to engage the public and other stakeholders early through the scoping process); Kleppe v. Sierra Club, 427 U.S. 390, 410 (1976) ("Only through comprehensive consideration of pending proposals can the agency evaluate different courses of action.").
[36] Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, 462 U.S. 87, 100 (1983) ("Congress did not enact NEPA, of course, so that an agency would contemplate the environmental impact of an action as an abstract exercise. Rather Congress intended that the 'hard look' be incorporated as part of the agency's process of deciding whether to pursue a particular federal action."); MANDELKER ET AL., NEPA LAW AND LITIGATION, *supra* note 10, § 11:5 (citing and describing empirical studies of ways in which NEPA influenced agency decision-making).

Agency regulations give detail to NEPA's concise statutory language. Congress, in enacting NEPA, created the White House Council on Environmental Quality (CEQ) "to develop and recommend to the President national policies to foster and promote the improvement of environmental quality to meet the conservation, social, economic, health, and other requirements and goals of the Nation."[37] President Nixon then signed an executive order directing the CEQ to issue guidance on how federal agencies should implement the Act's requirements.[38] Responding to uncertainty over the weight that should be given to these guidelines, President Carter issued an updated executive order seven years later, directing the CEQ to issue regulations to implement NEPA and making the CEQ's regulations binding on all federal agencies.[39] In many cases, these regulations[40] codified case law that had developed over the prior seven years.[41] With minor exceptions, these regulations remained in effect until 2020 when the Trump Administration issued draft and final rule amendments.[42] The 2020 regulatory revisions took effect on September 14, 2020 and were immediately challenged in five separate lawsuits.[43] On October 7, 2021, the CEQ issued a Notice of Proposed Rulemaking, initiating a two-phase rulemaking to reconsider the 2020 regulatory revisions.[44] Despite this regulatory turmoil, all of the projects analyzed in this article were completed prior to the finalization and adoption of the 2020 regulatory revisions. Accordingly, unless otherwise indicated, all

---

[37] 42 U.S.C. § 4344(4).

[38] Exec. Order. No. 11,514, 3 C.F.R. 902 (1966–1970) (1970). The guidance issued pursuant to the Order is available at CEQ, Statement on Proposed Federal Actions Affecting the Environment: Guidance, 36 Fed. Reg. 7724–29 (Apr. 23, 1971), as updated by CEQ, Preparation of Environmental Impact Statements: Guidelines, 38 Fed. Reg. 20,550 (Aug. 1, 1973).

[39] Exec. Order No. 11991, 3 C.F.R. 123 (1977). Section 1500.6 of the CEQ regulations instructed each agency to "review their policies, procedures, and regulations" and "revise them as necessary to ensure full compliance with" the Act. 40 C.F.R. § 1500.6 (2020). This directive is consistent with the statutory instruction that "all agencies of the Federal Government shall . . . identify and develop methods and procedures, in consultation with the Council on Environmental Quality" to implement NEPA's goals and directives. 42 U.S.C. § 4332(B) (2020). Consistent with this directive, most federal agencies have their own individualized regulations implementing NEPA that act in concert with the CEQ regulations. *See, e.g.*, 43 C.F.R. § 46.10 (2020) (establishing NEPA procedures for the Department of Interior consistent with the Act and the CEQ regulations); 36 C.F.R. § 220.1 (2021) (establishing Forest Service agency procedures for compliance with NEPA that supplement CEQ regulations).

[40] 43 Fed. Reg. 55,987–56,007 (Nov. 29, 1978) (to be codified at 40 C.F.R. §§ 1501–1508).

[41] *See e.g.*, 43 Fed. Reg. 55,983 (Nov. 29, 1978) (explaining that when the CEQ first adopted §1502.14(c) of its regulations, it was codifying existing NEPA case law on alternatives.).

[42] *See* Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 1684–1730 (proposed Jan. 10, 2020) (to be codified in scattered parts of 40 C.F.R.); 85 Fed. Reg. 43304–43376 (July 6, 2020) (to be codified in scattered parts of 40 C.F.R.) (final rule).

[43] Wild Va. v. Council on Env't Quality, No. 3:20cv45 (W.D. Va. 2020); Env't. Just. Health All. v. Council on Env't Quality, No. 1:20cv06143 (S.D.N.Y. 2020); Alaska Cmty. Action on Toxics v. Council on Env't Quality, No. 3:20cv5199 (N.D. Cal. 2020); California v. Council on Env't Quality, No. 3:20cv06057 (N.D. Cal. 2020); Iowa Citizens for Cmty. Improvement v. Council on Env't Quality, No. 1:20cv02715 (D.D.C. 2020).

[44] National Environmental Policy Act Implementing Regulations Revisions, 86 Fed. Reg. 55,757 (proposed Oct. 7, 2021) (to be codified at 40 C.F.R. pts. 1502, 1507–1508).

regulatory references within this article are to the 1978 version of the CEQ regulations.[45]

Under NEPA and its implementing regulations, all "major Federal actions significantly affecting the quality of the human environment" must undergo an environmental review before those actions can proceed.[46] This includes decisions authorizing projects on federal land, such as logging, mining, or livestock grazing.[47] Whether a project's impacts would be "significant" is not always clear.[48] Where a project's impacts are likely to fall below the significance threshold, an expedited review may be conducted to confirm that assumption.[49] The result is a tiered system of review where routine and environmentally benign projects undergo a truncated analysis, while larger and more complex projects can require in-depth review.

When a project's impacts are known to be significant in nature, the lead agency must complete an Environmental Impact Statement (EIS).[50] EISs represent the most searching level of review, and as discussed below, can take years to complete.[51] When an EIS is required, it is prepared in stages. The EIS preparation process begins with publication of a Notice of Intent to Prepare an EIS (NOI) in the Federal Register.[52] The NOI describes the

---

[45] The 2020 publication of the Code of Federal Regulations contained both versions of the regulations. To distinguish between the two sets of regulations, we are silent as to date or cite to the 2019 Code of Federal Regulations when referring to the 1978 version. When referring to the revised regulations, we cite to the 2020 Code of Federal Regulations.

[46] 42 U.S.C. § 4332(C).

[47] *See e.g.*, Stand Up for California! v. Dep't of the Interior, 959 F.3d 1154, 1163 (9th Cir. 2020) (agencies are required to comply with NEPA for "all 'major Federal actions significantly affecting the quality of the human environment' so long as the agency has some control over preventing the environmental effects," which may include permit issuance. (citations omitted)).

[48] The meaning of the term "significantly" within the NEPA context is complex. The 1978 version of the CEQ regulations (in force until September 14, 2020), defined the term in relation to "context" and "intensity," with ten factors to assess the intensity of an action. 40 C.F.R. § 1508.27 (2019). The 2020 regulatory revisions omitted the definition of "significantly" in section 1508.27 and revised section 1501.3 to include less detailed direction on the meaning of significance. *See* 85 Fed. Reg. 43,321–22 (Jul.16, 2020) (describing changes); 40 C.F.R. § 1501.3 (2020). On October 7, 2021, the CEQ published a Notice of Proposed Rulemaking signaling a two-phase rulemaking process to reconsider the 2020 regulatory revisions, suggesting that further changes may be imminent. 86 Fed. Reg. 55,757, 55,759 (Oct. 7, 2021). Meanwhile, practitioners strive to understand the implications of these changes. *See, e.g.*, JAMES MCELFISH, JR., ENV'T L. INST., PRACTITIONER'S GUIDE TO THE PROPOSED NEPA REGULATIONS, (2020), https://www.eli.org/sites/default/files/eli-pubs/practioners-guide-proposed-nepa-regulations-2020.pdf [https://perma.cc/J43Y-CTDT].

[49] The expedited review could take the form of an Environmental Assessment (EA), 40 C.F.R. § 1508.9 (2018) (defining "environmental assessment" under the 1978 regulations) and 40 C.F.R. § 1501.3 (2020) (describing "when to prepare an environmental assessment" under the revised regulations). Actions that "normally do not have a significant effect" on the environment may undergo an even more truncated analysis through a Categorical Exclusion (CE). *See* 40 C.F.R. §§ 1501.4, 1508.1(d) (2020); 40 C.F.R. § 1508.4 (2018).

[50] 42 U.S.C. § 4332(2)(C).

[51] *See infra*, Section II.E.

[52] 40 C.F.R. § 1501.9(d) (2020).

actions that are contemplated, as well as the reasons for taking those actions. The NOI then invites the public (including other federal, tribal, and state agencies) to comment on issues or concerns associated with the proposed action, and to suggested alternate means of achieving project objectives.[53] After considering public comments, the lead agency then prepares a Draft EIS analyzing the impacts of both the proposed action and one or more alternative means of achieving the desired end.[54] The Draft EIS compares the impacts projected to result from each alternative against a "no action alternative" (the impacts that would result from a continuation of the status quo).[55] After another public comment period and any appropriate revisions, a Final EIS and Record of Decision (ROD) are issued.[56] If significant deficiencies are identified in a Draft or Final EIS, the lead agency may prepare a Revised or Supplemental EIS.[57]

Most federal actions do not involve obviously significant environmental impacts and therefore do not require an EIS.[58] If questions exist as to the significance of likely environmental impacts, the agency will prepare an Environmental Assessment (EA) to determine whether the proposed action would cause significant impacts.[59] If projected impacts fall below the significance threshold, the agency issues a Finding of No Significant Impact (FONSI) and the NEPA review process is complete.[60] Alternatively, the agency may issue a "mitigated FONSI," which includes measures to reduce impacts to below the level of significance.[61] If an EA results in a determination that a proposed action is likely to have a significant effect, then an EIS is required.

Finally, there are numerous federal actions that are categorically excluded from the preparation of an environmental assessment or an environmental impact statement. The CEQ's NEPA regulations authorize agencies to identify categories of actions that do not normally have a significant impact on the human environment.[62] Actions that fall within one of these "Categorical Exclusions" (CEs) can be approved without an EIS or EA, provided that the

---

[53] *Id*.
[54] *Id*. § 1502.9(b) (2020).
[55] *Id*. § 1502.14(c) (2020).
[56] *Id*. §§ 1502.9(c) (2020) (Final EIS); *Id.* § 1505.2 (2020) (Record of Decision).
[57] *Id*. § 1502.9(d)(1).
[58] GAO, NEPA: LITTLE INFORMATION EXISTS, *supra* note 3, at 8. *See also*, John C. Ruple & Heather Tanana, *NEPA at 50—An Analysis of the Data in the Courts*, 66 ROCKY MTN. MIN. L. INST. §§ 10-1, 10-14, 10-15 (2020) (showing percentage of BLM decisions undergoing various levels of NEPA analysis); Forrest Fleischman et al., *US Forest Service Implementation of the National Environmental Policy Act: Fast, Variable, Rarely Litigated, and Declining*, 118 J. OF FORESTRY 403, 408 (2020) (discussing the percentage of Forest Service decisions undergoing various levels of NEPA analysis).
[59] 40 C.F.R. § 1501.5 (2020).
[60] *Id.* § 1501.6 (2020).
[61] *Id.* § 1501.6(c) (2020).
[62] *Id.* § 1501.4(a) (2020).

action does not involve "extraordinary circumstances."[63] Congress has also created statutory CEs for certain types of activities including oil and natural gas development and hazardous fuel reduction activities.[64] Each of these statutory CEs implicate slightly different procedural requirements.

B. Recent Regulatory Reforms

In 2019, the U.S. Forest Service began promulgating new implementing regulations for NEPA.[65] The goal of the revisions was to increase "efficiency of environmental analysis while meeting NEPA's requirements."[66] According to the preamble of the proposed revisions, "The Forest Service is not fully meeting agency expectations, nor the expectations of the public, partners, and stakeholders, to improve the health and resilience of forests and grasslands, create jobs, and provide economic and recreational benefits."[67] Noting a drastic shift in funding and personnel from environmental management and restoration to wildfire response, the revised regulations sought to enable the Forest Service to "complete project [decision-making] in a timelier manner, improve or eliminate inefficient processes and steps, and, where appropriate, increase the scale of analysis and the number of activities in a single analysis and decision."[68] These regulations were finalized on November 19, 2020 and became effective immediately.[69] The revised rules established new and revised CEs involving special use authorizations, infrastructure management activities, and forest restoration and resilience activities, and added a determination of NEPA adequacy provision to the agency's NEPA regulations.[70]

Meanwhile, the CEQ, which promulgates regulations implementing NEPA that are applicable to all federal agencies,[71] also began revising its

---

[63] *Id.* § 1508.4(b) (2020).
[64] *See, e.g.*, Energy Policy Act of 2005, 42 U.S.C. § 15942; Healthy Forest Restoration Act of 2003, 16 U.S.C. §6591b (insect disease infestation and hazardous fuels reduction categorical exclusion); *id.* § 6591d (authorizing hazardous fuel reduction projects up to 3,000 acres); Omnibus Appropriations Act of 2009, Pub. L. 111-8, § 423, 123 Stat. 524, 748 (authorizing fuel reduction up to 5,000 acres with 1,500 acres of mechanical thinning on the Lake Tahoe Basin Management Unit); Water Infrastructure Improvements for the Nation Act, Pub. L. 114-322, § 3603, 130 Stat. 1628 (2016) (authorizing projects up to 10,000 acres with 3,000 acres of mechanical thinning).
[65] *See* National Environmental Policy Act (NEPA) Compliance, 84 Fed. Reg. 27,544-59 (proposed Jun. 13, 2019) (to be codified at 36 C.F.R. Pt. 220).
[66] *Id*.
[67] *Id.*
[68] *Id*.
[69] National Environmental Policy Act (NEPA) Compliance, 85 Fed. Reg. 73,620 (Nov. 19, 2020) (to be codified at 36 C.F.R. pt. 220).
[70] *Id*.
[71] *See* 40 C.F.R. Parts 1500–08. *See also*, Exec. Order No. 11,991, 3 C.F.R. 123 (1977) (directing the CEQ to promulgate regulations to implement NEPA, and requiring all federal agencies to comply with the CEQ's regulations).

regulations.[72] The CEQ's regulations were first issued in 1978 and remained largely unchanged until 2020.[73] Shortly before leaving office, the Trump Administration finalized wholesale revisions to the CEQ's NEPA regulations.[74] The new rules were intended to "modernize and clarify the regulations to facilitate more efficient, effective, and timely NEPA reviews by Federal agencies."[75] Efficiencies under the new rule were achieved by imposing page limits, aggressive deadlines, and modifying the requirement to consider the cumulative effects of a project.[76] The CEQ regulations required all federal agencies to revise their regulations in accordance with the CEQ's far-reaching changes.[77] Because the Forest Service's revisions had been initiated before the CEQ's revisions, the "new" Forest Service regulations did not incorporate CEQ's new regulatory changes and will again require updating—assuming that the CEQ's 2020 regulations remain in effect.

The revised CEQ regulations went into effect on September 14, 2020[78] and were immediately challenged in court as inconsistent with NEPA's underlying statutory mandate.[79] Upon taking office, the Biden Administration directed all agencies to review Trump-era regulations and consider suspending, revising, or rescinding problematic regulations. On October 7, 2021, the CEQ published a Notice of Proposed Rulemaking to revise the 2020 regulations.[80]

---

[72] Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 1684 (proposed Jan. 10, 2020) (to be codified in scattered parts of 40 C.F.R.).
[73] *See* 43 Fed. Reg. 55,990–56,007 (Nov. 28, 1978) (codified at 40 C.F.R. Pts. 1500—1508).
[74] Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43,304 (July 16, 2020) (codified at 40 C.F.R. Pts. 1500–1508, 1515–1518).
[75] *Id*. at 43,304.
[76] *See* Robert L. Glicksman and Alejandro E. Camacho, *The Trump Card: Tarnishing Planning, Democracy, and the Environment*, 50 ENV'T L. REP. 10281, 10284–89 (2020) (describing 2020 regulatory changes and implications for NEPA's functionality as a forum for transparency and public participation).
[77] 40 C.F.R. § 1500.6 (2020).
[78] Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. at 43,304.
[79] *See e.g*., Wild Virginia v. CEQ, No. 3:20CV00045, 2021 WL 2521561 (W.D. Va. June 21, 2021) (denying plaintiffs motion for summary judgement). This ruling is under appeal, and at least four other challenges to the 2020 NEPA regulations remain pending: Alaska Cmty. Action on Toxics v. CEQ, 3:20-cv-05199 (N.D. Cal. filed Aug. 28, 2020), California v. CEQ, 3:30-cv-0657 (N.D. Cal. filed Aug. 28, 2020), Env't Just. Health All. v. CEQ, 1:20-cv-06143 (S.D.N.Y. filed Aug. 6, 2020), and Iowa Citizens for Cmty. Improvement v. CEQ, 1:20-cv-02715 (D.D.C. filed Sept. 23, 2020).
[80] National Environmental Policy Act Implementing Regulations Revisions, 86 Fed. Reg. 55,757 (proposed Oct. 7, 2021) (to be codified at 40 C.F.R. pts. 1502, 1507–1508). This appears to be the first phase of a two-part rulemaking. *See Spring 2021 Unified Agenda of Regulatory and Deregulatory Actions, RIN No. 0331-AA05*, OFF. OF INFO. AND REGUL. AFFS., https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202110&RIN=0331-AA05 [https://perma.cc/LSW8-58AZ] (last visited Aug. 4, 2021); *Spring 2021 Unified Agenda of Regulatory and Deregulatory Actions, RIN No. 0331-AA07*, OFF. OF INFO. AND REGUL. AFFS., https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202110&RIN=0331-AA07

NEPA regulatory amendments are forthcoming and will involve multiple agencies. These reforms should be grounded in fact and lessons learned over forty years of implementing this law. The Forest Service is one of the few agencies that gathers information about its NEPA process at every level of review and it produces more NEPA documents than any other federal agency. The analysis that follows, while specific to the Forest Service, is likely illustrative of broader trends in NEPA practice. For this reason, we believe that the data-based recommendations developed in this article are broadly applicable and should inform future efforts to reform the NEPA process.

C. The Forest Service's Multi-Year Trend Report (MYTR) Database

In 2004, the Forest Service launched an electronic tracking system for its NEPA decisions called eMNEPA Planning Administrative Review and Litigation System (PALS).[81] PALS is a web-based application created to allow Forest Service personnel to manage information about projects undergoing NEPA review.[82] In March 2021, we obtained access to the PALS database from the Forest Service. The data we obtained, referred to internally as the Multi-Year Trend Report (MYTR database), included information on 42,806 Forest Service decisions that required NEPA documentation from 2004 through December 31, 2020.[83]

The MYTR database contains a wealth of information, including (but not limited to) the project name, the Forest Service region where the project occurred, the level of analysis (CE, EA, or EIS) conducted, the date the project was initiated, the date that the decision was signed, and the elapsed time for decision-making (initiation to decision signature). The database also classifies each project based on one or more of eighteen identified project purposes; and one or more of almost fifty distinct activities.

[https://perma.cc/TZ2J-3XPQ] (last visited Aug. 4, 2021) (anticipating narrow rulemaking to repeal the 2020 rules during July 2021 (RIN 0331-AA05) and broader changes to NEPA's implementing regulations in November (0331-AA07)).

[81] WO/EMC/NEPA SERS. GRP., U.S. FOREST SERV., EMNEPA, ELECTRONIC MANAGEMENT OF NEPA, PALS USER GUIDE V5.12 (2020).

[82] *Id*. at 2.

[83] There are eighteen Forest Service Categorical Exclusions that do not require a written decision. *See* US U.S. FOREST SERV., FOREST SERVICE HANDBOOK §§ 32.1, 33.1 (2020). Actions authorized by these eighteen categories of CEs are not included in the MYTR database. The other twenty-six CEs that require a decision memo are included in the database. Because the MYTR database excludes CEs that do not require written documentation, our results underrepresent the total level of USFS completion and skew reporting of the percent of projects addressed under various levels of NEPA analysis. While this underreporting results in under-disclosure of the actual USFS NEPA workload, it likely has limited impact on questions involving the burden associated with NEPA compliance because documentation-exempt CEs impose minimal procedural duties and are available only for environmentally benign actions.

The database was designed as a tracking system to facilitate compliance with public disclosure duties. As a result, the information that it contains is specific to NEPA decision documents. Decisions are distinct from the time required to implement a project following its approval and MYTR does not track the time to implement projects. MYTR also was not designed to support statistical analysis of the Forest Service's NEPA activities. We therefore undertook the following quality control review at the outset of our analysis.

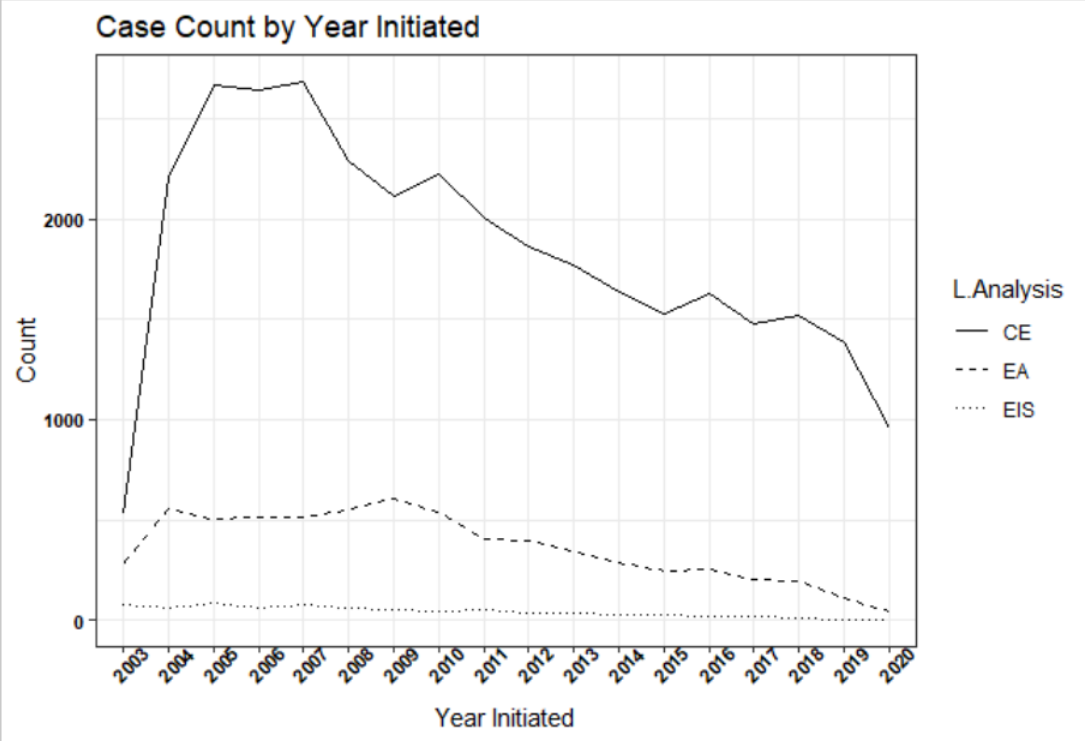
First, we excluded incomplete projects because they lacked a reviewable decision.[84] Second, we excluded projects completed before January 1, 2004 or after December 31, 2020 because data outside this window appeared incomplete. Third, we excluded thirty-five decisions documented in a "PAD"[85] because the number of decisions evaluated in a PAD was too small to evaluate statistically. Fourth, we identified and excluded decisions containing obvious errors in data entry, such as projects showing a decision date preceding initiation of the analysis.[86] Finally, we sought to exclude duplicate entries to avoid inadvertent double counting. We retained records that are unique based on their: (1) project number; (2) region; (3) initiation date and decision signed date; (4) purpose fields; (5) activity fields; and (6) elapsed time. These filters produced a dataset of 41,194 NEPA decisions.

D. Initial Observations Regarding Forest Service NEPA Practice

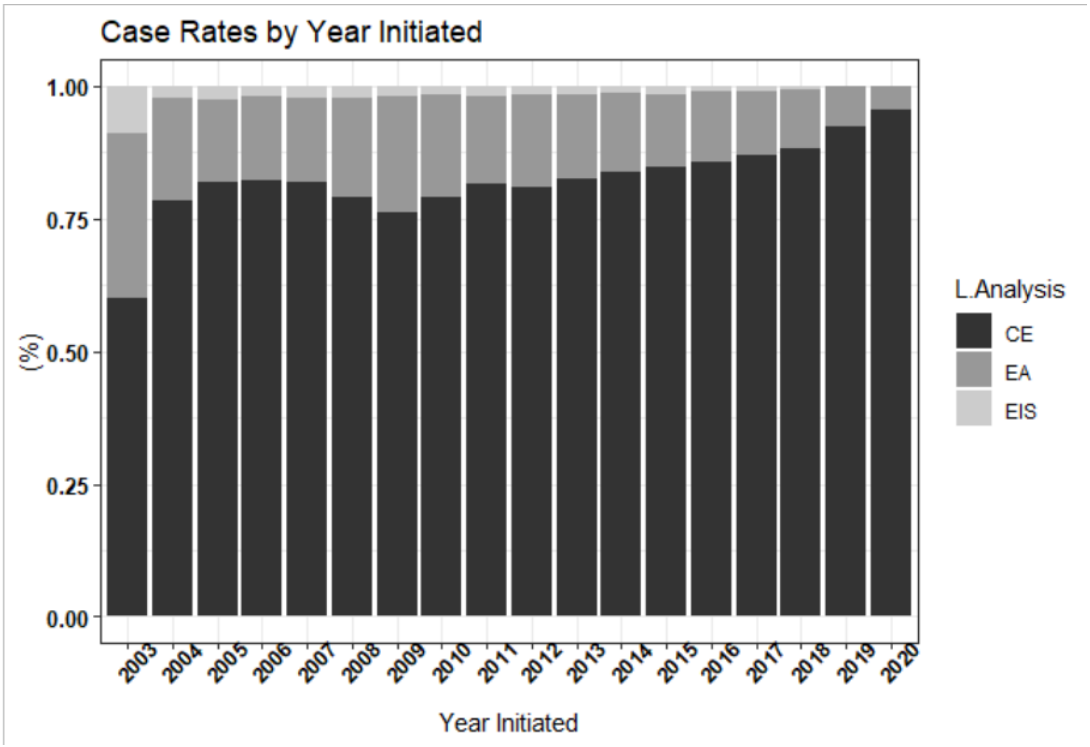
This means that, from 2004 through 2020, the Forest Service produced 41,194 unique NEPA decisions. There were 33,443 CEs (81.2% of NEPA decisions), 6,881 EAs (16.7% of NEPA decisions), and 870 EISs (2.1% of NEPA decisions). NEPA decisions completed annually increased between 2004 and 2009. Since 2009, there has been an overall decline. The figure below shows these trends, with two caveats. First, the sharp increase between 2003-2004 likely reflects initial efforts to utilize the database rather than an increase in NEPA document production. Second, the decrease in the number of cases from 2016 onwards is amplified (particularly for EAs and EISs) because it only includes cases that were completed more quickly than the average case. We discuss this in more detail below.

---

[84] The database identifies project status as "complete," "canceled," "in progress" or "on hold." We selected decisions that were "complete." Additionally, the database provides a date that the final decision for a project was signed. Projects without a final decision were excluded.
[85] PADs are used to document that a project was previously analyzed adequately in another NEPA documents and are therefore better characterized as a determination of NEPA adequacy rather than as a NEPA decision.
[86] There were 333 records with an elapsed completion time of 0 fewer days.

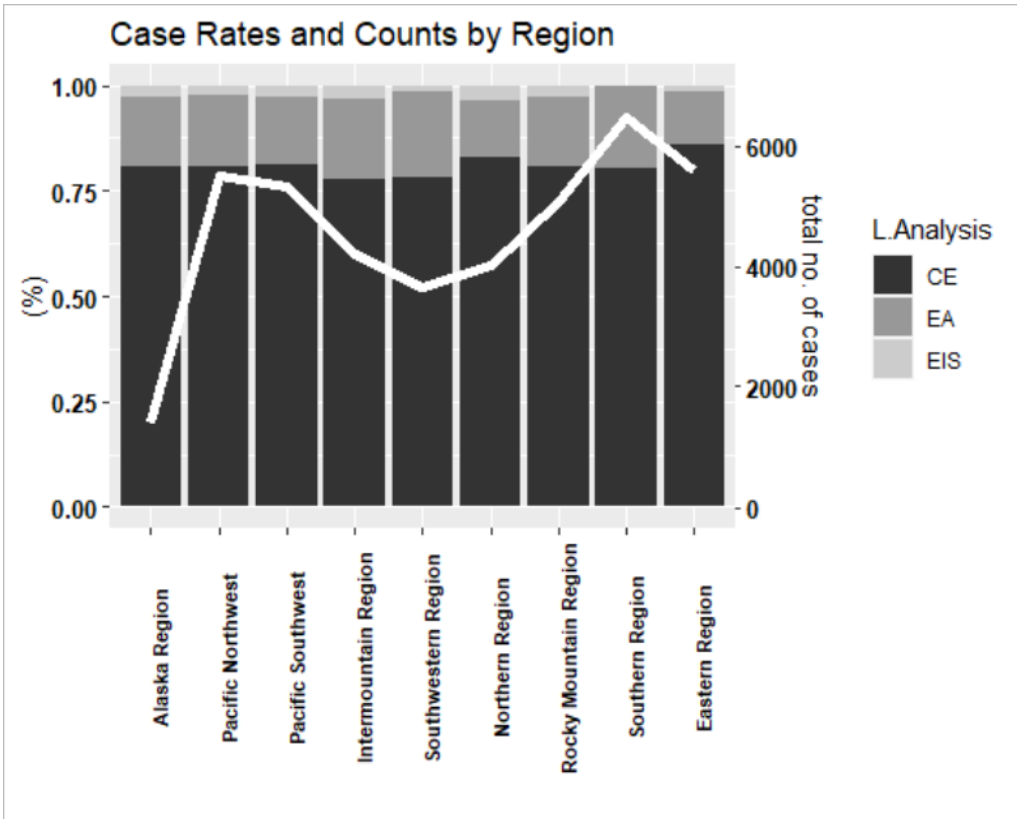


Additionally, there has been a shift over time in document type away from EISs and toward CEs. The graph below demonstrates this trend.



Looking at Forest Service Regions, there is a wide variation in the number of NEPA decisions completed per region. Region 10 completed the fewest decisions and Region 8 completed the most.[87] Across Regions, there is only slight variation in the rates of different levels of analysis. The graph below provides details.

[87] We investigated this relationship in more detail through a regression analysis. The results of that analysis and our observations are set forth below in Section III.C.



E. Decision-Making Times at Each Level of Analysis

Despite impassioned critiques that NEPA causes delay, there is very little published information available regarding the length of time it takes federal agencies to make decisions at each level of review. In 2020, the CEQ issued a report concluding that across all Federal agencies, the average (*i.e.*, mean) EIS completion time was 4.5 years, and the median completion time was 3.5 years.[88] The CEQ report also provided the number of EISs completed during the period of study (2010-2018) and the average completion time for each agency. The Forest Service produced 299 EISs during this period, with an average completion time of 3.3 years.[89] No other agency produced as many EISs. CEQ data suggests that the Forest Service produces the most EISs, and that it does so more quickly than other agencies.[90] Therefore,

[88] EXEC. OFF. OF THE PRESIDENT, COUNCIL ON ENV'T QUALITY, ENVIRONMENTAL IMPACT STATEMENT TIMELINES (2010-2018) 1 (June 12, 2020) [hereinafter CEQ, EIS TIMELINES 2010-2018].
[89] *Id*. at 8.
[90] Ruple and Race note that Forest Service NEPA decisions are also litigated at a higher rate than EISs prepared by other agencies. It is unclear whether rapid EIS completion time increases the likelihood of litigation, or if other factors explain this difference. *See* John C. Ruple

understanding the Forest Service's NEPA practice may provide information that is relevant to other agencies.

Most investigations regarding NEPA completion times focus on EISs,[91] which represent less than one percent of all NEPA decisions. The other ninety-nine percent of NEPA decisions have largely escaped analysis because there is limited data regarding EAs and CEs. We were able to analyze the length of time it takes the Forest Service to complete all three types of documents (EISs, EAs, and CEs), filling this important gap. To our knowledge, only one other report has provided similar information.[92] In analyzing the MYTR data, we considered both the mean and the median decision-making time at each level of analysis. Consistent with the CEQ report, we found that between 2005 and 2020, the average (mean) time to complete an EIS was 3.4 years (1,240 days). In contrast, the median time was 2.8 years (1,006 days). Turning to EAs, the average time to complete was 1.7 years (618 days), while the median time was only 1.2 years (445 days). Finally, looking to CEs, the average time to complete a CE was 7 months (209 days), while the median time was just over half the mean at slightly under 4 months (112 days).

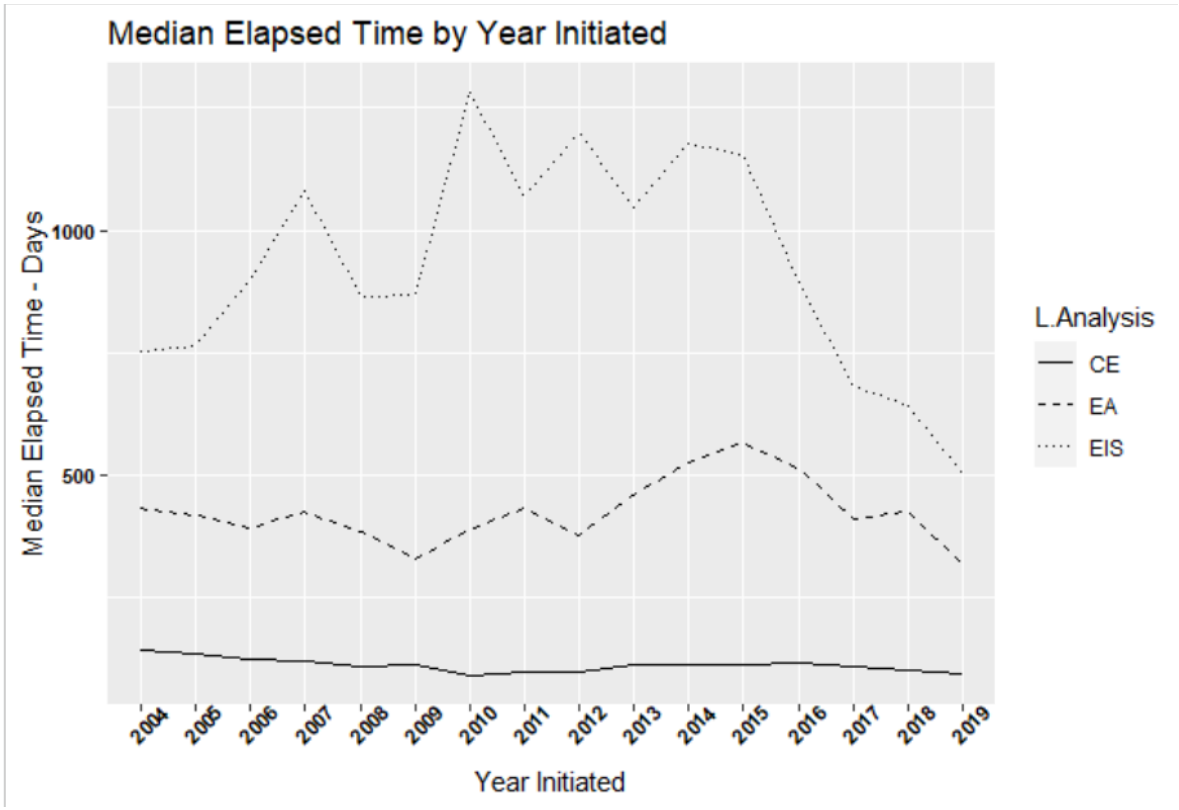
We also explored whether the median length of time required to complete a NEPA decision changed over the course of the study. The graphs below demonstrate that each level of review followed its own trend over the course of the study. The median time for EISs fluctuated most dramatically, particularly between 2009 and 2010. Although the graphs show a distinct downward trend in median EIS completion time after 2015, this likely reflects an increasing percentage of EISs that remained in process rather than a trend toward reduced document completion time.[93] EAs also show an overall trend of increasing time to complete a document. Median completion times for CEs remain fairly steady.

& Kayla M. Race, *Measuring the NEPA Litigation Burden: A Review of 1,499 Federal Court Cases*, 50 ENVTL. L. 479, 497–99 (2020).

[91] *See, e.g.*, NAT'L ASS'N OF ENV'T PROFS., 2020 ANNUAL NEPA REPORT, (Charles P. Nicholson ed., 2021) (providing annual reports on preparation times for EISs and other aspects of NEPA practice); CEQ, EIS TIMELINES 2010–2018, *supra* note 88.

[92] Fleischman et al., *supra* note 58, at 412 (providing similar median completion times for each level of analysis, using a slightly different set of data).

[93] *See* Section III.B. From 2016 onwards, only EISs that were completed more quickly than the median time would be recorded. Cases that were initiated in 2016 but took longer than the median time to complete an EIS would not yet be completed and are not included in this dataset. Thus, the apparent trend in faster completion times for EISs between 2016 and the present is likely the product of selection bias.



F. Striking Difference Between Mean and Median Completion Times Shows Skewing by Anomalous, Lengthy Decisions

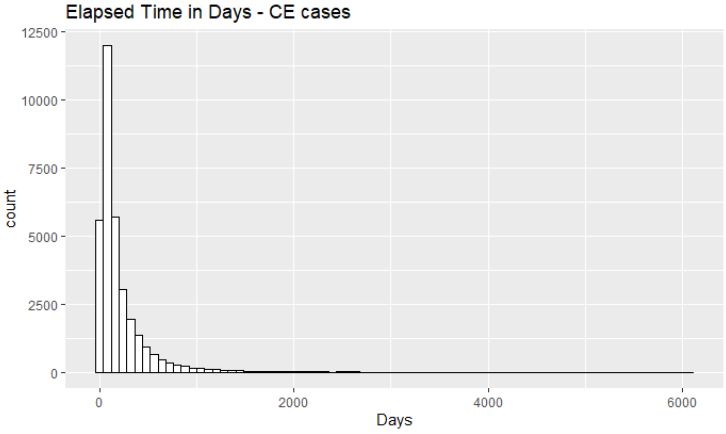
The striking difference between the mean and median values is important. Mean values reflect the average time to complete the NEPA analysis, while the median value reflects the middle value of the distribution of completion times. Half the cases will take longer than the median, and half the cases will be resolved more quickly than the median. While both statistics are valuable measures of central tendency, mean values can be skewed heavily by outliers, as is the case here. While prior scholarship notes the difference between mean and median completion times,[94] and some scholars suggest that median is a better measure of central tendency,[95] the importance of

[94] *See, e.g.*, CEQ, EIS TIMELINES 2010–2018, *supra* note 88, at 8 (reporting that across all Federal agencies, the average (*i.e.*, mean) EIS completion time was 4.5 years, and that within the Department of Agriculture, the average EIS completion time was 3.27 years); Joseph Trnka & Elizabeth Ellis, *Environmental Reviews and Case Studies: Streamlining the National Environmental Policy Act Process*, 16 ENV'T PRAC. 302–08 (2014).

[95] John C. Ruple et al., *Does NEPA Help or Harm ESA Critical Habitat Designations? An Assessment of Over 600 Critical Habitat Rules*, 46 ECOLOGY L. Q. 829, 842 (2019) (noting that mean

that difference has not been developed fully. It is also important to note that most statistical models (including the regression model developed for this paper) utilize mean values when measuring central tendency.[96] The direction of skewing is also important and informative. The mean consistently exceeds the median, indicating that outliers are long projects, rather than short ones. This observation squares with other research, suggesting that mean completion time is skewed by extreme events.[97] For example, the mean completion time for a CE is 86% longer than the median. The difference between median and mean is smaller for EAs and EISs than for CEs (39% and 23% respectively).[98] However, in all cases the mean exceeds the median, indicating that the distribution of completion times is heavily skewed by lengthy projects.

Graphing the distribution of project completion times illustrates the degree to which the distribution is skewed by outlying values. As the graphs below demonstrate, the distribution of project completion times is heavily skewed with a long tail extending to the right. This distribution of data points is consistent with the observation by Fleischman et al. that a proportionately small number of projects take a long time, even though most projects are completed quickly.[99]



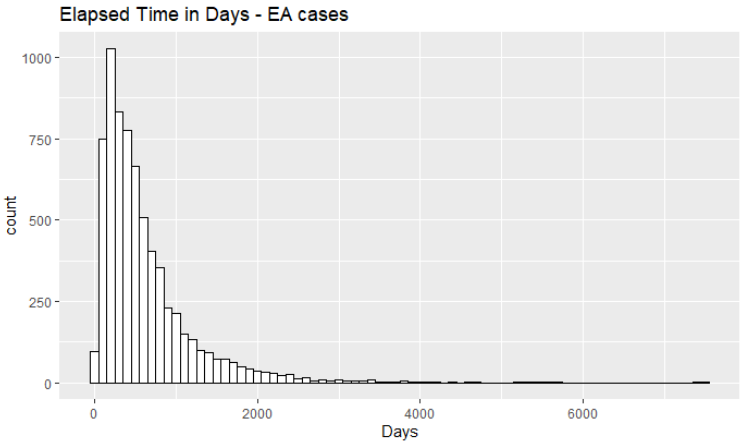
completion time is prone to overstating normally occurring completion times). *See also*, Fleischman et al., *supra* note 58, at 412.

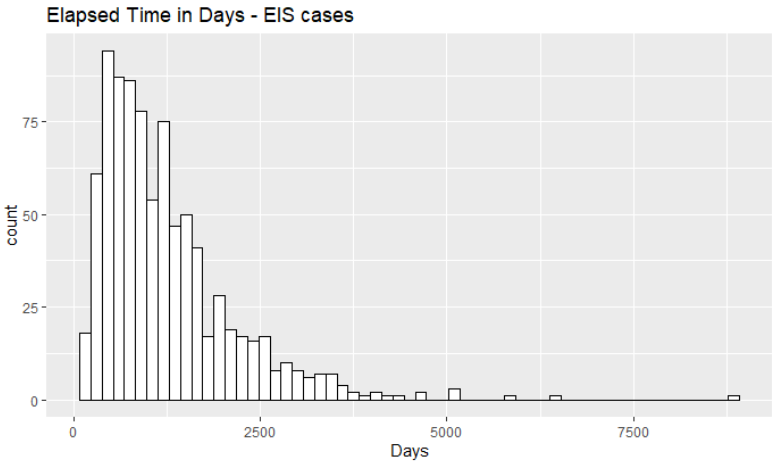
[96] The implications of models that rely on mean values is discussed in more detail in Section II.D. Our study addressed these concerns by modeling in a logarithmic scale. *See* Section III.A.

[97] Fleischman et al., *supra* note 58, at 413.

[98] The comparatively large percentage difference for CEs is not surprising because CEs completion time is often measured in weeks rather than months or years, and even small departures from the norm will represent large percentage changes.

[99] Fleischman et al., *supra* note 58, at 412 (justifying decision to report median rather than mean completion times).





Although the point at which the curve flattens differs between levels of analysis, the shape of the curve is generally consistent. This trend is not surprising when considering EISs, which can involve complex and controversial projects requiring careful analysis as well as extensive public involvement. However, it is surprising that CEs, which are designed to expedite decision-making times for routine projects, also sometimes experience extreme delay. Table 1 displays this same trend with more granularity.

Table 1--Select Percentiles for Elapsed Time in Days by Level of Analysis

	5th	10th	25th	50th	75th	90th	95th
CE	19	30	54	112	245	481	714
EA	91	133	235	445	779	1,306	1,765
EIS	294	395	595	1,007	1,585	2,415	3,020

The long tail at every level of analysis caused us to investigate whether there are factors that can be used to identify projects that are at heightened risk of long NEPA review periods. First, we wondered whether decision-making time had changed over the course of the study, and whether those trends were consistent across levels of analysis. Second, we questioned whether certain activities were associated with longer decision-making times. Finally, we questioned whether there were regional differences in decision-making times.

III. Regression Analysis of Trends in Decision-Making Times

We developed a regression model to analyze whether decision-making time could be predicted based on information about individual projects identified using the MYTR database. We utilized a regression analysis in order to isolate the influence of each of these factors. As the Harvard Business Review explains, a

> Regression analysis is a way of mathematically sorting out which of those variables does indeed have an impact. It answers the questions: Which factors matter most? Which can we ignore? How do those factors interact with each other? And, perhaps most importantly, how certain are we about all of these factors?[100]

The regression model enabled us to isolate the influence of the following variables: (1) three levels of analysis; (2) the year when the project was initiated; (3) any combination of forty-three separate activities involved in project implementation;[101] and (4) the nine Forest Service Regions exercising responsibility over the NEPA analysis for the project.

The model also indirectly measured project complexity. Several projects involved multiple activities, and the model tested each activity independently.[102] This enabled consideration of the complexity of the activity

[100] Amy Gallo, *A Refresher on Regression Analysis*, Harv. Bus. Rev. (Nov. 4, 2015), https://hbr.org/2015/11/a-refresher-on-regression-analysis [https://perma.cc/RG38-QAJN] (quoting Tom Redman).

[101] The MYTR database includes 50 different activities. However, as described in more detail below, seven of these activities were excluded from analysis because they were too infrequent for accurate statistical analysis.

[102] Initially, we also included project purpose(s) as an independent variable. However, including both purposes and activities proved to be redundant. Multicollinearity problems arose,

where multiple activities were included in a single project.[103] The regression model allowed us to compare how each of the variables identified in our model affected elapsed time while controlling for the influence of all the other variables. Appendix 1 provides a more detailed description of the weighted least squares regression model predicting elapsed time on a log scale that we developed for this paper.

A. Quality Assurance and Model Data

When dealing with highly skewed data, it is common to look at the data on a log scale.[104] The log scale reduces the influence of extreme values, thereby helping to satisfy the assumptions necessary for the regression analysis. The log scale also affects the meaning given to the regression coefficients, showing the rate of change as opposed to actual changes in values. For clarity and ease of understanding, this article reports results in terms of percent or relative changes in elapsed time rather than actual change in days for elapsed time. Thus, throughout our discussion of the regression model results, all references to the "average" are on a log scale.

For the regression model, we eliminated projects initiated after 2016 to minimize the risk of selection bias. The risk of selection bias is best explained by example. The median completion time for an EIS is 1,007 days, and approximately seventy percent of all EISs are completed within 1,460 days, which is the maximum amount of time available to complete an EIS initiated in 2017 and completed in 2020 (365 days x 4 years). Including in our model EISs initiated in 2017 and completed in 2020 would have excluded the roughly thirty percent of EISs initiated in 2017 that we estimate would not have been completed within the time available. The problem would have been more severe for EISs initiated in 2018 and 2019. Including recently initiated and completed projects, while potentially ignoring recently initiated projects that remained pending at the time of our analysis, could skew model results and inaccurately indicate a reduction in elapsed time during the most recent years in the data set. That potential for selection bias was visible when graphing both the average elapsed time and median elapsed time for each level of analysis, which shows a marked

---

requiring elimination of either purposes or activities. We chose to analyze activities for three reasons. First, feedback from the Forest Service indicated that the "activities" category provided more accurate data than the "purposes" category. Second, with 43 possible categories, "activities" supported a more granular analysis. Third, the model produced a higher R squared value when using "activities" rather than "purposes," further indicating a higher level of reliability.

[103] In other words, the model "expects" that the addition of activities to a single project would take additional time and recognizes divergence from this expectation.

[104] Naomi Robbins, *When Should I Use Logarithmic Scales in My Charts and Graphs?*, FORBES (Jan. 19, 2012), https://www.forbes.com/sites/naomirobbins/2012/01/19/when-should-i-use-logarithmic-scales-in-my-charts-and-graphs/?sh=5f6fca0a5e67 [https://perma.cc/2VHL-VKJA].

downward trend after 2016.[105] In addition, the number of completed EISs decreased rapidly after 2016. We therefore excluded from our regression analysis all projects with an initiation date of 2017 or later.
Consistent with standard practice in regression analysis, we checked for high leverage data points, which are individual decisions having an unusual combination of values for the independent variables resulting in a disproportionate effect on the dependent variable. We also looked for highly influential data points that could skew model results through a combination of unusual values for the dependent variable and an unusual combination of values for the independent variables.

Using standard regression diagnostics DFFITS, Cook's D, hat values, and standardized residuals, a total of 341 high leverage and highly influential observations were identified and removed from our dataset. The regression analysis was performed with and without the 341 observations, and the change in the results was negligible. The results in this report are for the regression model with the 341 high leverage observations removed. Having applied these quality control measures, our final data set contained 33,283 observations (27,134 CEs; 5,605 EAs; and 544 EISs). With this final dataset, we were prepared to run the model and analyze the results.

IV. MODEL RESULTS

Contrary to our expectation, the regression analysis revealed that the level of analysis, date of project initiation, Forest Service Region, and activities involved in each project could only explain 25% of the variability in the elapsed time required to complete the NEPA review ($R^2 = 0.25$). Three-quarters of the variation in NEPA completion time is attributable to factors not controlled for in our model.

This result is consistent with observations made by the GAO and the Congressional Research Service that many delays associated with NEPA compliance are caused by external forces, including permitting or legal compliance with other statues, unstable funding, and inadequate staffing.[106] If delays are caused by factors independent of the NEPA process, as these and other sources suggest, it follows that these delays would not be predictable by

---

[105] *See supra* Section III.E.

[106] GAO, NEPA: LITTLE INFORMATION EXISTS, *supra* note 3, at 1, 15 (noting that for non-federal projects requiring a federal permit, delays in obtaining project funding, changes to the proposal that occur during the NEPA process, and non-federal approvals may all delay a project). The Congressional Research Service also notes that NEPA may run concurrently with other permitting efforts, and delays obtaining other permits may indirectly delay the NEPA process. LINDA LUTHER, CONG. RSCH. SERV., RL33267, THE NATIONAL ENVIRONMENTAL POLICY ACT: STREAMLINING NEPA 9 (2007) [hereinafter CRS, STREAMLINING NEPA] ("In fact, the NEPA process may be extended as a result of the need to complete a permitting process or other analysis required under separate statutory authority (e.g. the Clean Water Act or Endangered Species Act), over which the lead agency may have no authority.").

measuring factors within the NEPA process. This finding has significant implications for regulatory reform and lawmaking, which we explore in Section V.

Despite the model's muted ability to predict decision-making time on a case-by-case basis, each of the factors that we measured demonstrably influence the length of time required to complete the NEPA analysis. Those observations are also discussed below.

A. The Level of Analysis is an Imperfect Predictor of the Length of Time to Complete a Document

NEPA reforms frequently focus on reducing the level of analysis as a method for expediting decision-making.[107] The regression model allowed us to test the validity of this assumption by evaluating whether a predictable increase in decision-making time was associated with a higher level of analysis and whether that relationship had changed over time.

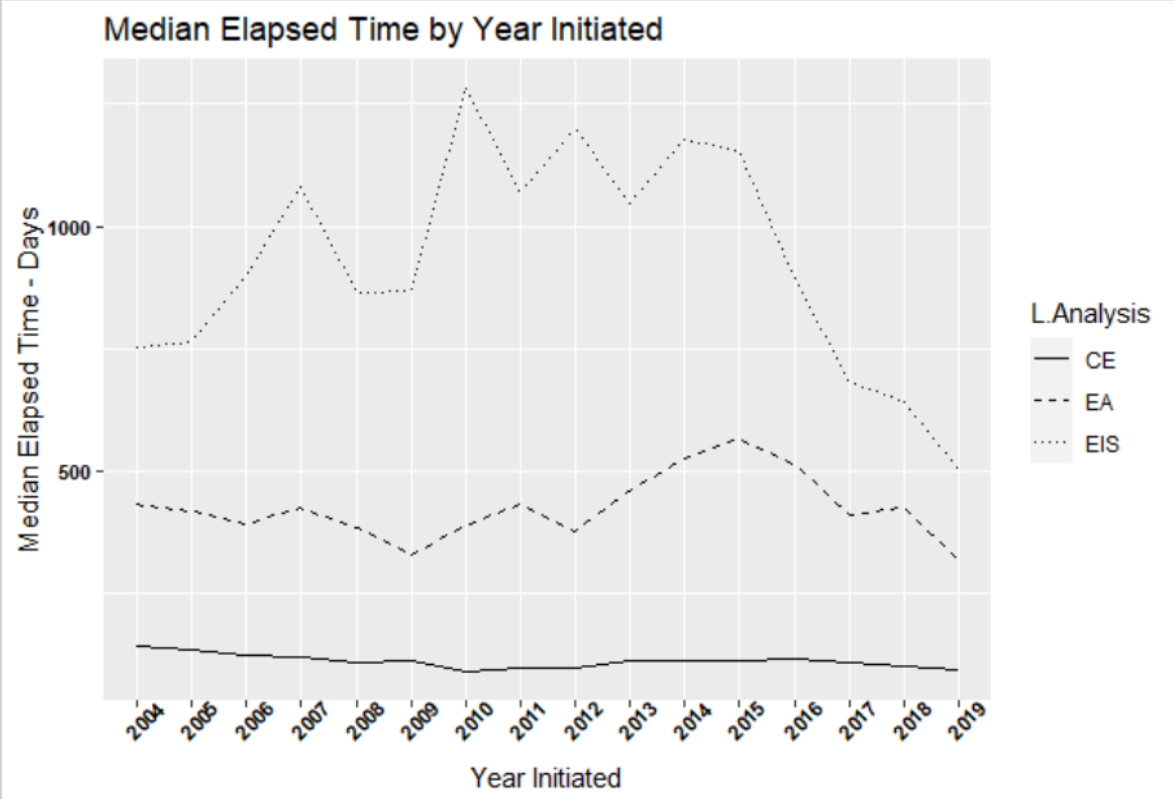
As expected, level of analysis is the strongest predictor of the elapsed time required to complete a NEPA decision. The full regression model (which contains predictor variables: level of analysis, year, activities, and region) can explain 25% of all the variation in elapsed time for a NEPA decision. By itself, level of analysis can explain 20% of the variability in our response variable. Shifting an otherwise identical project to a more rigorous level of analysis increases the average time required to complete the review. In 2004, if a project evaluated in a CE shifted to an EA (with the same activities and in the same region), the model predicted the duration of the analysis would have increased by an average of 226%. If a project evaluated in an EA shifted to an EIS, the model predicted the duration of the case to

---

[107] Congress has legislatively expanded the use of CEs in an effort to "streamline NEPA." *See, e.g.*, Moving Ahead for Progress in the 21st Century Act, Pub. L. No. 112-141, 126 Stat. 405 (2012) (codified at 26 U.S.C. § 430 and 29 U.S.C. § 1083) (creating several new categorical exclusions related to transportation); Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, Pub L. No. 109-59, § 6010, 119 Stat. 1144, 1877 (2005) (codified at 23 U.S.C. § 512) (directing the Secretary of Transportation to expand categorical exclusions applicable to transportation infrastructure); Energy Policy Act of 2005, Pub. L. No. 109-58, § 390, 119 Stat. 594, 747 (codified at 42 U.S.C. § 15942) (creating a "rebuttable presumption that the use of a categorical exclusion under [NEPA] would apply if the activity is conducted pursuant to the Mineral Leasing Act for the purpose of exploration or development of oil or gas"); Healthy Forest Restoration Act of 2003, Pub. L. No. 108-148, § 404, 117 Stat. 1887, 1910 (codified as 16 U.S.C. § 6554) (authorizing categorical exclusions for certain forest service activities including forest thinning and fuels reduction). *See also* Helen L. Serassio, *Legislative and Executive Efforts to Modernize NEPA and Create Efficiencies in Environmental Review*, 45 TEX. ENV'T L. J. 317, 321–25 (2015) (describing legislative efforts to circumscribe environmental review and the unintended consequences of these surgical expansions of categorical exclusions); Bradley C. Karkkainen, *Whither NEPA?*, 12 N.Y.U. ENV'T L. J. 333, 352–59 (2004) (criticizing proposed reforms to streamline NEPA by expanding the use of categorical exclusions).

increase by approximately 21%. These comparisons are made after adjusting for activities and region.

This relationship remained generally stable through the course of the study, though each level of analysis followed its own unique trend. By 2010 the predicted increase in the duration of an analysis that shifted from CE to EA was 242% (up from 226% in 2004). The increase from an EA to an EIS was 117% (up from 21% in 2004). By the end of the study in 2016, the predicted increase from CE to EA was 338% (up from 226% in 2010). The predicted increase from an EA to an EIS would be 27% (down from 117% in 2010). The figure below shows the fitted quadratic trend lines for average elapsed time on a log scale versus the actual average elapsed time on a log scale.[108]

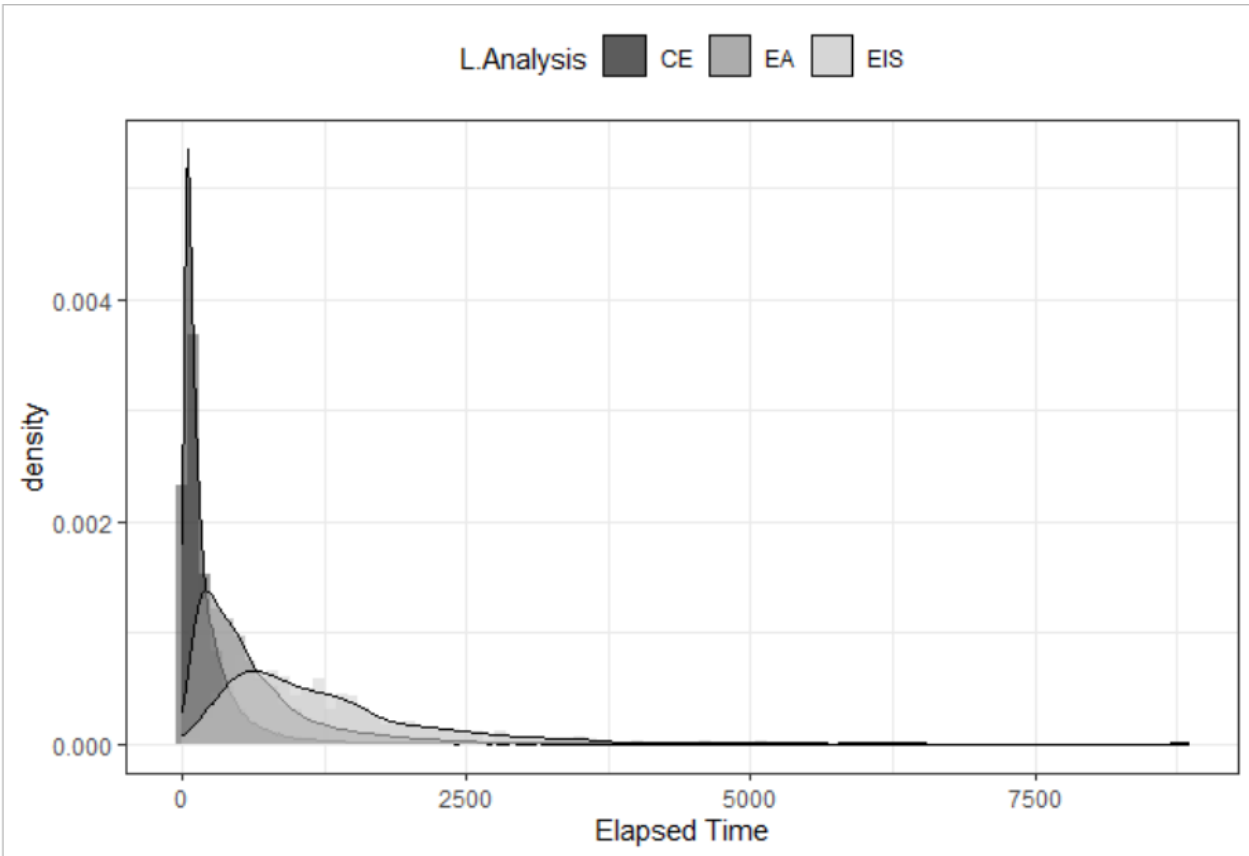


The rate of change for all three levels of analysis showed mild quadratic trends. The average length of time required to complete a CE decreased

[108] All three levels of analysis presented a slight quadratic trend. All regression coefficients for level of analysis, linear trend coefficient for year, the quadratic trend coefficient, and the interaction between level of analysis and trend coefficients for year are statistically significant at the 0.05 level and have p-values < 0.0001.

slightly between 2004 and 2011, and then increased slightly between 2011 and 2012. EAs followed a similar pattern, but they increased between 2008 and 2009. Interestingly, EIS cases followed almost the opposite pattern of CEs. The average rate of change for EISs increased until 2011 or 2012, then decreased slightly.

These results lead to the unsurprising observation that over the course of the study, on average, an EIS took longer to complete than an EA, which in turn generally took longer to complete than a CE. This is as expected because EISs involve the most searching level of review and public comment, while CEs are reserved for projects that do not require a deep analysis. However, the regression analysis also reveals that level of analysis is an imperfect predictor of decision-making times. While the statement, "an EIS takes longer than an EA, which takes longer than a CE," seems to belabor the obvious, it does not always hold true. Some CEs take longer to complete than some EAs and even some EISs. Similarly, some EAs take longer to complete than some EISs. In other words, there is important variability in decision-making times across levels of analysis. This variability cautions against moving projects into a less rigorous category of analysis without first considering other factors. The graph below illustrates this point by displaying the overlapping completion time curves of each level of analysis.



At the extreme, the 95th percentile of CEs took 714 days or longer, which is almost double the median time to complete an EA.[109] Similarly, the 95th percentile of EAs took 1,765 days or longer, which is roughly two years longer than the median time to complete an EIS.[110] However, these extreme cases are not the only reason for the variability. Anomalous NEPA decisions with long completion times, like the ones just discussed, are so infrequent, that they would not produce the high percentage of variability generated by the regression model.

Independent of the extreme outliers discussed above, the timelines of different levels of analysis overlap with sufficient frequency that the level of analysis does not reliably predict decision-making time. As our observational data revealed in Section II.F, Table 1, the fastest 25% of EAs are completed more quickly than the longest 25% of CEs. Likewise, the shortest

[109] *See supra* Section II.E (reporting median time to complete an EA was 445 days) and *supra* Section II.F, Table 1 (showing 95th percentile of CE completion times).
[110] *Compare supra* Section II.E (reporting median time to complete an EIS was 1,006 days).

25% of EISs are completed more quickly than the longest 25% of EAs. Closer analysis shows that over the course of the study, 16% of EAs took longer than the median time to complete an EIS.[111] Similarly, 11% of CEs took longer than the median completion time for an EA.[112] Additionally, 2.5% of CEs took longer than the median time to complete an EIS.[113] Reducing the level analysis alone therefore does not guarantee a faster decision. Despite a distribution that skews heavily to the right, some projects are completed much faster than one would expect—7.2% of EAs were completed more quickly than the median time for a CE;[114] and 13.1% of EISs were completed more quickly than the median time for an EA.[115] If the level of analysis alone caused delay, we would not expect to see such variability in timeframes across levels of analysis.[116]

This result has important policy implications. Because the level of analysis is not the sole cause of delay, reforms focused on expanding the use of CEs and avoiding the production of EISs may be targeting the wrong problem. The variability in completion times for each level of analysis, like the surprisingly low *R-squared* value (0.25) for the regression model as a whole, suggest that other factors influence the length of time to complete a document. Understanding these influences is a necessary prerequisite to developing effective regulatory reforms. This led us to investigate the influence of activities, regions, and background factors more closely.

B. Some Activities Appear to Prolong Decision-Making Time, But Closer Analysis Suggests that Many Sources of Delay Are External to NEPA

Every project involves at least one proposed activity, and some projects include multiple activities.[117] The regression model allows us to analyze the

---

[111] 1,121 out of 6881 EAs took longer than 1,006 days to complete.
[112] 3,783 out of 33,443 CEs took longer than 445 days to complete.
[113] 827 projects out of 33,443 CEs took longer than 1006 days to complete.
[114] 498 projects out of 6,881 were completed in less than 112 days.
[115] 114 projects out of 870 were completed in less than 445 days.
[116] This evidence is consistent with the anecdotal characterization made by Helen Leanne Serassio while serving as special counsel to the Federal Transit Administration. *See* Serassio, *supra* note 107, at 320 ("[T]he fact that some NEPA documents for unusually large, complex, and highly controversial actions take a long time to finalize and generate a voluminous amount of paper does not mean that NEPA is inherently inefficient. The information [in this article] shows that most federal actions promptly move through NEPA review.").
[117] For example, a project involving rangeland improvements may also include noxious weed treatment. *See, e.g.*, Project 35777, Bundle in Pine Project, Region 8, Boston Mountain Ranger District (2012) (EA) (one of 70 projects within the Regression database with this combination of activities). Similarly, a fuels management project may involve the following activities: fuel treatments, forest vegetation improvements, noxious weeds treatment, timber sale salvage, and timber sales green. *See, e.g.*, Project 19088, Lower Wood River Hazardous Fuels Reduction Project, Region 2, Greybull Ranger District (2006) (CE) (one of 66 projects in the Regression database with this combination of activities).

impact of including one or more of the forty-three potential activities in a project while holding all other variables constant. We therefore used the regression model to test the relationship between the time required to complete the NEPA analysis and the activities involved in the project. This helps determine whether certain activities are associated with delays, and conversely whether certain activities tend to expedite decision-making. Appendix 3 contains the fitted regression coefficients for each activity (in descending order), the 95% upper and lower confidence bounds for the estimated coefficient, and the estimated change in elapsed time if the activity is present in an individual NEPA analysis. The regression coefficients quantify the effect of individual activities on elapsed time after controlling for level of analysis, region, and year. Some coefficients for activities are negative, indicating that they are associated with faster than average completion times. Activities in bold text are statistically significant at the 0.05 level. The definitions for each of the activities are defined in the Forest Service's PALS User guide v.5.12 and are included as Appendix 2. The width of the confidence intervals indicates the degree of confidence that the presence of this activity will be associated with higher (or lower) elapsed times. A wider confidence interval indicates less certainty as to the actual magnitude of the increase (or decrease) in elapsed time for a specific activity.[118]

The top three activities associated with longer decision-making times are:[119] (1) Forest Plan Creation/Revision, which is associated with a predicted 97.2% increase in the elapsed time; (2) Oil, with a predicted 87.9% increase in elapsed time; and (3) Land Exchanges, with a predicted 75.5% increase in elapsed time. We found that even though the regression model indicated that these activities are statistically significant predictors of delay, there were also projects with the same activity where the NEPA analysis was completed more quickly than the median time, indicating that quick completion was possible despite modeled predictions of delay. Additionally, the variability in completion times had a different profile for each activity. For example, almost every NEPA analysis with oil as an activity was completed more quickly than average, but a small number of CEs lingered over 1,000 days. In contrast, the distribution of times required to complete the NEPA analysis on land exchanges appeared random, while forest plan revisions consistently took longer than the Forest Service's median completion times during the course of this study.

To understand these results, we turned to investigations conducted by the Government Accountability Office (GAO) and the Congressional Research

---

[118] The number of NEPA decisions that involve a given activity has a direct effect on the width of the confidence interval, with more records resulting in more robust predictive ability and therefore narrower confidence intervals (all else being equal). Here, wider confidence intervals are often associated with activities that were not addressed in very many NEPA analyses.
[119] For ease of reading, we refer to the name and definition as defined by the PALS user guide rather than using the exact title in the table.

Service (CRS), legal analysis, and industry commentary. These sources suggested possible explanations for the wide variability in completion times, many of which were external to the NEPA process. We discuss the activities in reverse order from least to most significant predictors of delay.

1. Land Exchanges: Sources of delay identified in the land exchange process apply equally to the NEPA decision-making process

Land exchanges are transactions where the Forest Service conveys away National Forest System lands in return for non-system lands that better advance Forest Service objectives. The Forest Service, for example, may give up an isolated forest parcel that is difficult to manage in return for private inholdings within a National Forest or lands along the border of a National Forest that improve public access to the forest. Land exchanges demonstrate the way in which administrative issues within an agency, such as a lack of experienced staff, uncertain funding, and alternative priorities can delay the decision-making process. These challenges also affect the NEPA decision-making process.

The regression model evaluated 236 projects listing Land Exchanges as an activity. The shortest NEPA review of a land exchange took two days,[120] and the longest took almost ten years (3,642 days).[121] Of these, 93 (39%) land exchanges were evaluated in CEs, 134 were evaluated in EAs (57%), and 9 (4%) were evaluated in EISs. Roughly one-third of the projects (80) were completed in less than a year.

Comparing these results to the Forest Service's median time to complete decisions at each level of review, five of the nine EISs took longer than the median time of 1,006 days, and three took at least twice as long.[122] In contrast, two EISs were completed more quickly than the median time for an EA (445 days).[123] Turning to EA completion times, 27.6% took longer than the median time to complete an EIS (37 projects out of 134 took longer than 1,006 days). An almost equal number were completed more quickly than the median EA (42 projects took less than 445 days). Additionally, 3% of EAs were completed in less than the median time to complete a CE (5 projects took less than 112 days). Finally, looking at the 93 CEs, just 16% were completed more quickly than the median time to complete a CE (15 projects out of 93 took less than 112 days). However, 37% took longer than the median EA (35 out of 93 took longer than 445 days), and 10.6% took longer

[120] Project 12821, 02-139-Sale of FS Land via Small Tracts Act (Groche Trespass Case Resolution), Region 8, Blue Ridge Ranger District (2005) (CE).
[121] Project 27958, Dairy Syncline Phosphate Mine, Region 4, Soda Springs Ranger District (2020) (EIS).
[122] The longest EISs took 2,611 days, 2,280 days, and 3,642 days respectively.
[123] The shortest EISs took 376 days and 409 days respectively.

than the median time for an EIS (10 projects out of 93 took longer than 1,007 days). In summary, the NEPA analysis required for land exchanges varied widely in terms of completion times. Although some projects were completed quickly, many projects exceeded the median time to complete a higher level of review. Notably, this applied to CEs, which do not require detailed analysis. A relatively high proportion of CEs experienced delay beyond the median times for an EA or an EIS. To understand why, we investigated the legal process for accomplishing land exchanges, as well as GAO investigations identifying delays within the land exchange process.

Most land exchanges go through a similar process:[124] "receiving or making a proposal for an exchange, conducting a feasibility analysis, signing a nonbinding agreement to initiate, obtaining appraisals of the land, conducting resource and environmental analyses, deciding on whether to complete the exchange, and preparing title and closing documents."[125] The Forest Service's handbook provides implementation schedules for various types of exchanges that include a range of 56 to 71 action items.[126]

According to the GAO, lack of qualified staff, inadequate funding, and lower prioritization of land exchanges compared to other activities were identified as sources of delay for land exchanges involving the Forest Service.[127] When reviewing 250 land exchanges conducted from October 1, 2004 through June 30, 2008 by the BLM and the Forest Service, the GAO reported that in almost every reviewed case, the agencies took longer than estimated to complete the exchange.[128] In explaining these delays, both agencies cited "the lack of staff" and the "lack of qualified appraisers."[129] Both agencies reported that "owing to an increasing number of retirements and the need to work on higher priority activities—such as processing energy rights-of-way—staff may not be available to process exchanges."[130]

These same cross-cutting challenges plague the NEPA process. In 2018, the Forest Service collaborated with the National Forest Foundation to conduct a series of regional roundtables focused on Environmental Analysis and Decision Making (EADM).[131] The regional results were synthesized into a

---

[124] Exceptions may occur where Congress enacts legislation authorizing specific exchanges and in so doing imposes different substantive or procedural requirements.
[125] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-611, FEDERAL LAND MANAGEMENT BLM AND THE FOREST SERVICE HAVE IMPROVED OVERSIGHT OF THE LAND EXCHANGE PROCESS, BUT ADDITIONAL ACTIONS ARE NEEDED 7 (2009), https://www.gao.gov/assets/gao-09-611.pdf [https://perma.cc/99GY-9Z2W] [hereinafter GAO, LAND EXCHANGE REPORT].
[126] *Id*. at 6.
[127] *Id*. at 4, 15, 17.
[128] *Id*. at 14.
[129] *Id*. at 15.
[130] *Id*.
[131] Environmental Analysis and Decision-making incorporates NEPA, but also includes other procedural decision-making requirements including but not limited to the National Forest Management Act, Forest Service Planning Regulations, the National Historic Preservation Act,

national report.[132] The report recognizes an increase in average decision-making times between 2005 and 2016, and also notes that the "non-fire workforce is at its lowest capacity in years."[133] Emphasizing the point, the report indicated that in 1998, non-fire personnel exceeded 17,500, while fire personnel sat closer to 5,000 employees. By 2015, non-fire personnel had been reduced to around 10,000 employees, while fire personnel had grown to over 11,000.[134] The transition to a fire dominant staff affects the availability of qualified personnel to conduct environmental planning, monitoring, and analysis, which includes NEPA reviews.

The EADM Roundtable Synthesis Report described how the reduction in qualified staff, inadequate or uncertain funding, and lower prioritization of environmental planning had affected NEPA decision-making times. "Turnover, detail assignments and fire response often reduce productivity due to interruptions in project momentum and changes in project direction."[135] Inadequate funding further affects decision-making times. "Budget shortfalls and statutory mandates on funding for fire response, combined with a shortage of trained employees in areas other than fire and/or a frequent diversion of staff to emergency response or shifting priorities, hamper the ability of the Agency to make progress on other important forest and grassland management efforts."[136] Finally, effective and efficient environmental decision-making requires qualified staff. "[T]he complexity of landscape-scale (e.g., climate, fuels, insects, and disease) demands a high level of expertise and deep knowledge of forest conditions at multiple levels of the agency."[137] Despite this need, "training in project and personnel management, resource specializations, and EADM itself remains an unaddressed need throughout the USFS."[138]

---

and the Endangered Species Act. According to the Forest Service website, "EADM is a change effort that intends to reduce the time and cost of our environmental analysis and decision-making processes to produce efficient, effective, and high-quality land management decisions to accomplish more work on the ground and be more responsive to the public we serve." *Improving Environmental Analysis and Decision Making*, FOREST SERV. U.S. DEP'T OF AGRIC., https://www.fs.usda.gov/managing-land/eadm [https://perma.cc/FH65-BAPH] (last visited August 6, 2021). *See* NAT'L FOREST FOUND., EADM, ENVIRONMENTAL ANALYSIS AND DECISION-MAKING, REGIONAL PARTNER ROUNDTABLES: NATIONAL FINDINGS AND LEVERAGE POINTS 18 (2018), https://www.nationalforests.org/assets/pdfs/National-EADM-Report.pdf [*hereinafter* EADM ROUNDTABLES NATIONAL SYNTHESIS REPORT] ("Budget shortfalls and statutory mandates on funding for fire response, combined with a shortage of trained employees in areas other than fire and/or a frequent diversion of staff to emergency response or shifting priorities, hamper the ability of the Agency to make progress on other important forest and grassland resource management efforts. USFS staffing levels are not adequate to meet the current demand for EADM. . . . EADM timelines are often lengthened due to the need for hiring or on-boarding additional staff, including 'holes' in interdisciplinary team specialist representation.").

[132] *Id*.

[133] *Id*. at 5.

[134] *Id*.

[135] *Id*. at 15.

[136] *Id*. at 18.

[137] *Id*.

[138] *Id*.

In addition to delays within the land exchange process, the GAO also remarked on a significant reduction in the number of land exchanges accomplished annually. In the decade from 1989 to 1999, the Forest Service completed an average of 115 land exchanges annually.[139] In contrast, between October 1, 2004 and June 30, 2008, the Forest Service only completed an average of 29 exchanges annually.[140] The decline in the number of land exchanges completed annually mirrors the findings of recent research by Fleischman et al. regarding the Forest Service's NEPA practice. Analyzing trends in Forest Service NEPA practice between 2005 to 2018, they found that the "number of new [NEPA] projects has declined dramatically in this period, with the USFS now initiating less than half as many projects per year as it did prior to 2010."[141]

Prioritization of work influences staffing and funding decisions and can further exacerbate delays. In the land exchange process, the GAO identified "changing priorities" as a distinct source of delay, even though the symptoms were evident in staffing and funding.[142] A similar dynamic may affect associated Forest Service NEPA activities.[143] The rising proportion of fire-related activities competes with other Forest Service operations, including environmental decision-making and NEPA implementation. According to the Congressional Research Service, total funding for wildfire-related purposes has accounted for more than half of the Forest Service discretionary appropriation over the past five years.[144] The EADM Roundtable Synthesis Report described how prioritizing wildfire management over environmental management affects decision-making times. "[A] frequent diversion of staff to emergency response or shifting priorities, hamper the ability of the Agency to make progress on other important forest and grassland resource management efforts."[145] Moreover, cross-boundary issues like climate change, invasive species, and wildlife habitat were not prioritized and experienced funding and staffing shortages, with resources diverted toward fire

---

[139] GAO, LAND EXCHANGE REPORT, *supra* note 125, at 16.
[140] *Id.* at 16.
[141] Fleischman et al., *supra* note 58, at 410–12.
[142] GAO, LAND EXCHANGE REPORT *supra* note 125, at 17 ("[B]ecause exchanges typically are discretionary activities, their processing often competes for staff time and attention with other land transactions"); *id*. at 18 ("processing land exchanges competes for funding with other activities that currently have a higher priority").
[143] EADM ROUNDTABLES NATIONAL SYNTHESIS REPORT, *supra* note 131, at 4 ("Internally, the USFS has identified a number of impediments to efficient and effective implementation of work on the ground, including: . . . gaps in skills and associated training, reduced budgets, and increasing costs of fire response.").
[144] KATE HOOVER & ANNE A. RIDDLE, CONG. RSCH. SERV., R43872, NATIONAL FOREST SYSTEM MANAGEMENT: OVERVIEW, APPROPRIATIONS, AND ISSUES FOR CONGRESS 17, 22 (2019). In FY2019, the Forest Service received a discretionary appropriation of $7.32 billion, of which $4.09 billion was allocated to wildfire-related purposes. *Id*. The Forest Service also receives mandatory appropriations, but the amount is much smaller than the discretionary appropriation. For example, in FY2019, the mandatory appropriation was $377 million. *Id*. at 17–18.
[145] EADM ROUNDTABLES NATIONAL SYNTHESIS REPORT, *supra* note 131, at 18.

response.[146] Additionally, as discussed in more detail in Section IV(D)(1), fiscal uncertainty caused by prioritizing wildfire suppression creates a stop/start dynamic that reduces the efficiency of other Forest Service projects, and affects NEPA decision making times.[147]

In summary, the activity "land exchanges" reveals the degree to which internal management issues including a lack of experienced staff, an insufficient number of staff, insufficient funding, and competing agency priorities create delays. These same challenges affect NEPA implementation. These are serious problems that must be addressed, but they are problems that grow from an under-resourced agency struggling to adapt to a rapidly evolving mission. They are not problems rooted in agency NEPA regulations or practice. Providing the Forest Service and other agencies the resources they need to fulfill their NEPA obligations should be the starting point for improving NEPA efficacy.

2. Oil: Abnormally long completion times for a small number of projects may be caused by external factors including operator priorities, market dynamics, and lease suspensions

Activities involving oil demonstrate the variability in completion times across levels of analysis discussed in Section III(A). A small number of CEs took extremely long, creating an impression of delay for this activity. The regression model identified 64 projects involving oil as an activity. The fastest project took 20 days.[148] The longest took almost 8 years (2,910 days).[149] Of the 64 projects, 75% were completed in less than a year. Lengthy CEs were common when oil was included as an activity. Specifically, just 36% of the CEs (18 out of 50) were completed more quickly than the median for all CEs, 112 days. Ten percent of CEs (5 out of 50) took more than 1,000 days to complete, which is close to the median time for an EIS (1,006 days),[150] and 16% of CEs took longer than the median time for an EA (8 out of 50 took longer than 445 days). CEs involving oil are, in short, more likely to result in delays than CEs for other activities. In contrast to longer CE completion times, 75% of EAs involving oil were completed faster than the median time of 445 days.[151] There were only two EISs: one was

---

[146] *Id*. at 14.
[147] *See* EADM ROUNDTABLES NATIONAL SYNTHESIS REPORT, *supra* note 131 at 15 ("Turnover, detail assignments, and fire response often reduce productivity due to interruptions in project momentum and changes in project direction.").
[148] *See* Project 49420, Precision Geophysical Inc. Seismic Testing, Region 9, Wayne National Forest (2016) (CE).
[149] *See* Project 40652, Northern Great Plains Management Plans Revision Supplemental EIS for Oil and Gas Leasing, Region 1, Dakota Prairie Grasslands (2021) (EIS).
[150] Sixteen percent of the CEs (8 out of 50) took longer than the median time for EAs (445 days).
[151] The remaining three were all completed more promptly than the median time for EISs at 481 days, 692 days, and 789 days.

completed in 679 days, which is much faster than the median time of 1,006 days for EISs. The other required 2,910 days, which is far longer than the median.

In summary, most of the delays associated with oil were due to the slow processing of CEs.[152] This is unusual because all of the CEs involved an Application for a Permit to Drill (APD),[153] which comes only after multiple prior environmental reviews.[154] Thus, these outliers provide an opportunity to explore why the lowest level of analysis did not result in an expedited decision.

To understand why some CEs took so long when most of the other NEPA documents for the same activity were processed within normal to fast timeframes, we looked to the regulatory structure and GAO reports investigating the oil and gas permitting process.[155] The results of those investigations provide insight that may help explain the wide variability in decision-making time for CEs within the Forest Service process. Specifically, sources of delay within the BLM permitting process include waiting for information from the operator, market dynamics, and operator priorities.

---

[152] The PALs database distinguishes between "Oil" and "Natural Gas" as activities, but the definitions seem similar. *See infra* Appendix 2 (providing definitions of activities for PALs database). Of the 64 projects involving "Oil" as an activity, 44 also included "Natural Gas." To understand the different results for "Oil" and "Natural Gas," we focused on the 33 "Natural Gas" projects that did not include "Oil" as an activity. Of these, there were 2 EISs; 7 EAs; and 24 CEs. Each level of analysis had wide variability in decision making times; however, there were no long CEs. The longest CE took 273 days. That appears to be why these functionally similar activities received such different results in the regression analysis.

[153] Theoretically, most of the information to make a decision on an APD should have already been considered either at the land use planning stage and again at the leasing stage. However, these early analyses often attempt to delay gathering environmental information until later in the leasing stage. A GAO report from 1990 concluded that "inadequate land use plans and/or environmental studies have resulted in leasing being suspended, primarily on Forest Service Lands" and that the foregone revenues from delayed oil and gas leases "far exceed any reasonable estimated cost to develop such information for resource areas and forests with high oil and gas potential." U.S. GOV'T ACCOUNTABILITY OFF., GAO-RCED-90-71, FEDERAL LAND MANAGEMENT: BETTER OIL AND GAS INFORMATION NEEDED TO SUPPORT LAND USE DECISIONS (1990).

[154] 42 U.S.C. § 15942 (creating a rebuttable presumption for the use of a CE when analyzing an APD for exploration under the MLA).

[155] The GAO has conducted several investigations regarding the BLM's management of oil and gas leases. *See, e.g.*, U.S. GOV'T ACCOUNTABILITY OFF., GAO-20-329, OIL AND GAS PERMITTING: ACTIONS NEEDED TO IMPROVE BLM'S REVIEW PROCESS AND DATA SYSTEM (2020) [*hereinafter* GAO, ACTIONS NEEDED TO IMPROVE BLM'S DATA SYSTEM]; U.S. GOV'T ACCOUNTABILITY OFF., GAO-18-411, OIL AND GAS LEASE MANAGEMENT: BLM COULD IMPROVE OVERSIGHT OF LEASE SUSPENSIONS WITH BETTER DATA AND MONITORING PROCEDURES (2018); U.S. GOV'T ACCOUNTABILITY OFF., GAO-17-307, OIL AND GAS DEVELOPMENT: IMPROVED COLLECTION AND USE OF DATA COULD ENHANCE BLM'S ABILITY TO ASSESS AND MITIGATE ENVIRONMENTAL IMPACTS (2017); U.S. GOV'T ACCOUNTABILITY OFF., GAO-13-572, OIL AND GAS DEVELOPMENT: BLM NEEDS BETTER DATA TO TRACK PERMIT PROCESSING TIMES AND PRIORITIZE INSPECTIONS (2013); U.S. GOV'T ACCOUNTABILITY OFF., GAO-10-313, OIL AND GAS MANAGEMENT: INTERIOR'S OIL AND GAS PRODUCTION VERIFICATION EFFORTS DO NOT PROVIDE REASONABLE ASSURANCE OF ACCURATE MEASUREMENT OF PRODUCTION VOLUMES (2010).

a. Regulatory Structure

The Mineral Leasing Act (MLA) grants the Forest Service authority to regulate surface disturbing activities where National Forest System lands overlay federal minerals.[156] However, responsibility for managing federally owned sub-surface mineral resources is shouldered by the Bureau of Land Management (BLM).[157] Thus, Forest Service approval of a Surface Use Plan of Operations is embedded within the BLM's multi-stage regulatory process.[158] The shared permitting structure is relevant to this analysis because delays affecting the BLM's permitting process also affect the Forest Service. Industry commentary regarding permitting delays focus on themes exogenous to NEPA's regulatory structure, some of which we have already discussed: inexperienced staff, insufficient staffing, and a litigation-averse focus on bullet-proofing documents.[159] Although these recurring themes are

---

[156] 30 U.S.C. § 226(g) ("The Secretary of the Interior, or for the National Forest Lands, the Secretary of Agriculture shall regulate all surface-disturbing activities conducted pursuant to any lease issued under this Act. . . . No permit to drill on an oil and gas lease issued under this Act may be granted without the analysis and approval by the Secretary concerned of a plan of operations covering proposed surface-disturbing activities within the lease area."); *see also* 30 U.S.C. § 192c ("[A]ny permit or lease of such deposits in land administered by the Secretary of Agriculture shall be issued only with his consent and subject to such conditions as he may prescribe to insure the adequate utilization of the land[.]"). Under the MLA, no parcels may be offered for lease and no permit to drill may be granted without the Forest Service's consent and confirmation that the lease sale would be consistent with the applicable Forest Plan and completion of the appropriate NEPA analysis. 36 C.F.R. § 228.102 (2021).

[157] 36 C.F.R. § 228.1 (2021); Memorandum of Understanding Between U.S. Dep't of the Interior, Bureau of Land Mgmt. and U.S. Dep't of Agric., Forest Serv. (Apr. 14, 2006), https://www.fs.fed.us/geology/MOU_BLM_Oil_Gas.pdf [https://perma.cc/DM9W-P2BJ].

[158] The Surface Use Plan of Operations is first submitted to the BLM as part of the APD and later forwarded to the Forest Service to approve. 36 C.F.R. § 228.107(b)(1) (2021). It is unclear whether the MYTR database begins tracking time from the initial point of the APD submission to the BLM or from the time that the Forest Service's environmental review begins. Either point would fit the database definition of "project initiation." *Compare* PALS User Guide at 15 (identifying potential project milestones and defining Project Initiation as "When the project officially begins.") *with* PALS User Guide Appendix A—Data Field Definitions (defining "project initiation" for an EA as the "official scoping start date" and for a CE as the "scoping start date or date accepted to live SOPA). It is also possible that there is variation in practice among field offices. For a description of the Forest Service's procedure in analyzing a SUPO, *see* 36 C.F.R. §§ 228.105 to 228.108 (2021). For an explanation of the multiple steps involved in approving an APD submitted to the BLM, *see* GAO, ACTIONS NEEDED TO IMPROVE BLM'S DATA SYSTEM 7-8 *supra* note 155.

[159] Laura Lindley, *NEPA Streamlining: Some Observations on Its Use in the Context of BLM and Forest Service Oil and Gas Program*, *in* ROCKY MT. MIN. L. FOUND., NATURAL RESOURCES AND ENVIRONMENTAL ADMINISTRATIVE LAW AND PROCEDURE II (2004) (identifying complaints of delay and uncertainty as partially attributable to "inexperienced and/or unempowered team leaders" who "may be preparing his/her first EIS" and specifying that the "lack of training results in unnecessary wasted time" including "failing to tier to earlier documents" and also citing concerns that the process "grinds to a halt" when the team leader is "out of the office for vacation, illness, training, or other priorities"); *id*. at n.5 and accompanying text ("It has been the author's frequent experience that the BLM and the Forest Service delay decision-making in order to prepare more and lengthier NEPA documents in an effort to bulletproof their decisions from appeal."). For a more thorough discussion of delays caused by litigation aversion, see *infra* Section IV(D)(2).

relevant, they would not explain why most of the EAs in this category were processed expeditiously, while an unexpectedly high proportion of CEs took much longer than average.

All of the CEs that took longer than average involved an APD approval, which is the final stage for development of an oil or gas well.[160] After a lease has been issued, the lessee has ten years to drill a well and commence production.[161] By the time the Forest Service and BLM act on an APD, the development proposal has already undergone at least two NEPA reviews (at the Forest Planning phase where the Forest Service determines whether oil development is an appropriate use of National Forest System lands, and at the leasing stage where the Forest Service determines whether a specific parcel is appropriate for development and what surface use stipulations are needed to protect other resources). Each analysis considers more detail as site-specific analysis becomes more focused. With appropriate tiering, and barring unforeseen complications, approval of an APD should be simple and capable of expedited review.

b. Some Delays in APD Approval Are Attributable to the Operator

One source of delay identified by the BLM is time spent waiting for information from an operator.[162] The BLM depends on information from the operator when processing an APD. If the operator responds slowly, decision-making time increases, skewing data reported in MYTR, even though the delay is not caused by the Forest Service or the BLM. The BLM quantifies this phenomenon. The BLM maintains ongoing data on the time required to process an APD that distinguishes between time the BLM spent waiting for an operator to provide information and time the BLM spent analyzing an APD. For nine out of ten published years (2012 to 2020), the BLM spent more time waiting for an operator to provide information than it spent

---

[160] Under the MLA, no parcels may be offered for lease and no permit to drill may be granted without the Forest Service's consent and confirmation that the lease sale would be consistent with the applicable Forest Plan and completion of the appropriate NEPA analysis. 36 C.F.R. § 228.102 (2021).

[161] Federal oil and gas leases are generally issued for a ten-year primary term. U.S. GOV'T ACCOUNTABILITY OFF., GAO-18-411, OIL AND GAS LEASE MANAGEMENT: BLM COULD IMPROVE OVERSIGHT OF LEASE SUSPENSIONS WITH BETTER DATA AND MONITORING PROCEDURES 5 n.15 (2018) ("The Energy Policy Act of 1992 required BLM to offer all competitive and noncompetitive leases with 10-year primary terms. Prior to 1992 BLM offered primary lease terms of 5 years for competitively sold leases and 10 years for leases issued non-competitively.") [*hereinafter* GAO, BLM COULD IMPROVE OVERSIGHT OF LEASE SUSPENSIONS].

[162] There are three steps involved in approving an APD and each step may involve some back and forth between the operator and the BLM. At Step 1, the operator submits the APD, and the adjudicator verifies that the lease is valid and the payment has been received. In Step 2, the adjudicator identifies potential deficiencies in the application and provides the operator 45 days to correct. At this stage, the 30-day public notification process begins. Step 3 involves the environmental analysis and NEPA compliance. If additional information is required during step 3, the BLM defers its decision and the operator has up to 2 years to provide information. GAO, ACTIONS NEEDED TO IMPROVE BLM'S DATA SYSTEM *supra* note 155 at 8 (Figure 2: BLM's APD Review Process).

reviewing the APD. In some years, the BLM spent almost twice as much time waiting for an operator as it spent analyzing the APD.[163] These delays, which appear to reflect slow NEPA analysis, are not attributable to federal agency action and cannot be resolved by changes to agency regulations or practice. In crafting regulatory reforms, this source of delay should be distinguished from delays caused by agency inefficiencies.

Federal oil lessees may have operational reasons for delaying their responses, or they may need additional time to respond to changing circumstances. Substantial time may pass between leasing and the submission of an APD. During that time, development of adjacent parcels, identification of a nearby cultural resource or sensitive species, improved technology, or a communitization agreement or unitization orders may necessitate changes to an operator's Surface Use Plan of Operations.[164] The site-specific analysis required at the APD phase, or amendments to an existing APD, may require additional planning and analysis to address these developments. These delays are reflected in the NEPA decision-making process, but they are caused by the operational uncertainties of oil exploration in a complex, regulated industry.

Additionally, APDs bridge the divide between aspiration and implementation. According to the GAO, "the three primary factors influencing operators' decisions to apply for or use APDs were economic factors, infrastructure availability, and lease terms."[165] The primary economic and infrastructure-related factors influencing operators were: (1) the price of oil and natural gas; (2) drilling success and geological attributes; (3) technological changes; (4) access to infrastructure, including pipelines; and (5) drilling rig schedules.[166] In addition to these physical factors, market influences came into play. "Some operators may obtain APDs to increase the value of the company without using the APD to drill."[167] Other operators confirmed that they like to keep approved but unused APDs on hand to ensure drill rigs could be kept busy.[168] The number of APDs that get approved but go unused demonstrates the influence of these external factors. From fiscal years 2014 to 2019, almost half the APDs approved by the BLM went unused.[169]

---

[163] *Id*. (years 2011, 2012, 2018).
[164] *See* Laura Lindley, *The Impact of Unit Events Upon a Federal Oil and Gas Lease*, *in* ROCKY MTN. MIN. L. FOUND., FEDERAL ONSHORE OIL & GAS POOLING AND UNITIZATION BOOK 1 (2014)(describing and providing definitions for unitization and communitization).
[165] GAO, ACTIONS NEEDED TO IMPROVE BLM'S REVIEW PROCESS AND DATA SYSTEM *supra* note 150 at 11.
[166] *Id*. at 16–17.
[167] *Id*. at 19.
[168] *Id*. at 20.
[169] *Id*. at 11 (reporting that 9,991 APDs had been approved and put to use, while 9,950 had been approved, but were not being used).

Lease suspensions may also affect the lengthy decision-making times for CEs reflected in the MYTR database. Federal oil and gas leases expire at the end of their 10-year primary term unless oil or gas is produced in paying quantities or the lease otherwise qualifies for an extension.[170] A lessee can avoid expiration of a lease term without producing oil in paying quantities by applying for a lease suspension, tolling the running of the lease term and, in some cases, suspending the lessee's obligation to pay rent while the lease is suspended.[171] As of 2016, there were 2,750 BLM oil and gas leases identified as suspended.[172]

Lease suspension may be granted because of market conditions, logistical challenges, weather-related issues, or administrative delay (including waiting for approval of an APD).[173] Lease suspensions can be a strategic way to weather economic downturns.[174] For example, in 2020, the BLM issued Interim Guidance detailing how to apply for a lease suspension following the economic downturn caused by COVID-19.[175]

Lease suspensions could affect decision-making times in two distinct ways. First, if a lease were suspended while an APD was in process, the number of

---

[170] Robert C. Mathes & Timothy R. Cannon II, *Staying Alive, Navigating the Complexities of Oil and Gas Lease Extensions, Terminations, Cancellations, and Suspensions*, *in* ROCKY MT. MIN. L. FOUND., PROCEEDINGS OF THE SIXTY-FIRST ANNUAL ROCKY MOUNTAIN MINERAL LAW INSTITUTE § 28.03 (2015).

[171] The Mineral Leasing Act and its implementing regulations provide two major types of suspensions for federal oil and gas leases: "Section 39" suspensions and "Section 17" suspensions. Mathes & Cannon, *supra* note 170 at § 28.05. *See also* 30 U.S.C. § 209 and 43 C.F.R. § 3103.4-4 (2021) (statutory and regulatory authority for Section 39 suspensions); 30 U.S.C. § 226(j) (statutory authority for Section 17 suspensions); U.S. BUREAU OF LAND MGMT., INTERIM GUIDANCE FOR LEASE SUSPENSION REQUESTS DURING THE COVID-19 NATIONAL EMERGENCY (April 21, 2020), https://f.datasrvr.com/fr1/820/96356/BLM_interim_guidance_-_suspension.pdf?cbcachex=299019 [https://perma.cc/7GJC-WHMD] (describing both types of suspensions and providing instructions on how to apply for a suspension due to circumstances created by COVID-19).

[172] GAO, BLM COULD IMPROVE OVERSIGHT OF LEASE SUSPENSIONS *supra* note 161 at 15.

[173] *Id.* at 18–19 (describing reasons for lease suspensions in a sample of files for 48 leases in Montana and Wyoming). *See also* Mathes & Cannon, *supra* note 170 at § 28.05(1)(a) ("Situations Justifying Section 39 Suspensions"); Savoy Energy, L.P., 178 IBLA 313, 323 (2010) (holding that where lessee awaited approval of an APD, suspension fell within the terms of relief granted by Section 39 for "delays imposed upon the lessee due to administrative actions addressing environmental concerns [which] have the effect of denying the lessee 'timely access to the property"). *See generally* Harvey Yates Co., 156 IBLA 100 (2001) (recognizing availability of Section 39 suspensions to lessees awaiting approval of an APD, but detailing the strict procedures that must be followed to obtain this relief); River Gas Corp. Texaco Expl. and Prod. Inc., 149 IBLA 239, 249 (1999) (holding that the lessee was entitled to a suspension as a matter of right where the BLM ordered cessation of operation until the completion of an EIS).

[174] SCOTT ANDERSON ET AL., HOGAN LOVELLS, SUSPENSIONS OF FEDERAL AND INDIAN OIL AND GAS LEASES (2020), https://ca.hoganlovells.com/-/media/hogan-lovells/pdf/2020-pdfs/2020_04_23_suspensions_of_federal_and_indian_oil_and_gas_leases.pdf [https://perma.cc/SZ9Q-X624].

[175] U.S. BUREAU OF LAND MGMT., INTERIM GUIDANCE FOR LEASE SUSPENSION REQUESTS DURING THE COVID-19 NATIONAL EMERGENCY (Apr. 21, 2020), https://f.datasrvr.com/fr1/820/96356/BLM_interim_guidance_-_suspension.pdf?cbcachex=299019 [https://perma.cc/7GJC-WHMD].

days between project initiation and a decision would increase even though no NEPA action was being taken. This would appear as a long NEPA project in MYTR and the delay would likely be misattributed to the NEPA process even though the delay was caused by the lease suspension. It is also possible that environmental conditions discovered during the NEPA process may make a project less attractive, inducing an operator to apply for a lease suspension pending completion of the required environmental studies.[176]

Once the suspension was issued, the operator may not have an incentive to continue pursuing the NEPA analysis if the economics of the well were marginal. For example, when the GAO investigated lease suspensions at the BLM, it identified multiple lease suspensions in Montana that had been in place for more than 30 years.[177] Several of these had been subject to a court order requiring additional consideration of environmental impacts. Documents from the Forest Service indicated that there was little interest at the time in conducting those analyses because of their expense and because the operators had minimal interest in developing the lands for oil and gas production.[178] With the suspension in place, the operators could avoid the expense of additional environmental review without losing the lease.

There is no way of knowing whether the slow-moving CEs in our study were delayed due to a lease suspension. In addition to limited oversight, monitoring, and documentation of lease suspensions by the BLM,[179] the MYTR database numbering system does not interface with the BLM lease suspension database. Nevertheless, it is important to recognize that outside influences may affect NEPA decision-making times in unexpected ways.

In summary, operator priorities, market forces, technological developments, and lease suspensions could extend decision-making times. Focusing solely on decision-making times to assess NEPA efficiency fails to capture these relevant nuances. In these circumstances, "streamlining" procedures that focus on creating new and more expansive CEs or compulsory deadlines would not address the underlying cause of delay, but they would reduce transparency, consideration of alternatives, and opportunities for environmental mitigation. Regulatory reforms should distinguish

---

[176] *See, e.g.*, Savoy Energy, L.P., 178 IBLA 313, 323 (2010) (holding that where lessee awaited approval of an APD, suspension fell within the terms of relief granted by Section 39 for "delays imposed upon the lessee due to administrative actions addressing environmental concerns [which] have the effect of denying the lessee 'timely access to the property"); GAO, BLM COULD IMPROVE OVERSIGHT OF LEASE SUSPENSIONS *supra* note 161 at 18n. 37 (describing lengthy suspensions that appeared to be continuous because environmental review requirements had not been met).

[177] GAO, BLM COULD IMPROVE OVERSIGHT OF LEASE SUSPENSIONS *supra* note 161 at 18

[178] *Id*. at 18 n.37 and accompanying text.

[179] GAO, BLM COULD IMPROVE OVERSIGHT OF LEASE SUSPENSIONS *supra* note 161 at 20-22 (2018) (concluding that there is minimal oversight, monitoring, or searchable information regarding lease suspensions; for example, more than three-quarters of the official lease suspension files in BLM state offices were outdated).

between delays that are caused by industry dynamics and those that are caused by the NEPA process itself.

3. Forest Plan Creation and Revision: Delays Caused by Compliance with Other Laws May Skew NEPA Compliance Time Data

Like a zoning ordinance, a Forest Plan establishes a vision intended to guide management of a large landscape for fifteen to twenty years, identifying portions of a forest where certain activities are generally appropriate. That the NEPA analysis for Forest Planning takes longer than the analysis for other activities is unsurprising given the geographic scope of these decisions, the often-controversial nature of allocating resources for years into the future, and the potential impacts that are likely to result from those decisions.[180] Additionally, planning itself requires information gathering, analysis, and deliberation, which takes time.

Forest Plan Creation/Revision was associated with the highest rate of longer than average NEPA completion times and, indeed, these activities took longer than most decisions. This is also an activity with multiple and overlapping legal requirements, making it difficult to distinguish between delays caused by NEPA compliance and those attributable to compliance with other laws.[181]

The regression database identified 86 projects involving Forest Plan Revisions. The fastest took 45 days and the longest took 5,695 days.[182] Only 16 (19%) took less than a year. Fifty-two of the 84 projects (60%) were analyzed in an EIS, 21 (24%) were analyzed in EAs, and 13 (15%) were analyzed in CEs. Eighty-four percent of the EISs took longer than the median time for EISs (44 out of 52 took longer than 1,006 days). Half of these took at least 2,012 days, which is double the median time for an EIS. Of the 13 CEs, almost half took longer than the median time for a CE (6 out of 13 took longer than 112 days), and most of these took almost double that amount of

---

[180] *See* John C. Ruple & Mark Capone, *NEPA, FLPMA, and Impact Reduction: An Empirical Assessment of BLM Resource Management Planning in the Mountain West*, 46 ENV'T L. 953, 962 (2016) (observing in an analogous context that EISs for Resource Management Plans prepared by the Bureau of Land Management take longer to complete than EISs for oil and gas projects).

[181] CRS, NEPA: BACKGROUND AND IMPLEMENTATION, *supra* note 7 at 24 ("NEPA forms the framework to coordinate and demonstrate compliance with these requirements. NEPA itself does not *require* compliance with them. Theoretically, if the requirement to comply with NEPA were removed, compliance with each applicable law would still be required."); CRS, STREAMLINING NEPA, *supra* note 106 at 8–9 (describing confusion between delays caused by NEPA and delays caused by compliance with other laws).

[182] *See* Project 33874, 05 Recreation Residence Amendment, Wagner Lake Summer Home Group H-1, Lot #2, Region 9, Mio Ranger District (2011) (CE) and Project 33455, Grand Mesa Travel Plan Environmental Analysis, Region 2, Grand Mesa Uncompahgre and Gunnison National Forest (2005) (EA).

time. Looking to EAs, 76% took longer than the median time for an EA (16 out of 21 took longer than 445 days), and 47.6% took at least twice as long.[183]

Forest planning provides a specific example of the CRS observation that NEPA often functions as an "umbrella statute—that is, a framework to coordinate or demonstrate compliance with any studies, reviews, or consultations required by any other laws."[184] Forest Planning occurs within the context of legal requirements imposed by a host of laws that operate independently of NEPA,[185] including the MLA, the Taylor Grazing Act, the Endangered Species Act, the Wilderness Act, the National Historic Preservation Act, and many more.

Principal among these laws, the National Forest Management Act (NFMA) requires the Forest Service to use "a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences" while preparing "standards and guidelines" for the management of each national forest.[186] Planning must consider that actions taken on adjacent non-forest system land can impact forest resources, and vice-versa. NFMA also demands robust public participation, including making the plans available to the public for at least three months, soliciting comments, and holding public meetings prior to adoption.[187] While much of this can be done concurrently with NEPA, the long decision-making times associated with forest planning may reflect forest management laws and regulations other than NEPA. If NEPA alone were the source of delay, we would not expect to see the disparity in completion times that distinguishes forest planning from other activities.

The interconnected relationship between NEPA and other statutes becomes clear when considering litigation. A comprehensive study analyzing twenty years of Forest Service land management litigation recognized that most lawsuits involve multiple claims arising under different statutes.[188] For example, during the course of the study, judges decided 227 cases involving alleged NEPA and a NFMA violations on the merits of those claims.[189] The Forest Service won 165 (59.6%) of these and lost 112 cases. Of the 112 losses, in 48 cases (42%), the judges ruled that the Forest Service violated both statutes. In 6 cases (5%), the judges ruled that the agency complied

---

[183] Ten out of twenty-one took 890 days or longer.
[184] CRS, NEPA: BACKGROUND AND IMPLEMENTATION, *supra* note 7 at 1; CRS, STREAMLINING NEPA, *supra* note 106 at 3, 8.
[185] By law, each plan is a "major federal action" and requires preparation of an EIS. 61 U.S.C. § 1604(f)(5); 42 U.S.C. § 4332(2)(C).
[186] 61 U.S.C. § 1604(b).
[187] 61 U.S.C. § 1604(d).
[188] Amanda M.A. Miner et al., *Twenty Years of Forest Service Land Management Litigation*, 112 J. FORESTRY 32, 36 (2014).
[189] *Id*. at 37.

with both statutes but violated some other law. In 23 cases (20%), the judge ruled that the agency complied with NEPA, but violated NFMA.[190] In other words, in litigation involving NEPA and NFMA, 67% of the time, the Forest Service would have lost in litigation even if NEPA did not exist. This example brings to life NEPA's role as an "umbrella statute" in complex projects with multiple overlapping legal and regulatory standards.[191]

In addition to the legal complexity of forest planning, controversy can also cause delay by generating a large volume of comments on projects that must be resolved before planning can conclude. Avoiding conflicts necessitates communication and coordination with other federal agencies; state, local, and tribal governments; and other interested stakeholders and organizations—all of which takes time. As one Forest Service study notes, "Additional private landowners adjacent to national forests and grasslands means more neighbors with whom the Forest Service needs to coordinate in arranging access for fire management and recreation, managing ecosystems jointly across the landscape, and other management issues."[192]

Despite the complexity of this undertaking, forest planning is not well funded compared to other programs. In fiscal year 2019, the "hazardous fuels" and "forest products" programs received almost twice as much funding as "land management, planning, assessment and monitoring."[193]

---

[190] *Id*.

[191] CRS, NEPA BACKGROUND AND IMPLEMENTATION, *supra* note 7 at 1; CRS, STREAMLINING NEPA, *supra* note 106 ("[B]arriers to efficient decision making arise not from NEPA alone, but from the challenges of integrating compliance with a multitude of laws and regulations that may apply to a given federal action.").

[192] SUSAN M. STEIN ET AL., U.S. DEPT. OF AGRICULTURE, U.S. FOREST SERV., PNW-GTR-728, NATIONAL FORESTS ON THE EDGE: DEVELOPMENT PRESSURES ON AMERICA'S NATIONAL FORESTS AND GRASSLANDS 18 (2007). This dynamic was frequently referenced as a source of delay during the EADM regional roundtables conducted in 2018. *See, e.g*., NAT'L FOREST FOUND., NORTHERN REGIONAL EADM PARTNER ROUNDTABLE SUMMARY REPORT 14 (2018) [hereinafter REGION 1 ROUNDTABLE REPORT] ("Collaborative groups consist of different types of users than emerging generation of millennial National Forest users."); NAT'L FOREST FOUND., ROCKY MOUNTAIN REGIONAL EADM PARTNER ROUNDTABLE SUMMARY REPORT 22 (2018) [hereinafter REGION 2 ROUNDTABLE REPORT] ("Trail and camping use has surged without adequate planning for current trends."); *id*. at 11 ("Agency blind to situations when USFS cannot act alone to fix a problem that involves landscapes shared with private owners."); NAT'L FOREST FOUND., INTERMOUNTAIN REGIONAL EADM PARTNER ROUNDTABLE 10 (2018) [hereinafter REGION 4 ROUNDTABLE REPORT] ("USFS cannot make decisions when multiple users conflict."); NAT'L FOREST FOUND., PACIFIC SOUTHWEST REGIONAL EADM PARTNER ROUNDTABLE 15 (2018) [hereinafter REGION 5 ROUNDTABLE REPORT] ("Collaborative membership is unbalanced. USFS unable to efficiently consider all perspectives."); NAT'L FOREST FOUND., PACIFIC NORTHWEST REGION PARTNER ROUNDTABLE 10 (2018) [hereinafter REGION 6 ROUNDTABLE REPORT] ("Forest planning lacks landscape-scale considerations."); NAT'L FOREST FOUND., SOUTHERN REGIONAL EADM PARTNER ROUNDTABLE 14 (2018) [hereinafter REGION 8 ROUNDTABLE REPORT] ("Stakeholders at extremes of the range of interests involved end up driving decisions. Recreation groups absent or under-represented."); NAT'L FOREST FOUND., EASTERN REGIONAL EADM PARTNER ROUNDTABLE 25 (2018) [hereinafter REGION 9 ROUNDTABLE REPORT] ("Local issues not adequately addressed and at risk when a national standard is imposed.").

[193] HOOVER & RIDDLE, *supra* note 144 at 18. "Hazardous fuels" funds "activities to remove, modify, or manipulate vegetation to reduce the likelihood of uncharacteristically intense wildfire.

Additionally, forest planning is rarely triggered by an individual request from a permitted entity. Without supplemental funding from a permit applicant (who may pay the cost of hiring a third-party contractor to prepare the NEPA analysis on behalf of the Forest Service) and without the motivating influence of a project proponent who is eager to commence development, it is possible that forest planning either takes a back seat in the priority queue, or that staff needed to complete planning work are routinely reassigned to other projects. Moreover, forest planning is underfunded and understaffed. In recent testimony before the Senate Energy and Natural Resources Committee, the Deputy Chief of the Forest Service testified that more than half of the 154 forest plans are at least 15 years old, and that the Forest Service "doesn't have enough staff or money to catch up."[194] He added that the Forest Service has seen a decline of about 40 percent in natural resource professionals who work on the management plans because, "we just can't pay for those positions anymore."[195]

Finally, forest planning demands a response to changing environmental and social conditions. Development in a previously rural area may drive a change in land use patterns as constituencies who relied on grazing, logging or mining must now compete with constituencies who desire recreational opportunities on Forest Service lands.[196] Heightened recreational demands may conflict with each other, and create new challenges to maintaining environmental values, like wildlife habitat and water quality.[197] Housing

---

Prior to FY2018, this program was funded through the Wildland Fire Management account." *Id*. It received 23% of the discretionary budget. "Forest products" funds "activities to analyze, prepare, offer, award, and administer timber sales, stewardship contracts, and special forest products permits on NFS land." *Id*. In FY2019, it received 20% of the discretionary budget. *Id*. "Land Management Planning, Assessment, and Monitoring" funds "the development, maintenance and revision of the forest plans." *Id.* at 19. In FY2019, it received 9% of the discretionary budget. *Id*.

[194] Marc Heller, *Forest Service Leaders Warn of Rising Wildfire Costs*, E&E NEWS (Oct. 22, 2021), https://subscriber.politicopro.com/article/eenews/2021/10/22/forest-service-leaders-warn-of-rising-wildfire-costs-282262.

[195] *Id*.

[196] *See, e.g.*, Steve Bunk, *Is Recreation in the Rockies Becoming a Bigger Forest Service Priority*, HIGH COUNTRY NEWS (Jan. 25, 2011), https://www.hcn.org/blogs/range/is-recreation-in-the-rockies-becoming-a-bigger-forest-service-priority (describing a lobbying effort by the recreation industry, particularly from the 11 western states, to influence Forest Service planning rule regulations by including recreation as a key use of national forests); Robert B. Keiter & Matthew McKinney, *Public Land and Resources Law in the American West: Time for Anther Comprehensive Review?* 49 ENV'T L. 1, 4–5 (2019) ("Since 1970, the region's population grew by 107 percent compared to 41 percent for the rest of the country. . . and most western state economies have evolved away from a predominant reliance on natural resources. A preservation ethic . . . has taken hold, generating a robust tourism industry that is of growing importance across the region. Climate change has created a new degree of regional uncertainty, threatening water supplies and wildlife, and enhancing wildfire dangers. A diverse array of constituents demand a broader range of services from the public lands. . . . In short, the social, economic, legal, and environmental context of federal public land management has changed dramatically during the past several decades.").

[197] Robert B. Keiter, *The Emerging Law of Outdoor Recreation on the Public Lands*, 51 ENV'T L. 89, 90 (2021) ("As the ranks of recreationists have swelled environmental damage has become

developments along national forest boundaries pose a variety of management challenges from wildlife habitat degradation, damage to water quality, hydrology alterations, and enhanced incidences of encroachment along boundaries.[198] Increased development activities on private land in the vicinity of Forest Service boundaries complicates resource planning and increases the administration costs.[199]

The length of delay associated with forest planning decisions deserves attention. As with the previously discussed activities, it is possible that a lack of funding and inexperienced or rotating staff exacerbate delays.[200] Moreover, changing circumstances related to climate change and urbanization

---

ever more visible along with conflicts between the participants—personified by intense controversies over motorized use, wilderness designation, mountain biking, and hunting. These growing problems, though commonly linked to individual choice in recreational preferences are also coupled to powerful economic and political forces that are driving what some now regard as an 'industrial scale' recreation problem."); Andrew Kasper, *Changing Recreational Habits Challenge Forest Service*, SMOKY MOUNTAIN NEWS (March 27, 2013), https://smokymountainnews.com/archives/item/10038-changing-recreational-habits-challenge-forest-service (reporting on the new recreational constituencies lobbying for priority during the forest planning process for the Pisgah and Nantahala forests and observing "The recreational habits of that increasing number of users changes with time, which may spell fun for outdoor enthusiasts but create new types of management challenges for the overseers.").

[198] STEIN ET AL., *supra* note 192 at 15–19 (listing the implications of study showing that counties with national forests and grasslands are projected to experience significant increased housing density near the boundaries of national forests); Volker C. Radeloff et al., *Housing Growth in and near United States Protected Areas Limits Their Conservation Value*, 107 PNAS 940, 942 (2010) (reporting that between 1940 and 2000, National Forests experienced a housing growth rate of 280% within 1km of a boundary in comparison with a national average of 209%).

[199] STEIN ET AL., *supra* note 192 at 18.

[200] These issues, particularly the frequent rotation of staff, were often identified as sources of delay during the regional roundtables. *See, e.g.*, REGION 1 ROUNDTABLE REPORT, *supra* note 192 at 8–9 (identifying "high turnover of permanent staff positions within all levels of agency" and "'move on, move up'" practice of relocating staff for career advancement as sources of knowledge voids and delays within the NEPA and planning process); REGION 2 ROUNDTABLE REPORT, *supra* note 192 at 8 (identifying "leadership change and staff transitions" and "acting positions" as sources of delay in the NEPA and planning process); NAT'L FOREST FOUND., SOUTHWESTERN REGIONAL EADM PARTNER ROUNDTABLE 9 (2018) [*hereinafter* REGION 3 ROUNDTABLE REPORT] ("Staff transitions are too frequent. . . . NEPA delays caused by staff turnover"); REGION 4 ROUNDTABLE REPORT, *supra* note 192 at 8 (identifying staff turnover, hiring freezes, lengthy hiring process, temporary workforce, and staff without local institutional knowledge as sources of delay in the NEPA and planning process); REGION 5 ROUNDTABLE REPORT, *supra* note 192 at 8 ("rapid turnover undermines productivity of partner relationships, especially at the local level" and "short tenure of leadership staff limits their ability to apply local knowledge"); REGION 6 ROUNDTABLE REPORT, *supra* note 192 at 7 (identifying "lack of continuity fostered by 'mobility policy' both in terms of USFS staff often having short tenure in their positions and also leaving for details" as a source of delay); REGION 8 ROUNDTABLE REPORT, *supra* note 192 at 8 ("Lack of staff continuity negatively affects EADM. Loss of knowledge between staff due to lack of overlap."); REGION 9 ROUNDTABLE REPORT, *supra* note 192 at 7 (identifying "turnover of both leadership and staff in the course of one project" as a source of delay in NEPA and planning decisions); NAT'L FOREST FOUND., ALASKA REGIONAL EADM PARTNER ROUNDTABLE 7 (2018) [hereinafter REGION 10 ROUNDTABLE REPORT] (identifying "rapid loss of NEPA team leadership as well as other NEPA expertise" as a source of delay).

require deliberation and provoke controversy, which takes time to resolve. Creative recommendations suggest ways in which NEPA could facilitate—rather than hinder—more efficient forest planning.[201] Pilot projects within the Department of Transportation demonstrate NEPA's ability to advance coordinated efforts, as discussed in more detail in Section V.
Just as NEPA may not be the sole cause for delay within the Forest Planning process, it also cannot serve as the sole remedy. Finding solutions to facilitate faster forest planning decisions involves complexities and nuances that are worthy of discussion but beyond the scope of this article.

C. Geographic Region Has a Significant Influence on Decision-making Time

The regression model revealed that the Forest Service administrative region responsible for overseeing a NEPA analysis has a significant influence on decision-making times. The relationship between region and NEPA completion time varied with each level of analysis. Despite this variation, Region 1 (the Northern Region) consistently took longer to complete NEPA decisions at all levels of analysis, and Region 8 (the Southern Region) and Region 9 (the Eastern Region) consistently boasted the fastest decision-making times at all levels of analysis.

Initially, this finding surprised us. Each Forest Service region is implementing the same laws, subject to the same regulations, pursuant to the same administrative guidance, involving the same activities, and (presumably) subject to similar financial and staffing challenges. We therefore did not expect to see a large variation in elapsed times across regions. The regional variation in completion times suggests that factors external to the NEPA process affect completion times. If the delays were caused solely by the NEPA process, we would expect similar mean completion times across regions, after controlling for the year of project initiation, level of analysis, and activities.

It is possible that ecological differences between the regions affect the variation in completion times. Cultural differences may also cause varying completion times. Although we explore some of these potential influences below, regional differences in completion time justify further research. Understanding why some regions complete the NEPA process more quickly than other regions may reveal administrative and management efficiencies that could be replicated.

---

[201] *See, e.g.*, Mark Squillace, *Rethinking Public Land Use Planning*, 43 HARV. ENV'T L. REV. 415, 437–52 (2019) (recommending elimination of "standards and guidelines" in forest plans and a shift toward landscape level planning with a robust system of monitoring and adaptation leading to informed and thorough activity-level planning tiered to larger scale documents).

1. Regression Model Results Regarding Forest Service Regions

The model computed regression coefficients for all Forest Service Regions relative to Region 5.[202] Although any region could serve as a baseline, Region 5 was used because it was involved in NEPA decisions with every level of analysis and all activities, establishing a uniform baseline for comparison. Given that the regression model is predicting elapsed time on a log scale, it is easiest to discuss regional impacts in terms of percentage change in elapsed time. The table below sets forth the results and lists the estimated percent change in elapsed time if a NEPA decision is in a specified region other than Region 5. These differences exist after controlling for the level of analysis, year of project initiation, and the activities involved in the project. Following the model results, we provide a brief discussion of ecological characteristics of each region, and then turn to a discussion of budgetary challenges caused by wildfire suppression that could have regional effects. For projects undergoing review in a CE, Regions 1, 2, 4, and 6 are associated with NEPA completion times that are 20% to 30% longer than Region 5. Regions 8, 9, and 10 are associated with elapsed times roughly 10% to 15% below Region 5.

Table 1--Regional Impacts for CE Projects

Region	Predicted % Change from Region 5
R4 (Intermountain)	29.4%
R1 (Northern)	24.9%
R2 (Rocky Mountain)	23.7%
R6 (Pacific Northwest)	20.0%
R5 (Pacific Southwest)	0.0%
R3 (Southwestern)	-1.8%
R8 (Southern)	-11.4%
R9 (Eastern)	-13.1%
R10 (Alaska)	-14.7%

For projects undergoing review in an EA, Regions 1 and 6 are associated with the longest elapsed times. Regions 2, 3, and 4 are associated with elapsed times within 5% of Region 5. Regions 8, 9, and 10 are associated with the longest elapsed times.

[202] Region is a categorical variable with nine levels. In order to avoid perfect multicollinearity in the regression model, one level must be chosen as the baseline. Then the design matrix for the regression model will contain eight indicator variables that measure the change in predicted elapsed time if a decision moves from Region 5 to another region.

Table 2--Regional Impacts for EA Projects

Region	Predicted % Change from R5
R6 (Pacific Northwest)	17.2%
R1 (Northern)	15.2%
R3 (Southwestern)	5.1%
R5 (Pacific Southwest)	0.0%
R4 (Intermountain)	-4.3%
R2 (Rocky Mountain)	-5.0%
R9 (Eastern)	-21.4%
R8 (Southern)	-32.7%
R10 (Alaska)	-38.1%

For projects subject to review in an EIS, Regions 1, 3, and 4 are associated with the longest elapsed times. Completion times in these regions are more than 50% longer than those in Region 5. Why EISs completed in Regions 1, 3 and 4 should take longer may warrant more careful review. EISs completed by Region 9 also deserve careful consideration, as Region 9 may have found an opportunity to maximize analytical or procedural efficiencies. Region 8 is listed as NA because there were too few EISs completed during the study to accurately estimate the effect of Region 8 on EIS cases.

Table 3--Regional Impacts for EIS Projects

Region	Predicted % Change from R5
R4 (Intermountain)	54.5%
R1 (Northern)	52.8%
R3 (Southwestern)	52.0%
R10 (Alaska)	29.8%
R6 (Pacific Northwest)	13.3%
R2 (Rocky Mountain)	4.0%
R5 (Pacific Southwest)	0.0%
R9 (Eastern)	-18.6%
R8 (Southern)	NA

2. Regional Differences Influence Decision-making Time

The National Forest System includes 193 million acres with 154 national forests, 20 national grasslands, and several other federal land designations.[203] Each unit (national forest, national grassland, etc.) is administered

[203] HOOVER & RIDDLE, *supra* note 144, at 1. *See also id.* at 2 (elaborating that there are "154 national forests with 188.4 million acres (98% of the system), 20 national grasslands with 3.8 million acres (2%) and 110 other areas—such as national grassland prairie, land utilization projects, purchase units, and research and experimental areas (<1%)").

by a forest supervisor, and the units are arranged into nine administrative regions, each headed by a regional forester.[204] Most Forest Service lands are concentrated in the West (87%); however, the Forest Service administers more federal land in the East than all other federal agencies combined.[205] The national forests in the eastern states have smaller contiguous landscapes and are peppered with inholdings.[206] Glancing at a map of Forest Service lands and regions demonstrates the wide variability in scale and contiguous landscapes between the different regions.[207]

Differences in patterns of regional development may affect the scale and intensity of NEPA decisions in different regions. Regions 8 and 9 complete the most NEPA analyses at the fastest rate. These regions are also in areas with established urban areas, smaller national forests, lower wildfire risk, and more established patterns of landscape use.[208] Region 9 characterizes the national forests in its region as "islands of green in a sea of people," which is appropriate because Region 9 encompasses twenty states with over forty-three percent of the national's population and nine of the largest twenty metropolitan areas in the U.S.[209] Even though Regions 8 and 9 cover a vast territory, they have the smallest amount of federal land within their regions, partially due to inholdings.[210] Though national forests in Region 8 include over 25 million acres of land, only 13.4 million acres are National Forest System land, while 12 million acres are non-federal inholdings.[211] Similarly, Region 9 encompasses over 22 million acres of National Forest System lands of which almost half are non-federal inholdings.[212]
In contrast, Regions 4, 1, and 3 are each associated with some of the longest decision-making times. These regions, located within the Intermountain West, are all grappling with drought, wildfire, and potentially a faster rate of climate change affecting the landscape.[213] These regions also have larger

---

[204] *Id.*
[205] *Id*.
[206] *Id.* at 3 (noting that almost one half (12 million out of 25 million acres) of National Forest land in Region 8 are inholdings and only slightly less (10 million out of 22 million acres) in Region 9).
[207] *Id*. at 4 (providing a map of the National Forest System).
[208] *See Wild Fire Hazard Potential,* U.S. FOREST SERV., https://www.firelab.org/project/wildfire-hazard-potential [https://perma.cc/3WZV-WNWU] (last visited Oct. 1, 2021) (providing map of U.S. developed by the Forest Service Fire Modeling Institute depicting areas with potential for wildfire that would be difficult for suppression resources to contain. Those areas are concentrated in Regions 1, 3, 4, 5, and 6).
[209] U.S. DEP'T OF AGRIC., U.S. FOREST SERV., *Eastern Region*, https://www.fs.fed.us/wildflowers/regions/eastern/?msclkid=0bde7a73a65011ecb3483b8792efc997 [https://perma.cc/THP4-PD8R] (last visited Apr. 8, 2022); HOOVER & RIDDLE, *supra* note 144, at 4.
[210] U.S. DEP'T OF AGRIC., U.S. FOREST SERV., LAND AREAS REPORT (LAR) 2, tbl.2 (2018), https://www.fs.fed.us/land/staff/lar/LAR2018/FY2018_LAR_Book.pdf [https://perma.cc/U6EY-92HT].
[211] HOOVER & RIDDLE, *supra* note 144, at 3.
[212] *Id*. (showing that actual Forest Service acreage in Region 9 is 12,174,918 acres).
[213] *See, e.g.*, U.S. GLOB. CHANGE RSCH. PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES 129 (Thomas R. Karl et. al. eds. 2009) (noting that the southwest "continues to lead the

national forests, broader swaths of public land, and a higher concentration of areas with very high wildfire hazard potential.[214]

3. Wildfires May Have Disparate Fiscal Effects Across Regions

Unequal regional burdens associated with wildfire management may contribute to differences in NEPA decision-making times. A 2006 Office of Inspector General Report found that wildland urban interface (WUI) protection "was the major driver of [Forest Service] suppression costs, with some staff estimating that between 50 to 95 percent of large wildfire suppression expenditures were directly related to protecting private property and homes."[215] Where Forest Service protection responsibilities are directly adjacent to housing developments, Forest Service Line Officers often feel compelled to aggressively suppress wildfires, even if the fires pose no threat to National Forest resources.[216] The Office of Inspector General reported that Regions 1, 5, and 6 bore "an inequitable wildfire protection burden" because wildland fire protection agreements between the Forest Service and other agencies in Oregon, Washington, California, Montana and Idaho had not been renegotiated to reflect appropriate WUI protection responsibilities."[217] While updates may have partially addressed these concerns, fire related responsibilities continue to increase and dated or inadequate agreements would have impacted the decisions reviewed in this analysis. The Wildfire Hazard Potential map,[218] produced by the Forest Service, demonstrates that Regions 1, 3, 4, 5 and 6 have the highest concentration of wildfire hazard potential. With regards to NEPA decision-making times,

---

nation in population growth" and that recent warming in that region is "among the most rapid in the nation, significantly more than the global average in some areas").

[214] CONG. RSCH. SERV., R42346, FEDERAL LAND OWNERSHIP: OVERVIEW AND DATA 7–8 (2020) (providing tally of total federal acreage in each state and showing that Nevada, Utah, and Idaho, Oregon, and Wyoming have the highest percentage of federal land in the lower 48); *see also Wild Fire Hazard Potential,* U.S. Forest Serv., https://www.firelab.org/project/wildfire-hazard-potential [https://perma.cc/3WZV-WNWU] (last visited Oct. 1, 2021) (providing map of Wildfire Hazard Potential in the United States).

[215] U.S. DEPT. OF AGRIC., OFF. OF INSPECTOR GEN., WESTERN REGION, REP. NO. 08601-44-SF, AUDIT REPORT: FOREST SERVICE LARGE FIRE SUPPRESSION COSTS 7 (2006) [*hereinafter* OIG, LARGE FIRE SUPPRESSION COSTS REPORT]; *see also* Karen M. Bradshaw, *A Modern Overview of Wildfire Law*, 21 FORDHAM ENV'T L. REV. 445, 456 (2010) ("The increasing costs of fire suppression can thus be partially attributed to the increase of wildlife-urban interface areas which are a product of new land use patterns."); RANDAL O'TOOLE, THE THOREAU INST., REFORMING THE FIRE SERVICE: AN ANALYSIS OF FEDERAL FIRE BUDGETS AND INCENTIVES (2002), http://www.ti.org/firesvc.pdf [https://perma.cc/S23B-EKAW].

[216] *Id*. at 8; *see also id.* at 10 ("FS managers and staff said that the public expects FS to protect structures and residences regardless of the values involved and that aggressive suppression actions must be taken (even when ineffectual) in order to demonstrate to the public that FS is doing everything it can to suppress the fire.").

[217] OIG, LARGE FIRE SUPPRESSION COSTS REPORT, *supra* note 215, at 7.

[218] *See Wild Fire Hazard Potential,* U.S. Forest Serv., https://www.firelab.org/project/wildfire-hazard-potential [https://perma.cc/3WZV-WNWU] (last visited Oct. 1, 2021).

Regions 1, 2, 3, and 4 are associated with the longest regional decision-making times.

Other than the correlation identified above, it would be difficult to link the budgetary shortfalls caused by wildfire suppression to regional differences in decision-making times. According to the GAO, the Forest Service does not systematically track such impacts at a national level.[219] Understanding the cause of regional differences in decision-making times is an important aspect of NEPA reform. If regional differences in decision-making times are caused by ecological differences, evolving demographics, or disparate budgetary challenges, those underlying management challenges should be recognized and addressed. If budgetary shortfalls cause delay, then fiscal, rather than NEPA reforms, should be considered.

D. Background Factors Affecting NEPA Decision-making Timeframes

Through our research, two issues arose consistently: budgetary uncertainty caused by wildfire borrowing and a culture of litigation aversion within the Forest Service. These two dynamics likely influence decision-making times, even though the effect cannot be specifically identified through the MYTR database or our regression modeling. We discuss each issue in turn.

1. Budgetary Uncertainty Caused by Wildfire Borrowing Affects Program Efficacy, Including Planning and Environmental Analysis

Wildfire suppression costs exceeded appropriations in most years since 1990.[220] When firefighting expenses exceed funds appropriated for wildfire suppression, Congress allows the Forest Service to transfer funds from other programs to cover those costs in a practice referred to as "fire borrowing."[221] Congress typically reimburses the Forest Service for unanticipated firefighting expenses, but the reimbursement is often incomplete or delayed.[222] For example, the Forest Service, beginning in the mid-1980s,

---

[219] U.S. GOV'T ACCOUNTABILITY OFF., GAO-04-612, WILDFIRE SUPPRESSION: FUNDING TRANSFERS CAUSE PROJECT CANCELLATIONS AND DELAYS, STRAINED RELATIONSHIPS, AND MANAGEMENT DISRUPTIONS 32 (2004) [*hereinafter* GAO, WILDFIRE SUPPRESSION FUNDING TRANSFERS CAUSE DELAYS].

[220] *Id*. at 7.

[221] Fire borrowing was common during the period of study (from 2004 to 2016). The FY2018 omnibus included the "wildfire funding fix," which changed how Congress appropriates funding by authorizing an adjustment to the discretionary limits for wildfire suppression operations. The purpose of this, and other measures enacted by the 115th Congress, was to stabilize funding and avoid concerns that "fire borrowing" has a detrimental effect on other agency programs. *See* KATIE HOVER ET AL., CONG. RSCH. SERV., R45696, FOREST MANAGEMENT PROVISIONS ENACTED IN THE 115TH CONGRESS 19–20 (2019) [*hereinafter* CRS, FOREST MANAGEMENT PROVISIONS OF THE 115TH CONGRESS].

[222] GAO, WILDFIRE SUPPRESSION FUNDING TRANSFERS CAUSE DELAYS, *supra* note 219, at 12.

transferred funds primarily from a trust fund created by the Knutson-Vandenberg Act of 1930, which collects a portion of timber sale receipts to pay for reforestation projects.[223] From the mid-1980s to 1999, the Forest Service transferred more than $2.3 billion from this fund, over $400 million of which was not reimbursed.[224]

Concerned about the viability of that fund, in 2001, the Forest Service began transferring funds from other management programs and activities. While this practice ensured that bills were paid, it left other obligations, likely including NEPA, with less discretionary funding.[225] Congress recognized this problem and its implications for National Forest System management,[226] and in fiscal year 2018, Congress enacted legislation to stabilize funding.[227] While this legislation will likely go a long way towards stabilizing funding, fire borrowing continued through the course of this study.[228] Determining whether funding reforms result in improved NEPA efficacy is a question that cannot be answered yet based on the MYTR database and that will require further research.

Throughout our study period, fire borrowing affected the staff and resources available to complete NEPA projects and thereby increased NEPA compliance times.[229] A 2004 GAO report investigating fire borrowing concluded that the Forest Service "canceled or delayed numerous projects, failed to fulfill certain commitments to partners, and faced difficulties in managing their programs when funds were transferred for fire

---

[223] *Id*. at 10 n.4 and accompanying text.
[224] *Id*.
[225] *See* EADM ROUNDTABLES NATIONAL SYNTHESIS REPORT, *supra* note 131, at 15 ("Turnover, detail assignments, and fire response often reduce productivity due to interruptions in project momentum and changes in project direction.").
[226] *Id*. at 22.
[227] *See generally* CRS, FOREST MANAGEMENT PROVISIONS OF THE 115TH CONGRESS, *supra* note 224.
[228] *See, e.g.*, Darryl Fears, *U.S. Runs Out of Funds to Battle Wildfires*, WASH. POST (Oct. 7, 2012), https://www.washingtonpost.com/national/us-runs-out-of-funds-to-battle-wildfires/2012/10/07/d632df5c-0c0c-11e2-bd1a-b868e65d57eb_story.html [https://perma.cc/8L23-7AM9] (discussing implications of fire borrowing on Forest Service programs from 2002 to 2012 and failure of the Federal Land Assistance, Management, and Enhancement fund (FLAME), which was intended to fix the funding problem); Jon Kyl and Kris Kiefer, *The Wildfire Menace: Will the West Learn or Burn?,* 48 ARIZ. ST. L.J. 1, 5 (2016) (explaining that fire borrowing had occurred in seven of the past ten years and quoting Forest Service Chief Tom Tidwell, "Each time the agency transfers money out of accounts to pay for fire suppression there are significant and lasting impacts across the entire Forest Service . . . [including] the ability of the Forest Service to conduct stewardship work on national forests . . . "); Jeremy Martin, *Active Forest Management and the "New Normal": Advocating for an Integrative Wildfire Management* Policy, 46 OHIO N.U.L. REV. 137, 142 (2020) (describing provisions of the Consolidated Appropriations Act of 2018 enacted to solve the fire borrowing program by providing enhanced stable funds for wildfire suppression).
[229] *See* EADM ROUNDTABLES NATIONAL SYNTHESIS REPORT, *supra* note 131, at 15 ("Turnover, detail assignments, and fire response often reduce productivity due to interruptions in project momentum and changes in project direction.").

suppression."[230] In some cases, this practice "increased the costs and time needed to complete projects."[231] Additionally, transfers "disrupted agency efforts to effectively manage programs, causing planned activities to go unfunded and, in some cases, causing programs to be depleted or overspent."[232] Further, "officials often had to duplicate their efforts because of [budgetary] transfers, which prolonged delays and added costs."[233] The stop-start funding also caused "a domino effect: deferring one year's projects displaces the next year's projects, which must in turn be deferred to the following year."[234]

A 2019 Report from the CRS confirmed that the practice of wildfire borrowing continued to affect other Forest Service programs, including activities that are central to NEPA compliance.[235] "Fire expenditures continue to climb, affecting the implementation of other programs . . . through personnel and funds transferred to fire control."[236] Additionally, "stakeholders identify other administrative barriers—such as inadequate program funding levels and training—as preventing FS from implementing planning requirements in a more efficient manner."[237]

The uncertainty caused by wildfire suppression activities was identified as a cause of delay complicating NEPA compliance during the 2018 EADM roundtables.[238] "Budget shortfalls and statutory mandates on funding for fire response, combined with a shortage of trained employees in areas other than fire and/or a frequent diversion of staff to emergency response or shifting priorities, hamper the ability of the Agency to make progress on other important forest and grassland resource management efforts."[239] As an example of how fire borrowing affected resource management projects, consider a project from the Bitterroot National Forest (Region 1). In that case, a project to stabilize nine miles of dirt road was delayed when

---

[230] GAO, WILDFIRE SUPPRESSION FUNDING TRANSFERS CAUSE DELAYS, *supra* note 219, at 14.
[231] *Id*.
[232] *Id*.
[233] *Id.* at 15 ("For example, officials had to revise budgets and construction plans, update cost estimates and rewrite land acquisition documents when delays caused them to be outdated, all of which further compounded project delays. . . . In addition, when delays were prolonged, supply costs increased, land prices rose, and impacts to natural resources spread, which also increased the projects' costs.").
[234] *Id*. at 31. The report went on to project that "the agencies and the Congress will repeatedly confront difficult decisions in determining how much funding to transfer from which programs and how much to reimburse." *Id.*
[235] HOOVER & RIDDLE, *supra* note 144, at 22 ("Congress has expressed concern about the impact of fire borrowing on other NFS management activities and about the increasing portion of FS budget going toward suppression funding.").
[236] *Id*. at 24.
[237] *Id*.
[238] *See supra* note 131 and accompanying text.
[239] EADM ROUNDTABLES NATIONAL SYNTHESIS REPORT, *supra* note 131, at 18; *see also id.* at 15 ("Turnover, detail assignments and fire response often reduce productivity due to interruptions in project momentum and changes in project direction.").

$1.2 million was transferred to wildfire suppression in 2002.[240] The road was collapsing, causing sediment to run into a stream and jeopardizing fish habitat (including a threatened species).[241] Two years after the transfer, only $430,000 was reimbursed to the project.[242] With reduced funding, the project shrank to two of the original nine miles, but in the interim, additional sediment had accumulated in the stream, exacerbating the problem and making restoration even more complex.[243] Although the GAO report describing this project did not discuss the NEPA decision-making process required for this project, one can imagine how it could be affected. Delayed implementation and deteriorating environmental conditions could result in new or more significant issues, requiring supplemental environmental analysis.[244] These changes could extend NEPA decision-making times, even though the cause of delay was budgetary uncertainty.

NEPA decision-making times could also be extended by staff reductions or shifting personnel from project management to wildfire duties.[245] Personnel temporarily assigned to a fire, for example, would be unavailable to work on NEPA projects. Temporary reassignments could also impact the availability to complete fieldwork required for the NEPA analysis. A hypothetical project involving impacts to a sensitive plant species may require botanical surveys coinciding with the period when the plant flowers. Temporarily reassigning a botanist to a fire may only last a few weeks, but if that reassignment overlaps with the botanical survey window, that brief reassignment could delay the analysis by a year. In such cases, delays would be captured by the time that lapsed between project initiation and a final decision, but attributing those delays to NEPA would obscure the true problem and increase the risk that reforms would not produce the desired results.

1. Litigation Risk Aversion Causes Delay and Unwieldy Documents

Litigation aversion also delays the NEPA process. During the EADM Regional Roundtables conducted in 2018, concern over litigation aversion featured prominently in every region.[246] Regions 1, 2, 3, 6, and 8 combined

---

[240] GAO, WILDFIRE SUPPRESSION FUNDING TRANSFERS CAUSE DELAYS, *supra* note 219, at 22.

[241] *Id*.

[242] *Id*.

[243] *Id*.

[244] *See* 40 C.F.R. § 1502.9(d)(1)(ii) (2020) (requiring supplementation where "there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.").

[245] RYAN RICHARDS, CTR. FOR AM. PROGRESS, DEFINING SUCCESS FOR THE WILDFIRE FUNDING FIX 12 (2018) (reporting that the number of non-fire personnel at the Forest Service declined from 18,000 in 1995 to 11,000 in 2015); *see also* GAO, WILDFIRE SUPPRESSION FUNDING TRANSFERS CAUSE DELAYS, *supra* note 219, at 31 (reporting that some regions encourage staff to go on fire suppression detail so that their salaries would be paid from fire suppression funds).

[246] REGION 1 ROUNDTABLE REPORT, *supra* note 192, at 6, 9 (identifying "risk aversion" and "move on, move up" concept as barriers); REGION 2 ROUNDTABLE REPORT, *supra* note 192, at 6 (identifying risk aversion as a barrier because line officers have "fear of litigation and repercussion"); REGION 3 ROUNDTABLE REPORT, *supra* note 200, at 6–9 (identifying the Forest Service employees

risk aversion with comments suggesting that Forest Service staff avoid making controversial decisions for fear of affecting opportunities for promotion.[247]

Litigation aversion leads to unwieldy, bulky, time-consuming documents. The EADM Roundtables National Synthesis Report summarized the problem as follows: "Minimal litigation or objection is viewed as a positive outcome in terms of a project moving to implementation, but the negative costs of defensive over-analysis, unwieldy documentation, and narrowing the scope of projects in order to 'fly under the radar' of litigants are not usually considered."[248] The concern resurfaced later in the report when discussing lengthy documents as a barrier to efficient decision-making. "Risk aversion and a history of legal challenges to USFS decisions have led to the 'bullet-proofing' of environmental analysis documents and specialist reports."[249] The report continued, noting that "the complexity and size of analysis is often inconsistent with the complexity and size of the project."[250]

The report explicitly distinguished between this dynamic, which it identified as a cultural barrier within the Forest Service and the NEPA process itself. "NEPA is often blamed for these problems, when really it is not the law itself but the Agency's process that is the cause [of lengthy documents]."[251] This observation is consistent with external research on Forest Service NEPA practice. In 2010, Mortimer et al., found that the threat of litigation had more influence than the degree of environmental impacts on Forest Service decisions whether to prepare an EA or an EIS for recreation and

---

as "risk averse," fearful of "backlash," "not feeling supported in making risky decisions," "perceived risk of being litigated and fear of losing in court" and feeling criticized for taking a risk where "success [is] defined as lack of objections or litigation"); REGION 4 ROUNDTABLE REPORT, *supra* note 195, at 8 (identifying Forest Service staff as "risk averse" and hemmed by a "sue and settle" reality); REGION 5 ROUNDTABLE RESULTS, *supra* note 192, at 6, 20, 28 (identifying "risk averse USFS staff" with "fear of making decisions based on imperfect data" and stating that "fear of litigation results in excessive time spent and detail in EADM documents" where EADM documents are "'padded' to mitigate risk of litigation" and "litigation threat undermines opportunities to conduct large landscape EADM"); REGION 6 ROUNDTABLE REPORT, *supra* note 192, at 6 (identifying "risk aversion" as a barrier with line officers "not wanting to 'rock the boat'"); REGION 8 ROUNDTABLE REPORT, *supra* note 192, at 6, 8 (identifying "fear of litigation and defensive NEPA stance" as well as reluctance toward "taking on large projects for fear of objection to one small part," suggesting that District Rangers resist a project for political reasons "until they change jobs"); REGION 9 ROUNDTABLE REPORT, *supra* note 192, at 6 (characterizing a "risk averse USFS culture at all levels" that produces "excessive documentation"); REGION 10 ROUNDTABLE REPORT, *supra* note 200, at 6 (describing "risk aversion" as a barrier with Forest Service "litigation-proofing documents" based on a "perception that all NEPA documents are challenged when only a small percent are challenged").

[247] REGION 1 ROUNDTABLE REPORT, *supra* note 192; REGION 2 ROUNDTABLE REPORT, *supra* note 192; REGION 3 ROUNDTABLE REPORT, *supra* note 200; REGION 6 ROUNDTABLE REPORT, *supra* note 192; REGION 8 ROUNDTABLE REPORT, *supra* note 192.

[248] EADM ROUNDTABLES NATIONAL SYNTHESIS REPORT, *supra* note 131, at 13.

[249] *Id*. at 19.

[250] *Id*.

[251] *Id*.

road management decisions between 2003 and 2007.[252] That report also reviewed litigation during this same time period and found that EAs and EISs were equally defensible.[253] Accepting litigation risk and rewarding transparent, decisive actions could reduce this source of delay.

Those outside of the Forest Service also recognize the problem. As one practitioner remarked, "[i]t has been the author's frequent experience that BLM and the Forest Service delay decision-making in order to prepare more and lengthier documents in an effort to bulletproof their decisions from appeal. As a result, the diversion of agency resources and attention to the preparation of up-front disclosures documents under NEPA means less attention and resources are devoted to on the ground efforts such as monitoring the effects of agency decisions."[254]

V. RECOMMENDATIONS

Changes to NEPA practice and to NEPA's implementing regulations should be driven by data on all NEPA decisions rather than anecdotal information about outliers. Analyzing over 41,000 Forest Service NEPA determinations at every level of review taught us unexpected lessons about potential causes of delay within the NEPA process.

We learned that the level of analysis is an imperfect predictor of the time required to comply with NEPA. Forcing a project that merits analysis in an EIS into an EA may not result in a faster decision, and CEs are not synonymous with swift decisions. Reforms should focus on identifying efficient strategies for analyzing complex and controversial projects rather than forcing analyses into a lower level of review.

We observed that reduced agency capacity, inadequate funding, and low prioritization of NEPA-related activities like planning and monitoring cause delays. Without stabilizing agency capacity and providing secure agency funding for NEPA-related activities, even the most elegantly drafted NEPA reforms will falter.

We found that some delays attributable to the NEPA process may be external, including market forces and compliance with other laws. Truncating NEPA compliance will not affect these external forces, but it will reduce

---

[252] Michael J. Mortimer et al., *Environmental and Social Risks: Defensive National Environmental Policy Act in the US Forest Service*, 109 J. FORESTRY 27, 29–30 (2011).
[253] *Id*. at 31.
[254] Laura Lindley, *NEPA Streamlining: Some Observations on Its Use in the Context of BLM and Forest Service Oil and Gas Program*, *in* ROCKY MT. MIN. L. FOUND., NATURAL RESOURCES AND ENVIRONMENTAL ADMINISTRATIVE LAW AND PROCEDURE II (2004) (listing "inexperienced and/or unempowered team leaders" as a source of delay in the NEPA process).

transparency and may compromise agencies' capacity to comply with other legal duties.

Finally, we learned that cultural influences, including litigation aversion, cause delay. These cultural influences can be addressed without regulatory reform and enable more prompt, creative, and transparent agency decisions. As regulatory changes to NEPA are contemplated, these cultural, fiscal, and practice-oriented reforms should also be considered.

A. Potentially Useful Changes to NEPA Practice

Our recommendations flow from, and were sometimes included in, preceding sections. In this section, we sought to pair recommendations with real-world examples to demonstrate the practicality, effectiveness, and feasibility of each suggestion.

1. Ground Change in Good Information, Measure Changes, and Adapt as Needed

There is ample information on the time required to complete an EIS,[255] but the amount of time required to complete the analysis does not tell us why some projects lag. Available data also focuses almost exclusively on EISs, which account for just 1% of all NEPA decisions. It is impossible to design meaningful reform without understanding how NEPA operates for 99% of decisions.

More importantly, and as noted at the outset, NEPA's twin goals involve meaningful public engagement and careful consideration of environmental impacts. Faster does not necessarily mean better progress towards advancing these objectives. It is also impossible to test whether reforms succeed without better data. Databases must also allow for tracking of projects through revisions and litigation.

The Forest Service should be commended for developing the MYTR database and the detailed information captured within it. We are unaware of any other federal agency that maintains comparable data.[256] Analyzing information in the MYTR database provided an opportunity to identify nuances in NEPA practice that were unexpected and sometimes counterintuitive. We strongly encourage federal agencies to compile statistical information on NEPA decisions that would enable similar future insights. Such information could benefit individual agencies and could facilitate

---

[255] *See* CEQ, EIS TIMELINES 2010-2018 *supra* note 88.

[256] Both the Bureau of Land Management and the Department of Energy compile information on NEPA analysis, and both agencies deserve commendation for these efforts, but neither dataset contains the level of information found in MYTR.

comparison of NEPA practice across agencies, highlighting successful practices that could be beneficial if adopted elsewhere.

There are at least three pieces of information that are not captured in MYTR but would be helpful in identifying future NEPA reforms. First, MYTR does not compile information regarding the source of authority relied upon for a CE decision memo. An investigative report by Wild Earth Guardians reviewed the Forest Service's use of specific CE authorities from January through March of 2020 based on projects found on the agency's Schedule of Proposed Action (SOPAs).[257] Wild Earth Guardians reviewed the SOPAs for 75 national forests across 11 states in Regions 1 through 6,[258] concluding that the SOPAs often failed to identify the specific CE authority for projects.[259] Of 175 fuel management projects across 58 forests, 43% failed to disclose the CE authorities in the scoping document.[260] Only 41 projects issued decision memos that identified the CE authority used.[261] Failing to provide the source of authority for a CE forecloses opportunities to assess whether CEs were applied appropriately. Gathering information regarding the source of CE authority would also allow the Forest Service to assess the frequency with which certain CEs are used and analyze whether some CEs are disproportionately associated with litigation or delay.

Second, MYTR does not indicate whether a decision was initiated as a CE and elevated to an EA due to the existence of extraordinary circumstances. Gathering this data would be helpful in identifying areas or CEs that regularly require more thorough analysis due to extraordinary circumstances. Third, MYTR does not indicate how many alternatives were considered in an EA or EIS. The number of alternatives considered may be useful in considering the extent to which agencies achieve NEPA's twin aims of taking a hard look at the environmental impacts of an action and engaging the public.[262] Other research found a relationship between the number of alternatives considered and achievement of NEPA's goal to reduce environmental impacts—a larger number of alternatives resulted in fewer environmental impacts.[263]

---

[257] WILD EARTH GUARDIANS, THE FOREST SERVICE AND CATEGORICAL EXCLUSIONS: MISUSE AND OBFUSCATION REVEAL A CLEAR NEED FOR CHANGES (2020) http://pdf.wildearthguardians.org/site/DocServer/The-Forest-Service-and-Categorical-Exclusions-report-Sept-2020.pdf [https://perma.cc/2J4A-FNAG].

[258] *Id*. at 6.

[259] *Id*. at 7.

[260] *Id*. at 8.

[261] *Id*.

[262] *See supra* notes 33–34 and accompanying text for summary of NEPA's requirements, including the "hard look" and public engagement.

[263] John Ruple & Mark Capone, *NEPA—Substantive Effectiveness Under a Procedural Mandate: Assessment of Oil and Gas EISs in the Mountain West*, 40 GEO. WASH. J. ENERGY & ENV'T L. 39, 44 (2016) (finding that oil and gas EISs that considered more than 4 alternatives had greater reductions in the environmental impacts of the project than EISs that considered 3 or fewer alternatives); John Ruple & Mark Capone, *NEPA, FLPMA, and Impact Reduction: An Empirical*

Agencies should not be shy about sharing NEPA data. Transparency regarding the NEPA process has proven to increase efficiency. For example, the Federal Infrastructure Projects Dashboard was created in an effort to increase the efficiency of infrastructure development.[264] The Dashboard enables federal agencies to publicly track schedules and status information on pending federal infrastructure projects.[265] Publishing the schedule facilitates interagency cooperation by creating an incentive for agencies to resolve issues in a timely manner in order to meet the agreed upon schedule.[266] According to one participant, "The increased level of accountability helps to ensure that federal agencies are not unnecessarily sidetracked in their NEPA review process."[267] The benefits of this simple transparency device are evident. Since its creation, over thirty high-priority federal infrastructure projects have completed the environmental review and permitting process more quickly than pre-Dashboard projects.[268]
As we noted earlier, it is hard to fix something without first understanding how it works. It is also hard to tell whether reforms have delivered the intended outcome without a performance metric. Reforms should include gathering data, analyzing the data, and incorporating the lessons learned in future actions to ensure that reforms function as intended and are corrected if they fall short of that goal.

2. Focus on Improving Capacity, Not Downscaling Analysis

Common NEPA reform recommendations include expanding the use of CEs and avoiding the obligation to conduct an EIS.[269] However, CEs already constitute the vast majority of NEPA analyses. The CEQ estimated that about 95% of NEPA analyses are CEs.[270] During the course of our study, 81% of Forest Service Decisions were covered by a CE.[271] Moreover, even a cursory glance at the agency-by-agency list of CEs, which the CEQ compiled in 2020, demonstrates that there are already hundreds of CEs available covering a wide array of agency actions.[272] Additionally, an abbreviated analysis does not always result in reduced decision-making time. The fastest 25% of EISs

---

Assessment of BLM Resource Management Planning in the Mountain West, 46 ENV'T L. 953, 956 (2016) (comparing draft Resource Management Plans to Final Resource Management Plans and finding a substantive reduction in environmental impacts achieved through NEPA's iterative consideration of alternatives).

[264] Serassio, *supra* note 107, at 329-330.

[265] *Id*.

[266] *Id.*

[267] *Id*.

[268] *Id*.

[269] *See supra* note 107.

[270] GAO, NEPA: LITTLE INFORMATION EXISTS, *supra* note 3, at 8.

[271] *See supra* Part II.D.

[272] EXEC. OFF. OF THE PRESIDENT, COUNCIL ON ENV'T QUALITY, FACT SHEET: CEQ LIST OF FEDERAL CATEGORICAL EXCLUSIONS (CE LIST) (2020), https://ceq.doe.gov/nepa-practice/categorical-exclusions.html [https://perma.cc/MD9N-8B3K].

are completed more quickly than the slowest 25% of EAs. CEs also do not guarantee fast decision-making. The slowest 25% of CEs were completed almost as quickly as the fastest 25% of EAs, and 11% of CEs took longer than the median time to complete an EA.

Rather than forcing decisions into a less rigorous analysis, agencies should promote a strategically-sized analysis for long-term efficiency. Although this approach may require additional work on the front-end, it can result in long-lasting efficiencies. Below we discuss three real-world examples where this approach yielded demonstrably improved decision-making times and efficient project implementation over the long-term.

First, programmatic NEPA documents can leverage long-term efficiency by facilitating tiering and accelerating subsequent decisions that require a lower level of analysis. This can be achieved through programmatic analyses to which implementation decisions may be tiered, and through monitoring programs that provide real-time, accurate data to which implementation decisions can be tiered. For example, the Government Accountability Office analyzed the average time to review an Application for Permit to Drill in selected BLM field offices between 2016 and 2019.[273] Where decision-making times for other field offices ranged from 106 to 220 days, the Pinedale Office averaged 49 days to make a decision.[274] Rather than avoiding environmental review, Pinedale's efficiency was attributable to careful up-front analysis and effective tiering. Pinedale had conducted thorough programmatic EISs for each of the three oil and gas fields it managed. With the potential environmental impacts of oil and gas drilling to work from, agency officials could efficiently expedite review by tiering a CE to the relevant programmatic analysis.[275] This efficiency was achieved without sacrificing the transparent, deliberative process required by NEPA.

Along these lines, several commentators have recommended implementing post-decisional monitoring processes to simplify future decisions by eliminating the need to repetitively gather data or hypothesize about the effects of a project or a mitigation measure.[276] One benefit of this approach is the ability to incorporate new knowledge acquired through the implementation of a plan. "[T]he experience in implementing a plan can identify the need to change the assumptions and projections made as part of the original NEPA analysis."[277] Knowledge acquired, or changes in circumstance, can alter the

---

[273] GAO, ACTIONS NEEDED TO IMPROVE BLM'S DATA SYSTEM, *supra* note 155, at 22.
[274] *Id*. at 22–23.
[275] *Id*.
[276] Dinah Bear, *Some Modest Suggestions for Improving Implementation of the National Environmental Policy Act*, 43 NAT. RSCH. J. 931, 949 (2003) ("[T]he acquisition of on-the-ground information could certainly reduce the need to engage in the type of costly, lengthy modeling exercises that some agencies feel obliged to undertake because of lack of empirical information.").
[277] Daniel R. Mandelker, *New Directions in Environmental Law: The National Environmental Policy Act: A Review of Its Experience and Problems*, 32 Wash. U. J.L. & POL'Y 293, 303 (2010).

appropriateness of assumptions in a plan, as well as the adequacy of the NEPA analysis supporting it.[278] Producing a supplemental EIS to respond to these changed circumstances has proven time-consuming and burdensome.[279] In contrast, a monitoring program would enable the incorporation of new information obtained through monitoring in future decisions more seamlessly. For planning agencies, like the Forest Service, this approach would shift the emphasis from periodic large-scale forest plans to a more regular and continuous incremental decision-making process.[280] Where this approach has been adopted, the monitoring process reduced conflict by generating evidence that could be used to develop mutual understanding.[281] For example, in eastern Oregon and Washington, monitoring led to broad consensus among stakeholders for treatments in dry forests.[282] Thus, post-decisional monitoring can simplify the NEPA process, increase agency credibility, and facilitate the improved environmental decision-making intended by NEPA's authors.

Second, using the NEPA process as a framework for structured inter-agency collaboration on large projects can facilitate decision-making and implementation through the life of the project. In a pilot project selected by the CEQ for developing best practices for NEPA implementation, the Federal Railroad Administration (FRA) initiated a two-stage EIS for improving intercity passenger rail service in the Northeast Corridor.[283] Multi-state transportation projects of this scale often encounter delays attributed to conflicting jurisdictions, overlapping authorities, and interagency conflicts. To avoid these delays, the FRA used the NEPA process to engage stakeholders early.[284] For example, to overcome the challenge of inter-agency variance in decision-making, formal points of contact were established for each federal and state resource and regulatory agency.[285] This early effort enabled agencies to speak to the FRA with "one voice." Engaging stakeholders as collaborative partners in NEPA compliance (for example, developing a

---

[278] *Id*.

[279] *See infra* note 333 and accompanying text.

[280] Stark Ackerman, *Observation on the Transformation of the Forest Service: The Effects of the National Environmental Policy Act on U.S. Forest Service Decision-making*, 20 ENV'T L 703, 731 (1990); Mandelker, *supra* note 277, at 280 (promoting Ackerman's recommendation).

[281] U.S. FOREST SERV., COLLABORATIVE FOREST LANDSCAPE RESTORATION PROGRAM 10-YEAR REPORT TO CONGRESS 8 (2019) https://www.fs.fed.us/restoration/documents/cflrp/REF_Report-CollaborativeForestLandscapeRestoration-508.pdf [https://perma.cc/8MWV-QKSF] [hereinafter CFLRP 10-YEAR REPORT].

[282] *Id*.

[283] *CEQ NEPA Pilot Program*, COUNCIL ON ENV'T QUALITY (Jan. 26, 2022), https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/nepa/nepa-pilot-project [https://perma.cc/DJ7A-M5RL].

[284] COUNCIL ON ENV'T QUALITY, NATIONAL ENVIRONMENTAL POLICY ACT PILOT PROJECT: U.S. Department of Transportation, Federal Railroad Administration: *NEC Future-Tier 1 Environmental Impact Statement,*, *Best Practices Memorandum*, BEST PRACTICES MEMO (Mar. 2013), https://obamawhitehouse.archives.gov/sites/default/files/best_practices_memo.pdf [https://perma.cc/99MM-F8KQ].

[285] *Id*. at 2.

purpose and need statement, formulating alternatives, and developing impact assessment methodology) facilitated coordination. Partner agencies could provide timely information that the technical team utilized, avoiding conflict down the road.[286] The communication protocols also enabled the creation of an interactive dataset encompassing multiple local and state jurisdictions, transportation authorities, and watersheds that could be used for other environmental analyses.[287] Though this collaborative process imposed demands on agencies' time that were uncommon on the front-end, it avoided conflict on the backend.[288] Moreover, the communication protocols, data-sharing, and decision-making procedures developed during the NEPA process created a framework for interagency collaboration that would foster continued efficiencies beyond project implementation because future projects can utilize the established inter-jurisdictional database and communication protocols.

Third, utilizing the NEPA process to develop consensus can avoid delays caused by conflict and expand agency resources through partnerships. This has been demonstrated in several pilot collaborative forest planning initiatives. For example, in 2012, the Forest Service completed the 4FRI EIS, which analyzed the largest number of acres in Forest Service history for restoration-based mechanical treatments.[289] The project goal was to restore the ponderosa pine forest stretching across northern Arizona (incorporating four different national forests), while reducing the threat of destructive wildfire to communities, rehabilitating ecosystems, and sustaining forest industries that strengthen local economies.[290] It was "the largest collaborative landscape-scale restoration initiative in the country, the largest initiative of its kind ever endeavored."[291] Despite its ambitious scale, the EIS was completed more quickly than the average (mean) timeframe for EISs completed that year.[292] Although not specifically included in the reports, it is likely that adequate funding and high prioritization of the planning effort helped speed completion. When it came to implementation, the Forest Service was not delayed by litigation.[293] This result was possible because the collaborative process increased stakeholder support for the

---

[286] *Id*. at 3 (noting particularly that agencies expressed appreciation for being engaged before project alternatives were developed as opposed to a "post-decisional" consultation).
[287] *Id.* at 5.
[288] *Id*. at 4.
[289] BRYCE ESCH & DIANE VOSICK, ECOLOGICAL RESTORATION INST., THE FOUR FOREST RESTORATION INITIATIVE (4FRI): THE ROLE OF COLLABORATION IN ACHIEVING OUTCOMES 7 (2016).
[290] Annette Fredette, *4FRI and the NEPA Process,* 48 ARIZ. ST. L. J. 139, 139 (2016).
[291] *Id*. (noting also that the EIS was "far more complex than the average EIS, having integrated a collaborative dimension, meeting the site specificity requirement for almost a million acres, and incorporating a legislated monitoring and adaptive management framework").
[292] ESCH & VOSICK, *supra* note 289, at 7 (reporting that when compared to NEPA timelines from other agencies for 2012, the EIS took 141 days less than the average; specifically, the EIS took 1,571 days in comparison to the average of 1,675 days).
[293] Only one lawsuit was filed, and the claimants did not seek injunctive relief. *Id*. at 3, 8 (the case was dismissed within a year for lack of standing).

Forest Service decisions, increased trust that the best available science was used in the EIS, and facilitated design of a Monitoring and Adaptive Management Plan with a multi-party working group that would analyze the monitoring data collected and provide recommendations for adaptive management.[294]

The efficiencies achieved through collaboration in the 4FRI project are not unique. Other pilot projects demonstrate that using the NEPA process to develop consensus on landscape scale decisions can promote efficiency by leveraging partner assistance to implement environmental monitoring and mitigation. In 2009, Congress created the Collaborative Forest Landscape Restoration Program.[295] It selected twenty-three projects that focused on enhancing forest and watershed health, reduced risk from uncharacteristic wildfire, and benefited rural economies through collaborative science-based approaches to forest management.[296] The projects ranged in size from 130,000 acres to 2.4 million acres.[297] Leveraging private funds through partnerships expanded the pace and scale of implementation, including monitoring and critical expertise that can be used for adaptive management.[298] Every dollar spent by the fund attracted $1.80 from partner investments.[299] Nearly 70% of the participants said third party science organizations (such as land-grant universities or The Nature Conservancy) provided capacity or expertise to implement monitoring.[300] According to a survey conducted by the National Forest Foundation in 2020, 81% of the participants in these programs agree that more restoration is being accomplished.[301] Moreover, the initial investment of time and effort continued to pay dividends. Several Forest Service members felt that the collaborative landscape scale approach gave them social license to complete larger analyses (for subsequent projects) in less time.[302]

These are some examples of how focusing on public engagement and informed decision-making, rather than analytical downsizing, can produce long-lasting efficiencies. An annual inter-agency, inter-governmental training hosted by the CEQ highlighting "lessons learned" from the past year would help propagate best practices. Further research is warranted to explore additional best practices for conducting thorough, transparent, and efficient NEPA analyses at each level of review. These future studies should focus on best practices for effectively scaling lower levels of analysis,

---

[294] *Id*.
[295] Omnibus Public Land Management Act of 2009, Pub. L. No. 111-11, 123 Stat. 991.
[296] CFLRP 10-YEAR REPORT, *supra* note 281].
[297] *Id*. at 1.
[298] *Id*. at 6–7.
[299] *Id*. at 7 (between 2010 and 2019, these projects attracted more than more $470 million in partner funding and in-kind contributions.).
[300] *Id*. at 8.
[301] *Id*. at 7.
[302] CFLRP 10-YEAR REPORT, *supra* note 281, at 7.

leveraging existing environmental analyses through tiering, and using the results of monitoring to develop consensus and simplify future environmental analyses. Finally, pilot projects and research are only effective if they are replicated and practiced. Training staff to utilize best practices is necessary. Without training, effective practices, like tiering, early development of communication protocols, consensus building through collaborative decision-making, and incorporation of monitoring results in future decisions, are unlikely to be implemented, regardless of their usefulness.

3. Increase and Stabilize Agency Capacity

Inadequate staffing, a lack of experienced staff, unpredictable staff availability, temporary reassignments, and inadequate or unstable funding were frequently identified as sources of delay. This theme arose in GAO reports identifying delays associated with specific activities. It surfaced again in each of the EADM Roundtables. And it was echoed in industry comments regarding sources of delay in the NEPA permitting process.
Problems associated with inexperienced staff plague multiple agencies. In a 2004 Rocky Mountain Mineral Law Institute Article, Laura Lindley emphasized "inexperienced and/or unempowered team leaders" as a major source of delay in the oil and gas permitting process. Specifically, she noted that the interdisciplinary team leader "may be preparing his/her first EIS."[303] The "lack of training results in unnecessary wasted time" including "failing to tier to earlier documents, focusing on formatting or other non-substantive details, re-creating the EIS format or layout each time [and] failing to focus on the proposed action and reasonable alternatives."[304] Where the document is written too narrowly, project changes require a new analysis. For example, where other drilling occurs while the NEPA document is being produced, an applicant may revise its plan with respect to spacing or anticipated number of wells. "The result can be the need to commence an additional NEPA document as soon as the current one is completed."[305] In other words, inexperience causes delay.

The importance of agency capacity in avoiding NEPA delays was also emphasized by Helen Serassio, who spent fourteen years working at the Department of Transportation. "Insufficient staff and resources are two of the biggest hurdles federal agencies face when working to meet their NEPA requirements in a timely manner. Budgets of federal agencies continue to, with few exceptions, be decreased by Congress in annual appropriations, yet the workload remains."[306] A report by the Office of Inspector General in

---

[303] Laura Lindley, *NEPA Streamlining: Some Observations on Its Use in the Context of BLM and Forest Service Oil and Gas Program*, *in* ROCKY MT. MIN. L. FOUND., NATURAL RESOURCES AND ENVIRONMENTAL ADMINISTRATIVE LAW AND PROCEDURE II (2004).
[304] *Id*.
[305] *Id*.
[306] Serassio, *supra* note 107, at 323 n.40.

2011 found that a lack of Forest Service staff trained in NEPA had led to a backlog of more than 3,500 expired special use authorizations that were awaiting NEPA review.[307] Even Congress recognizes that funding increases efficiency. For example, the first legislative infrastructure bill devoted to increasing the efficiency of the permitting process for infrastructure projects included a funding mechanism to help agencies achieve established timelines.[308] Several years later, Congress explicitly recognized the connection between prompt environmental review and financial resources by directing that "adequate resources," devoted to ensuring that expeditious environmental reviews are implemented, be made available.[309] That language was retained in later legislation and remains in effect.[310]

Increasing and stabilizing funding for staff with expertise in environmental planning and decision-making would improve NEPA efficacy. Funding to develop and train interdisciplinary team leaders, resource specialists, and avoiding staff reassignments during a project would reduce delays. Providing funding to support landscape scale environmental analyses to which project-level decisions can be tiered would enable agencies to realize efficiency gains. Stabilizing funding for environmental planning and monitoring would help agencies develop interagency databases, collaborative protocols, and landscape scale analyses that could produce long-lasting efficiencies across agencies. Without addressing these common-sense sources of inefficiency, efforts to systemically improve the NEPA process will falter.

4. Foster an Agency Culture that Incentivizes Action and Public Engagement

---

[307] OFF. OF INSPECTOR GEN., U.S. DEP'T AGRIC., AUDIT REP. 08601-55-SF, FOREST SERVICE ADMINISTRATION OF SPECIAL USE PROGRAM 8 (2011), https://www.usda.gov/sites/default/files/08601-55-SF.pdf [https://perma.cc/ZD9V-LDGG] ("FS has relatively few NEPA specialists that support special uses, and other employees are reluctant to conduct the reviews themselves.").

[308] *Id*. at 323. *See also* Transportation Equity Act for the 21st Century, Pub. L. No. 105-178, § 1309 112 Stat. 107, 234 (1998) ("The secretary may approve a request by a State to provide funds made available . . . for the project subject to the coordinated environmental review process established under this section to affected Federal agencies to provide the resources necessary to meet any time limits established under this section.").

[309] *See* Moving Ahead for Progress in the 21st Century Act, 112 Pub. L. 141, § 1306, 126 Stat. 405, 539 (2012) (MAP-21).

[310] *See* 23 U.S.C. § 139(h)(8) ("To ensure that federal environmental decisions are expeditiously made . . . adequate resources made available under this title shall be devoted to ensuring that applicable environmental reviews under the National Environmental Policy Act of 1969 (42 U.S.C. § 4321–4347) are completed on an expeditious basis and that the shortest applicable process under the Act is implemented."). The subsequent transportation act was Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, Pub. L. No. 109-59, 119 Stat. 1144 (2005) (SAFETEA-LU).

Litigation aversion was repeatedly identified as a source of delay, even though only a small percentage of decisions are litigated.[311] Government-wide, only about two-tenths of one percent of more than 50,000 NEPA decisions that are documented each year result in litigation.[312] Litigation rates are higher for the Forest Service than for the government as a whole.[313] An investigation by the GAO regarding Forest Service fuel reduction projects from fiscal years 2006 through 2008 revealed that only 29 out of 1,415 decisions were litigated, and litigation impacted about 1% of lands slated for fuel reduction projects.[314]

Rather than attempting to avoid litigation by developing overly expansive and detailed documents, the Forest Service could acknowledge litigation as part of the transparency function of NEPA. This shift in focus would enable agencies like the Forest Service to encourage field officers to act promptly. Indeed, the CEQ encourages agencies to focus the analysis on significant issues and refine the breadth of issues to address through a scoping process.[315] Selecting the issues of importance is an exercise of discretion, which is subject to judicial deference.[316]

Public participation helps justify the exercise of that discretion. For example, although it is not required by the regulations, providing a public scoping process and publishing a draft EA provides an opportunity for the agency to document and justify the reasons for distinguishing between

---

[311] David E. Adelman & Robert L. Glicksman, *Presidential and Judicial Politics in Environmental Litigation*, 50 ARIZ. ST. L.J. 3, 7 (2018) (conducting an empirical study of NEPA litigation during the presidencies of George W. Bush and Barack Obama, and observing, "[w]e find little evidence that litigation under NEPA is out of control or that NEPA's processes are overly burdensome").

[312] Serassio, *supra* note 107, at 333-334. *See also*, Ruple & Race, *supra* note 90, at 500 (finding a litigation rate of 0.22%).

[313] Ruple & Race, *supra* note 90, at 509 (reporting that an estimated 0.6% of all Forest Service NEPA decisions are litigated).

[314] U.S. GOV'T ACCOUNTABILITY OFF., GAO 10-337, FOREST SERVICE: INFORMATION ON APPEALS, OBJECTIONS, AND LITIGATION INVOLVING FUEL REDUCTION ACTIVITIES, FISCAL YEARS 2006 THROUGH 2008 1 (2010).

[315] The CEQ regulations define scoping as "an early and open process" to identify potentially significant issues for consideration in a NEPA analysis. 40 C.F.R. § 1501.7 (2019); *id.* § 1501.9 (2020). *See also id.* § 1500.4(g) (2019); 40 C.F.R. § 1500.4(i) (2020) (encouraging agencies to use "the scoping process, not only to identify significant environmental issues deserving of study, but also to deemphasize insignificant ones"); *id.* § 1500.5(d) (2019); *id.* § 1500.5(f) (2020) (encouraging agencies to use "the scoping process for an early identification of what are and what are not the real issues.").

[316] *See, e.g.*, Kleppe v. Sierra Club, 427 U.S. 390, 414 (1976) (holding that determining the scope of cumulative impacts, particularly identification of the geographic area, is a task "assigned to the special competency of the appropriate agencies" and may be influenced by "practical considerations of feasibility"); Selkirk Conservation Alliance v. Forsgren, 336 F.3d 944, 960 (9th Cir. 2003) (affording discretion to agency's decision to limit geographic scope of analysis where the agency provided support and justified its decision to exclude other regions from analysis); Theodore Roosevelt Conservation P'ship v. Salazar, 744 F. Supp. 2d 151 (D.D.C. 2010), *aff'd*, 616 F.3d 497 (affording deference to BLM decision to limit geographic scope of analysis of impacts on sage grouse populations).

significant and non-significant issues and limiting the scope of the EA. It may seem counter-intuitive to achieve efficiency by inviting public comments on an EA, however, this approach enhances efficiency in five ways. First, it facilitates compliance with other statutory obligations that require public participation.[317] Second, it provides an opportunity for the agency to ensure that it has focused on the significant issues. "If agency staff truly understand the public's concerns at the beginnings, they can avoid spending time and money on issues in which the public has no interest."[318] Third, the response to comments provides a public forum for explaining the agency's decision for focusing the scope of the analysis, which builds a record enhancing the likelihood of success in litigation.[319] Fourth, providing an opportunity for public comment narrows the range of claims that can be litigated and ensures that an agency is not surprised by an issue raised for the first time in litigation.[320] NEPA litigants must generally raise their objections during the administrative process to preserve their right to litigate.[321] Litigants are also generally barred from raising issues not aired during the administrative process.[322] No such limits exist where agencies forgo public engagement. Finally, public participation provides an opportunity to identify controversial issues and may help diffuse tensions surrounding controversy.[323]

It is also helpful to remember that litigation may serve a positive function. As Robert Dreher, a professor at Georgetown testified, "[c]ritics overlook the essential role that the independent federal judiciary plays under NEPA. When Federal agencies fall short, citizen suits are the only mechanism that enforce the act's commands for environmental review and public consultation."[324] There may be some projects that simply should not move forward without additional consideration or mitigation. Litigation provides this procedural backstop. Even though litigation is rare,[325] it often has merit.

---

[317] Serassio, *supra* note 107, at 340.
[318] Sharon Buccino, *NEPA's Promise: A Future in Which We All Thrive*, 50 ENV'T L. REP. 10197, 10199200 (2020).
[319] Serassio, *supra* note 107, at 341.
[320] *Id*.
[321] Dep't of Transp. v. Pub. Citizen, 541 U.S. 752, 764 (2004) (noting that parties challenging an agency's compliance with NEPA must structure their participation in the process to alert the agency to the party's position and allow the agency to give the issue meaningful consideration).
[322] *Id*. (barring litigants from raising alternatives that were not suggested during the NEPA process).
[323] Buccino, *supra* note 318, at 10201 ("[p]ublic satisfaction with a decision is strongly linked to belief in the fairness of the participation process.") (citing Marion Hourdequin et al., *Ethical Implications of Democratic Theory for U.S. Participation in Environmental Impact Assessment*, 35 ENV'T IMPACT ASSESSMENT REV. 37 (2012)).
[324] *NEPA: Lessons Learned and Next Steps: Hearing Before the Task Force on Updating the National Environmental Policy Act of the H. Comm. on Resources*, 109th Cong. (2005) (statement of Professor Robert G. Dreher, GEO. UNIV. L. CTR.).
[325] Ruple & Race, *supra* note 90, at 499–501 (finding that only 0.22% of NEPA decisions were challenged between 2008 and 2013, that the rate of litigation is declining more quickly than

Just 0.22% of NEPA decisions result in litigation,[326] and a recent study of NEPA litigation observed that environmental plaintiffs won more often at both the district court and appellate level than other litigants.[327] The authors concluded that low rates of challenge and high rates of success provide "strong evidence that NEPA litigation is grounded on legitimate claims," rather than strategic efforts to delay government projects.[328] These studies affirm Professor Dreher's observation. When federal agencies fall short, citizen suits enforce agencies' statutory duties.

In practice, accepting the risk of litigation requires experienced and knowledgeable staff who are capable of utilizing the discretion afforded to agencies, and who feel supported by their superiors. That demands expertise and an investment in personnel. Promoting a culture of action, rather than incentivizing avoidance, may help avoid NEPA decision-making times that are elongated by fears about blame and job security.

B. Changes to Avoid

Our research confirmed the observation made by the Congressional Research Service that many delays blamed on NEPA actually arise elsewhere. Common external sources of delay identified in our research were inadequate staff and funding, operator decisions and market influences, coordination with other entities, and compliance with other legal or regulatory requirements. Many of the "changes to avoid" discussed below fail to recognize these common causes of delay. It is also important to remember that NEPA's charge is to make transparent and informed decisions, and while efficient decisionmaking is important, speed may not be the best measure of efficacy.

1. Treating the Wrong Problem

The regulatory changes introduced by the CEQ in 2020 were intended to "facilitate more efficient, effective, and timely NEPA reviews by Federal agencies."[329] To achieve this result, the new regulations impose page limits, eliminate the requirement to consider the cumulative effects of a project, and mandate aggressive deadlines.[330] These reforms treat the symptom not

---

the rate at which agencies prepare EISs, and that the rate of NEPA litigation is declining while general civil litigation against the federal government is on the rise).

[326] *Id*. at 500.

[327] Adelman & Glicksman, *supra* note 311, at 27.

[328] *Id*.

[329] Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43,304, 43,304 (proposed July 16, 2020) (to be codified at 40 C.F.R. pts. 1500–1505, 1507, 1508).

[330] *See* Glicksman & Camacho, *supra* note 76, at 10284–89 (describing 2020 regulatory changes and implications for NEPA's functionality as a forum for transparency and public participation).

the cause and leave agencies vulnerable to violating NEPA's statutory mandate of transparency and deliberation.

First, page limits stand in contradiction to NEPA's mandate of fulsome disclosure.[331] Imposing page limits on a disclosure document is like imposing page limits on a telephone book. The only way to meet the page limits is either to remove relevant information or reduce the scope of the disclosure. Neither of these two approaches meet NEPA's aims of transparency and public engagement.

Second, attempting to streamline NEPA by eliminating the scope of required disclosure is like treating a water leak by turning off the water—it ends the problem, but it does so at the expense of the entire program. In an era of compounding challenges (like climate change, drought, urbanization, and wildfires) a myopic analysis of effects will not facilitate agencies' abilities to achieve NEPA's mandate of deliberate and informed decision-making.

Third, arbitrary page limits and deadlines may have unintended consequences. Indirectly encouraging agencies to cut projects into bite-sized analyses that meet the regulatory page limit standard could result in legally impermissible segmentation.[332] Furthermore, during judicial review of NEPA compliance, courts evaluate compliance with NEPA's statutory procedures and assess whether the agency took a hard look at environmental consequences and shared that information with the public.[333] Previous research observed that there is an inverse relationship between the amount of time spent preparing an EIS and the likelihood that an EIS will be challenged in court.[334] Other research suggests that rushed EISs may be more likely to require supplementation, which causes unintended delay.[335]

---

[331] 42 U.S.C. § 4332(C).

[332] "'Impermissible segmentation' occurs when parts of an otherwise 'major' federal action have not been evaluated together in the same NEPA document— 'segmented'—in order to avoid conducting the NEPA analysis that would be required if the segmented actions had been evaluated together." Oak Ridge Env't Peace All. v. Perry, 412 F. Supp. 3d 786, 831–32 (E.D. Tenn. 2019).

[333] Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989) ("[t]he sweeping policy goals announced in section 101 of NEPA are thus realized through a set of 'action-forcing' procedures that require that agencies take a 'hard look' at environmental consequences, and that provide for broad dissemination of relevant environmental information."); Nat'l Audubon Soc'y v. Dep't of the Navy, 422 F.3d 174, 185 (4th Cir. 2005) ("[w]hat constitutes a 'hard look' cannot be outlined with rule-like precision. At the least, however, it encompasses a thorough investigation into the environmental impacts of an agency's action and a candid acknowledgement of the risks that those impacts entail."). *See also* MANDELKER ET AL., NEPA LAW AND LITIGATION, *supra* note 10, § 3.8 (discussing judicial review standards applied to NEPA decisions).

[334] Ruple & Race, *supra* note 90, at 498; Adelman & Glicksman, *supra* note 311, at 38.

[335] Ruple & Capone, *supra* note 180, at 963 (finding that Resource Management Plans that required supplementation to cure a defect in their analysis resulted in a delay averaging 363.4 days, which represented a 17% increase in the time necessary to complete the NEPA review); *see also* Piet deWitt & Carole A. deWitt, *How Long Does It Take to Prepare an Environmental Impact Statement?*, 10 ENV'T PRAC. 164, 169–70 (2008) (finding that across all agencies between 1998 and 2006, the requirement to supplement an EIS increased preparation time by almost 2.3 additional years).

Arbitrary deadlines and page limits may, in short, make it more difficult for agencies to demonstrate that they met their statutory obligations.

Finally, aggressive deadlines may undermine NEPA's function as an umbrella statute coordinating compliance with other statutory and permitting requirements. For example, a commercial logging project may require road building across a wetland and through sensitive wildlife habitat contiguous to tribal lands. In addition to requiring a NEPA analysis, this project would also likely trigger permitting requirements with the U.S. Army Corps of Engineers for a fill and dredge permit under the Clean Water Act, consultation with the Fish and Wildlife Service under the ESA, and consultation obligations with the Tribe under the NHPA. All of these statutory obligations are independent of NEPA's obligations and are not subject to its regulatory deadlines. Requiring the NEPA process to be completed independent of these interrelated statutory procedures would be inefficient, time-consuming and confusing.

These reforms treat the wrong problem, are unlikely to produce beneficial results, and may have unintended consequences that result in project delays.

2. Avoid Inviting Unintended Consequences

Some proposed reforms invite unintended consequences that may decrease long term efficiency by increasing NEPA's complexity and inviting litigation. Three examples illustrate this possibility.

First, in an effort to avoid perceived delays from the NEPA process, Congress has revised the NEPA process by creating legislative CEs for specific federal actions, mandating streamlining processes, limiting participating agency input, imposing unique administrative review requirements, and limiting public participation.[336] This ad hoc approach creates a complex and confusing compliance matrix with varying legal standards depending on the proposed action and the agency or agencies involved. Having different NEPA requirements for various federal agencies makes a combined analysis difficult and could also lead to unpredictable judicial determinations.[337] Inconsistent requirements also create challenges for stakeholders and cooperating agencies who may need to respond to multiple and inconsistent agency requirements. The network of shortcuts may therefore be less efficient than a clear and consistent path forward.

Second, multiple "streamlining" bills introduced in Congress establish mandatory deadlines with financial penalties for agencies that miss a deadline and de facto approvals if the NEPA analysis is not completed within the

---

[336] Serassio, *supra* note 107, at 321 (providing examples of MAP-21, SAFETEA-LU, the Energy Policy Act, the Healthy Forests Restoration Act, and the Water Resources Development Act).
[337] *Id*. at 322.

deadlines established for the act.[338] Imposing financial penalties on agencies with limited funding will only exacerbate delays caused by limited funding. Mandatory approvals if arbitrary deadlines are missed creates an incentive to game the system and foster delays in the hope of receiving a permit by default. And prioritizing speed over deliberation leaves society vulnerable to projects with unjustified and unmitigated environmental effects.

Third, the temptation to fast-track politically favorable projects through vast categorical exclusions subverts the ability to consider environmental consequences. For example, within the Forest Service, the desire for speedy action has led to a proliferation of regulatory categorical exclusions authorizing large scale vegetation management, timber sales, logging, thinning, and prescribed burning.[339] Additionally, wildfire risk has led to statutory categorical exclusions authorizing massive operations in the name of hazardous fuel management.[340] Fast tracking projects in large CEs results in limited deliberation, truncated consideration of alternatives (if any), and scant assessment of the indirect and cumulative impacts. While extraordinary circumstances can limit the availability of a CE, cumulative effects are not included in the list of extraordinary circumstances.[341] Thus, a forest could endure a thousand cuts authorized in CEs without undertaking NEPA's requisite "hard look" or meaningfully engaging with those who will most likely suffer injury.

According to investigative research by WildEarth Guardians, during the first quarter of 2020, Regions 1 through 6 used CEs to authorize hazardous fuel

---

[338] *See* Undoing NEPA's Substantial Harm by Advancing Concepts that Kickstart the Liberation of the Economy ("UNSHACKLE" Act) S. 717, 117th Cong. (2021); Reducing Environmental Barriers to Unified Infrastructure and Land Development Act of 2013 ("REBUILD Act"), H.R. 2097, 113th Cong. (2013) (re-introduced 2015, H.R. 211, 114th Cong. (2015); Responsibly and Professionally Invigorating Development Act of 2013 (RAPID ACT), H.R. 2641, 113th Cong. (2013).

[339] For examples of regulatory CEs authorizing large-scale timber management activities, see 36 C.F.R. § 220.6(e)(6) (2021) (authorizing timber stand and/or wildlife improvement activities with no acreage limit); *id*. § 220.6(e)(11) (authorizing post-fire rehabilitation activities on up to 4,200 acres); *id*. § 220.6(e)(12) (authorizing the harvest of live tress on less than 70-acre projects with the construction of temporary road of less than ½ mile including commercial thinning); *id*. § 220.6(e)(13) (authorizing the salvage of dead and dying trees on less than 250 acres with temporary road construction of ½ mile); *id.* § 220.6(e)(14) (allowing commercial and non-commercial sanitation harvest up to 250 acres to control insects and disease).

[340] *See, e.g.*, 16 U.S.C. § 6591d (authorizing hazardous fuel reduction projects on up to 3,000 acres); 16 U.S.C. § 6591e (authorizing vegetation management activities up to 4,500 acres to restore sage grouse or mule deer habitat); 16 U.S.C. § 6591b (authorizing unlimited acreage of hazardous fuels reduction projects within the wildland urban interface); Water Infrastructure Improvements for the Nation Act of 2016, Pub. L. No. 114-322, § 3603, 130 Stat. 1627, 1778–93 (authorizing activities to reduce forest fuels in Lake Tahoe Basin for up to 3,000 acres of mechanical thinning on up to 10,000 acres of land); Omnibus Appropriations Act of 2009, Pub. L. No. 111-8, § 423, 123 Stat. 523, 748 (authorizing hazardous fuel reduction projects up to 5,000 acres with 1,500 acres of mechanical thinning).

[341] 36 C.F.R. § 220.6(b)(1) (2021) (listing seven resource conditions that would trigger extraordinary circumstances analysis).

or timber management activities on at least 3.79 million acres.[342] In addition to these known projects, there were a significant number of additional projects where the Schedule of Proposed Actions did not disclose the amount of acreage affected, including 38% of the projects in Regions 2 and 3.[343] If the first quarter of 2020 was representative of common practice, then the Forest Service may be logging as much as 15 million acres or more annually while sidestepping NEPA's hard look requirement and with minimal public review. This "leap before you look" approach to environmental decision-making may result in projects with environmentally harmful effects that could have been avoided or mitigated through NEPA's "hard look" procedures.

3. Avoid Diluting NEPA's Guiding Principles

When considering regulatory reforms, we should not lose sight of NEPA's original purpose. NEPA was passed shortly after Time Magazine published stunning photos of the badly polluted and burning Cuyahoga River in Ohio—the thirteenth time the river had caught fire.[344] NEPA also followed on the heels of the Santa Barbara oil spill which spread oil across hundreds of miles of pristine California beaches.[345] NEPA's eloquent preamble articulates the guiding principles for reform. "[I]t is the continuing policy of the Federal Government . . . to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."[346]

The principal drafter of NEPA, Senator Henry Jackson, eloquently summarized NEPA's objectives as a "declaration that that we do not intend, as a government or as a people, to initiate actions which endanger the continued existence or the health of mankind: that we will not intentionally initiate actions which will do irreparable damage to the air, land, and water which

---

[342] WILDEARTH GUARDIANS, THE FOREST SERVICE & CATEGORICAL EXCLUSIONS: MISUSE AND OBFUSCATION REVEAL A CLEAR NEED FOR CHANGES 10 (2020), http://pdf.wildearthguardians.org/site/DocServer/The-Forest-Service-and-Categorical-Exclusions-report-Aug-2020-final.pdf [https://perma.cc/X2Z5-MKL7]. Region 5 authorized 1.3 million acres. Other Regions authorized significantly fewer acres, but also had a larger proportion of CEs that did not specify the number of acres affected. *Id*. at 9–10.

[343] *Id*. at 10. Regions 6 and 5 had the next highest rates at 35% and 25% respectively, while Regions 4 and 1 had the lowest amount of unspecified acreage at 10% and 7 % respectively.

[344] Jonathan H. Adler, *The Fable of the Burning River, 45 Years Later*, WASH. POST (June 22, 2014), https://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/06/22/the-fable-of-the-burning-river-45-years-later/ [https://perma.cc/2S46-X9DA].

[345] *See* CRAIG COLLINS, TOXIC LOOPHOLES: FAILURES AND FUTURE PROSPECTS IN ENVIRONMENTAL LAW 55–56 (2010).

[346] 42 U.S.C. § 4331(a).

support life on earth."[347] Almost 30 years later, Dinah Bear, who served as General Counsel for CEQ for a total of twenty-two years, characterized NEPA as a process "grounded on certain basic beliefs about the relationship between citizens and their government."[348] Those beliefs include "an assumption that citizens should actively participate in their government, that information matters, that the environmental impact assessment process should be implemented with both common sense and imagination, . . . that there is much about the world that we do not yet understand. . . [and] that the social and economic welfare of human beings is intimately connected with the environment."[349]

These complex and multi-faceted goals cannot be achieved by implementing every proposed federal action exactly as it was originally envisioned or by boring holes through substantive and procedural requirements. A fully functioning NEPA will allow simple projects to pass through its review process quickly, while more complex projects will take time. Projects with unacceptable environmental effects may require mitigation. Within this process, a slow decision is not necessarily a bad decision.

VI. CONCLUSION

When considering strategies for streamlining or reforming NEPA, it is important to remain focused on NEPA's objectives. Fifty-one years ago, Congress recognized "the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances."[350] In response, Congress directed agencies to "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and decision-making."[351] NEPA's twin goals are to foster public engagement in agency decisions, and to facilitate informed agency decision-making. Congress believed that a "hard look" coupled with public engagement would produce less impactful and more sustainable decisions.[352] These lofty ambitions can be achieved without compromising efficiency.

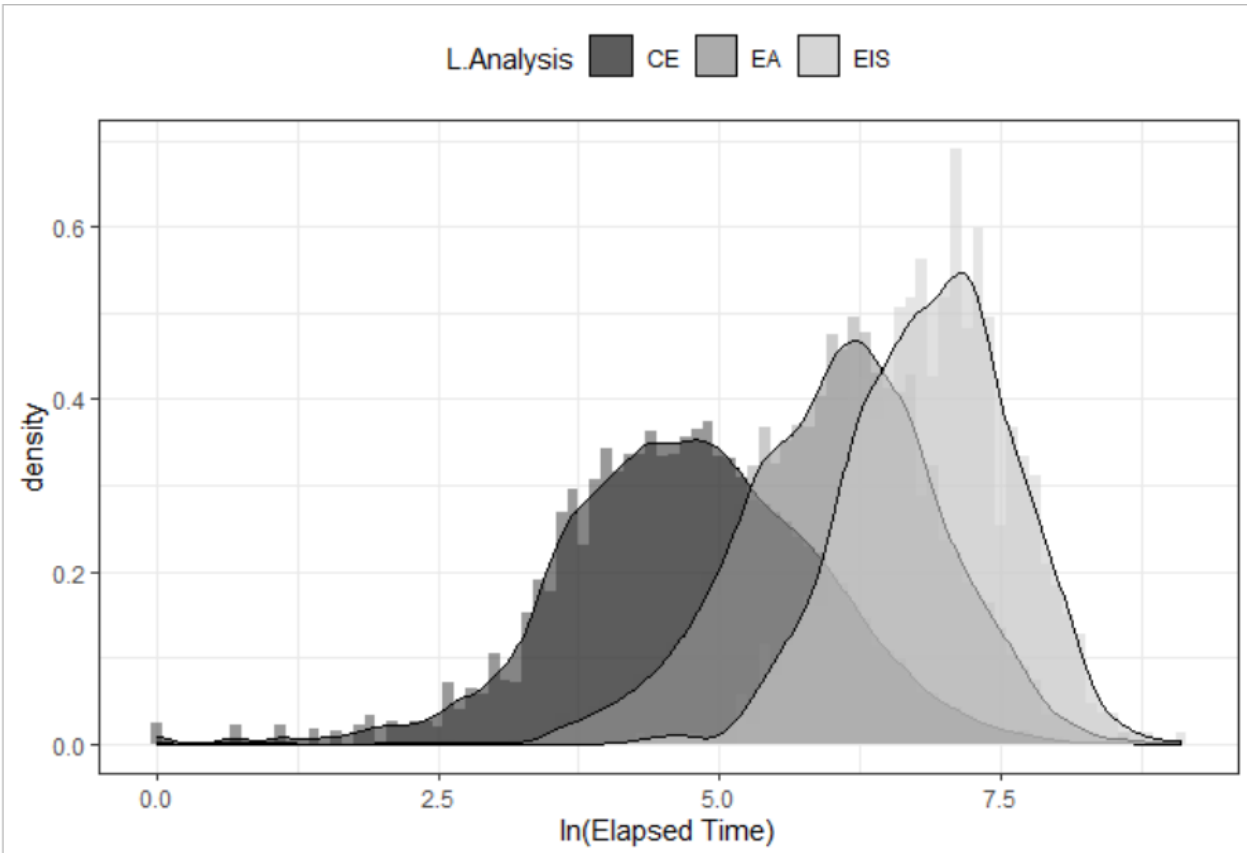
---

[347] 115 CONG. REC. 40,416 (1969) (statement of Sen. Jackson); Adelman & Glicksman, *supra* note 311, at 14 (providing the quote and excellent commentary).
[348] Dinah Bear, *Some Modest Suggestions for Improving Implementation of the National Environmental Policy Act*, 43 NAT. RSCH. J. 931, 932 (2003).
[349] *Id*.
[350] 42 U.S.C. § 4331(a).
[351] 42 U.S.C. § 4332(2)(A).
[352] N.M. ex rel. Richardson v. Bureau Land Mgmt., 565 F.3d 683, 703 (10th Cir. 2009) ("[b]y focusing both agency and public attention on the environmental effects of proposed actions, NEPA facilitates informed decision-making by agencies and allows the political process to check those decisions.").

Reviewing over 41,000 NEPA decisions made by the Forest Service over a 16-year period, we observed that reports on average decision-making times across agencies are skewed by outlying decisions with extended timeframes. Focusing on the median decision-making times reveals that the majority of decisions adhere to a more predictable timeframe that is shorter than reported averages. Moreover, level of analysis does not dictate decision-making times. The fastest 25% of EISs are completed more quickly than the slowest 25% of EAs, and the fastest 25% of EAs are completed more quickly than the slowest 25% of CEs. This overlap demonstrates that efficiencies can be achieved at each level of analysis without foregoing the "hard look" required by NEPA. Focusing on activities associated with delay revealed that many sources of delay attributed to NEPA are caused by external factors. Some of these delay factors, like inadequate staffing, insufficient funding, time spent on inter-agency coordination, and litigation aversion can be addressed through fiscal and cultural reforms. Other sources of delay, like delays obtaining information from permittees, are not caused by NEPA and should not drive NEPA reforms. Finally, when used properly, NEPA's function as an umbrella statute and can mitigate or avoid delays caused by compliance with other statutory and regulatory requirements. We hope that our work, focusing on real-world problems causing delay within NEPA implementation, will provide a springboard to reforms that improve NEPA efficacy and advance the twin goals of public engagement and informed decision-making.

APPENDIX 1: THE REGRESSION MODEL

We used a weighted least squares regression model to predict elapsed time on a log scale.[353] A plot of elapsed time after the log transformation is below.



The equation for the model is provided below.

1. Model Equation

$$ln\ ln\ (elapsed\ time) = L.Analysis + year + year^2 + (L.Analysis \times year) + (L.Analysis \times year^2) + Region + (Region \times L.Analysis) + Activities$$

- $L.Analysis$ is a categorical variable with three levels: CE, EA, and

[353] We used a weighted least squares model because residual plots from the ordinary least squares model also showed unequal variances from one level of analysis to the other. Essentially the magnitude of the "miss" for our predictions varied by level of analysis. This is referred to more formally as "heteroscedasticity" and requires a weighted least squares regression model.

EIS

- $year$ is a numeric variable representing the year in which the Forest Service initiated the NEPA analysis for a project, and is scaled so that $year = 0$ is 2004.
- $year^2$ is a numeric variable representing the potential quadratic trend over time.
- $L.Analysis \times year$ is an "interaction" term between level of analysis and year. It allows CE, EA, and EIS cases to all have separate linear trends over time.
- $L.Analysis \times year^2$ is an "interaction" term between level of analysis and year squared. It allows CE, EA, and EIS cases to all have separate quadratic trends over time.
- $Region$ is a categorical variable with nine different levels corresponding to the Forest Service's administrative regions: R1, R2, R3, R4, R5, R6, R8, R9, R10
- $Region \times L.Analysis$ is an "interaction" between region and level of analysis. It allows the effect of each region on duration to change from one level of analysis to another.
- $Activities$ is an indicator variable for each activity found in the data. This model tested independently for each activity. Several projects included multiple activities. The model considers the type and number of activities included in each project—a dynamic we referred to as the "complexity" of the project.

2. Model Efficacy--R squared Results

R-squared is a statistical measure of the proportion of the variance for a dependent variable (in our mode time to complete the NEPA analysis) that is explained by the variables in a regression model. The R-squared value for the weighted least squares regression model was 0.248 and the adjusted R-squared value was 0.246. The proximity of these values indicates the absence of unnecessary or redundant independent variables in the model. The R-squared value of 0.248 indicates that of all the variability in elapsed time on a log scale across all cases, 25% is explained by knowing the level of analysis, year, region, and activities involved in the case. As discussed below, each of the independent variables influence the elapsed time for a NEPA case, but there is still substantial variation in elapsed time that cannot be accounted for by the level of analysis, year, region, or activities involved.

3. Model Accuracy--Root Mean Square Error (RMSE)

The root mean square error or RMSE for our model was 1.003. This can be interpreted as the "average" or "typical" miss in our prediction of elapsed

time on a log scale. To ensure this value is unbiased, we performed cross-validation analysis. 90% of the data was used to "train" or develop the model, and the remaining 10% was held back to "test" the model developed from only the 90%. For three different iterations where the training data set and testing data sets were randomly selected, the average RMSE was 1.001. This validates our RMSE, and indicates that if we use our model to predict the elapsed time for a future NEPA case, the typical error will be just over 1 on a log scale. Given that the overall average duration for elapsed time on a log scale is around 5, the relative error of prediction is approximately 20%.

APPENDIX 2: EXCERPT FROM PALS USER GUIDE PROVIDING DEFINITIONS OF PROJECT ACTIVITIES354

V. Appendix B – Project Activity Metrics Definitions

These are the project activity metrics available for selection in PALS Step 2.

Activity	Project Definition	Metric
Abandoned mine land clean-up (ML)	Restoration, closure, safety improvements and other activities associated with mining activities	each, acres, miles
Biomass (BM)	Removal, disposal of products or materials NOT included in Special Products Sales (NC)	tons, acres
Boundary adjustments (BL)	Administrative boundary changes	miles, feet
Directive creation/modification (DC)	Administrative processes related to Directive management	each
Dispersed recreation mgmt (GA)	Actions associated with management of existing or creation of dispersed recreation areas/sites	each, acres, miles
Electric Transmission (ET)	Actions related to creation, maintenance, modification of transmission infrastructure	miles, feet, acres
Environmental compliance actions (EC)	Actions required to comply with specific environmental laws	each, acres, miles
Facility improvements/construction (FI)	Actions related to creation or modification of facilities	each
Facility maintenance (MF)	Actions related to maintenance of facilities	each
Forest vegetation improvements (FV)	Vegetation improvements NOT associated with NC, SS	acres
Fuel treatments (non-activity fuels) (FN)	Fuels treatments for purposes other than fund generation (NC, SS) for reduction of fuels	acres
Geothermal (GT)	Leasing of lands related to geothermal production	acres
Grazing allotment management (GP)	Continuation, modification or development of allotment management plans, activities to implement	acres, each
Grazing authorizations (GR)	Authorization or reauthorization of grazing permits	each
Grazing structural improvements (SI)	Actions to construct, modify or remove improvements on grazing allotments	each, miles
Heritage resource management (HR)	Actions to manage cultural and historical properties and resources	each, acres, miles

354 WO/EMC/NEPA SERVICES GROUP, U.S. FOREST SERVICE, EMNEPA, ELECTRONIC MANAGEMENT OF NEPA, PALS USER GUIDE V5.12 (2020).

Hydropower (HP)	Construction, modification, removal of hydropower facilities and associated infrastructure	acres, each
Land exchanges (PJ)	The exchange of lands	acres
Land purchases (LP)	Purchase of lands	acres
Land use adjustments (AL)	Adjustment of land uses	acres
Minerals or Geology plan of ops (MO)	Authorization or reauthorization of permits for minerals and geology	each, acres
Natural Gas (NG)	Authorization or reauthorization of permits for Natural Gas	each, acres, miles
Noxious weed treatments (NW)	Actions to manage or eradicate noxious weeds	acres, miles
Oil (OL)	All actions related to oil exploration, development and management?	each, acres, miles
Order creation/modification (OC)	Creation or modification of legal orders	each
Plan amendment (MP)	Forest Plan Amendment	each
Plan creation/revision (CP)	Forest Plan creation/revision	each
Rangeland veg improvements (RV)	All actions related to improvements to rangeland vegetation	acres
Regulation creation/modification (RC)	Creation or modification of regulations	each
Research and Development (RE)	Actions associated with research and development	acres, miles, each
Road decommissioning (DR)	Actions to remove roads from the travel system	miles
Road improvements/construction (RI)	Actions to construct, modify or otherwise improve roads	miles
Road maintenance (RD)	Maintenance actions on roads	miles
Roadless area management (RA)	Actions to manage, restore or improve roadless area characteristics	acres, miles
Scenery management (SC)	Actions to manage scenery	acres
Solar (SL)	Actions that develop, maintain, or remove solar power infrastructure	acres
Special area management (SA)	Actions to manage, restore or improve special area characteristics	acres
Special products sales (NC)	sales of special products, non-commercial	acres, each
Special use authorizations (LA)	Authorizations, modifications and extensions of special uses	acres, miles, each,

Species habitat improvements (HI)	Actions to maintain or improve habitat for wildlife and/or flora	acres
Species population enhancements (PE)	Actions that enhance species population viability	acres, each
Timber Sales (green) (NC)	Commercial timber sales of live trees	acres, ccf
Timber Sales (salvage) (SS)	Commercial timber sales of dead and dying trees	acres, ccf
Trail management (MT)	Actions that maintain or improve trail systems	miles
Travel management (TR)	Actions that manage the overall travel system	miles
Watershed improvements (WC)	Actions that maintain or improve watershed function	acres, miles
Wilderness (WD)	Actions to manage, restore or improve wilderness characteristics	acres
Wind (WI)	Actions that develop, maintain, or remove wind power infrastructure	acres

APPENDIX 3: REGRESSION MODEL RESULTS– ESTIMATED COEFFICIENTS FOR ACTIVITIES

* Results shown in bold are statistically significant

Activity	Coefficient	Lower CI bound	Upper CI bound	Estimated % change if present
CP.Plan.creation.revision...activity	0.679	0.437	0.921	97.2%
OL.Oil...activity	0.631	0.214	1.048	87.9%
PJ.Land.exchanges...activity	0.562	0.449	0.675	75.5%
AL.Land.use.adjustments...activity	0.456	0.340	0.571	57.7%
BL.Boundary.adjustments...activity	0.279	0.064	0.493	32.1%
MT.Trail.management...activity	0.205	0.164	0.246	22.7%
GR.Grazing.authorizations...activity	0.203	0.131	0.276	22.6%
TS.Timber.salves..green....activity	0.194	0.154	0.235	21.4%
WD.Wilderness.management...activity	0.172	0.057	0.287	18.8%
FN.Fuel.treatments...activity	0.163	0.129	0.198	17.7%
NW.Noxious.weed.treatments...activity	0.132	0.080	0.185	14.2%
MP.Plan.amendment...activity	0.128	0.047	0.208	13.6%
ML.Abandoned.mine.land.clean.up...activity	0.107	-0.006	0.221	11.3%
BM.Biomass...activity	0.103	-0.215	0.420	10.8%
RV.Rangeland.vegetation.improvements...activity	0.095	0.005	0.185	10.0%
ET.Electric.transmission...activity	0.077	-0.156	0.310	8.0%
HI.Species.habitat.improvements...activity	0.077	0.042	0.111	8.0%
SA.Special.area.management...activity	0.067	-0.019	0.152	6.9%
TR.Travel.management...activity	0.056	0.005	0.108	5.8%
WC.Watershed.improvements...activity	0.037	-0.001	0.075	3.8%
RC.Regulation.creation.modification...activity	0.013	-0.319	0.346	1.4%
RD.Road.maintenance...activity	0.003	-0.042	0.049	0.3%
EC.Environmental.compliance.actions...activity	0.000	-0.139	0.138	0.0%
SC.Scenery.management...activity	-0.007	-0.101	0.088	-0.7%
NC.Special.products.sales...activity	-0.013	-0.109	0.083	-1.3%
FV.Forest.vegetation.improvements...activity	-0.018	-0.052	0.016	-1.8%
GP.Grazing.allotment.management...activity	-0.019	-0.080	0.041	-1.9%
RI.Road.improvements.construction...activity	-0.025	-0.073	0.024	-2.4%
DR.Road.decommissioning...activity	-0.025	-0.080	0.030	-2.5%
PE.Species.population.enhancements...activity	-0.033	-0.105	0.039	-3.2%
MO.Minerals.or.geology.plans.of.operations...activity	-0.034	-0.080	0.011	-3.4%
DS.Developed.site.management...activity	-0.039	-0.090	0.012	-3.8%
LA.Special.use.authorizations...activity	-0.044	-0.072	-0.016	-4.3%

GA.Dispersed.recreation.management...activity	-0.045	-0.096	0.007	-4.4%
RA.Roadless.area.management...activity	-0.050	-0.199	0.098	-4.9%
SI.Grazing.structural.improvements...activity	-0.065	-0.137	0.007	-6.3%
MF.Facility.maintenance...activity	-0.108	-0.189	-0.027	-10.2%
NG.Natural.gas...activity	-0.130	-0.486	0.226	-12.2%
FI.Facility.improvements.construction...activity	-0.131	-0.191	-0.072	-12.3%
HR.Heritage.resource.management...activity	-0.161	-0.260	-0.062	-14.9%
SS.Timber.sales..salvage....activity	-0.259	-0.304	-0.214	-22.8%
RE.Research.and.development...activity	-0.368	-0.477	-0.260	-30.8%
OC.Order.creation.modification...activity	-0.453	-0.686	-0.220	-36.5%