



NEPA by the Numbers

New Insights on Environmental Reviews for Energy Infrastructure

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Definitions

- **Categorical exclusion (CE):** The lowest and least complicated level of NEPA review, used for categories of agency actions with a record demonstrating that the category does not normally significantly affect the environment; takes days or weeks for agencies to complete.
- **Environmental assessment (EA):** The middle level of NEPA review, used for agency actions that do not have a reasonably foreseeable significant effect on the quality of the human environment, or if the significance of such effect is unknown; agencies have a statutory limit of one year to complete.
- **Environmental impact statement (EIS):** The highest and most complicated level of NEPA review, used for agency actions that have a reasonably foreseeable significant effect on the quality of the human environment; agencies have a statutory limit of two years to complete an EIS, or three for agency actions of extraordinary complexity.
- **Programmatic review:** An EA or EIS that analyzes all or some of the environmental effects of a policy, program, plan, or group of related actions.
- **Tiered review:** A site- or project-specific EA or EIS that typically uses the programmatic review as a base of analysis.
- **Decarbonization technology:** Defined using the following metadata tags from Pacific Northwest National Laboratory's NEPATEC 2.0 dataset: carbon capture and sequestration, conventional energy production – nuclear, conventional energy production – other, electricity transmission, nuclear technology, renewable energy production, utilities. For more on how these technologies are categorized in this analysis, see the appendix.



Executive Summary

Clean Air Task Force (CATF) and data scientist Kasey Zapatka partnered to analyze the National Environmental Policy Act Text Corpus (NEPATEC) 2.0 dataset collated by the Pacific Northwest National Laboratory's PermitAI project,¹ the largest publicly available dataset of National Environmental Policy Act (NEPA) documents, including categorical exclusions, environmental assessments, and environmental impact statements. The NEPATEC 2.0 dataset standardizes and categorizes data across many of these documents for the first time, making them accessible for analysis. In this report, we investigate how NEPA functions across a range of federal actions involving energy infrastructure.

Given the historically limited amount of publicly available data on NEPA and its impact on project outcomes, our analysis of this new dataset sheds light on important trends in agency use of different types of NEPA documents and the initial effects of recent statutory reforms. This report summarizes our first phase of results from a planned series analyzing this new NEPA data corpus.

¹ Munikoti, S., Nally, D., Koneru, S., Das, S., Bhattacharjee, K., Islam, A., Buchko, A., Edwards, T., Nwe, K., Raskar, S., Rigor, S., Wan, H., Taylor, M., Spare, S., Lilienthal, D., Halappanavar, M., Acharya, A., Vega, T., Parker, M., Bernat, A., & Horawalavithana, S. (2025). *NEPATEC v2.0: Standardized Metadata and Text Corpus of National Environmental Policy Act Documents* [Data set]. Hugging Face. <https://huggingface.co/datasets/PNNL/NEPATEC2.0>; and Pacific Northwest National Laboratory. (n.d.). *PermitAI: Faster federal permitting using AI*. <https://www.pnnl.gov/projects/permitai>

Key Findings:

- **The overwhelming majority of energy-related federal actions – 91% – are categorically excluded from higher levels of NEPA review.** This finding applies across both fossil and decarbonization technologies (see the appendix for how those technologies were defined). Data also suggests that agencies most often limit environmental review of smaller-scale projects while scrutinizing the impacts of larger ones, reflecting the intention of NEPA: A closer look at solar-related federal actions shows solar projects with higher generation capacity (typically larger projects) are more likely to receive higher levels of scrutiny. In addition, solar-related EIS reviews are completed faster than those for decarbonization technologies overall.
- **For the remainder of decarbonization-related federal actions requiring more in-depth NEPA review, effective agency use of programmatic or tiered reviews can speed review times.** Programmatic and tiered reviews for decarbonization technologies remain rare (161 of 1,326 EAs and EISs, about 12%). However, data show that the median tiered EA is faster than a full EIS, and a tiered EIS is faster than standard and programmatic EISs. This is quantitative evidence that tiering reviews results in demonstrable time savings on the back end of the review process. The value of a tiered EA comes in avoiding the need for a full EIS, while tiered EISs successfully use the upfront work done in programmatic reviews to save time on later site-specific analyses. This analysis does not, however, include the upfront time spent preparing the programmatic review.
- **A multi-department network collaborates on decarbonization-related environmental reviews, with the Department of the Interior as the “hub” and the Departments of Defense and Energy as frequent and consequential partners.** Mapping of interagency coordination shows the Department of the Interior’s breadth of partnerships and shared ties in the environmental review process. Interior frequently collaborates with the Department of Defense, driven by partnership with the U.S. Army Corps of Engineers, and the Department of Energy. The two latter agencies also often serve as lead agencies.
- **It’s early, but permitting reforms on page limits, set in the Fiscal Responsibility Act of 2023 (FRA), are associated with real, but modest, reduction in page lengths for EISs involving energy technologies.** Post-FRA, most EAs (83%) are compliant with the 75-page limit; for EISs, though the majority are in compliance with the FRA, 35% still exceed 300 pages. Links between page length and quality of environmental review documents, as well as page lengths of supplemental materials such as appendices, were not analyzed in this work.
- **Data quality and completeness remain a structural limitation to comprehensive analysis.** The NEPATEC 2.0 dataset captures a large share of the federal NEPA universe for energy technologies, but it is not comprehensive and standardization of reporting requirements is lacking. Data availability remains limited for key agencies in energy-related environmental review processes, including the Army Corps of Engineers, the U.S. Forest Service, the Bureau of Ocean Energy Management, and the Federal Energy Regulatory Commission.

From this first phase of analysis, several data-driven recommendations that could strengthen and speed environmental reviews emerged:

- The federal government should invest in increased data management and transparency for NEPA reviews, including by publishing categorical exclusion determinations across all agencies to allow for broad-based crosscutting analysis.
- Programmatic and tiered reviews remain underutilized strategic tools that can speed project delivery without compromising environmental review integrity. Agencies should consider increasing their use as appropriate.
- A focus on strengthening coordination capabilities within and between the Department of the Interior, Department of Defense, and Department of Energy – agencies the data confirm as particularly critical across a range of energy-related reviews – can have outsized impact on improving review timelines. Mechanisms to enhance this coordination capacity should include targeted staff increases and improving retention of individuals with permitting expertise, development and effective implementation of memoranda of understanding, enhanced transparency in project review and project timelines (such as those enabled by the Permitting Council's Permitting Dashboard), leadership recognition of permitting as a top priority, and leverage of shared databases.
- Investments in more comprehensive federal metadata standards, document-linkage practices, and centralized submission requirements can improve the quality of downstream environmental review and permitting analyses. More specifically, data quality and analysis could benefit from standardizing reporting requirements across reviews and agency types, including by adding timeline data, standardizing file names, and standardizing section names across agencies. Existing efforts such as PermitAI, effective implementation of the Council on Environmental Quality's NEPA and Permitting Data and Technology Standard, and the proposed ePermit Act would all be valuable steps to improve data quality and subsequent research findings – and significant additional investments in federal data infrastructure are still needed.

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SECTION 1

Background

The National Environmental Policy Act (NEPA) is a foundational environmental law that has, for more than fifty years, ensured that federal agencies consider the environmental impacts of a proposed major federal action. NEPA requires federal agencies to consider the reasonably foreseeable environmental impacts of their activities, integrate those considerations into agency decision making, and enhance public transparency in the decision-making process.²

In recent years, NEPA has become a flashpoint in conversations around infrastructure deployment, with critics identifying the statute as a source of delays and proponents pointing to the important role it plays in improving environmental decision-making and promoting interagency coordination and public participation. At the same time, research shows that factors external to NEPA – including financing, agency staffing and coordination, and project-specific challenges (for

instance, supply chains and social license) – play important and overlooked roles in determining project timelines.³

Fundamentally, a lack of accessible NEPA data has prevented analysis of which components or aspects of the environmental review process drive delays—and, by extension, where organizational or operational changes would most help.

The NEPA Data Challenge

Historically, research to determine the role NEPA plays in infrastructure deployment has been hindered by federal agency data management practices: NEPA documents are scattered across numerous agency databases, often in machine-unreadable formats that lack basic metadata and other identifiers. As such, researchers have had to craft bespoke subsets of NEPA data⁴ from which to glean insights – a time-consuming task that has limited

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- ² The NEPA process is a mandatory decision-making process that requires federal agencies to consider the potential impacts of proposed “major federal actions” before committing resources. Major federal actions are those sufficiently subject to an agency’s control and responsibility; for clean energy infrastructure projects, when NEPA is triggered, it is often because a project is located on or crosses federal or Tribal trust land or receives federal grants or loans. For more on the NEPA process, see Clean Air Task Force. (2024). *The National Environmental Policy Act: A Stakeholder Engagement Fact Sheet*. <https://www.catf.us/resource/national-environmental-policy-act>
- ³ See, e.g., Pavia, N. (2024, August 1). Beyond NEPA: Understanding the complexities of slow infrastructure buildout. *Clean Air Task Force*. <https://www.catf.us/2024/08/beyond-nepa-understanding-complexities-slow-infrastructure-buildout>; Clean Air Task Force & Niskanen Center. (2024). *Evidence-Based Recommendations for Overcoming Barriers to Federal Transmission Permitting*. <https://www.catf.us/resource/evidence-based-recommendations-overcoming-barriers-federal-transmission-permitting>; Holm, F. (2024). Deconstructing a Myth. *Environmental Forum* 41(3). <https://www.eli.org/the-environmental-forum/deconstructing-myth>; and Clean Air Task Force & Environmental Defense Fund. (2025). *Beyond the Wires: Community Benefits from Transmission Projects*. <https://www.catf.us/resource/beyond-the-wires-community-benefits-from-transmission-projects>
- ⁴ E.g., Clean Air Task Force & Niskanen Center, *Evidence-Based Recommendations for Overcoming Barriers to Federal Transmission Permitting*; Fraas, A., Joiner, E., Lee, B., & Liu, K. (2025). *Taking Green Energy Projects to Court: NEPA Reviews and Court Challenges to Renewable Energy*. Resources for the Future. <https://www.rff.org/publications/reports/taking-green-energy-projects-to-court-nepa-review-and-court-challenges-to-renewable-energy>; Fraas, A., Joiner, E., Lee, B., & Liu, K. (2025). *How Long Does It Take? National Environmental Policy Act Timelines and Outcomes for Clean Energy Projects*. Resources for the Future. <https://www.rff.org/publications/reports/how-long-does-it-take-national-environmental-policy-act-timelines-and-outcomes-for-clean-energy-projects>; Stava, A., Thogmartin, W., Merideth, R., Bethard, S., Currim, F., Derbridge, J., Emerson, K., Laparra, E., Lien, A., McGovern, E., Pidot, J., Miller, M., Romero-Cardenas, K., Smith, B., Winnebald, C., & López-Hoffman, L. (2025). Quantifying the substantive influence of public comment on United States federal environmental decisions under NEPA. *Environmental Research Letters* 20(7). <https://doi.org/10.1088/1748-9326/addee5>; and Ruple, J., Tanana, M., & Williams, M. (2020). Does NEPA Help or Harm ESA Critical Habitat Designations? An Assessment of Over 600 Critical Habitat Rules. *Ecology Law Quarterly* 46(3). <https://doi.org/10.15779/Z38F76674S>

the information available about NEPA's effectiveness and paved the way for a national permitting reform conversation reliant on selective examples and anecdotes.

A Fresh Perspective on NEPA

The National Environmental Policy Act Text Corpus (NEPATEC) 2.0 dataset, developed as part of the Pacific Northwest National Laboratory's (PNNL) PermitAI project, allows us to add new, large-scale evidence to this conversation.⁵ PNNL has built and released a valuable dataset of environmental review documents containing millions of pages and billions of words in machine-readable JSON format. The dataset contains more than 120,000 NEPA documents from 60,000 reviews prepared by more than 60 different agencies. Of these, nearly 21,000 involve decarbonization technologies and nearly 11,000 involve fossil fuel technologies, which are the focus of this research. The bulk of the NEPATEC 2.0 dataset spans roughly 2000 through 2025, with a handful of project records as early as the 1980s; decarbonization-related reviews in particular span roughly 2010 through 2025, with a handful of projects recording dates from earlier in the 2000s.

To get to the facts on the ground about NEPA and its role in project outcomes, Clean Air Task Force (CATF), a non-profit organization dedicated to advancing the policy and technology changes necessary to achieve a zero-emissions, high-energy planet at an affordable cost, sought to review and garner insights from the NEPATEC 2.0 dataset. CATF partnered with Kasey Zapatka, a postdoctoral researcher and lecturer at the University of California, Berkeley, to analyze this data corpus and investigate how NEPA functions across a range of energy infrastructure projects. This work, part of an ongoing series, will inform policymakers, NEPA practitioners, and the public. **Key findings from our first phase of research are:**

- **The NEPA Process is Categorically Excluding Small-Scale Projects and Scrutinizing the Impacts of Larger Ones**
- **Effective Agency Implementation of Existing NEPA Options Can Speed Review Times**
- **It's Early, but Page Limits, Set in the Fiscal Responsibility Act of 2023, Are Associated with Real, but Modest, Reduction in Page Lengths**

⁵ Munikoti, S., Nally, D., Koneru, S., Das, S., Bhattacharjee, K., Islam, A., Buchko, A., Edwards, T., Nwe, K., Raskar, S., Rigor, S., Wan, H., Taylor, M., Spare, S., Lilienthal, D., Halappanavar, M., Acharya, A., Vega, T., Parker, M., Bernat, A., & Horawalavithana, S. (2025). *NEPATEC v2.0: Standardized Metadata and Text Corpus of National Environmental Policy Act Documents* [Data set]. Hugging Face. <https://huggingface.co/datasets/PNNL/NEPATEC2.0>; and Pacific Northwest National Laboratory, *PermitAI*

SECTION 2

The NEPA Process is Categorically Excluding Small-Scale Projects and Scrutinizing the Impacts of Larger Ones

The vast majority of energy-related federal actions do not require EAs or EISs.

Of the approximately 32,000 NEPA reviews involving all energy technologies in this dataset, including both fossil and decarbonization technologies, 91% are subject to CEs. This means reforms aimed only at accelerating EAs and EISs will affect a limited slice of energy-related federal actions, as most are already categorically excluded.^{6,7}

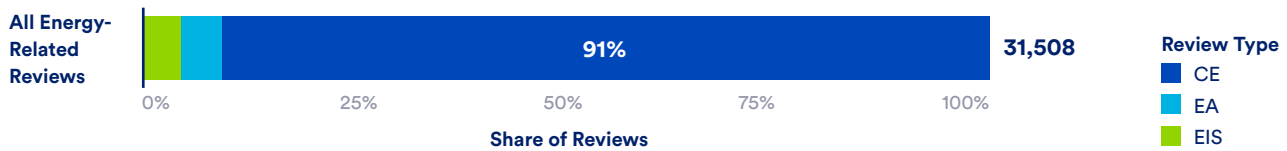
NEPATEC 2.0 contains the most complete set of reviews from the Department of Energy (DOE) and Bureau of Land Management (BLM, part of the Department of the Interior), two key agencies in environmental

review processes. The aforementioned trend persists for energy-related reviews at these agencies – the overwhelming majority of federal actions involving energy technologies are CEs. Although DOE and BLM datasets are not necessarily representative of every federal agency, this finding indicates that where the documentation in the dataset is complete, energy-related actions are overwhelmingly using the lowest-intensity level of NEPA review. It is worth noting, however, that not all projects are equally sized, and a small number of major projects can have an outsized impact. While the number of overall federal actions that use CEs is instructive, more analysis is needed to fully assess overall impacts.

⁶ It should be noted that high CE usage is not, in and of itself, a normative success; their integrity depends on applying the right tool to the right action. For more on CEs, see “caveats and considerations” below.

⁷ This finding is in line with previous research that has found that fewer than 5% of wind and solar projects constructed between 2010 and 2021 required an EIS under NEPA. Adelman, D. (2024). Permitting Reform’s False Choice. *Ecology Law Quarterly* 51(1). <https://doi.org/10.15779/Z388C9R562>

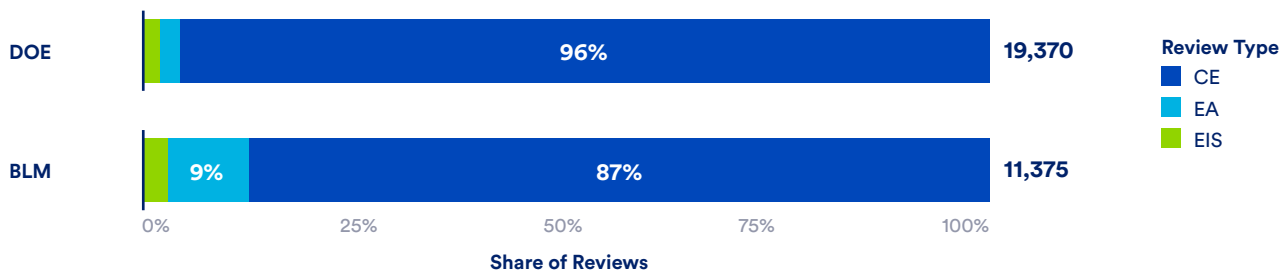
Figure 1: NEPA process composition (all energy-related reviews)



EIS reviews for solar energy projects are completed more quickly than EIS reviews for decarbonization projects as a whole, and level of review is correlated with the generation capacity of those projects.

While the vast majority of solar projects are sited on private land (around 95% of installed capacity⁸) and do not have a federal nexus requiring a NEPA decision, those that do are the subject of much debate and analysis.⁹

Figure 2: NEPA process type distribution for departments with complete CE, EA, and EIS coverage in NEPATEC 2.0: DOE (all offices) and BLM



Note: Restricted to energy-related federal actions; non-energy (“Other”) actions are excluded. DOE = lead department is the Department of Energy (includes Power Marketing Administrations, National Nuclear Security Administration, and other components); BLM = Bureau of Land Management is the lead agency.

⁸ Mai, T., Lopez, A., Marquis, M., Gleason, M., Hamilton, A., Trainor-Guitton, W., Ho, J., & Sharma, S. (2025). *Land of Opportunity: Potential for Renewable Energy on Federal Lands*. National Renewable Energy Laboratory. <https://docs.nrl.gov/docs/fy25osti/91848.pdf>

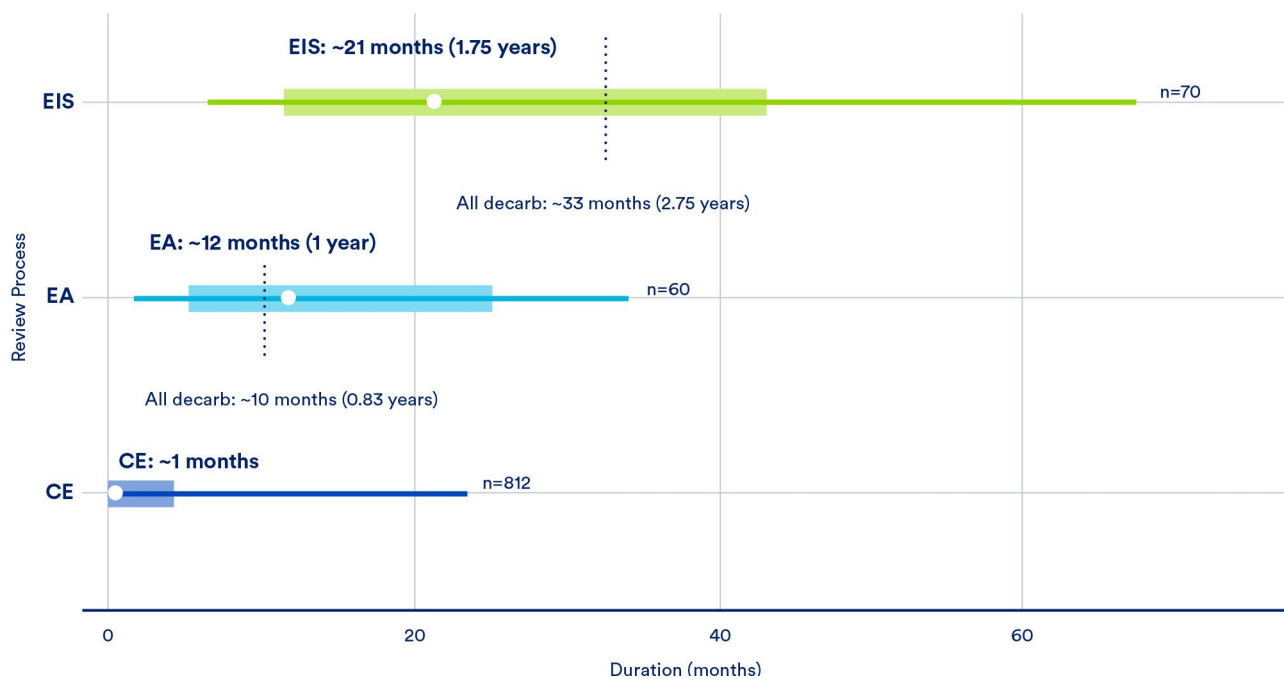
⁹ E.g., Fraas, A. (2024, March 12). Speeding Up Solar Projects: Siting Review under the National Environmental Policy Act. *Resources Magazine*. <https://www.resources.org/common-resources/speeding-up-solar-projects-siting-review-under-the-national-environmental-policy-act>

Our research found solar projects with EISs in the NEPATEC 2.0 dataset took a median 1.75 years (21 months) compared to 2.75 years (33 months) for EISs across all decarbonization projects. Solar EAs took slightly longer: a median 1 year (12 months) compared to 10 months for EAs across all decarbonization projects.¹⁰

Figure 3: Timeline from initiation to decision for reviews of solar actions

Thin bar spans the 10th to 90th percentile, thick bar shows the interquartile range (25th–75th), and the point marks the median; the dashed bar represents the median for decarbonization reviews as a whole. Timeline data extraction is incomplete due to missing data (such as initiation dates, decision dates, and linked records of decision).

NEPA EIS Reviews for Solar Projects Are Completed More Quickly Than for Decarbonization Projects as a Whole

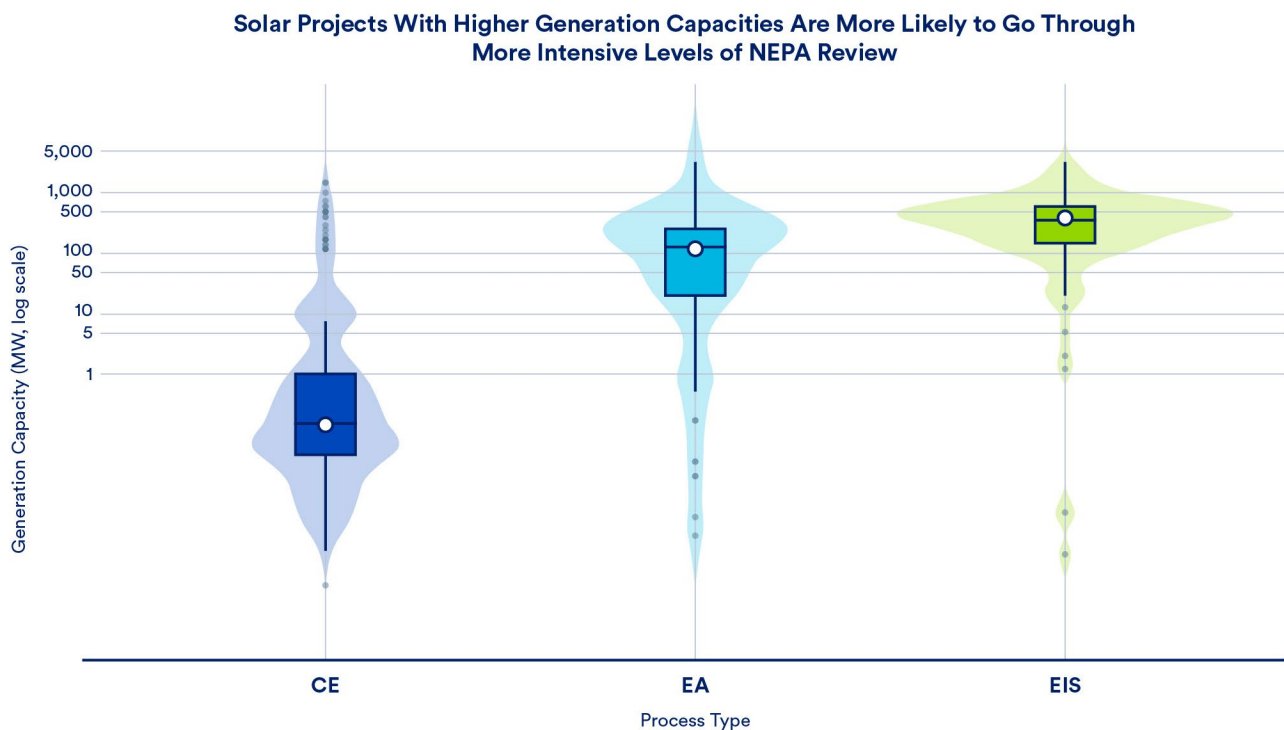


¹⁰ We intend to do additional research on timelines, including to better understand the impacts of different NEPA regulations and reforms in the FRA, in forthcoming additional work.

In addition, solar projects with a higher generation capacity – typically, larger projects – are more likely to go through more intensive levels of NEPA review. This is to be expected, since projects with larger footprints are more likely to have significant environmental impacts, and indicates that the NEPA process categorically excludes some small scale-projects or other solar-related actions (for instance, research and development funding for agrivoltaics) while more closely examining the impacts of large-scale projects (e.g., the 200 MW Arrow Canyon Solar Project in Nevada).

Figure 4: Distribution of extracted generation capacity for solar actions by process type (violin + boxplot, megawatt [MW] log scale)

CEs for projects with reported capacities above 500 MW reflect transmission approvals, minor modifications, and administrative actions where the capacity figure describes an associated facility, rather than for the solar project itself.



Note: Violin plots illustrate density, while boxplots illustrate median and interquartile range. The generation capacity (in megawatts) on the y-axis is logged for visual comparison.

Recommendation:

The federal government should invest in increased data management and transparency for NEPA reviews, including by publishing categorical exclusion determinations across all agencies to allow for broad-based crosscutting analysis.

SECTION 3

Effective Agency Implementation of Existing NEPA Options Can Speed Review Times

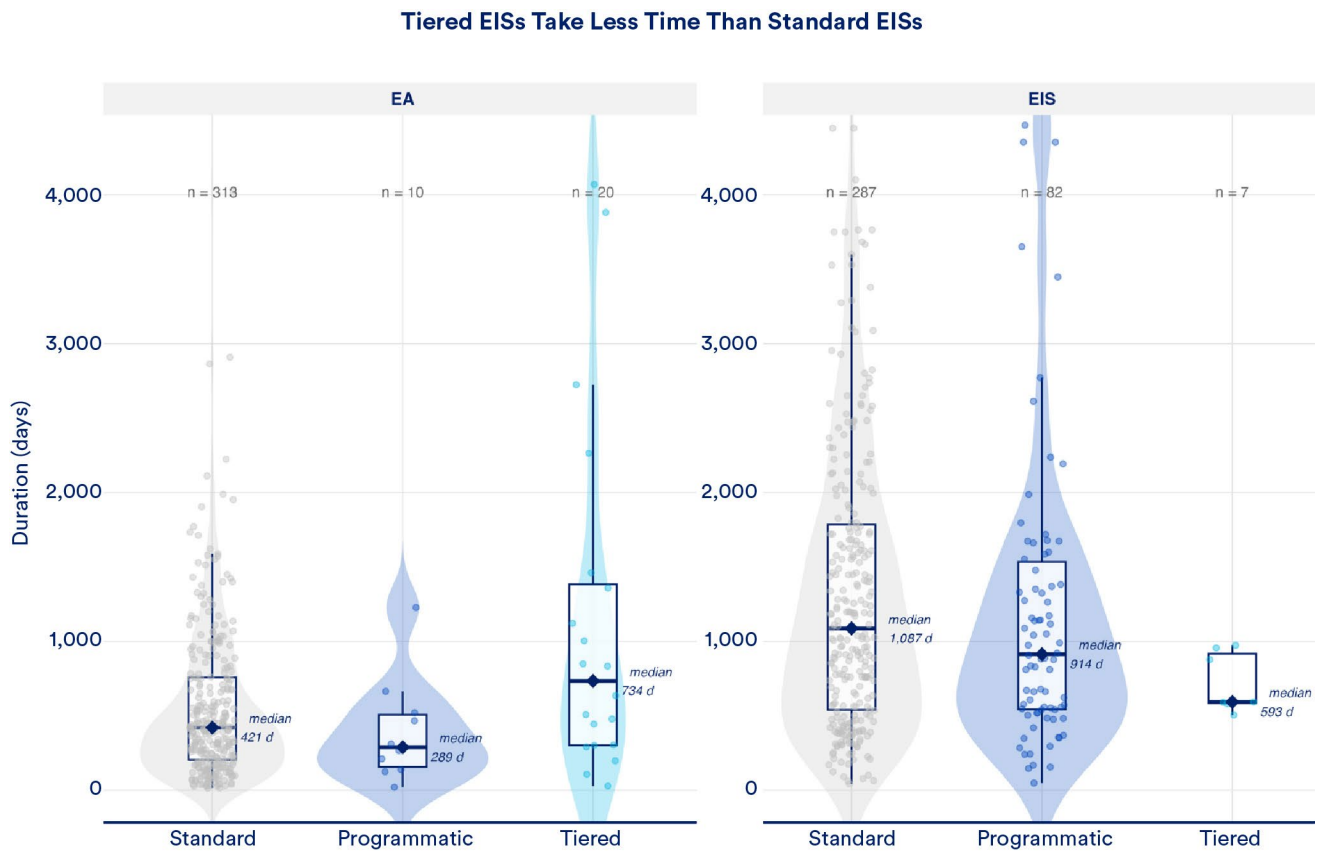
Programmatic and tiered reviews remain underutilized strategic tools that can speed project delivery without compromising environmental review integrity.

The evidence on programmatic and tiered reviews indicates that there are real efficiency gains from avoiding project-specific EISs for decarbonization-related reviews. However, the use of programmatic and tiered reviews for decarbonization technologies is rare: only 161 of 1,326 (12.1%) decarbonization EA and EIS reviews in the dataset were identified as programmatic or tiered, indicating that there are opportunities for agencies to increase their use, as appropriate.

Tiered EAs take longer than standard EAs (median of 734 versus 421 days) but have a substantially shorter timeline than a full EIS. This suggests the real efficiency gain from tiering occurs when it allows an agency to move a project that would have been assessed by an EIS to a tiered EA. Tiered EISs take less time (median of 593 days) than standard (1,087 days) and programmatic EISs (914 days), though distributions substantially overlap and sample sizes are small. This represents the first quantitative evidence, to our knowledge, that tiering reviews results in demonstrable time savings on the back end (though this analysis does not include the upfront time agencies spend initially preparing the programmatic review).

Figure 5: Review duration for decarbonization technologies by review type and NEPA process

Small sample sizes mean the results should be treated as directional, not definitive.



Note: Box = IQR; diamond = median; points = individual projects (jittered). Violin shown only for groups with $n \geq 10$. Y-axis capped at 97th percentile. Days from initiation to decision (reviews with complete timelines only).

Recommendation:

Programmatic and tiered reviews remain underutilized strategic tools that can speed project delivery without compromising environmental review integrity. Agencies should consider increasing their use as appropriate.

Interagency coordination could meaningfully impact efficiency

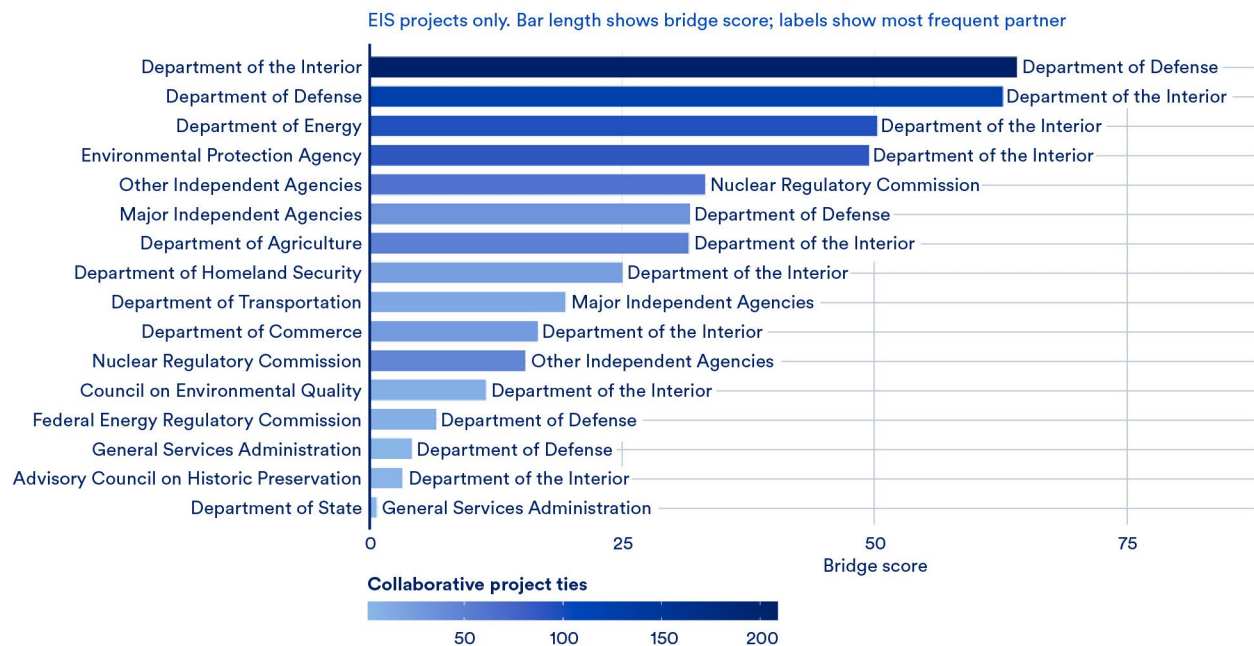
Previous CATF research on transmission permitting has demonstrated that insufficient support for agency coordination, cooperation, and capacity contributes to longer permitting timelines.¹¹ This research builds on that finding by mapping which agencies collaborate the most on NEPA reviews by creating a “bridge score,” a normalized measure of cross-department collaboration ties of lead and cooperating agencies for decarbonization-related EISs.

In our analysis of decarbonization-related EISs in this dataset,¹² we find that the Department of the Interior stands out as the clear hub of the multi-department

network, with a bridge score of 64.2 compared with 62.8 for the Department of Defense and 50.3 for the Department of Energy. The Department of the Interior’s central position reflects both the breadth of its partnerships – spanning 12 unique departments – and the sheer volume of shared ties. Interior’s strongest single partnership is with the Department of Defense, a relationship driven primarily by the U.S. Army Corps of Engineers, which routinely cooperates on federal actions affecting waterways or wetlands.¹³ The Department of Energy is a strong third, with its largest partnership also flowing to the Department of the Interior. Most of the other departments are more peripheral, connecting to fewer partners and typically anchored to the Departments of Interior, Defense, or Energy as their primary collaborator.

Figure 6: Federal departments ranked by bridge score for decarbonization-related EISs

The Department of the Interior is the dominant collaboration hub across the interagency network.



Note: Bridge score = unique partner departments x log(1 + total shared project ties).

¹¹ Clean Air Task Force & Niskanen Center, *Evidence-Based Recommendations for Overcoming Barriers to Federal Transmission Permitting*

¹² This analysis was based on cooperating agency language in EIS document text (found in about 30% of decarbonization EISs). EAs showed minimal cross-department collaboration (about 1.2% of documents) and CEs showed effectively none, so EAs and CEs were excluded.

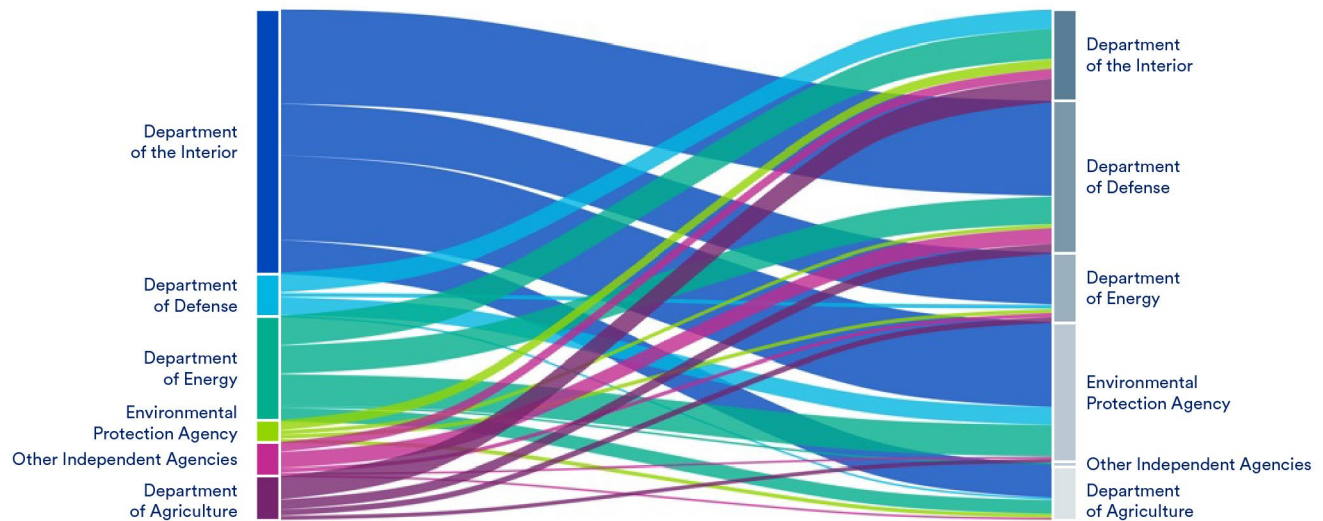
¹³ Of 104 projects where the Department of Defense was a lead or cooperating agency, 13 of them were Army Corps-only; 69 included both the Army Corps and another Department of Defense agency, such as the Air Force or Army; and 22 consisted of only a non-Army Corps entity.

The flow diagram below offers a complementary view of the same pattern. This figure is read from left to right: the department on the left shows to which departments on the right each review's lead agency collaboration flows. The Department of the Interior anchors the left side as the most common lead agency, with its largest flows directed to the Department of Defense, Environmental Protection Agency, and Department of Energy on the right. The Department of Energy also appears as a meaningful lead, with substantial flows to the Department of Defense and Environmental

Protection Agency and back to the Department of the Interior. The remaining departments – Agriculture, Defense, and the Environmental Protection Agency – appear on both sides, reflecting their roles as both lead and cooperating agencies across different reviews. Together, the figure reinforces the Department of the Interior's role as the essential intermediary in cross-agency decarbonization work, while highlighting that the Departments of Defense and Energy are its most consequential partners.

Figure 7: Cross-department flows for the top six departments by collaborative activity (decarbonization-related EISs only)

Flow width reflects the number of shared review ties.



Note: Top 6 departments by collaborative activity. EIS projects only. Showing top 6 of 16 departments by collaborative activity (minimum 52 shared project ties).

Recommendation:

A focus on strengthening coordination capabilities within and between the Department of the Interior, Department of Defense, and Department of Energy – agencies the data confirm as particularly critical across a range of energy-related reviews – can have outsized impact on improving review timelines.

Mechanisms to enhance this coordination capacity should include targeted staff increases and improving retention of individuals with permitting expertise, development and effective implementation of memoranda of understanding, enhanced transparency in project review and project timelines (such as those enabled by the Permitting Council's Permitting Dashboard), leadership recognition of permitting as a top priority, and leverage of shared databases.

SECTION 4

It's Early, but Page Limits, Set in the Fiscal Responsibility Act of 2023, Are Associated with Real, but Modest, Reduction in Page Lengths

The Fiscal Responsibility Act of 2023 (Public Law 118-5) introduced page limits for NEPA environmental reviews.¹⁴ Under the law, the main body text of EAs must be 75 pages or fewer and EISs must be either 150 pages or fewer, or, for proposals of “extraordinary complexity,” under 300 pages.¹⁵

There is considerable variation in average page length of documents over time for energy-related reviews. Figure 8 shows the three-month rolling average of EIS and EA page lengths (calculated before and after FRA

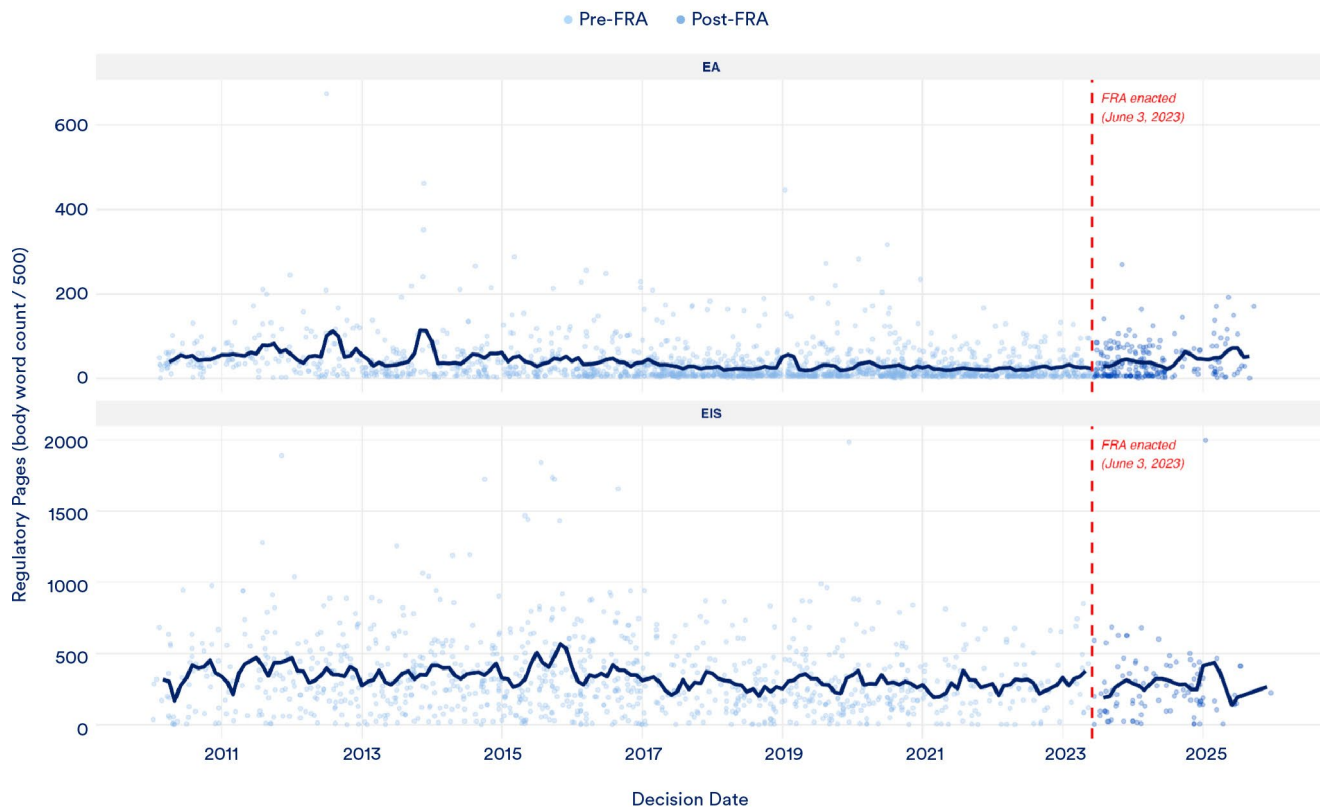
enactment), and Figure 9 shows changes in average and median document length, also before and after FRA enactment. We see a decline in average and median page length for EISs after the FRA's passage (mean 317 → 269 pages; median 260 → 212 pages), while EA length remained essentially flat, likely because EAs were generally already under the 75-page limit. However, since EAs and EISs can take years to finish, more time is needed to generate a large enough sample of energy-related reviews for a more comprehensive analysis.

¹⁴ Fiscal Responsibility Act of 2023, H.R.3746, 118th Cong. (2023), <https://www.congress.gov/bill/118th-congress/house-bill/3746>

¹⁵ Under since-rescinded regulations, CEQ defined a page as “containing 500 words and excludes citations, explanatory maps, diagrams, graphs, tables, and other means of graphically displaying quantitative or geospatial information.” 40 C.F.R. § 1508.1(bb) (rescinded Apr. 11, 2025). We therefore calculated a “regulatory page” as body word count ÷ 500, excluding embedded appendices and low-content pages. Because FRA page limits do not apply to supplemental materials, such as appendices, they are not examined in this analysis.

Figure 8: Regulatory page counts for individual EAs and EISs (all energy types) by decision date

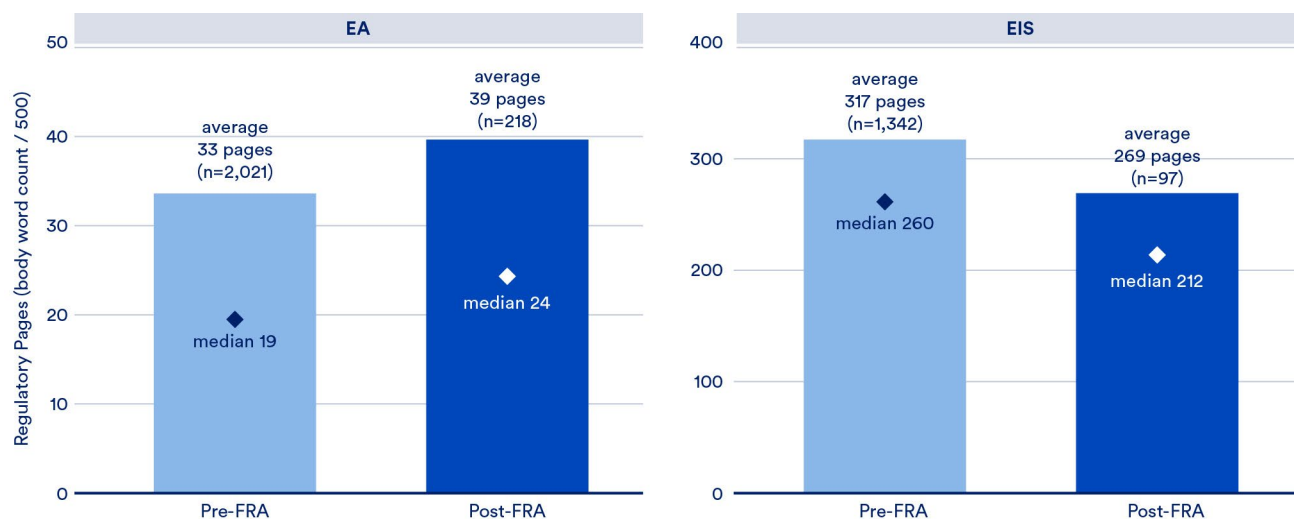
Navy line = three-month rolling mean, Red dashed line = FRA enactment (June 3, 2023).



Note: Decision-date inclusion. Regulatory pages exclude embedded appendices and low-content pages per 40 C.F.R. § 1508(bb)

Viewed another way, our analysis shows a real but modest shift in document length pre- and post-FRA for EISs (though this shift is correlational). Average and median regulatory page counts mostly decline after the FRA was enacted, which is consistent with agencies responding to the new statutory limits.

Figure 9: Mean regulatory pages for all energy-related EAs and EISs, before and after FRA enactment

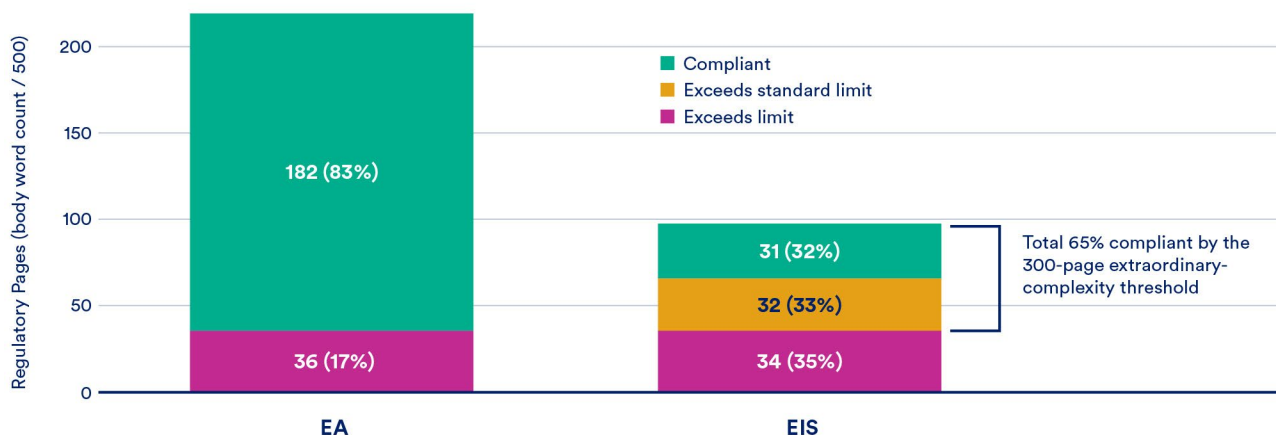


Ultimately, it's likely that instituting page limits reduced document length for EISs, but the evidence is not definitive: Figure 10 shows 83% of post-FRA energy-related EAs are compliant with the 75-page limit, and only 65% of EISs are compliant with the "extraordinary complexity" 300-page limit (32% fall within the normal 150-page limit and another 33% fall within the 300-

page limit). The practical conclusion is that the FRA has changed incentives, but not yet produced consistent compliance. A fuller assessment will require the completion of more EAs and EISs from actions initiated after June 3, 2023. In addition, the FRA set timelines for reviews as well as page limits, which we intend to investigate more fully in future work.

Figure 10: FRA page-limit compliance among post-FRA energy-related reviews (regulatory pages)

EA limit = 75; EIS limit = 150 (300 if extraordinarily complex). The bracket marks the EIS share within the 300-page extraordinary-complexity threshold.



SECTION 5

Caveats and Considerations

Several considerations should remain front-of-mind when translating these findings into policy recommendations.

Data quality and completeness remain a structural limitation.

- NEPATEC 2.0 assembles documents from multiple sources: EISs are drawn from the Environmental Protection Agency's governmentwide EIS database¹⁶ and are broadly comprehensive since 2012, but EAs and CEs are substantially complete only for DOE and BLM. This means the dataset captures a large share of the federal energy NEPA universe, but not all of it – for example, coverage is thin for key agencies like the Army Corps of Engineers (which is involved for actions involving covered waterways and wetlands), the U.S. Forest Service (for actions on lands it manages), the Bureau of Ocean Energy Management (for actions on the outer continental shelf), and the Federal Energy Regulatory Commission (for, among others, natural gas pipelines, hydropower licenses, and LNG exports).
- While PNNL's metadata enrichment methods demonstrate strong technical validation ($\geq 90\%$ accuracy across targeted metadata attributes), the inherent "fuzziness" of natural language processing techniques necessary to create these data allow for some degree of inherent measurement error that will, to some extent, impact the accuracy of any research findings.¹⁷
- Better federal metadata standards, document-linkage practices, and centralized submission requirements would improve nearly every downstream permitting analysis.¹⁸ One invaluable data point would be consistent, easily extractable project timeline data. In its current form, all timeline data were extracted directly from document text: this is an inefficient and unwieldy process that is difficult to validate. Future iterations of the NEPATEC dataset would benefit greatly from including this as metadata.
- Currently, section headers across review types and agencies are unstandardized. For example, when investigating and describing visual impacts, BLM labels the relevant section "Visual Resources," DOE and the Nuclear Regulatory Commission refer to these impacts as "Aesthetics," the U.S. Forest Service uses "Scenic Resources," and elsewhere these impacts are discussed under "Viewshed" or "Scenic Quality" headers. Standardizing these headers would dramatically ease future analysis as researchers could search for key data reliably across every environmental review document.
- Existing efforts such as PermitAI, CEQ's NEPA and Permitting Data and Technology Standard, and the proposed ePermit Act move in the right direction, but they do not yet solve the broader fragmentation problem – and significant additional investments in federal data infrastructure are still needed.

¹⁶ Environmental Protection Agency. (n.d.). *Environmental Impact Statement (EIS) Database* [Data set]. <https://cdxapps.epa.gov/cdx-enepa-ll/public/action/eis/search>

¹⁷ For more on PNNL's metadata extraction and verification methodologies, see Munikoti et al., *NEPATEC v2.0: Standardized Metadata and Text Corpus of National Environmental Policy Act Documents*

¹⁸ The Council on Environmental Quality's NEPA and Permitting Data and Technology Standard, which outlines a recommended approach for agencies to use to structure system architecture and data in their software systems for managing environmental review processes, would go a long way toward improving analysis capabilities if fully implemented by federal agencies. Council on Environmental Quality. (2025). *NEPA and Permitting Data and Technology Standard*. <https://permitting.innovation.gov/resources/data-standard>

High CE usage is not automatically a normative success – using CEs solely to move projects through NEPA faster, rather than because they genuinely qualify, warrants scrutiny.

- CEs are a legitimate tool when applied within appropriate bounds: they are designed for categories of actions with a record demonstrating that the category normally does not significantly affect the environment. Their integrity depends on applying the right tool to the right action. When CEs are used primarily to accelerate timelines rather than because an action clearly qualifies for an established exclusion, the integrity of the process is undermined. The goal of NEPA reform should not solely be faster approvals, but more efficient reviews that ensure each project or action receives the appropriate level of scrutiny and timely action to ensure that federal actions comply with relevant statutes and that reasonable alternatives are considered. A CE that shortens a timeline by bypassing warranted analysis trades short-term speed for downstream litigation risk and larger-than-expected environmental impacts. These concerns are not directly observable in NEPATEC 2.0 – the dataset captures the formal record, not the quality of the underlying analysis. A count of CEs is not the same as an assessment of the quality of a CE determination.
- In addition, not all CEs actually result in or relate to project deployment. Instead, many are for administrative tasks, funding for research projects, and other small-scale actions. These distinctions are not captured in this research.

Faster timelines are not the only policy goal, and optimizing only for speed can come at the cost of quality and legal durability.

- High-quality reviews that maintain environmental and community safeguards and foster public participation and community acceptance matter alongside speed. Recently, federal agencies have reduced their requirements for receiving and acting upon public and Tribal input, fostering interagency coordination, using rigorous scientific analyses, considering impacts, and developing and applying categorical exclusions in the name of faster reviews.¹⁹ These actions risk trading short-term speed for downstream litigation risk (and broader social rejection of energy and infrastructure projects) and larger-than-expected environmental impacts – the opposite of what well-designed environmental review policies should produce.

Some important questions remain outside of the scope of work for this first phase of NEPA research.

- For example, the present work does not directly test whether NEPA was the specific cause of project delays, identify the main triggers of NEPA review, evaluate other reforms in the FRA such as compliance with statutory timelines and CE adoption, or compare aspects of NEPA reviews between decarbonization technologies and fossil fuel technologies. We plan to examine these and other questions in forthcoming additional analysis.

¹⁹ Pavia, N., & Sturges, F. (2025, March 27). Dismantling environmental review rules creates new obstacles to infrastructure deployment. *Clean Air Task Force*. <https://www.catf.us/2025/03/dismantling-environmental-review-rules-creates-new-obstacles-to-infrastructure-deployment>; Landau, K. (2025, August 20). Rolling back NEPA puts clean energy progress – and public trust – at risk. *Clean Air Task Force*. <https://www.catf.us/2025/08/rolling-back-nepa-puts-clean-energy-progress-and-public-trust-at-risk>

APPENDIX

Scope of Analysis

While reviews often have multiple tags,²⁰ a “decarbonization technology” action is identified as having at least one decarbonization technology tag *and* no fossil fuel tags.

Table 1: Federal action type tags from PNNL’s metadata used to classify decarbonization technologies vs. fossil energy

Number of reviews in the dataset noted in parentheses.

Decarbonization Technology Tags	Fossil Energy Tags
Carbon Capture and Sequestration (1,327)	Conventional Energy Production – Coal (732)
Conventional Energy Production – Nuclear (301)	Conventional Energy Production – Land-based Oil & Gas (8,664)
Conventional Energy Production – Other (935)	Conventional Energy Production – Offshore Oil and Gas (222)
Electricity Transmission (7,967)	Conventional Energy Production – Rural Energy (157)
Nuclear Technology (1,314)	Pipelines (5,324)
Renewable Energy Production ¹ (8,798)	
Utilities (electricity, gas, telecommunications) (10,157)	

¹ Includes Biomass, Energy Storage, Geothermal, Hydrokinetic, Hydropower, Solar, Wind (Offshore & Onshore), and Other.

²⁰ As a result, the total count by technology type will always be greater than the total count by energy type, because multi-tag technology reviews appear in more than one technology category.

Decarbonization technology actions comprise roughly 34% of all reviews in the dataset, while fossil fuel-related reviews represent just over 17%, and other (non-energy) reviews make up 49% of the total.

Three additional refinements were applied to improve the precision of the “decarbonization technology” classification:

- **Utilities + non-energy:** 1,623 actions tagged *ONLY* as Utilities *AND* with 1 or more of the following non-energy tags (e.g., broadband, waste management, land development) were excluded, since these likely reflect non-energy utilities (e.g., telecommunications) and utility-adjacent infrastructure rather than energy generation.
- **Military and Defense + Nuclear:** 481 actions tagged as “Nuclear Technology” and “Military and Defense” were excluded from the decarbonization technology category, since they likely involve weapons-related nuclear activities rather than nuclear energy production.

- **Nuclear + Waste Management:** There are approximately **4,000 Nuclear Waste** actions in the dataset (those tagged with “Waste Management” *AND* (“Nuclear Technology” *OR* “Conventional Energy Production – Nuclear”)). We excluded all actions led by DOE’s National Nuclear Security Administration, Office of Environmental Management, and Office of Legacy Management, along with their associated field offices, as those focus on waste management rather than energy generation. This reduced the dataset to approximately **1,588 actions**. Of those actions, CATF staff manually identified only **34** actions that were relevant to this analysis.

After these refinements were applied, the breakdown of reviews in our analysis was:

Figure 11: NEPA Reviews by Energy Type

