

# Permitting Reform's False Choice

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*Combatting climate change will involve a monumental effort to build new low- and zero-carbon infrastructure. Over the past few years, concern has reached a boiling point that environmental laws, such as the National Environmental Policy Act, are impeding climate action. Ezra Klein of the New York Times has argued, for example, that environmental laws are “too often, powerful allies of an intolerable status quo . . . making it almost impossible to build green infrastructure at the speed we need.” The resulting calls for “permitting reform” presume we must sacrifice the protections and procedures of federal environmental laws to facilitate decarbonization of the energy and other sectors.*

*This Article presents the first national study of federal permitting and environmental reviews for energy infrastructure constructed between 2010 and 2021. The analysis reveals that most projects were subject to streamlined administrative procedures or avoided federal regulation altogether. Less than 5 percent of wind and solar projects required a comprehensive environmental review or project-specific permit. Similarly, the number of federal environmental cases challenging new projects was remarkably low—only twenty-eight cases involved wind projects, eight solar, and fourteen transmission lines over this twelve-year period.*

*One might still worry that federal agencies will become overwhelmed as decarbonization efforts accelerate. This is unlikely, however, because the relevant agencies already use streamlined procedures and process thousands of environmental reviews and permits each year. Even accounting for the projected growth in the deployment of renewables, the total volume of applications is unlikely to become unworkable. The Article concludes that neither placing broad limits on citizen suits nor weakening the procedures and protections of federal environmental laws is necessary to meet the needs of the climate crisis. Instead, reformers should target the problem areas highlighted in this study, such as better inter-agency coordination and increased resources and personnel for processing permits and environmental reviews.*

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## INTRODUCTION

Combating climate change will entail a monumental effort by any measure. Within the electric utility sector, which will be the centerpiece of decarbonization efforts in the United States, the necessary scale and speed for deploying new renewable generation will be unprecedented. Economic models predict that this energy transition will require constructing more generation each year than we have built annually in all but one or two years since 1960.<sup>1</sup> Further, to support the immense growth in generation, the transmission capacity of the grid will need to double or triple in size.<sup>2</sup> And the utility sector is just one part of the larger economy that must undergo a radical transformation in a relatively short timeframe.

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1. John Bilstine, *et al.*, *Actions for Reducing US Emissions at Least 50% by 2030*, 376 SCIENCE 922, 923 (2022).

2. See Eric Larson, NET-ZERO AMERICA: POTENTIAL PATHWAYS, INFRASTRUCTURE, AND IMPACTS 112 (2021); James H. Williams, *et al.*, *Carbon-Neutral Pathways for the United States*, 2 AGU ADVANCES 1, 3-4, 13 (2021) (projecting that generation on the grid must quadruple by 2050 and that transmission must increase 2.5-times).

This sense of urgency has prompted many commentators to raise concerns about potential roadblocks to the energy transition and decarbonization efforts generally. Over the past few years, increasing attention has gravitated toward obstacles associated with environmental reviews under the National Environmental Policy Act (NEPA),<sup>3</sup> and permitting under a variety of natural resource statutes, most notably the Endangered Species Act (ESA) and the Clean Water Act (CWA).<sup>4</sup> For example, a recent article in *The Atlantic* titled *Community Input is Bad, Actually* made the following claims: “Not only do community groups block explicitly green developments; they have weaponized environmental regulations in their quest to do so. A frequent player in these fights is [NEPA], which requires the federal government to investigate the environmental costs of its projects . . . .”<sup>5</sup>

Similarly, an article in *Vox* last year warned that the Inflation Reduction Act, which contains pathbreaking climate change policies,<sup>6</sup> will be hard-pressed to accomplish its stated goals—and that’s thanks primarily to [NEPA] . . . . But while NEPA has served a valuable purpose over the decades, it is in tension with the objective of building out a clean-energy infrastructure. Now,

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3. See Colin Mortimer, *Manchin’s Permitting Reform Effort is Dead. Biden’s Climate Agenda Could Be a Casualty*, VOX, <https://www.vox.com/policy-and-politics/2022/12/12/23500140/permitting-reform-inflation-reduction-act-congress-manchin> (last updated Dec. 16, 2022) (claiming that “[t]he issue, rather, is that through NEPA’s lens, all projects are viewed as potentially having a negative impact on the environment.”); Eli Dourado, *Why Are We So Slow Today? Five Amazing Facts About Environmental Review*, CTR. FOR GROWTH & OPPORTUNITY (Mar. 12, 2002), <https://www.thecgo.org/benchmark/why-are-we-so-slow-today/> (“Why do we seem incapable today of the same sort of urgent action? The answer is surely complex, but at least part of the answer is environmental review.”).

4. David Blackmon, *Manchin’s Permitting Side Deal Highlights The Energy Transition’s Central Conundrum*, FORBES (Aug. 22, 2022), <https://www.forbes.com/sites/davidblackmon/2022/08/22/manchins-permitting-side-deal-highlights-the-energy-transitions-central-conundrum/?sh=2d3650007e05> (arguing that “it has become increasingly difficult to build anything big in the U.S., and that it is mainly because anything big is inevitably going to result in impacts to air, water, land, viewsheds and migratory, threatened or endangered species”); see also James W. Coleman, *Pipelines & Power-Lines: Building the Energy Transport*, 80 OHIO ST. L.J. 263, 279–80 (2019) (describing the opposition to oil and gas pipelines and its impact on the energy sector); ASPEN INSTITUTE, BUILDING CLEANER, FASTER 1 (Spring 2021) (discussing “the challenges of delay, uncertainty, and cost of our current environmental review and permitting system that threaten the build out of decarbonization infrastructure”); Benoît Morenne, *Energy Projects Sought Across the U.S. Face Local Hurdles*, WALL STREET J. (Aug. 20, 2022), <https://www.wsj.com/amp/articles/energy-projects-needed-across-the-u-s-face-local-hurdles-11660968040> (asserting that in “[c]ommunities near the projects, environmental groups and others frequently oppose the projects and challenge them in court. The result is that projects are often delayed and costs are elevated . . . .”).

5. Jerusalem Demsas, *Community Input Is Bad, Actually*, THE ATLANTIC (Apr. 22, 2022); see also *The Ezra Klein Show: Transcript: Ezra Klein Interviews Nicholas Bagley*, N.Y. TIMES (Feb. 7, 2023), <https://www.nytimes.com/2023/02/07/opinion/ezra-klein-podcast-nicholas-bagley.html> (observing that “you really do have environmental bills being weaponized constantly against pro-environment legislation.”); Wally Nowinski, *America’s Top Environmental Groups Have Lost the Plot on Climate Change*, NOAHPINION (Jan. 15, 2022), <https://noahpinion.substack.com/p/americas-top-environmental-groups?s=r>. (“Unfortunately, I think we should expect the trend of [the big environmental] organizations opposing clean energy projects to continue, at least in the short term. Because of their brand power, that opposition will carry a lot of weight, and it will likely be weaponized by conservatives and others . . . .”).

6. See Shannon Osaka, *Why the Defeat of Manchin’s Energy Bill could Be a Loss for the Climate*, WASH. POST (Sept. 28, 2022) (observing that the IRA could cut U.S. emissions 40 percent by 2030, compared to 2005 levels, but only if grid transmission capacity increases by 2.3 percent per year).

in the face of the climate crisis, a broad coalition across the political spectrum is questioning whether it is time to reform the law.<sup>7</sup>

Environmental laws are viewed not as vehicles for change but instead as major obstacles to it. Ezra Klein of the New York Times has argued that environmental laws are “too often, powerful allies of an intolerable status quo . . . making it almost impossible to build green infrastructure at the speed we need.”<sup>8</sup> According to a recent commentary in *Forbes*, the question has become “[d]o we lessen environmental protections to save the environment? Whether they like it or not, it’s a conundrum all governments pushing this transition will ultimately have to resolve.”<sup>9</sup>

Prominent members of Congress have embraced the calls for permitting reform. Senator Joe Manchin has led the legislative efforts, most recently with the “Building American Energy Security Act of 2023.”<sup>10</sup> He has argued that “[i]t takes longer to do anything here. We’ve got people talking about trying to get permits for 16 years.”<sup>11</sup> This is a sentiment President Biden supports: “Today, far too many projects face delays—keeping us from generating critical, cost-saving energy needed by families and businesses across America.”<sup>12</sup> While Manchin’s bill is still pending, several NEPA “streamlining” reforms were incorporated into the legislation that raised the debt limit in June 2023, and interest in permitting reform remains high in Congress.<sup>13</sup>

It is important to recognize how the history of environmental activism informs the debate over permitting reform. Many of the most celebrated environmental victories involved filing high-impact lawsuits to delay or stop the construction or operation of major facilities, infrastructure, or extractive

7. Mortimer, *supra* note 3.

8. Ezra Klein, *Government Is Flailing, in Part Because Liberals Hobbled It*, N.Y. TIMES (Mar. 13, 2022), <https://www.nytimes.com/2022/03/13/opinion/berkeley-enrollment-climate-crisis.html> [hereinafter Klein, *Government is Flailing*]; see Ezra Klein, *What America Needs Is a Liberalism that Builds*, N.Y. TIMES (May 29, 2022), <https://www.nytimes.com/2022/05/29/opinion/biden-liberalism-infrastructure-building.html>.

9. Blackmon, *supra* note 4; see also Michael G. Gerrard, *A Time for Triage*, 39 ENVTL. F. 38, 40 (2022) [hereinafter: Gerrard, *Time for Triage*] (arguing that “[r]ather than climate denial, the environmental community has tradeoff denial. We don’t recognize that it’s too late to preserve everything we consider precious . . .”); Michael B. Gerrard, *Legal Pathways for a Massive Increase in Utility-Scale Renewable Generation Capacity*, 47 ENVTL. L. REP. 10,591, 10,603-13 (2017) (describing legal challenges and obstacles for renewables); Nicholas Bagley, *The Procedural Fetish*, 118 MICH. L. REV. 345, 346-47 (2019).

10. *Manchin Moves Ball Forward on Permitting Reform*, SENATE COMM. ON ENERGY & NATURAL RES. (May 2, 2023), <https://www.energy.senate.gov/2023/5/manchin-moves-ball-forward-on-permitting-reform>.

11. Manchin Statement on Permitting Reform Vote, SENATE COMM. ON ENERGY & NATURAL RES. (Dec. 15, 2022), <https://www.energy.senate.gov/2022/12/manchin-statement-on-permitting-reform-vote>.

12. *Statement from President Joe Biden on Senator Joe Manchin’s Permitting Reform Proposal*, THE WHITE HOUSE (Dec. 15, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/12/15/statement-from-president-joe-biden-on-senator-joe-manchins-permitting-reform-proposal>.

13. See Kelsey Brugger, *Permitting Talks to Resume as Congress Returns*, E&E DAILY (July 10, 2023), <https://www.eenews.net/articles/permitting-talks-to-resume-as-congress-returns>; RAYAN SUD, SANJAY PATNAIL & ROBERT GLICKSMAN, *HOW TO REFORM FEDERAL PERMITTING TO ACCELERATE CLEAN ENERGY INFRASTRUCTURE 4-5* (Brookings Inst., Feb. 2023), [https://www.brookings.edu/wp-content/uploads/2023/02/20230213\\_CRM\\_Patnaik\\_Permitting\\_FINAL.pdf](https://www.brookings.edu/wp-content/uploads/2023/02/20230213_CRM_Patnaik_Permitting_FINAL.pdf).

activities.<sup>14</sup> This legal strategy dates back to the beginning of the modern environmental movement, including the famous “snail darter” case against the Tellico Dam in Tennessee.<sup>15</sup> In the 1980s and ‘90s, landmark litigation over protecting the Spotted Owl was instrumental in shutting down logging and preserving old-growth forests in the Pacific Northwest.<sup>16</sup> More recently, environmentalists have targeted fossil-fuel infrastructure. Examples include the Sierra Club’s Beyond Coal campaign to force closure of coal-fired power plants, lawsuits to prevent construction of natural gas pipelines in the Northeast, and the high-profile litigation over the Keystone oil pipeline.<sup>17</sup> A central concern among proponents of permitting reform is that environmentalists and other project opponents will use similar litigation tactics against essential green infrastructure.<sup>18</sup>

Their fears are not merely speculative, as several examples exist of environmental litigation opposing green projects. Lawsuits over two lithium mines in Nevada (batteries in electric vehicles and grid storage rely on lithium) are prominent cases currently.<sup>19</sup> The most notorious example, and the most frequently cited, is the sixteen-year legal battle over the failed Cape Wind offshore wind farm in Massachusetts.<sup>20</sup> Critics have characterized the opponents’ strategy as “delay, delay, delay” and claimed that it is “not unique.”<sup>21</sup> This view, however, neglects the distinctive aspects of Cape Wind: the wealth and power of the project’s opponents; its location in federal waters, which triggered federal regulations; and the technical challenges of being a first-of-a-

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14. Klein, *Government Is Flailing*, *supra* note 8 (using the history of environmental activism to argue that there is “an entire branch of liberalism . . . dedicated to criticizing and then suing and restraining government.”).

15. Zygmunt J. B. Plater, *Endangered Species Act Lessons over 30 Years, and the Legacy of the Snail Darter, a Small Fish in a Pork Barrel*, 34 ENVTL. L. 289, 293-94 (2004) (describing the snail darter case as an “extraordinary legal marker [] in the development of . . . environmental law”).

16. William H. Rodgers, Jr., *The Most Creative Moments in the History of Environmental Law: “The Whats”*, 2000 U. ILL. L. REV. 1, 21-22 (2000) (quoting the lead attorney’s characterization of the case as “unprecedented in its geographic scope, diversity of legal theories, political controversy, and effective ecological impact”).

17. Coleman, *supra* note 4, at 279–80 (describing the litigation against gas and oil pipelines under several environmental laws); Michael Grunwald, *Inside the War on Coal*, POLITICO (May 26, 2015), <https://www.politico.com/agenda/story/2015/05/inside-war-on-coal-000002/> (describing the Sierra Club’s litigation campaign, which was largely funded by Michael Bloomberg).

18. J.B. Ruhl & James Salzman, *What Happens When the Green New Deal Meets the Old Green Laws?*, 44 VT. L. REV. 693, 694 (2020) (warning that just as “‘brown’ infrastructure . . . has met stiff opposition from [groups that] have used environmental protection laws to contest permits and litigate over project siting approvals and environmental compliance . . . [t]he same will be true for the ‘make America green at last’ agenda.”).

19. Alana Semuels, *Is Your Electric Car Worth the Extinction of a Species?*, TIME (Apr. 27, 2023), <https://time.com/6274915/lithium-mining-us-tiehms-buckwheat/>; Scott Sonner, *9th Circuit Denies Bid by Environmentalists and Tribes to Block Nevada Lithium Mine*, AP NEWS (July 17, 2023), <https://apnews.com/article/nevada-thacker-pass-lithium-mine-4ad772a6940eb8edd507b50a179202f2>.

20. See, e.g., Mortimer, *supra* note 3; Klein, *Government is Flailing*, *supra* note 8; J.B. Ruhl & James Salzman, *The Greens’ Dilemma: Building Tomorrow’s Climate Infrastructure Today*, 73 EMORY L.J. 1, 35-36 (2023) [hereinafter Ruhl & Salzman, *The Greens’ Dilemma*].

21. Mortimer, *supra* note 3.

kind project.<sup>22</sup> Together, these attributes make Cape Wind about as representative of most projects as the opposing communities, which include Nantucket and Martha's Vineyard, are of the country. Yet commentators routinely cite it and other anecdotal evidence as broadly reflecting the legal obstacles standing in the way of timely and effective responses to climate change.

This Article critically examines the case for permitting reform, focusing on the two distinct sources of concern motivating it: (1) the negative impacts of federal permitting and environmental reviews on project development (i.e., administrative delays, costs, and restrictions); and (2) the potential for lawsuits under federal environmental laws to derail the deployment of green infrastructure. This Article's central objective is to move beyond the prevailing anecdotal evidence by providing representative data that illuminate how federal permitting and environmental reviews are conducted. This clarifies the circumstances in which litigation under federal environmental laws has the potential to be a significant obstacle to green development.

The analysis that follows is based on the first national study of federal permits and environmental reviews for new energy infrastructure. The datasets cover utility-scale wind and solar projects and—to a lesser extent, given data limits—transmission lines constructed between 2010 and 2021.<sup>23</sup> During this period, solar generating capacity grew by almost 270 times, and wind capacity rose by a factor of three; in terms of discrete projects, developers built roughly 1,132 solar and 751 wind projects. These figures provide the context for renewable development against which this Article assesses trends in federal permitting, environmental reviews, and litigation.

The national data reveal that most projects were subject to streamlined procedures or avoided federal regulation altogether. Less than 5 percent of wind and solar projects constructed between 2010 and 2021 required a comprehensive environment review under NEPA or a project-specific permit under the CWA or ESA; importantly, these statutes cover the most commonly applicable environmental regulations. Similarly, although tracking of transmission lines is incomplete (precluding derivation of percentages), the absolute numbers of environmental reviews and permits were comparable to those for wind and solar projects. Litigation in federal courts mirrors these results, with twenty-one wind projects challenged in twenty-eight separate cases, eight solar projects in fourteen cases, and only fourteen cases involving transmission lines. Further, several recent studies have used open-access media reports to identify infrastructure projects subject to public opposition.<sup>24</sup> Integrating this work with

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22. See FACT SHEET: CAPE WIND ENERGY PROJECT, BUREAU OF OCEAN ENERGY MGMT., <https://www.boem.gov/sites/default/files/renewable-energy-program/Studies/Cape-Wind-Fact-Sheet—Sept-2015-clean-%281%29.pdf> (last updated Sept. 2015); José da Silva, “No” to Cape Wind, SCIENCE WRITING (Northeastern Univ. Jan. 15, 2019) (noting opponents of Cape Wind include the Kennedy and Koch families).

23. For purposes of this Article, “utility-scale” refers to projects of five Megawatts (MW) or greater.

24. See generally Lawrence Susskind et al., *Sources of Opposition to Renewable Energy Projects in the United States*, 165 ENERGY POL’Y 112922 (2022); MATTHEW EISENSON, OPPOSITION TO RENEWABLE ENERGY FACILITIES IN THE UNITED STATES (Sabin Ctr. for Climate Change L., May 2023 ed.), [https://scholarship.law.columbia.edu/sabin\\_climate\\_change/200/](https://scholarship.law.columbia.edu/sabin_climate_change/200/); Justin B. Winikoff, *Learning by*

the results of the present study reveals that just 12 percent of contested wind and solar projects involved federal litigation, as opposed to challenges before state or local permitting authorities or state courts. Thus, while public opposition can be a significant factor, it largely plays out in state or local forums.<sup>25</sup>

These findings highlight the contexts in which federal litigation has arisen and the streamlining measures that federal agencies routinely adopt. Litigation has been largely limited to projects located on federal land (or waters), in areas of unique tribal or ecological significance, or in the habitat of an endangered species. While potential hotspots exist—the southwestern deserts of California and Nevada and offshore wind in the northeast—federal litigation has been rare or nonexistent in most states. Administratively, agencies use a variety of tiered strategies to calibrate processes,<sup>26</sup> including procedural exemptions, such as categorical exclusions under NEPA; permits by rule, such as nationwide permits under the CWA; and program-level scientific assessments, such as programmatic biological opinions under the ESA.<sup>27</sup> These and other modes of administrative streamlining are persistently neglected in the legal literature and judicial opinions,<sup>28</sup> and they are absent from the public debate over permitting reform.

It is nevertheless important to acknowledge that even with administrative streamlining, NEPA and the other permitting statutes can have significant indirect impacts.<sup>29</sup> These likely take two forms. First, project selection and development may be channeled around potential triggers for environmental reviews and permitting,<sup>30</sup> which can mitigate environmental impacts but may

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*Regulating: The Evolution of Wind Energy Zoning Laws*, 65 J.L. & ECON. 223 (2022); David B. Spence, *Regulating and the New Politics of (Energy) Market Entry*, 95 NOTRE DAME L. REV. 327 (2019).

25. A similar backlash arose at the local level just a decade ago in response to the fracking boom. See David B. Spence, *The Political Economy of Local Vetoes*, 93 TEX. L. REV. 351, 351-52 (2014) [hereinafter Spence, *Local Vetoes*] (describing how “400 local governments . . . enacted ordinances restricting or banning [] the use of hydraulic fracturing (fracking)”).

26. See Eric Biber & J.B. Ruhl, *The Permit Power Revisited: The Theory and Practice of Regulatory Permits in the Administrative State*, 64 DUKE L.J. 133, 138-39 (2014) (observing that “the permitting system has evolved into a far more flexible, nuanced, and innovative institution in the modern administrative state”).

27. *Id.* at 140, 163, 174-75 (stating that general permits-by-rule “have become the dominant permit model in many fields of regulation,” including the CWA, and describing programmatic approaches under the ESA); *infra* Part III.B.1, IV.C.

28. Notable exceptions include: Dave Owen, *The Negotiable Implementation of Environmental Law*, 75 STANFORD L. REV. 137 (2023) [hereinafter Owen, *Negotiable Implementation*]; Dave Owen, *Regional Federal Administration*, 63 UCLA L. REV. 58 (2016) [hereinafter Owen, *Regional Administration*]; 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 (2019) [hereinafter Ruple et al., *Does NEPA Help or Harm*]; Mark Capone & John C. Ruple, *NEPA and the Energy Policy Act of 2005 Statutory Categorical Exclusions: What Are the Environmental Costs of Expedited Oil and Gas Development*, 18 VT. J. ENVTL. L. 371 (2017); Melinda Taylor et al., *Protecting Species or Hindering Energy Development? How the Endangered Species Act Impacts Energy Projects on Western Public Lands*, 46 ENVTL. L. REP. 10928 (2016).

29. Biber & Ruhl, *supra* note 26, at 141 (observing that even streamlined programs “can thwart public policy goals and unnecessarily impede private enterprise” if they are poorly designed).

30. Similar observations have been made by other researchers. See, e.g., Taylor et al., *supra* note 28, at 10,931 (discussing the collaborative nature of consultations under the ESA); Ryan P. Scott et al., *Concise or Comprehensive? Predictors of Impact Choices for Electric Transmission Line Projects*, 43

also lead to less-productive projects. Second, voluntary negotiations occur with agency officials in the shadow of environmental regulations,<sup>31</sup> which can impact project economics, contribute to delays, prompt cancellations, or reduce the productive capacity of valuable infrastructure. Unfortunately, we know all too little about these processes because no one tracks them; as such, they are the hidden dark matter of environmental law.<sup>32</sup>

This gap in understanding notwithstanding, widespread misconceptions about federal permitting, environmental reviews, and litigation undermines effective action on permitting reform. This Article seeks to reframe the debate and to ground it empirically. Part II introduces the principal federal environmental statutes and examines the empirical literature on each, highlighting its limitations. Part III discusses the findings of the present study, which shows that project-specific permits and comprehensive environmental reviews are the exception rather than the rule. Finally, Part IV examines federal environmental litigation and looks more broadly at public opposition to energy projects. The data highlight two classes of projects that are mirror images of each other: projects located on federal land, where public opposition is limited to challenges under federal laws; and projects on private land, where public opposition centers on state or local permitting authorities or state courts.<sup>33</sup> The Article concludes that neither placing broad limits on citizen suits nor weakening the procedures and protections of federal environmental laws is necessary to meet the needs of the climate crisis. Instead, reforms should be targeted and center on the specific problems highlighted in this study.<sup>34</sup>

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RISK ANAL. 994, 1,004 (2022) (concluding that environmental reviews affect “choices external to the assessment process itself by shaping how planners and project proponents identify and design projects”); Bradley C. Karkkainen, *Whither NEPA?*, 12 N.Y.U. ENVTL. L.J. 331, 347-48 (2004) (describing measures agency staff and project developers take to mitigate environmental impacts and avoid environmental reviews).

31. Owen, *Negotiable Implementation*, *supra* note 28, at 139-42; Taylor et al., *supra* note 28, at 10,931 (discussing the significance of informal pre-consultation negotiations under the ESA).

32. The best study that exists of project developers finds that local ordinances or zoning, grid interconnection delays, and community opposition are far more important causes of project delays and cancellations than environmental restrictions. Robi Nilson, *et al.*, *Survey of Utility-Scale Wind and Solar Developers Report 11-12* (Jan. 2024), <https://escholarship.org/uc/item/1w00h67w>. Similar results have been found for transmission lines. *See* Ted Boling and Kerensa Gimre, *Evidence-Based Recommendations for Overcoming Barriers to Federal Transmission Permitting 2-3* (Apr. 2024) (observing that federal permitting “is just one of multiple challenges, and for many transmission projects may be a secondary or tertiary concern relative to other barriers,” but also noting that EISs can be a “critical” factor for those projects that require them or other federal permits).

33. This dichotomy stems from three reinforcing factors: (1) state land-use regulations do not apply to federal lands, (2) projects on private land rarely require federal environmental reviews or project-specific permits, and (3) state and local forums are faster, easier to navigate, and more sensitive to local political pressure.

34. *See, e.g.*, Ruhl & Salzman, *The Greens’ Dilemma*, *supra* note 19, at 48-53 (proposing a targeted framework that streamlines procedures for large, high-value projects).



### I. OUR LIMITED UNDERSTANDING OF THE REGULATORY LANDSCAPE

Renewable power projects and transmission lines, because they do not have significant air emissions or water impacts (apart from stormwater runoff), fall almost exclusively under several natural resource statutes. Their major impacts are on endangered or other protected species and land, including wetlands and species habitat. The relevant environmental statutes are therefore NEPA, the CWA, and several wildlife-protection laws, including the ESA, the Migratory Bird Treaty Act (MBTA), and the Bald and Golden Eagle Protection Act (BGEPA).<sup>35</sup> Each of these statutes has long been the subject of intense public controversy and efforts to streamline or limit their regulatory reach.<sup>36</sup> This is particularly true of the ESA and the CWA's section 404 wetlands program because they often limit development on private property.<sup>37</sup> As a consequence, regulators have been under significant pressure for decades to mitigate the perceived inefficiencies and inequities of these regulatory programs.<sup>38</sup> I focus here on NEPA, the CWA, and the ESA because they are the most commonly applicable statutes and reliable data are available for each of their programs.

These statutes also interact because federal permits can trigger consultation procedures under the ESA or environmental review requirements under NEPA. Thus, if a project will impact a wetland and requires a CWA wetland permit, this can prompt rigorous procedures and possibly long-term operational restrictions under the ESA and environmental reviews under NEPA.<sup>39</sup> For obvious reasons, project developers are opposed to such cascading legal requirements and actively seek to avoid them within economic and practical bounds.

The Subparts that follow outline the legal frameworks for each of the principal environmental laws and discuss what is known empirically about how they are implemented and the litigation involving them. Overall, the current understanding of their implementation is incomplete. And this shortcoming is complicated by regional differences in how specific offices of the Fish and Wildlife Service (FWS) and the U.S. Army Corps of Engineers (USACE or

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35. The National Historic Preservations Act (NHPA), and particularly the section 106 consultation process, can impact project timelines as well, but there are virtually no data and no empirical studies of NHPA consultations, despite their close connection with NEPA procedures. *See, e.g., Section 106 – Federal Agency Compliance*, CAL. STATE PARKS OFFICE OF HIST. PRESERV., [https://ohp.parks.ca.gov/?page\\_id=1071](https://ohp.parks.ca.gov/?page_id=1071) (last visited Mar. 23, 2024).

36. *Infra* Part IV.C.

37. Taylor et al., *supra* note 28, at 10,924 (describing the ESA as one of the most “reviled” and politically contested environmental laws); Associated Press, *Congress Moving to Block EPA Regulation of Streams, Wetlands*, CHICAGO TRIBUNE, <https://www.chicagotribune.com/2015/06/10/congress-moving-to-block-epa-regulation-of-streams-wetlands> (last updated June 24, 2019) (referring to a regulation expanding the jurisdictional scope of section 404 as a “tyrannical power grab”); *see also* Jennifer Yachnin, *House Republican Compares WOTUS to Terrorism, the Plague*, GREENWIRE (Nov. 23, 2015), <http://www.eenews.net/greenwire/2015/11/23/stories/1060028451>.

38. *See, e.g.,* Nicholas C. Yost, *Streamlining NEPA—An Environmental Success Story*, 9 ENVTL. AFFS. 507, 507-08 (1981).

39. Section 404 permitting may also be integrated with the ESA's section 7 consultations process. *See* Owen, *Regional Administration*, *supra* note 28, at 84 (describing how section 404 permitting is sometimes “intertwined” with the section 7 consultation process under the ESA).

Corps) implement the programs under the ESA and section 404 of the CWA, respectively. The overviews provided here, both the basic statutory frameworks and the limits of existing empirical studies, are intended to set the stage for the discussion of the data collected and analyzed in this Article.

A. *The Conflicting Evidence on Delays Attributable to  
NEPA Procedures*

NEPA is a procedural statute that requires federal agencies to prepare environmental impact statements (EISs) for “major Federal actions significantly affecting the quality of the human environment.”<sup>40</sup> Federal actions include providing federal funding, issuing permits, and activities at federal facilities or on federal land.<sup>41</sup> A preliminary step in the NEPA process is determining whether an action—either on its own or cumulatively with other related actions—has a significant environmental impact.<sup>42</sup> Federal regulations provide for two types of abbreviated processes: (1) administrative categorical exclusions (CEs) when a prescribed class of federal actions—individually or in the aggregate—has no possibility of significantly impacting the environment;<sup>43</sup> and (2) environmental assessments (EAs), which are a shortened variant of an EIS addressing whether a federal action could have significant environmental impacts.<sup>44</sup> In addition, when the circumstances or plans for a federal action change significantly, an agency may be required to prepare a supplemental analysis that reevaluates the environmental impacts in light of these changes.<sup>45</sup>

NEPA does not contain a citizen suit provision, so the judicial review provision in the Administrative Procedure Act governs citizen suits.<sup>46</sup> In practice, citizen suits have focused on violations of NEPA’s procedures, particularly the timing of NEPA compliance and the level of analysis required,<sup>47</sup> as well as the adequacy of the analysis in EAs and EISs.<sup>48</sup> Challenges to CEs, though relatively rare, are close analogs of petitions for review of agency rules because CEs cover broad classes of federal actions and are themselves issued as rules.<sup>49</sup> Typically, citizen suits under NEPA involve discrete federal actions, which in the context of renewables projects and transmission lines are typically based on a federal permit or development on federal land.<sup>50</sup> A recent study of

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40. 42 U.S.C. § 4332(1)(C).

41. See 40 C.F.R. § 1508.18(b).

42. See 40 C.F.R. § 1508.27(b)(1)-(10) (providing ten intensity factors for assessing significance).

43. *Id.* §§ 1501.4(b)(1), 1508.4.

44. *Id.* §§ 1501.4(b), 1508.9, 1508.13.

45. See 23 C.F.R. § 771.130.

46. 5 U.S.C. § 702.

47. See, e.g., *Paradise Ridge Def. Coalition v. Hartman*, 757 F. App’x 536 (9th Cir. 2018) (citing *Metcalf v. Daley*, 214 F.3d 1135, 1143 (9th Cir. 2000)); see also 42 U.S.C. § 4332(C)(v).

48. 40 C.F.R. §§ 1501.7, 1508.25. The scope of the agency action must include connected, cumulative, and similar actions. *Id.* § 1508.25(a)(1)-(3).

49. *Id.* §§ 1501.4(a)(2), 1508.4.

50. If an underlying federal-private nexus exists, the case is essentially a third-party citizen suit. This is common in NEPA litigation and typically occurs where the NEPA process is triggered by private

infrastructure projects for which EISs were required found that 28 percent of the projects were challenged under NEPA,<sup>51</sup> which was higher than the rate (20 percent) observed in a study of NEPA litigation generally.<sup>52</sup>

Most agency actions subject to NEPA review do not require preparing an EIS. The non-partisan Government Accountability Office (GAO) estimates that roughly 94 percent of NEPA decisions fall under CEs,<sup>53</sup> about 5 percent are covered by EAs, and less than 1 percent are reviewed under EISs.<sup>54</sup> Government-wide, this translated to an average of roughly 137,750 CEs, 6,820 EAs, and about 435 EISs (draft and final) annually for the period 2008 through 2012.<sup>55</sup> According to more recent Environmental Protection Agency (EPA) data, only four federal agencies issued more than ten final EISs per year between 2010 and 2021, and most issued fewer than five—if they issued any at all.<sup>56</sup> The number of final EISs issued each year, however, has declined from about 225 before 2010 to fewer than 100 annually by 2021.<sup>57</sup> Unfortunately, without data on CEs and EAs, it is impossible to determine the alternative procedures (if any) that agencies are using.<sup>58</sup> Whatever the case, it is implausible that a decline in the number of federal actions could explain such a dramatic drop in final EISs. This, in turn, implies that either these streamlined procedures (CEs, EAs) or no procedures at all are making up for the falloff.

While cost and timing data for NEPA analyses are difficult to obtain, the available evidence does not support the view that NEPA systematically imposes

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actions that require a federal permit. While facially a challenge to a discrete federal action, the principal subject of the suit is the underlying private project.

51. Michael Bennon & Devon Wilson, *NEPA Litigation Over Large Energy and Transportation Infrastructure Projects*, 53 ENVTL. L. REP. 10,836, 10,850 (2023). The authors also report a stunningly high litigation rate for solar projects (89 percent), but this number reflects the relatively low level of solar development during the time period for the study and the high litigation rates in the Southwest discussed below in Part IV.A. *Id.* The selection bias created by focusing exclusively on the few solar (and wind) projects requiring an EIS is also an important factor.

52. *Id.* at 10,847 (citing David E. Adelman & Robert L. Glicksman, *Presidential and Judicial Politics in Environmental Litigation*, 50 ARIZ. ST. L. REV. 50 (2018)).

53. The GAO noted, however, that “CEs are likely underrepresented in their totals because agency systems do not track certain categories of CEs considered ‘routine’ activities.” U.S. GOV’T ACCOUNTABILITY OFF., GAO-14-370, NATIONAL ENVIRONMENTAL POLICY ACT: LITTLE INFORMATION EXISTS ON NEPA ANALYSES 8-9 (Apr. 2014).

54. *Id.* at 8. The same problem applies to EAs. *Id.*

55. *Id.* at 9 (noting the calculation is based on an extrapolation from the percentages for each NEPA process using the number of EISs issued by federal agencies in 2011).

56. The four agencies are U.S. Forest Service (approximately thirty-one per year), Bureau of Land Management (approximately eighteen per year), U.S. Army Corps (approximately fourteen per year), and Federal Highway Administration (approximately thirteen per year).

57. EPA data were downloaded from the EIS Database for the period January 1, 2000, through December 31, 2022, which is available at: [https://cdxapps.epa.gov/cdx-enepa-II/public/action/eis/search?search=&\\_\\_fsk=1037336059#results](https://cdxapps.epa.gov/cdx-enepa-II/public/action/eis/search?search=&__fsk=1037336059#results). If all revised and supplement EISs are included, the average increases to 250 final EISs per year, but the totals in 2021 and 2022 still fall below 100 per year. For another point of comparison, annually more than one thousand federal proposals required an EIS during the 1970s. *See* Yost, *supra* note 38, at 512.

58. One of the very few studies that covers agency use of CEs concluded that projects covered by CEs had greater environmental impacts. Capone & Ruple, *supra* note 28, at 390-91.

unreasonable burdens on federal agencies or regulated entities.<sup>59</sup> In 2003, a NEPA task force report “estimated that an EIS typically cost[s] from \$250,000 to \$2 million,” whereas “an EA typically costs from \$5,000 to \$200,000.”<sup>60</sup> To put this in perspective, utility-scale wind or solar projects cost at least tens of millions of dollars. Larger ones cost well over \$100 million.<sup>61</sup> The Department of Energy has collected more detailed information on costs for the EISs and EAs it has completed. For the period 2003 through 2012, the median cost of its EISs was \$1.4 million and the average \$6.6 million; it also estimated that the median cost of its EAs was \$65,000, with a range of \$3,000 to \$1.2 million.<sup>62</sup> These findings suggest that the average EIS cost is strongly influenced by a small subset of EISs with very high costs and that EA costs are generally only a fraction of those incurred when conducting EISs.

In 2020, the Council on Environmental Quality (CEQ) issued a report on completion times for EISs that found the average was 4.5 years for the period 2010 through 2018.<sup>63</sup> Similar to the cost data, this average was influenced by a small subset of EISs with exceptionally long completion times, as evidenced by the median completion time, which was 3.5 years. If one just looks at renewables projects and transmission lines, the average EIS completion time drops to three years.<sup>64</sup> One must therefore be careful not to read too much into the global average. Further, although it would be more informative to have completion times for EAs and CEs because they are so much more common, the data available on them are very limited. The best estimates suggest that completion times for EAs average about one to 1.5 years and that those for CEs average from one to two days to roughly half a year, depending on the agency.<sup>65</sup>

Interpreting completion-time data is complicated by the multiple roles that NEPA procedures play.<sup>66</sup> The Congressional Research Service (CRS) and the

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59. GAO-14-370 at 12.

60. *Id.* at 13-14.

61. Average U.S. Construction Costs Drop for Solar, Rise for Wind and Natural Gas Generators, U.S. ENERGY INFO. ADMIN. (Nov. 3, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=54519> (finding that average construction costs for utility-scale wind and solar projects are \$1,655/kW and \$1,498/kW, respectively; thus, for a 100 MW project, solar would cost \$166 million and wind would cost \$150 million).

62. GAO-14-370 at 13.

63. COUNCIL ON ENV'T QUALITY, ENVIRONMENTAL IMPACT STATEMENT TIMELINES (2010-2018) 1 (June 12, 2020), [https://ceq.doe.gov/docs/nepa-practice/CEQ\\_EIS\\_Timeline\\_Report\\_2020-6-12.pdf](https://ceq.doe.gov/docs/nepa-practice/CEQ_EIS_Timeline_Report_2020-6-12.pdf); *see also* NAT'L ASS'N OF ENV'TL PROS., ANNUAL NEPA REPORT 2012 OF THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) PRACTICE 11-14 (Karen Johnson, ed., 2013), [https://ceq.doe.gov/docs/get-involved/NAEP\\_2012\\_NEPA\\_Annual\\_Report.pdf](https://ceq.doe.gov/docs/get-involved/NAEP_2012_NEPA_Annual_Report.pdf) (finding that average completion time for EIS was 4.6 years over the period 2000 through 2012).

64. For solar projects (N = 24), the mean and median EIS completion times were 2.1 and 1.7 years, respectively; for wind projects (N = 17), they were 3.4 and 2.9 years, respectively; and for transmission lines (N = 38), they were 3.2 and 2.9 years, respectively. If the most extreme cases are removed (i.e., those taking more than six years to complete), the overall average for renewables and transmission line projects drops to 2.7 years and the median to 2.5 years.

65. GAO-14-370 at 15-16.

66. COUNCIL ON ENV'TL QUALITY, *supra* note 60, at 2 (noting that the time it takes to complete an EIS “may be attributable to the agency, the applicant, Congress, the needs of cooperating agencies, States, Tribes, and local interests, or public controversy”). One study also found that the time saved in fast-

GAO have both recognized that NEPA often functions as an “umbrella” statute by coordinating actions under other environmental laws.<sup>67</sup> This blurring of statutory requirements makes it difficult to single out the costs and delays associated with NEPA procedures.<sup>68</sup> Former CEQ Chair Nancy H. Sutley raised similar concerns about “delays in project implementation [being] inaccurately attributed to NEPA process delays when other factors are relevant,” such as difficulties in securing project funding, project complexity, changes in project scope, and demands made by state or local officials.<sup>69</sup> A recent study of over 41,000 NEPA decisions within the U.S. Forest Service reinforces this view; it concluded that factors outside the NEPA process were typically the cause of delays, such as inadequate staffing, inconsistent funding, market conditions, and other regulatory obligations.<sup>70</sup>

Collectively, the data on NEPA reviews demonstrate that the number of EISs issued annually is strikingly low relative to the number of projects that are undertaken, funded, or permitted by federal agencies. While it is important to recognize that completing an EIS often takes several years, fixating on this alone without considering the prominence of CEs and EAs creates a misleading picture of the environmental reviews most commonly required and the potential for significant delays. Further, average EIS completion time is often an unreliable metric for evaluating the efficiency of environmental reviews, given the multitude of factors at play both within and beyond NEPA processes. One significant gap in the available studies is data specifically on infrastructure projects—and particularly on recent trends when renewable development has rapidly increased.

### B. Formal, Informal, and Voluntary ESA Consultations

The ESA is jointly administered by the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (collectively “the

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tracking NEPA processes is more than offset by the increased likelihood of having to prepare a supplemental EIS. John C. Ruple & Mark Capone, *NEPA, FLPMA, and Impact Reduction: An Empirical Assessment of BLM Resource Management Planning and NEPA in the Mountain West*, 46 ENV'T L. 953, 976 (2017).

67. GAO-14-370 at 18-19; LINDA LUTHER, CONG. RESEARCH SERV., *THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA): BACKGROUND AND IMPLEMENTATION 2* (Jan. 10, 2011).

68. GAO-14-370 at 18-19; LUTHER, *supra* note 67, at 8 (observing that “[t]he need to comply with another environmental laws, such as the Clean Water Act or Endangered Species Act, may be identified within the framework of the NEPA process, but NEPA itself is not the source of the obligation.”).

69. *CEQ Chair Testifies on the Importance of NEPA*, 75 NAT'L ENV'T L. POL'Y ACT LESSONED LEARNED 1, 2 (2013). The GAO has also highlighted the importance of sources of delay outside of NEPA procedures, such as engineering requirements and holdups associated with obtaining nonfederal approvals. GAO, *Little Information*, *supra* note 55, at 15, 19; *see also* Ruple et al., *Does NEPA Help or Harm*, *supra* note 28, at 860-61 (finding that NEPA reviews did not increase the time for critical habitat designations under the ESA).

70. John C. Ruple et al., *Evidence-Based Recommendations for Improving National Environmental Policy Act Implementation*, 46 COLUMB. J. ENV'T L. 273, 278-80 (2022).

Services”). Its principal provisions protect endangered<sup>71</sup> and threatened<sup>72</sup> species through (1) listing species that meet its criteria and designating habitat that is “critical” to their survival;<sup>73</sup> (2) requiring federal agencies to consult with FWS or NMFS under section 7 when their actions have the potential to “jeopardize” the status of listed species;<sup>74</sup> and (3) placing strict limits under section 9 on the “take” or harm to listed species on public or private lands.<sup>75</sup> The section 7 consultation process requires federal agencies to assess and mitigate the potential impacts of their actions on listed species.<sup>76</sup> By contrast, the section 9 prohibition on “taking” listed species requires direct evidence,<sup>77</sup> which is often unavailable due to the difficulty of monitoring and studying listed species.<sup>78</sup> Under section 10, the Services have broad discretion to issue “incidental take permits” (ITPs) that allow the limited take of listed species, subject to mitigation and monitoring requirements in a habitat conservation plan (HCP).<sup>79</sup> Parallel authority exists under the section 7 consultation process to issue an “incidental take statement” in conjunction with a biological opinion.<sup>80</sup>

Citizen suits have played a prominent role under the ESA’s listing provisions. The ESA gives citizens the right to file petitions requesting the listing of species<sup>81</sup> and, if there is substantial information available,<sup>82</sup> requires the Services to determine whether a listing is warranted within ninety days.<sup>83</sup> The strict deadlines and broad petition rights have prompted extensive litigation, including a series of suits in the early 2000s requesting the listing of hundreds of

71. A species can be listed as endangered if it is “in danger of extinction throughout all or a significant portion of its range.” 16 U.S.C. § 1532(6).

72. A species can be listed as threatened if it is “likely to become an endangered species in the foreseeable future.” *Id.* § 1532(20).

73. *Id.* § 1533 (codifying section 4 of the ESA).

74. *See id.* § 1536 (codifying section 7 of the ESA).

75. *Id.* §§ 1538–1540 (codifying sections 9–11 of the ESA).

76. *Id.* § 1536(a)(2). The ESA mandates that all federal agencies consult with the relevant agency to “insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species . . . .” *Id.*

77. *Id.* §§ 1532(19), § 1538(a)(1)(B); 50 C.F.R. §§ 17.21(a), 17.31(a) (2018) (further defining take and extending the take provisions to protect threatened species under 33 U.S.C. § 1533(d) authority); *see also* Babbitt v. Sweet Homes Chapter of Cmty. for a Great Or., 515 U.S. 687, 691 (1995) (defining the scope of “take”).

78. *See, e.g.*, Eric Biber, *The Problem of Environmental Monitoring*, 83 U. COLO. L. REV. 1, 34–52 (2011) (discussing wide ranging issues with environmental monitoring, including monitoring of species); Barton H. Thompson Jr., *The Continuing Innovations of Citizen Enforcement*, 2000 U. ILL. L. REV. 185, 190–92 (2000) (noting by way of example that there are significant “resources needed and obstacles involved in determining whether endangered species are being harmed” in support of citizen monitors and informants); *cf.* Teresa Woods & Steve Morey, *Uncertainty and the Endangered Species Act*, 83 IND. L.J. 529, 531–33 (2008) (discussing similar monitoring issues for listing under the ESA).

79. *See* 16 U.S.C. §§ 1539(a)(1)–(2).

80. *Id.* § 1536(b).

81. 5 U.S.C. § 553(e); 16 U.S.C. § 1533(b)(3)(A).

82. § 1533(b)(3)(A).

83. *Id.* The agency may not consider costs in this listing determination. *See, e.g.*, § 1533(b)(1)(A) (listing decisions are made “solely on the basis of the best scientific and commercial data available”).

species.<sup>84</sup> While petitions rarely lead to a species being listed, the decision either way is then subject to judicial review.<sup>85</sup> Challenges to critical habitat designations, or failure to designate any at all, are also subject to deadlines that provide legal handles for litigation. Thus, most litigation under the ESA has centered on the listing of species and designation of critical habitat. In contrast, litigation involving the section 7 consultation process or issuance of an incidental take permit has been exceedingly rare.<sup>86</sup>

Relatively few studies exist on section 7 consultations, and even fewer exist for HCPs. Recent studies of section 7 consultations found low rates of jeopardy and few, if any, project cancellations. In a study of 4,048 biological opinions for fish species conducted between 2005 and 2009, Dave Owen found jeopardy and adverse modification conclusions occurred in just 7.2 and 6.7 percent, respectively, of the formal consultations.<sup>87</sup> Similarly, in a comprehensive study of section 7 consultations for the years 2008-2015, Jacob Malcom and Ya-Wei Li reviewed 81,461 informal (an average of 11,113 per year) and 6,829 formal (an average of 932 per year) consultations.<sup>88</sup> They identified only two jeopardy findings, neither of which resulted in project cancellation.<sup>89</sup> A review of data collected through 2016 by the same authors revealed that the number of formal consultations has varied widely (roughly 400-1,270 per year) and declined by roughly half between 2008 and 2016. Over this period, the duration of formal consultations averaged 108 days (median sixty-two days) and informal consultations averaged thirty-one days (median fourteen days).<sup>90</sup>

A 2016 study conducted by Melinda Taylor, Romany Webb, and Vanessa Puig-Williams collected data and conducted interviews on section 7 consultations for energy projects developed on Bureau of Land Management (BLM) land.<sup>91</sup> While the number of renewables projects was small (twenty-seven solar, nine wind), the study provides unique insights.<sup>92</sup> The authors found that none of the consultations resulted in a jeopardy finding and that the average times for completing a consultation were 131 and 144 days, respectively, for

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84. See David E. Adelman & Jori Reilly-Diakun, *Environmental Citizen Suits and the Inequities of Races to the Top*, 92 COLO. L. REV. 377, 392 (2021).

85. Challenges to the ultimate determination are difficult to make successfully due to the deference afforded federal regulators. See generally *Ctr. for Biological Diversity v. Kempthorne*, 466 F.3d 1098 (9th Cir. 2006).

86. See Adelman & Reilly-Diakun, *supra* note 84, at 392.

87. Dave Owen, *Critical Habitat and the Challenge of Regulating Small Harms*, 64 FLA. L. REV. 141, 164-65 (2012) [hereinafter: Owen, *Critical Habitat*] (these rates would have been much lower but for anomalously high jeopardy findings in a single Utah field office, which later adjusted its policies and fell in line with other field offices).

88. Jacob M. Malcom & Ya-Wei Li, *Data Contradict Common Perceptions About a Controversial Provision of the US Endangered Species Act*, 112 PNAS 15844, 15845 (2015). These numbers exclude 110,850 consultations recorded as technical assistance over the same time period that were documents. *Id.*

89. *Id.* (a court overturned the jeopardy finding in one case and the other involved a California water project and the Delta Smelt; there, the project was ultimately allowed to proceed).

90. *Id.* It is notable that the duration of formal consultations in ninetieth percentile was still less than one year. *Id.*

91. Taylor et al., *supra* note 28, at 10,925.

92. *Id.* at 10,929.

solar and wind projects.<sup>93</sup> The authors are careful to note, however, that “pre-consultation” discussions can be lengthy, lasting eighteen months or more.<sup>94</sup> Further, while industry representatives complained that consultations could significantly delay or alter a project (including cancellation), they agreed that consultations were “highly collaborative” and that BLM efforts “to streamline and standardize the consultations process” had been effective.<sup>95</sup> Programmatic biological opinions, which are prepared for classes of related actions or actions occurring within a prescribed geographic area, were specifically recognized as having “greatly streamline[d] the consultation process.”<sup>96</sup> This work presents a fuller picture by highlighting the importance of informal discussions outside the consultation process and the potential for project delay in the absence of affirmative streamlining measures.<sup>97</sup>

Researchers have conducted studies on HCPs to assess their scientific grounding and the efficacy of their implementation.<sup>98</sup> No studies exist, however, on the broader trends in HCPs over time, such as their geographic distribution, the acreage covered, timelines, or the nature of the activities for which an ITP/HCP is sought. The only empirical studies of general trends in the implementation of the ESA focus on section 7 consultations, but even here, more detailed information on biological opinions is missing (species covered, acreage, etc.). The data that do exist suggest that ESA consultations occur relatively expeditiously. Still, because implementing the ESA often involves voluntary negotiations with Service officials, the available data provide only limited insight into the degree to which projects are altered or delayed in response to agency informal recommendations.<sup>99</sup>

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93. *Id.* at 10,931 (noting that most formal consultation to longer than 135 days, the statutory limit, and that the average for wind projects was 172 days). The authors also cite a study finding that BLM’s programmatic biological opinion for its Solar Energy Program had reduced consultation times by 50 percent. *Id.* at 10,930.

94. *Id.* at 10,926.

95. *Id.* at 10,931-32.

96. *Id.* at 10,932.

97. *Id.* at 10,931-32; see also Paul S. Weiland et al., *Analysis of Data on Endangered Species Consultations Reveals Nothing Regarding Their Economic Impacts*, 113 PNAS E1593, E1593 (2016) (arguing that “even informal consultation can result in major changes to or abandonment of projects with substantial economic implications.”).

98. See, e.g., Matthew E. Rahn et al., *Species Coverage in Multispecies Habitat Conservation Plans: Where’s the Science?*, 56 BIOSCIENCE 613 (2006); J. Alan Clark & Erik Harvey, *Assessing Multi-Species Recovery Plans Under the Endangered Species Act*, 12 ECOLOGICAL APPS. 655 (2002); Christian Langpap & Joe Kerkvliet, *Endangered Species Conservation on Private Land: Assessing the Effectiveness of Habitat Conservation Plans*, 64 J. ENV’T’L ECONS. & MGMT. 1, 14 (2012) (find that “HCPs have positive effects on endangered species recovery.”).

99. See, e.g., Owen, *Critical Habitat*, *supra* note 87, at 170-72 (finding that project modification in response to ESA listings and consultations are common).



*C. Standard Individual and Streamlined  
General Wetland Permits*

The protection of streams and wetlands is implemented primarily at the federal level, albeit in a highly regionalized institutional structure.<sup>100</sup> Wetland permitting is covered by CWA section 404 and overseen by EPA and the USACE.<sup>101</sup> While section 404 and its implementing regulations contain many discrete elements, the overarching objective of the program is preventing a “net loss” of wetlands.<sup>102</sup> To achieve this goal, the wetland permitting program strictly limits impacts on wetlands, and it requires permit applicants to create, enhance, restore, or preserve other wetlands for any unavoidable impacts.<sup>103</sup> The CWA also has a separate third-party citizen suit provision,<sup>104</sup> but section 404 wetland permitting is an infrequent subject of litigation. The most recent study estimates that fewer than four cases per year involve claims under section 404; they have typically involved alleged permit violations, such as an improperly granted permit or failure to obtain a permit altogether.<sup>105</sup>

The Corps issues tens of thousands of permits every year, but the vast majority (roughly 97 percent) of these are “general permits,” which cover broad classes of projects rather than standard permits for specific projects.<sup>106</sup> Standard permits are more costly (especially if significant wetland mitigation is required) and take longer to process; they must go through a public comment period, trigger the ESA section 7 consultation process, and may require an environmental review under NEPA.<sup>107</sup> By contrast, general permits rarely require ESA section 7 consultations and typically do not require individualized NEPA compliance because this occurs when the rule for a general permit is first

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100. 33 U.S.C. § 1344(a); 33 C.F.R. §§ 320.2(f), 323.1–323.6 (2020); 40 C.F.R. pt. 230 (2020); *see also* 33 U.S.C. § 1362(7) (defining “navigable waters” as “the waters of the United States”); 33 C.F.R. § 328.3(a), (c) (2020) (more particularly defining “waters of the United States”).

101. 33 U.S.C. § 1344. While the Army Corps leads the permitting process and administers the permits, EPA has authority to block any permits that would have “unacceptable adverse effect[s].” *Id.* § 1344(c). CWA § 404 also provides for the assumption of CWA § 404 permits by the states, with oversight from EPA. *Id.* § 1344(g)–(j).

102. J.B. Ruhl & James Salzman, *Gaming the Past: The Theory and Practice of Historic Baselines in the Administrative State*, 64 VAND. L. REV. 1, 29-35 (2011).

103. *Regional and Programmatic General Permits*, U.S. ARMY CORPS OF ENG’GS, <https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Obtain-a-Permit> (last visited Apr. 12, 2024).

104. 33 U.S.C. § 1365(a) (providing federal question jurisdiction in district court for suits against (1) a party “who is alleged to be in violation of (A) an effluent standard or limitation under [the CWA] or (B) an order issued by [EPA] or a State with respect to such a standard or limitation,” or (2) EPA for “failure . . . to perform any act or duty [under the CWA] which is not discretionary”).

105. Adelman & Reilly-Diakun, *supra* note 84, at 410-411 (finding that 7.5 percent of third-party environmental lawsuits, 30 out of a sample of 400 cases, involved a section 404 claim; using the author’s extrapolation method, this would equate to roughly 3.7 cases per year over the period 2001 through 2016).

106. Owen, *Regional Administration*, *supra* note 28, at 82; NICOLE T. CARTER, CONG. RESEARCH SERV., *THE ARMY CORPS OF ENGINEERS’ NATIONWIDE PERMITS PROGRAM: ISSUES AND REGULATORY DEVELOPMENTS 2* (Jan. 12, 2017).

107. *See* CARTER, *supra* note 106, at 2-3.

issued.<sup>108</sup> Using data from 2016, nationwide and other general permits were, on average, processed in forty days, whereas standard permits averaged 217 days.<sup>109</sup> In the only academic study of factors affecting the time to process a wetland permit, the authors found that while consultations under the ESA did not delay permitting decisions, preparation of an EIS was associated with modestly longer review times.<sup>110</sup>

Implementation of the section 404 program is highly regional and each of the thirty-eight Corps offices has local rules for wetland protection.<sup>111</sup> This decentralization has prompted claims that individual offices have “relax[ed] . . . federal regulatory control over wetland resources” and “undermined protections of wetland resources.”<sup>112</sup> It has also led to criticism that the stringency with which wetlands are protected varies from district to district.<sup>113</sup> Despite these concerns, the existing empirical evidence, which is itself limited in scope and time, suggests that the program is working in the aggregate.<sup>114</sup> While these results are promising, they are far from definitive, and our empirical understanding of trends in wetland permitting (over time, geographically, type of project) is rudimentary.

In summary, the quality and completeness of the information available on implementing the principal environmental statutes varies widely. The data on EISs under NEPA are the most comprehensive, and the recent downward trend in the number of EISs published annually is particularly notable. The data on timing and costs of EISs are both less complete and more challenging to interpret, given the importance of factors outside NEPA processes. For the ESA, good data exist on section 7 consultations, but they are limited to basic information about the number, timing, and outcomes; the existing studies provide limited

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108. *Id.* at 6-7, 18-19. The most important nationwide permits (NWP) for renewables and transmission lines are NWP 57, which covers utility lines and associated facilities; NWP 14, which covers linear transportation projects; and NWP 51, which covers land-based renewable energy projects. *See generally 2021 Nationwide Permit Information*, U.S. ARMY CORPS OF ENG'GS, <https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Nationwide-Permits> (last visited Apr. 12, 2024). Each of these NWPs is self-certifying, but General Condition 18 requires non-federal actors to provide notice to the Corps if a listed species is found in the vicinity of a project and this triggers the ESA section 7 consultation process. *Id.*

109. CARTER, *supra* note 106, at 2-3.

110. Nicola Ulibarri & Jiarui Tao, *Evaluating Environmental Permitting Process Duration: The Case of Clean Water Act Section 404 Permits*, 62 J. ENV'T'L PLANNING & MGMT. 2124, 2138 (2019).

111. Owen, *Regional Administration*, *supra* note 28, at 84-86 (discussing the decentralized structure of the Corps across division, district, and field offices); Ryan W. Taylor, *Wetlands Protection: The Forgotten Agenda*, in *WIDENING THE SCOPE OF ENVIRONMENTAL POLICIES IN NORTH AMERICA: TOWARDS BLUE APPROACHES* 142 (Gustavo Sosa-Nunez ed., 2018).

112. Taylor, *supra* note 110, at 142.

113. Owen, *Regional Administration*, *supra* note 28, at 90 (quoting critics that “‘certain Corps districts . . . tend to be more environmentally protective and . . . less solicitous of applicants than others,’ or, at the [other] extreme, commenting that ‘[t]hey all do it so differently that it’s just like going to a whole other planet when you start with a new district.’”).

114. Molly Goch, *Net Losses or Net Gains? Analyzing Locations of and Impacts to Waters within the United States via Individual Permits*, 7 J. SCI. POL'Y & GOVERNANCE 1, 6-8 (2015) (in this study of 2,050 individual permits issued in 2012, the researcher found that they provided a net gain of approximately 5,574 acres of wetlands nationwide).

information on pre-consultation discussions and nothing on informal agreements that often impact project design, operations, and viability. Studies of HCPs do not capture even this basic information. Analyses of section 404 permitting provide valuable insights into the aggregate numbers of and timing for general and individual permits. Data on trends over time, types of projects, and their geographic distribution, however, are missing. Overall, the existing empirical record provides few grounds for concluding either way whether federal permits and environmental reviews are significant obstacles to the development of major infrastructure projects.

## II. THE NATIONAL TRENDS FOR FEDERAL PERMITTING AND ENVIRONMENTAL REVIEWS

The overarching question addressed in this Part is the degree to which environmental reviews and permitting are driven by the number and size of projects versus whether local conditions are the principal factor (*i.e.*, the prevalence of endangered species, wetlands, or other environmentally sensitive habitats). The most striking result of the present study is the scarcity of comprehensive environmental reviews and project-specific permits. Less than 5 percent of wind and solar projects completed from 2010 through 2021 required an EIS under NEPA, an HCP under the ESA, or a standard section 404 wetland permit under the CWA (*see* Table 1 below). The low frequencies both simplify and limit the analysis, as inferential statistics are effectively ruled out, given the resulting limited statistical power. Accordingly, the analyses that follow are all based on standard descriptive statistics and maps.<sup>115</sup>

Foreshadowing the results, the data consistently show that the observed patterns of environmental reviews and permitting are closely associated with local conditions. In essence, federal permits and environmental reviews are limited to circumstances in which environmental impacts cannot be mitigated or avoided and where federal land or control is at issue. This implies that federal oversight is, by almost any measure, exercised in a restrained manner that, far from subjecting “a staggering array of landowners” to onerous regulations and potential penalties,<sup>116</sup> provides mechanisms for most project developers to proceed through streamlined processes or to avoid direct federal oversight altogether.

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115. For each of the databases, renewable and transmission-line projects were identified by tagging the relevant federal process or permit using a search for specific terms (e.g., “wind,” “solar,” “transmission”) and this was complemented by an individualized review of each record. Using EPA and FWS categorizations of the different types of projects, the individualized review did not require assessment of every record in the database; only records with the relevant categorization were reviewed. The initial automated search captured most of the relevant records; for example, in the EIS database, only two solar, four wind, and six transmission-line projects were not identified by the automated search. For the Corp’s section 404 wetland permit database, I obtained records specifically for wind, solar, transmission-line projects based on internal agency categorization of projects through a Freedom of Information Act request submitted to the Corps; it provided an independent check on the validity of my results.

116. *See* Sackett v. EPA, 598 U.S. 651, 670 (2023).

Table 1: National Statistics on Environmental Reviews and Permitting 2010-21

Project Type	Projects	EISs <sup>117</sup>	Section 404 Permits <sup>118</sup>	HCPs <sup>119</sup>	Litigation
Wind	751	29 (3.9%)	18 (2.4%)	30 (4%)	28 (2.8% <sup>120</sup> )
Solar	1,132	36 (3.2%)	23 (2%)	6 (0.5%)	15 (0.7%)
Transmission		46	48	1	14

The disparity between the public debate over permitting reform and the empirical record is most acute for NEPA. More than any other federal statute, reformers have singled out NEPA as a source of delay and a tool for those with parochial or narrowly self-interested reasons for opposing projects. Yet, with so few of the projects requiring an EIS (*see* Table 1 above), formal NEPA procedures cannot be a chronic source of delay. Similarly, with so few lawsuits—only twenty-eight for wind, fifteen for solar, and fourteen for transmission lines involved NEPA claims—it is hard to sustain the view that NEPA has been “weaponized” in such a way that it is an overriding obstacle to project development.

The decades-long battle over the jurisdictional scope of the CWA, which was drastically narrowed last year in *Sackett v. EPA*,<sup>121</sup> has obscured the dominant role that nationwide permits have played in the section 404 wetland

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117. The data on EISs were obtained from the Environmental Protection Agency through its database located at [https://cdxapps.epa.gov/cdx-enepa-II/public/action/eis/search;jsessionid=607FD74628EEF9AFDF79B523E2A312DE?search=&\\_\\_fsk=1829813728#results](https://cdxapps.epa.gov/cdx-enepa-II/public/action/eis/search;jsessionid=607FD74628EEF9AFDF79B523E2A312DE?search=&__fsk=1829813728#results).

118. The data on section 404 permits were obtained from the database maintained by the U.S. Army Corps of Engineers at <https://permits.ops.usace.army.mil/orm-public#>. To verify the accuracy of the trends derived from these data using searches of the “Project Name” field, I submitted a data request to the Corps for all records of permits for wind, solar, and transmission-line projects. The descriptive statistics derived from these data were comparable to those for the data downloaded direction from the online database.

119. The data on HCPs and biological opinions were obtained directly from a contractor for the FWS through a Freedom of Information Act Request. Similar numbers were found for wind and solar projects requiring a biological opinion, but the available data are limited to two distinct time-periods: 2010-2016 and 2015-2021. For the time-period 2010-2016, twenty wind projects and forty-nine solar projects required a biological opinion; for the time-period 2015-2021, fifteen wind projects and thirty-five solar projects required a biological opinion. Much higher numbers of transmission lines required biological opinions; for the period 2010-2016, 145 projects required a biological opinion. The data for 2015-2021 are incomplete, however, because the FWS did not consistently collect data on biological opinions until 2018, whereas it had long been doing so on section 7 consultations.

120. The percentages here are for the number of projects subject to federal lawsuits; because several projects were subject to more than one suit, the number of projects subject to federal litigation is smaller than the number of lawsuits filed.

121. *Sackett*, 598 U.S. at 684; *see also* Allyson Chiu, *Biden Rule, Heeding Supreme Court, Could Strip Over Half of U.S. Wetlands’ Protections*, WASH. POST (Aug. 29, 2023), <https://www.washingtonpost.com/climate-environment/2023/08/29/epa-new-wetland-rule> (quoting an EPA official estimating the up to 63 percent of wetlands could lose protection under section 404).

permitting program. Commentators and courts presume that federal agencies have no capacity, or no interest, in calibrating regulatory requirements and processes based on the potential environmental impacts.<sup>122</sup> Yet, the absolute number and relative percentages of standard permits required are exceptionally low for wind and solar projects (about 2 percent in both cases). Thus, most projects do not require a section 404 permit at all or can proceed under a nationwide permit, which can be obtained in weeks—or at most a few months if notice must be given to the Army Corps.

For HCPs under the ESA, the trends are more complicated and differ significantly between wind and solar projects. Impacts from solar development on endangered species are typically nominal, with the most notable exceptions being sensitive desert and coastal habitats. As such, ESA permits are required rarely for solar development, whether through HCPs or biological opinions; less than 1 percent of solar projects required an HCP.<sup>123</sup> However, the impacts of wind projects on endangered species of bats and birds are potentially more problematic, even though only 4 percent of wind projects required an HCP.<sup>124</sup> The data reveal that virtually all of the wind HCPs were located in areas with large numbers of endemic species (ten wind projects in Hawaii had HCPs), or with projects in the Midwest where several species of bats are critically endangered.

While the percentage of transmission lines requiring EISs or project-specific permits cannot be calculated (comprehensive national data are not available), the absolute numbers are comparable to those for renewables projects. While the number of EISs and standard section 404 permits are somewhat higher, this may simply reflect the long distances that transmission lines traverse. This may increase the potential for a project to cross federal land or encounter wetlands, as opposed to reflecting a difference in how federal regulators treat them. Under the ESA, only one HCP (for the Texas Lower Colorado River Authority's Competitive Renewable Energy Zone, "CREZ," transmission lines) was required over this period.<sup>125</sup> Accordingly, the overall picture conveyed by the national data is one in which comprehensive environmental reviews are rare and project-specific federal permitting is the exception rather than the rule.

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122. *Sackett*, 598 U.S. at 671 (suggesting that a jurisdiction determination under section 404 of the CWA often leads to years of delay and costs "an exorbitant amount of money").

123. For projects with a federal nexus, the number of biological opinions was higher, roughly thirty-seven, but still modest, although the data available on biological opinions are far less complete than those for HCPs. Section 7 consultation data for the time period 2008 through 2016, which substantially overlaps with the relevant time period, reveal that 643 informal and just 62 formal consultations were conducted, which averages out to about 7.6 formal consultations per year for solar projects.

124. For projects with a federal nexus, the number of biological opinions was nominally lower (about twenty), but again the data available on biological opinions are far less complete. In addition, the consultation data available for the years 2008 through 2016 are consistent with these findings. About 600 informal and 58 formal consultations were conducted for wind projects, which implies an average of just 7.1 formal consultations per year.

125. The number of biological opinions, roughly fifty-two, was modestly higher than the numbers for renewable projects. The number of section 7 consultations for transmissions lines was higher, though in absolute terms only modestly so, than for renewables projects for the period 2008 through 2016. The FWS conducted 912 informal consultations and 93 formal consultations, or an average of 11.5 formal consultations per year.

The Subparts that follow first examine the geographic distribution of projects against those for federal permits and environmental reviews and then turn to differences observed across the three statutes. These detailed analyses are essential to understanding how federal agencies exercise their regulatory authority. As is so often the case, limited resources and time often constrain the potential for agency overreach, and this makes agency triage and streamlining a matter of practical necessity. These constraints have prompted tiering of regulatory requirements, such that the most stringent reviews and permitting are reserved for a small subset of projects for which environmental impacts are unavoidable and substantial.

*A. The Importance of Local Conditions  
Over the Scale of Development*

Multiple factors dictate the location of renewable projects, including the quality of the wind or solar resource, the cost of land, state regulations or incentives, and the proximity of access to the local electrical grid. Broadly speaking, wind development is concentrated in the Midwestern and Plains states south through Texas and, to a lesser extent, on the West Coast (*see* Figure 1); solar development is concentrated in the Southwest, Texas, and the Southeast (*see* Figure 2). These patterns show a clear association with the quality of wind and solar resources.

Developers also site renewable projects disproportionately in a small number of states. Using generation capacity as the metric, just eight states<sup>126</sup> accounted for 70 percent of total wind capacity deployed nationally from 2010 through 2021, and eight states<sup>127</sup> accounted for 80 percent of the solar capacity deployed nationally over the same period. The average size of projects was also generally higher in states with the highest levels of development.<sup>128</sup> Given the skewed geographic distribution across states and the inference that larger scales and numbers of projects are likely to be associated with greater environmental impacts, one would expect environmental reviews and permitting to occur more often in the states with the highest levels of development. As discussed further below, this pattern is not observed in the data.

The trends in wind and solar development over time differ substantially due to the earlier emergence of utility scale wind in the late 2000s. The trend in wind deployment is roughly flat after 2014, averaging sixty-three new projects annually (median fifty-nine) with an average capacity of 136 MW (median 120 MW). Given the modest number of projects, one would expect the volume of federal permits and environmental reviews to be similarly small and stable. By

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126. In order of total wind capacity deployed from 2010 through 2021, the states are Texas (27 GW), Oklahoma (9.6 GW), Iowa (8.3 GW), Kansas (7.2 GW), Illinois (5.5 GW), California (4.5 GW), Colorado (3.8 GW), and New Mexico (3.5 GW).

127. In order of total solar capacity deployed from 2010 through 2021, the states are California (17.5 GW), Texas (11.6 GW), Florida (6.7 GW), North Carolina (4.5 GW), Georgia (4 GW), Nevada (3.8 GW), Arizona (3.1 GW), and Virginia (2.9 GW).

128. For wind projects, Texas, Oklahoma, New Mexico, and Missouri had the highest averages (170-210 MW); for solar projects, Texas had the highest average (105 MW) and California was in the upper third (61 MW). States with low levels of solar deployment had averages of less than 20 MW.

contrast, the trend in solar development over this period is one of accelerating growth. The number of new solar projects rose from a handful of projects in 2010 to 100 projects per year by 2015, then jumped to about 150 in subsequent years. The average capacity of solar projects in 2015 was forty-six MW (median twenty MW), but it increased to sixty-nine MW (median fifty MW) by 2020. Simply based on this rapid growth, one would expect the number of environmental reviews and permits to increase significantly during the twelve years of the study.

Figure 1: Wind Generation Capacity (MW) and Number of Projects by State

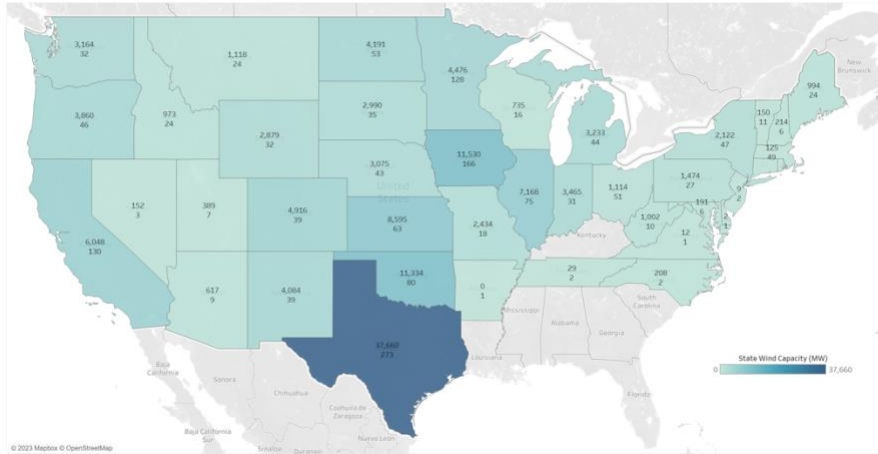
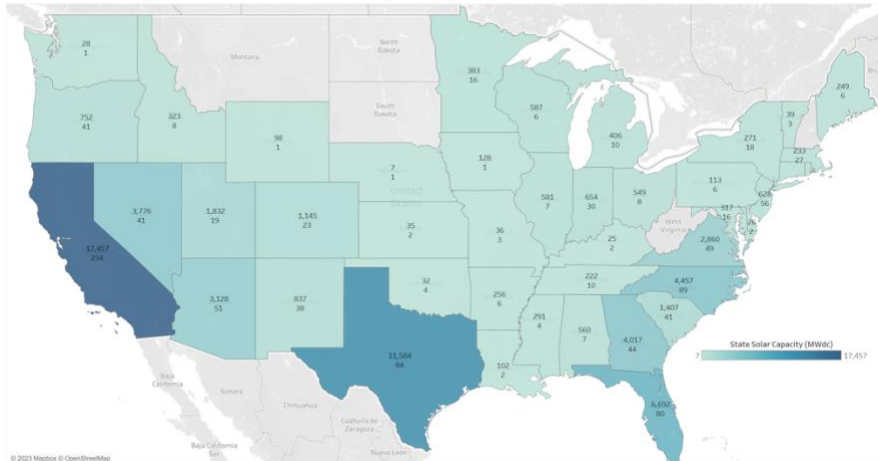


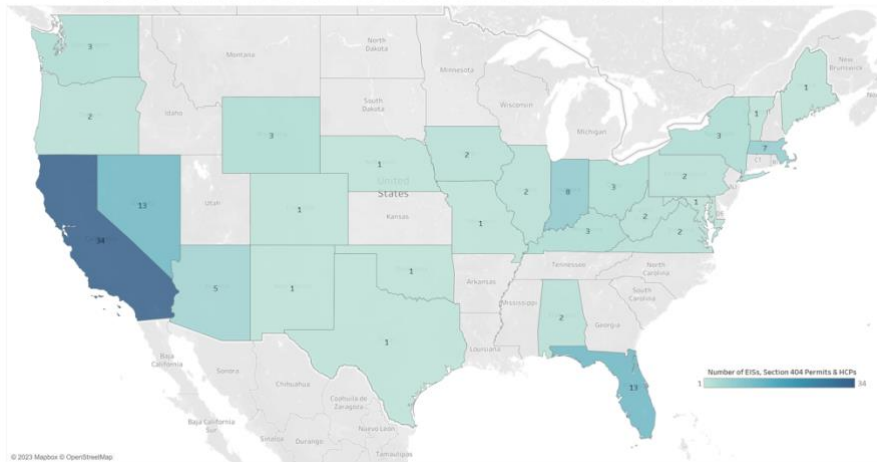
Figure 2: Solar Generation Capacity (MW) & Number of Projects by State



Wind projects, due to their smaller surface footprints, are typically less likely to require section 404 wetland permits, but they often have a higher likelihood of harming endangered species.<sup>129</sup> On the other hand, solar projects are more likely to harm wetlands because of their high density and uniform coverage, but less likely to harm endangered species thanks to their low profile and relatively static operation.<sup>130</sup> These structural and operational differences suggest the patterns of environmental regulation for wind and solar projects will differ significantly.

The states in which projects are concentrated also share environmental characteristics that clearly figure into the observed trends. In states with higher levels of precipitation and large wetland areas, such as Florida, or with significant numbers of endangered species impacted by wind or solar development, such as California, Hawaii, and midwestern states, projects will be more likely to trigger significant regulatory requirements.

Figure 3: Number of EISs and Permits for Wind & Solar Projects by State 2010-21



Environmental reviews and permitting were not consistently associated with the regions in which wind and solar development occur most often (*see* Figure 3<sup>131</sup>), nor was there a clear trend over time. While states such as California, Nevada, and Florida were among the states with the highest levels of development and permitting, there were other states with comparable or higher levels of development (Texas, Oklahoma, and Iowa) for which this was not true.

129. Examples include the red-tailed hawk, golden eagle, hoary bat, and eastern red bat. *See Wind Energy*, U.S. FISH & WILDLIFE SERV., <https://www.fws.gov/node/266177> (last visited Apr. 12, 2024).

130. Solar projects can impact important pollinators, such as monarch butterflies, and certain ground-level species, such as desert tortoises, salamanders, toads, and lizards. *See* U.S. DEP'T OF ENERGY, SOLAR IMPACTS ON WILDLIFE AND ECOSYSTEMS 28-31 (Nov. 2021).

131. Renewable projects in Alaska and Hawaii, omitted from the map, also had significant numbers of environmental reviews and permits; eight projects in Alaska required section 404 permits and eleven projects in Hawaii required either an EIS (two projects) or an HCP (nine projects).



Conversely, several states with low levels of development (Alaska, Hawaii, Massachusetts) had comparatively high levels of permitting. While this variability is attributable, in part, to the low numbers of federal permits and environmental reviews, the degree of geographic overlap between project sites and environmentally sensitive areas, as well as the presence of federal land, were the principal factors.

The importance of these factors is also evident in the distinct patterns of environmental reviews and permitting observed for wind and solar projects. For example, the midwestern states (Indiana, Illinois, Ohio) with elevated levels of federal permitting for wind projects each have substantial populations of endangered bat species with large ranges. Similarly, solar development in California and Nevada often overlapped with sensitive coastal or desert species or was located on federal land. In contrast, in Florida, development conflicted with large areas of wetland habitat. In either case, the controlling factor was not the scale of the development but rather whether federal permitting was unavoidable or whether the project was located on federal land or in federal waters. Overall, projects requiring comprehensive environmental reviews and individual permits were clustered in discrete regions: the southwestern deserts of Arizona, Nevada and California, Florida, several midwestern states, and offshore in the Northeast.

### *B. The Centrality of Administrative Streamlining in Environmental Law*

The analysis in the following Subparts evaluates the data obtained for federal permits and environmental reviews under each of the three major statutes. Consideration of the deployment patterns discussed above will be integrated into this analysis, as well as the trends observed comparatively across each of the statutory programs. This discussion shows more concretely how federal agencies streamline their processes and exercise their regulatory oversight.

#### *1. Procedural Exemptions and Tiering Under NEPA*

The number and geographic distribution of EISs differ markedly between wind and solar projects, but not in the manner that one would anticipate. Overall, only twenty-nine EISs were required for wind projects and only thirty-six for solar projects.<sup>132</sup> However, seven of the solar projects requiring an EIS used solar thermal rather than photovoltaic technologies, and all of them date back to 2010 and 2011 when solar thermal received significant federal support and was more viable than it is today. All twenty-nine of the remaining projects with EISs were located in California, Nevada, and Arizona.<sup>133</sup> Each of these states has significant solar capacity, but the concentration of EISs in just three states suggests again that local factors predominate. Tellingly, most of the projects impacted historical tribal lands, and all of them were located in ecologically

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132. The distribution of EISs across the twelve years is essentially flat for both wind and solar projects, with only one or two having more than two to three EISs.

133. Sixteen were located in California, ten were Nevada, and three were in Arizona.

sensitive environments. Further, twenty-eight projects were located on federal land or had direct federal involvement, and just one purely private solar project required an EIS.

The EISs for wind projects were spread broadly over fifteen states.<sup>134</sup> Among the states that account for most of the wind generation nationally, only California had more than one wind project requiring an EIS. Most of the fifteen states had project sizes that were below the national average, and twenty-two of the twenty-nine wind projects (76 percent) were either on public land or had direct federal involvement through agencies such as the Bonneville Power Administration or the Bureau of Indian Affairs. Given that far more projects are on private property than federal land, these results imply that very few purely private wind or solar projects required an EIS.

The geographic distribution of transmission lines requiring an EIS was also heavily weighted to western states (65 percent of the projects); the only non-western state in the top ten for the number of projects was Minnesota.<sup>135</sup> The concentration of projects requiring an EIS in western states appears to reflect the large areas of federal land in these states. This connection is apparent in the data on the lead agency that has primary responsibility for preparing an EIS. For transmission lines, two federal land agencies, BLM and U.S. Forest Service, accounted for 50 percent of the EISs, while federal agencies directly involved in funding or constructing transmission lines accounted for another 40 percent. Thus, just 10 percent of the projects requiring an EIS required federal regulatory approval and were therefore purely private actions.

These results are consistent with the broader trends in NEPA compliance. The public lands management agencies accounted for more than a third of final EISs for all federal actions published during this period, and the FWS was among the top seven agencies. The best predictors of whether an EIS will be required are the location of a project on public land, the direct involvement of a federal agency, and the presence of endangered species in the project area. However, the most important observation is that EISs are rarely required. This is especially true of the states with the highest deployments of renewables, such as Texas, Oklahoma, and Iowa. In these states, projects almost never require an EIS; instead, they proceed through streamlined processes (EAs, CEs) or NEPA is not triggered at all.

## *2. The Predominance of Section 404 Wetland Permits by Rule*

The data on section 404 permits are even more stark than those for EISs under NEPA. To begin, the absolute numbers are lower—eighteen standard section 404 permits for wind projects and just twenty-three for solar projects over the period 2010 to 2021. Of the wind projects, five were small-scale projects in Native American villages in Alaska, and another five involved offshore wind

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134. Two states (California and Massachusetts) had four wind projects requiring an EIS, two states (Hawaii and Wyoming) had three projects, three had two projects (Arizona, Oregon, and Washington), and nine had one project.

135. The highest number of EISs were in California (seven projects), Utah (five projects), and Wyoming (four projects); Minnesota had four.

projects—including the infamous Cape Wind project. All but one of the remaining projects were in the Northeast, which has sparse and relatively small-scale wind development. Moreover, offshore wind projects, which are located in federal waters, accounted for essentially all of the large-scale wind projects requiring a standard permit, and the only western project was located in California. These results reveal that project developers were almost always able to proceed based on streamlined nationwide permits when wetlands were affected, or no permit at all when they were not.

Avoidance of wetlands is somewhat harder for solar projects. Twenty-three solar projects required standard section 404 permits; twelve of them (52 percent), however, were in Florida, which has more wetlands than any other state except for Alaska.<sup>136</sup> Four others were in California, and the remainder were in the southeast, apart from a lone project in Minnesota. The clearest associations with section 404 permits are significant solar deployment and the presence of large areas of wetlands. The number of standard section 404 permits was higher for transmission lines, fifty-two in all, and the southeastern states also figured prominently—twenty projects were in Florida and Louisiana alone. One would, however, expect higher numbers for transmission lines due to their length and the corresponding higher likelihood that they will encounter wetlands.

To date, section 404 has had an insignificant impact on the development of wind and solar projects, and it appears to be only marginally more significant for transmission lines. This is perhaps predictable given that many of the regions in which development has occurred are relatively dry and, for wind projects, the small on-the-ground footprint of the turbines. While the number of permits could increase for solar projects in states such as Florida and California, the already-high levels of development in each state suggest that the need for standard section 404 will remain low. Further, the recent decision in *Sackett v. EPA* has drastically reduced the number of covered wetlands.<sup>137</sup> The most likely exception to these trends is offshore wind development because associated onshore infrastructure often cannot avoid affecting wetlands, the federal nexus when a project is located far enough offshore to be in federal waters.

### 3. *The Informality of Most ESA Procedures and Protections*

The total number of permits and associated HCPs or biological opinions issued under the ESA annually is strikingly low. Over the period 2010 to 2021, a total of only 265 HCPs were issued, or an average of just twenty-one per year. This means that the thirty-six HCPs issued for renewables projects accounted for 14 percent of the issued HCPs. Moreover, most of these HCPs appear to cover a single project based on the acreage covered, which suggests that programmatic or regional HCPs are not generally offsetting the low numbers.<sup>138</sup> As discussed

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136. *National Water Summary on Wetland Resources*, U.S. GEOL. SURVEY, [https://water.usgs.gov/nwsum/WSP2425/state\\_highlights\\_summary.html](https://water.usgs.gov/nwsum/WSP2425/state_highlights_summary.html).

137. Chiu, *supra* note 121.

138. For solar projects, the mean size was 1,787 acres and median 500 acres, with largest being just 5,784 acres. For wind projects, the mean size was 17,800 acres and the median 8,400. However, project scales were much lower in Hawaii, where the mean size was 1,548 acres and median was 1,086 acres. All

above, just six solar projects required an HCP, and most were located in California and Nevada; the covered species were typically endangered desert species, such as the desert tortoise, or sensitive coastal species with small ranges and limited remaining habitat.

The thirty wind projects requiring an HCP were located principally in Hawaii (nine projects) and several midwestern states (twelve projects).<sup>139</sup> Most of the covered species were either endemic to Hawaii (44 percent) or bat species that are under pressure from white-nose syndrome (47 percent). While wind development is important within Hawaii, the state's small size and geographic isolation limit its significance nationally. By contrast, the prominence of endangered bat species could become a significant factor because their habitat ranges cover large regions of the country, particularly the Midwest and south-central states, that have high-quality wind resources.<sup>140</sup> For now, the number of HCPs is manageable, but proactive policies may be required as wind deployment expands in the Midwest and Great Plains states.

Formal section 7 consultations occurred disproportionately in western states, and most often in California and Nevada. The available data are limited, however, to the years 2010 through 2016. During this period, roughly 50 percent of the wind projects required an informal consultation, whereas just 3 percent required a formal consultation, and 60 percent of them were located in California or Hawaii.<sup>141</sup> Formal consultations for solar projects occurred at a higher rate: about 11 percent received them, and 92 percent of the projects were located in California and Nevada.<sup>142</sup> More formal consultations were conducted for transmission lines (133 projects), and 71 percent of the projects were located in California, Nevada, or Colorado. For formal consultations, BLM and the Army Corps were the leading consulting agencies for solar projects and transmission lines, whereas FWS and BLM were for wind projects.<sup>143</sup> These trends highlight the strong association between projects located on public land and formal permitting procedures.

As noted above, the patterns of permitting under the ESA differ markedly between solar and wind projects. The concentration of solar projects requiring HCPs and biological opinions in states with large areas of sensitive habitats or

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of the largest HCPs were in the Midwest and were associated with bat species; the sizes of five HCPs were above 25,000 acres and the largest was 157,400 acres.

139. The specific states are Indiana, Illinois, Iowa, and Ohio.

140. See Galen Maclaurin et al., *National-Scale Impacts on Wind Energy Production Under Curtailment Scenarios to Reduce Bat Fatalities*, 25 WIND ENERGY 1514, 1515 (2022).

141. During the 2010-2016 time-period, 630 utility-scale wind projects were constructed, 321 informal and 20 formal consultations were conducted on wind projects.

142. During the 2010-2016 time-period, 439 utility-scale solar projects were constructed, and forty-nine formal consultations were conducted on solar projects. FWS data on biological opinions for the time-period 2015 to 2021 suggest much lower rates of formal consultations, closer to 3 percent, but they are incomplete. The informal consultation rate for solar projects is omitted here because the FWS data contained too many projects below 5 MW to derive a meaningful percentage estimate.

143. BLM and the Army Corps were the lead consulting agency for 66 and 13 percent, respectively, of the solar project. BLM and the Army Corps were the lead consulting agency for 33 and 25 percent, respectively, of the transmission lines. BLM and FWS were the lead consulting agency for 24 and 36 percent, respectively, of the wind projects.

numerous endangered species is reflective of the lower profile and static nature of solar projects. The relative flexibility of locating solar projects allows developers to avoid such impacts in most states. Unlike wind, shifting the location of a solar project or altering its design typically has little impact on generation output because solar irradiance changes over much larger scales. The observed trends also reflect the harms associated with solar projects—disruption or fragmentation of terrestrial habitat that is localized around the physical footprint of the project.

Wind projects present potentially greater challenges. Their dynamic nature can threaten endangered species, such as spinning turbine blades killing birds and bats. The high sensitivity of project generation to small changes in turbine location makes it challenging to mitigate such harms.<sup>144</sup> The HCPs and biological opinions for wind projects roughly fall into two categories: (1) projects in areas with numerous endemic bird and bat species; and (2) projects located in areas with large populations of endangered bats. The former is likely to present less of an obstacle because the habitats are small and typically lie outside the most favorable regions for wind development. However, the implications of the latter are potentially more significant given the large geographic ranges of endangered bat species and their continuing declines in population. The conflicts with wind development could also increase with the recent proposals to list the Tri-Colored Bat and the Lesser Prairie Chicken,<sup>145</sup> both of which have large ranges that overlap with high-quality wind resources.

Under all three statutes, the national data consistently show that in most cases, developers had the flexibility to avoid triggering federal regulation or mitigated their project's impacts sufficiently to use streamlined regulatory procedures rather than the most costly and time-consuming regulatory processes. While there are early signs that this could change in a minority of cases—most notably, in the southwestern deserts of California and Nevada for solar projects and in the Midwest and offshore for wind projects—there is little evidence that either federal permits or environmental reviews are currently a chronic source of project delay or failure.

### III. THE DIVERSE FORUMS FOR PUBLIC OPPOSITION TO ENERGY INFRASTRUCTURE

The alleged barriers to climate action attributed to 1970s-era environmental laws have two distinct components: (1) bureaucratic delays associated with the processes for conducting environmental reviews and issuing permits, and (2) opponents using these statutes, largely through litigation, to delay or block projects. While Part II addressed the first component, this Part focuses on the second, which is exemplified by the sixteen-year battle over the failed Cape

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144. See Maclaurin et al., *supra* note 140, at 1,515.

145. Aislinn Maetas, *U.S. Fish and Wildlife Service Lists the Lesser Prairie-Chicken Under the Endangered Species Act*, U.S. FISH & WILDLIFE SERV. (Nov. 17, 2022), <https://www.fws.gov/press-release/2022-11/lesser-prairie-chicken-listed-under-endangered-species-act>; Marilyn Kitchell, *Service Proposes to List the Tricolored Bat as Endangered Under the Endangered Species Act*, U.S. FISH & WILDLIFE SERV. (Sept. 13, 2022), <https://www.fws.gov/press-release/2022-09/proposal-list-tricolored-bat-endangered>.

Wind offshore wind project. Proponents of permitting reform claim that opponents of infrastructure projects, with a “not in my backyard” (NIMBY) agenda, routinely file “successive lawsuits challeng[ing] nearly every aspect of [a] project.”<sup>146</sup> This opposition forces project developers to abandon projects due to the costs and delays associated with fighting them. As the *Vox* article cited in the Introduction expressed it, “critics’ strategy was simple: ‘delay, delay, delay.’ And it worked.”<sup>147</sup>

If this narrative were accurate, numerous federal lawsuits should have been filed on the hundreds of projects that were constructed over the last decade or so. The actual numbers are closer to one to three cases per year over the period 2010 through 2021. These findings are starkly inconsistent with prevailing views among prominent commentators and legislators. Tellingly, similar schisms between public perceptions of litigation and actual trends have occurred before—the furor over the purported “explosion of [tort] litigation” in the 1980s and the widespread belief in the 1990s that 80 percent of EPA regulations were challenged in federal court.<sup>148</sup> Misperceptions about the frequency and impact of litigation appear to be particularly susceptible to generalization from unrepresentative anecdotal evidence.

This Part of the Article reviews newly collected data on federal litigation involving claims under the principal environmental laws, as well as recent studies of public opposition to energy projects. While the data available on federal litigation are centralized and complete for the years 2010 through 2021, information on public opposition in state or local forums is disbursed and incomplete. The studies that exist on public opposition necessarily rely on reports and reporting in open-access media, which may not capture all instances of local opposition.

Subpart A examines the patterns and frequency of federal environmental litigation over energy projects, while Subpart B discusses the available data and studies on public opposition to specific projects. Finally, Subpart C discusses other more pressing obstacles to climate action to illustrate the double standard that often applies to tradeoffs involving environmental protections and procedures.

#### A. *Environmental Laws Are Not Routinely Weaponized in Federal Litigation*

The fact that less than 5 percent of renewables projects required an EIS or a project-specific permit should give one pause. Filing a suit against an exempted project to compel compliance with one or more of these statutes would be challenging, if for no other reason than that the administrative record would be nominal. Cape Wind was an outlier in this respect: its location in federal waters

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146. See Mortimer, *supra* note 3.

147. *Id.*

148. See, e.g., Marc Galanter, *The Day After the Litigation Explosion*, 46 MD. L. REV. 3, 4-7 (1986) (discussing the lack of evidence for a significant rise in tort litigation and highlighting the influence of a small number of salient cases on public perceptions); Gary Coglianese, *Assessing the Consensus: The Promise and the Performance of Negotiated Rulemaking*, 46 DUKE L.J. 1255, 1294-1300 (1996) (describing the emergence of this view despite the complete absence of any evidence for it).

provided a federal nexus for purposes of NEPA and an ESA section 7 consultation, and the construction of onshore infrastructure (substation, powerlines) triggered CWA section 404. These characteristics set most offshore wind development apart as targets for federal litigation, and it will be important to track litigation over other offshore wind projects to determine whether Cape Wind is more or less representative of this class of projects.<sup>149</sup> For now, there simply have not been enough offshore wind projects in development to conclude either way.<sup>150</sup>

Table 2: Federal Challenges to Renewable & Transmission-Line Projects by Statute

Statute	Wind	Solar	Transmission
NEPA	22	14	12
ESA	12	3	3
CWA § 404	3	1	2

The cases involving claims under the applicable environmental statutes were collected using standard searches in Westlaw. In essence, a broad search was combined with case-by-case reviews to identify a complete database of cases.<sup>151</sup> Overall, the data show that few federal cases were filed and that they were concentrated in a small number of states. For the years 2010 through 2021, a total of just twenty-eight cases involved environmental claims against wind projects, fourteen involved solar projects, and fourteen involved transmission lines. In all, just twenty-one wind projects (2.8 percent), eight solar (0.7 percent), and fourteen transmission lines were subject to legal challenges under federal environmental laws. These findings are consistent with federal environmental litigation generally—a recent study found that the volume of “NIMBY” cases and permit challenges were “shockingly low” and accounted for only about 18 percent of the citizen suits filed annually.<sup>152</sup>

149. The recent opposition to Orsted’s Ocean Wind 1 offshore project that will be located off the coast of New Jersey suggests that public opposition to offshore wind may be rising. Kate Selig, *The Future of East Coast Wind Power Could Ride on this Jersey Beach Town*, WASH. POST (Aug. 8, 2023), <https://www.washingtonpost.com/climate-environment/2023/08/08/offshore-wind-energy-east-coast/>.

150. Cape Wind is one of two offshore wind projects that has been challenged in federal court. The other legal challenge involved a Bureau of Ocean Energy Management lease to Statoil for a proposed wind project located off the coast of New York state.

151. The cases were obtained from Westlaw’s “Trial Court Documents” database use the following searches: (1) “(NEPA CWA wetlands ESA MBTA BGEPA) & ((solar /p energy farm electricity)) & DA(aft 12-31-2009 & bef 01-01-2023)”, which generated 94 cases; (2) “(NEPA CWA wetlands ESA MBTA BGEPA) & ((wind /p energy farm electricity)) & DA(aft 12-31-2009 & bef 01-01-2023)”, which generated 145 cases; and (NEPA CWA wetland ESA MBTA BGEPA) & ((transmission /p electricity electrical)) & DA(aft 12-31-2009 & bef 01-01-2023)”, which generated 138 cases. The Excel files with the basic case information for each of the searches was then downloaded, and each case was reviewed to determine whether it involved claims under at least one federal environmental statute. This case-by-case review generated the final list of cases for the study.

152. Adelman & Reilly-Diakun, *supra* note 84, at 411 (estimating that “roughly 36 ‘NIMBY’ cases [ ] and 49 general permit challenges” are filed nationally each year).

Federal litigation over wind and solar projects was also skewed toward certain states and was not indicative of obstructionism by outside parties. Litigation over wind projects was concentrated in California, which accounted for almost half of the litigation, and several northeastern states. In the latter, projects were typically either offshore or in rural communities with strong commitments to protecting the local landscape (e.g., Vermont, Maine).<sup>153</sup> In terms of outcome and therefore effects beyond project delays, plaintiffs prevailed in just six of the twenty-eight cases (21 percent) that involved wind projects. This success rate is a little low relative to trends in environmental citizen suits generally, which tend to be around 30 to 40 percent.<sup>154</sup> But, neither the volume nor the outcomes of these cases suggest that plaintiffs are chronically filing purely obstructionist cases. Further, although NEPA is the statute under which claims were most often filed, neither the absolute number of cases nor the relative strength of the claims was notable—indeed, all six of the cases in which plaintiffs prevailed involved NEPA claims.

All fifteen cases involving solar projects were filed in California, and each of them involved projects in sensitive desert habitats, tribal issues, thermal solar projects, or all three together. In short, there appears to have been a distinct set of issues in a small area, and frequently a specific type of solar technology with much greater impacts, that spurred repeated litigation over large utility-scale solar projects. It is equally striking that litigation was completely absent in every other state in the country. Plaintiffs also prevailed in only one of these cases (0.7 percent), which is dramatically lower than the typical success rate for plaintiffs filing environmental citizen suits. Accordingly, far from being routine, federal litigation over solar projects was driven by a unique set of local circumstances in a single state that generally has higher rates of environmental litigation.<sup>155</sup>

The fourteen federal cases involving transmission lines were filed largely on the West Coast and in Texas, as well as several northeastern states.<sup>156</sup> The cases are broadly distributed—fourteen cases spread over nine states—with no clear pattern other than California once again accounting for a disproportionate share. Interestingly, plaintiffs succeeded more often in the transmission-line cases, prevailing in more than 40 percent of them (six of fourteen cases). This is not materially out of step with environmental citizen suits generally or challenges to federal administrative actions. Nevertheless, it is interesting to note the differences in success rates across wind, solar, and transmission-line projects. That said, the small number of cases precludes drawing any clear inferences from the different patterns and outcomes observed.

Federal litigation over renewables projects and transmission lines reinforces the results discussed above for environmental reviews and permitting. In both

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153. California had ten projects subject to litigation, a handful of states had two projects (Kansas, Massachusetts, Maine, Nevada, New York), and another eight states each had a single project.

154. Adelman & Reilly-Diakun, *supra* note 84, at 420 (identifying success rates for environmental lawsuits of roughly 30-40 percent for environmental groups).

155. *Id.* at 403, 414 (observing that California is a class of its own with respect to the volume of environmental litigation).

156. California is again an outlier with four cases; two states (Oregon and Texas) had two cases; and another six states each had one case.



administrative and judicial proceedings, it is the existence of a federal nexus that stands out as the controlling factor but one that is rarely met for most projects. California also stands out as an outlier, particularly for solar projects, but this appears to be due to a unique mix of tribal issues and environmental conditions in the Mojave Desert. Wind development in the Northeast, both onshore and offshore, is also a potential hotspot. Onshore, it appears to be a combination of vulnerable endangered bat populations and communities that are highly protective of their local landscapes; offshore, it is the federal nexus created by projects located in federal waters and community opposition to the large scale of the development anticipated.

Insofar as projects have been delayed or stopped, the record of environmental litigation negates the prevailing belief that opponents routinely weaponize federal environmental laws to block projects, as most projects avoid it. However, this finding does not imply that litigation against critical green infrastructure will not occur—as noted in the introduction, prominent examples already exist. Instead, there are practical and structural reasons that environmental litigation is unlikely to become a chronic barrier to green development—the low rates at which project-specific permits are required, the role federal land or direct involvement plays in triggering regulatory requirements, and the resources required to litigate in federal court. The data highlight two classes of projects that are mirror images of each other: projects located on federal land, where public opposition is limited to challenges under federal laws; and projects on private land, where public opposition centers on state or local permitting authorities or state courts. This dichotomy stems from three reinforcing factors: (1) state land-use regulations do not apply to federal lands, (2) projects on private land rarely require federal environmental reviews or project-specific permits, and (3) state and local forums are faster, easier to navigate, and more sensitive to local political pressure than federal courts.

Rather than generic measures that erode environmental procedures and protections, policymakers should focus on the specific conditions that elevate the risk of counterproductive litigation to formulate targeted permitting reforms. The potential hotspots identified above in California and Nevada, the Midwest, and offshore along the Atlantic coast could benefit from the regional planning and technical analyses (programmatic EISs and biological opinions) that federal agencies already use. Simply giving agencies more resources has also been shown to work and would facilitate proactive regional approaches to environmental reviews and permitting.<sup>157</sup> As some scholars have argued, there may also be a place for limited use of federal preemption in the case of especially high-value infrastructure that is likely to be controversial.<sup>158</sup>

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157. Ruple et al., *supra* note 69, at 279-80, 335-40 (highlighting the importance of adequate agency funding and qualified staff for environmental reviews).

158. See, e.g., Ruhl & Salzman, *The Greens' Dilemma*, *supra* note 19, at 48-53 (describing a model for streamlining procedures for large, high-value projects). Dan McCarthy & Maria Virginia Olano, *The Remarkable Upsurge in US Clean Energy Manufacturing*, in *Charts*, CANARY MEDIA (June 6, 2023), <https://www.canarymedia.com/articles/clean-energy-manufacturing/the-remarkable-upsurge-in-us-clean-energy-manufacturing-in-charts>.

*B. Most Public Opposition to Energy Projects  
Occurs in State or Local Forums*

The finding that federal courts are rarely used to oppose energy infrastructure does not foreclose other avenues for opposing projects. Two recent studies, one by social scientists at the Massachusetts Institute of Technology (MIT) and the other by researchers in the Sabin Center for Climate Change Law at Columbia University,<sup>159</sup> used open-access media reports to identify projects that experienced local public backlashes. The authors searched reporting, largely by local or specialized media outlets, on public controversies or state litigation. The MIT study is a fine-grained analysis of a non-randomized sample of fifty-three projects, whereas the Sabin Center study seeks to provide a comprehensive overview of projects subject to varying degrees of public opposition.

The MIT study analyzes renewables projects (wind, solar, and geothermal) and transmission lines located in twenty-eight states that were delayed or blocked between 2008 and 2023.<sup>160</sup> In most cases, public opposition had multiple sources (*e.g.*, concerns about property values, health threats, environmental impacts) and therefore was “multi-faceted.”<sup>161</sup> The authors emphasize that “organized opposition groups use a variety of means to stop renewable energy projects, including lawsuits, political campaigns, appeals to other levels of government [], and direct political protest.”<sup>162</sup> They also find that the public is often brought into the process too late.<sup>163</sup> This, in turn, can lead to stakeholders feeling “left out or disregarded” and can cause “months of wasted time and effort if stakeholders bring up unaddressed or mishandled concerns” or “trigger[] legal action or legislative review.”<sup>164</sup>

The principal problem is therefore not too much process, but rather inadequate or poorly timed processes. The MIT authors conclude that “incorporating all stakeholder perspectives from the outset [] will probably save time and money. Better to deal with perceptions of possible risks and potential benefits before opponents have made up their minds, and banded together, to block the project.” In other words, the timing and levels of public involvement should be improved, whereas streamlining—particularly if it erodes public engagement further—could exacerbate the problems detailed in the MIT study.

The Sabin Center study complements the MIT work with a broad picture of public opposition to energy infrastructure across the country. It is structured as a narrative state-by-state account of local laws and contested projects for the period 1995 through May 2023.<sup>165</sup> The report identifies 228 local policies and 293

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159. See generally EISENSON, *supra* note 24; Susskind et al., *supra* note 24.

160. Susskind et al., *supra* note 24, at 112,922, 112,924, 112,934 (noting that the researchers dropped some cases because they were “unable to find sufficient public documentation.”).

161. *Id.* at 112,927.

162. *Id.* at 112,929.

163. *Id.* at 112,934.

164. *Id.*

165. EISENSON, *supra* note 24, at 1-2.

contested projects, which reflect a 59 and 39 percent increase, respectively, over the findings in their March 2022 report.<sup>166</sup>

Public opposition is therefore growing, and this trend is observed in states such as Texas, Iowa, and Kansas with relatively high levels of renewable development.<sup>167</sup> Similar to the MIT study, the report finds that “opposition takes many forms, including comments at public hearings, letter-writing campaigns, petitions, participation in administrative proceedings, and lawsuits filed against local governments or developers.”<sup>168</sup> The authors conclude that “‘not in my backyard’ and other objections to renewable energy occur throughout the country and can delay or impede project development.”<sup>169</sup>

To compile as comprehensive a database of contested projects as possible and to derive descriptive statistics and maps from it, I integrated and augmented the results from the MIT and Sabin Center Studies as well as the federal litigation data discussed in the preceding Subpart.<sup>170</sup> The additional data collected for this database were also obtained through open-access media reports. This integrated database contains 357 projects that were subject to varying degrees of public opposition over roughly the past eighteen years.<sup>171</sup> The data reveal that 19 percent of the wind and 12 percent of the solar projects were contested, and 8 percent of wind and 5.5 percent of solar projects were ultimately canceled.<sup>172</sup> It is important to emphasize again that this integrated database is limited by the reports available in open-access media; the percentages of projects contested or canceled could therefore be higher.

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166. *Id.* at 3-4; see HILLARY AIDUN ET AL., OPPOSITION TO RENEWABLE ENERGY FACILITIES IN THE UNITED STATES (Sabin Ctr. for Climate Change L., Mar. 2022 ed.).

167. EISENSON, *supra* note 24, at 50-51, 59-60, 179-80.

168. *Id.* at 3.

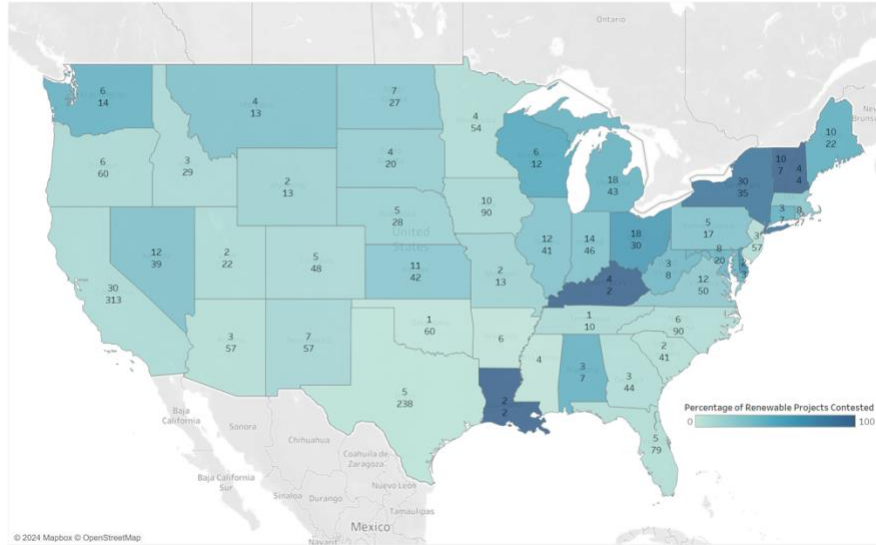
169. *Id.* at 6.

170. This involved copying the data provided in the MIT study, selecting a subset of their data, and mapping it onto a set of fields in my database; for the Sabin Center study, this involved collecting and augmenting data from their report and the citations providing in it, as well as additional ones where necessary.

171. Specifically, 171 wind projects (42.1 GW) out of 898 projects with capacities equal to or greater than 1 MW, 167 solar projects (28.9 GW) out of 1,132 projects with capacities equal to or greater than 5 MW, and 19 transmission lines. The contested wind projects included projects as small as 1 MW and the contested solar projects included projects as small as 0.5 MW. I expanded the number of wind projects completed between 2010 and 2021 to those as small as 1 MW (hence the total number of 898 rather than 751 used in the earlier analysis); however, this was not possible for the solar data because the Lawrence Berkeley National Laboratory (LBNL) data only included solar projects of 5 MW or greater. As a consequence, the percentage of solar projects reported here is an upper-bound estimate.

172. In absolute terms, seventy-six wind projects and sixty-two solar projects were ultimately canceled, whereas fifty-three wind projects and thirty-two solar projects were completed and forty wind and sixty-nine solar were still ongoing at the time of the study. In terms of total capacity (102 GW of wind and 68 GW of solar deployed, as well as 32.7 GW of wind and 25.1 GW of solar are either ongoing or cancelled), the percentages are 31 percent for wind and 29 percent of solar for all challenges; for projects stopped, the percentages are 10 percent and 10 percent, respectively, for wind and solar projects. Please note that these estimates are likely high due to the larger span of years covered by the Sabin Center study.

Figure 4: Percentage &amp; Number of Renewable Projects Contested by State 2010-21



The integrated data highlight the importance of state and local forums. Whereas just forty-two contested projects involved federal litigation (about 12 percent of the total), opposition to the other 314 projects occurred before state and local permitting authorities or state courts. Public opposition therefore largely plays out in state or local forums and rarely involves either federal permits or environmental reviews. The data also provide a fuller picture of public opposition across states (*see* Figure 4<sup>173</sup>). California and New York had the highest numbers of contested cases,<sup>174</sup> together accounting for 17 percent of the contested projects nationally; in states such as Michigan, Ohio, Vermont, and Maine, however, the percentages of projects subject to public opposition were much higher and sometimes exceeded 50 percent. Both statistics are important, but states with high percentages of projects being contested also tend to have low deployment levels. It is notable that in these states, only New York (two cases), Vermont (one case), and Wisconsin (one case) had disputes involving federal claims.

173. The top number for each state is the number of contested projects for the years 1995 through 2023 (note that most of the contested projects occurred after 2010) and the bottom number is the total number of projects constructed between 2010 and 2021. The number of contested projects is greater than the total number of projects in two states (Kentucky, Vermont) because the time periods are not precisely aligned, because the LBNL data are not perfect, and because the LBNL data on solar projects do not include projects below 5 MW. Notably, 22 of the solar projects challenged had capacities below 5 MW (including 4 in Vermont, 4 in Massachusetts, 2 in New York, and 2 in Maine). The estimated percentages of projects contested can be high in certain states, despite the other limitations of the integrated data that may bias it in the other direction.

174. In California, fifteen solar, fifteen wind, three transmission-line projects were contested; in New York, sixteen solar and thirteen wind projects were contested.

The rates of contested projects are not associated with either the volume of development or local politics. Many of the states with the highest levels of renewable deployment (*e.g.*, Texas, Oklahoma, Minnesota) had few contested cases. Even in California, which had a relatively high number of contested projects, only 10 percent of the renewable projects were contested. Similarly, conservative-liberal politics were not a factor—public opposition occurs across the political spectrum from Vermont and New York to Maine, Iowa, and Kentucky. The clearest pattern is the higher rate of public opposition to wind projects, which could, in part, reflect greater exposure to them over a longer period of time. Opposition to solar projects is also more geographically concentrated in California and the East Coast than wind, but these are nuanced differences.

Overall, the integrated data suggest that throughout many parts of the country, public opposition is not at crisis levels. Relatively low percentages of projects are subject to public opposition, and less than 10 percent of wind or solar projects were canceled. The picture is more complex and threatening when the data are broken out by state. Hotspots of public opposition exist in several states (Kentucky, Michigan, New Hampshire, New York, Ohio, Vermont), and a subset of them has elevated project cancellation rates as well.<sup>175</sup> Apart from New York, renewable deployments in these states also lagged national trends.<sup>176</sup> These disparities suggest that public opposition can be a major obstacle to project development, particularly given much higher deployments in other similarly situated states.<sup>177</sup> The most recent report on public opposition from Sabin Center also finds that public opposition to renewables and transmission lines is continuing to rise rapidly.<sup>178</sup> More analysis is needed, however, due to the range of factors that inform siting decisions.

Studies of public opposition provide further proof that federal environmental reviews and permitting are not the principal barriers to new energy infrastructure.<sup>179</sup> The cost, time, and complexity of filing cases in federal court are likely limiting factors. But the relative ease of navigating state and local proceedings should not be overlooked either. Most renewables projects require a state or local permit (typically in the form of a special-use permit or a local

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175. States with high rates of project cancellation include Alabama (43 percent), Kentucky (100 percent), Michigan (28 percent), New Hampshire (50 percent), New York (25 percent), and Vermont (57 percent).

176. The national average was forty-two projects (median twenty-eight) and the average for total state capacity of renewables projects was 3.2 GW (median 1.5 GW).

177. A recent survey of developers found that roughly 55 percent of solar and 63 percent of wind developers cited public opposition as a leading cause of project cancellation and that 42 and 60 percent of solar and wind developers, respectively, cited it as a leading cause of project delay. Nilson, *Survey of Developers*, *supra* note 32, at 11-12.

178. Matthew Eisensohn, *et al.*, *Opposition to Renewable Energy Facilities in the United States: June 2024 Edition 5 (2024)* (observing that “the 395 local restrictions, 19 state-level restrictions, and 378 contested projects catalogued in this report represent a major increase over the totals in the May 2023 edition”).

179. Nilson, *Survey of Developers*, *supra* note 32, at 11-12 (finding that local ordinances or zoning, grid interconnection delays, and community opposition are far more important causes of project delays and cancellations than environmental restrictions); *see also* Boling, *Barriers to Federal Transmission Permitting*, *supra* note 32, at 2-3.

variance), and state-level proceedings tend to be more accessible, easier to influence through local political campaigns, and relatively quick. It should come as no surprise that local opponents gravitate to them over federal courts—indeed, the recent rise in public opposition to fracking, which had similar local impacts, was centered largely in state and local forums.<sup>180</sup>

The two notable exceptions to these observations are California, which is an outlier along multiple dimensions, and offshore wind development in the Northeast. In California, determining the importance of federal environmental laws is complicated by the overlay of strict state laws, such as the California Environmental Quality Act, and the abundance of federal land in the state, but the state's recurring prominence in the preceding analysis warrants closer study. Offshore wind development is distinct because projects are typically located in federal waters and their onshore infrastructure usually requires a standard section 404 permit, whereas state and local oversight will be absent or strictly limited, as they are any time that development occurs on federal property. These factors limit project opponents to challenges in federal court and elevate the importance of environmental laws. Thus, a combination of legal factors influences the likelihood of federal environmental litigation relative to challenges in state or local forums.

### *C. Four Factors Contributing to the Persistence of Public Misunderstanding*

Although there are likely many causes, I will suggest four reasons that public perceptions have become disconnected from how environmental reviews and permitting are conducted. First, as described above, the public debate has focused on highly salient—but unrepresentative—anecdotal evidence, such as the high-profile battle over the Cape Wind project. Second, the prominence of such anecdotes has been compounded by the dearth of information on environmental reviews and permitting. Third, public cynicism and misperceptions about administrative processes have fostered the view that environmental laws are rigid and procedurally bloated and thus incompatible with timely responses to climate change. Fourth, the urgency of the energy transition has fueled fears that existing processes will be overwhelmed by the massive deployment of infrastructure that must occur over the next thirty years.

The first two points are straightforward to grasp. A close reading of the commentary advocating for permitting reform reveals that it is based entirely on anecdotal evidence. The examples cited in the Introduction are representative. You can judge their accuracy for yourself based on the information provided in the preceding sections, which attempt to provide an accurate account of what is and is not known about environmental reviews and permitting. A principal objective of this Article is to better inform public understanding with accurate and representative information.

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180. Spence, *Local Vetoes*, *supra* note 24, at 351-52 (describing how “400 local governments, from California to Texas to New York, have enacted ordinances restricting or banning [] the use of hydraulic fracturing (fracking)”).

One of the most perplexing beliefs among proponents of permitting reform is that compromise and administrative streamlining are alien to federal environmental law implementation.<sup>181</sup> The three statutes (NEPA, the ESA, and the CWA) that are commonly at issue for renewables projects and transmission lines are among the most politically charged and contested federal laws of any kind. NEPA has been the subject of countless reports and calls for reform;<sup>182</sup> the ESA is often considered to be “America’s most controversial environmental law” and is a perennial target for legislative retrenchment;<sup>183</sup> and the CWA’s wetlands program has been the object of congressional ire and major legal challenges for decades, including the recent *Sackett v. EPA* case that radically narrowed the jurisdictional scope of the law.<sup>184</sup> In this challenging environment, difficult tradeoffs have been inevitable, and streamlining has been a necessity. It simply is not true that environmental organizations (perhaps with a few exceptions) have been unwilling to make difficult compromises or that federal agencies lack either the capacity legally or the pragmatic judgment to adopt streamlined procedures.<sup>185</sup>

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181. See, e.g., Oliver A. Houck, *The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce*, 64 U. COLO. L. REV. 277, 279 (1993) (observing that, despite the ESA’s “clear commands,” the Services have implemented the ESA in a highly discretionary manner that “has accommodated the overwhelming majority of human activity without impediment”); Michael C. Blumm & Bernard Zaleha, *Federal Wetlands Protection Under the Clean Water Act: Regulatory Ambivalence, Intergovernmental Tension, and a Call for Reform*, 60 U. COLO. L. REV. 695, 698 (1989) (observing that “[f]ederal wetlands regulation has always been controversial” and that this has produced major legislative battles “as well as continuous administrative reforms”); Karkkainen, *supra* note 30, at 346-47 (observing that “[f]or the vast majority of projects, avoiding EIS production turns out to be reasonably easy.”).

182. See, e.g., Yost, *supra* note 38, at 508-11 (describing the stakeholder consultation process and streamlining measures, including page and time limits, incorporated into CEQ’s 1978 NEPA regulations); Karkkainen, *supra* note 30, at 336 (describing the “[l]ong-simmering dissatisfaction among agency officials and resource extraction industries [that] boiled over” during the George W. Bush Administration); Ruple et al., *supra* note 69, at 277-78 (describing the many efforts by lawmakers to “streamline” NEPA and their view that it is the “weapon of choice for opponents seeking to stop or delay [projects]”); THE NEPA TASK FORCE, MODERNIZING NEPA IMPLEMENTATION vii (Sept. 2003), <https://ceq.doe.gov/docs/ceq-publications/report/finalreport.pdf>; U.S. GEN. ACCOUNTING OFF., HIGHWAY INFRASTRUCTURE: STAKEHOLDERS’ VIEWS ON TIME TO CONDUCT ENVIRONMENTAL REVIEWS OF HIGHWAY PROJECTS (May 2003), <https://www.gao.gov/products/gao-03-534>; COUNCIL ON ENVTL QUALITY, THE NATIONAL ENVIRONMENTAL POLICY ACT: A STUDY OF ITS EFFECTIVENESS AFTER TWENTY-FIVE YEARS (Jan. 1997), <https://ceq.doe.gov/docs/ceq-publications/nepa25fn.pdf>.

183. See, e.g., Plater, *supra* note 14, at 292 (describing how the ESA became an “intensely and excruciatingly [] pitched battle ground”); Taylor et al., *supra* note 28, at 10,924 (describing the ESA as one of the most “reviled” environmental laws and describing repeated efforts by lawmakers to narrow its scope and limit its implementation); Mark A. Schwartz, *The Performance of the Endangered Species Act*, 39 ANN. REV. ECOL., EVOLUTION & SYSTS. 279, 280 (2008) (describing the ESA as “a social, legal, and political battleground” and a “frequent target for legislative modification”).

184. *Sackett v. EPA*, 598 U.S. 651, 663 (2023) (describing the “decades of agency action and litigation” that have overshadowed the section 404 program); see Yachnin, *supra* note 36; Associated Press, *supra* note 35 (referring to a regulation expanding the jurisdictional scope of section 404 as a “tyrannical power grab”).

185. See, e.g., LINDA LUTHER, CONG. RESEARCH SERV., THE NATIONAL ENVIRONMENTAL POLICY ACT: STREAMLINING NEPA (Jan. 9, 2007) (observing that “[m]any agencies have implemented administrative and legislative [NEPA] streamlining actions,” ranging from coordinating inter-agency review processes, codifying regulations, delegating authority to states, and categorically excluding

The evidence of prior streamlining is clear and widespread.<sup>186</sup> I will limit myself here to a few illustrative examples. Under each of the three statutes, federal agencies have adopted tiered procedures of varying stringency. As discussed in Part II, NEPA has three levels of review—regulatory categorical exclusions, which can be resolved in weeks; environmental assessments, which typically take about a year to complete; and EISs, which take, on average, several years to complete. Most of the streamlining under NEPA derives from its coverage of projects through CEs and EAs. CEQ has estimated that less than one percent of federal actions subject to NEPA require an EIS, and this is borne out by the small number of EISs prepared annually—in recent years, there were fewer than one hundred across *all* federal agencies.<sup>187</sup> The number of EISs is low because agencies have adopted affirmative policies to avoid them. For example, an agency can issue a “programmatic EIS,” which will cover individual actions in a specific geographic area or program,<sup>188</sup> or use “mitigated [findings of no significant impact (FONSIs)],” which are conditioned on adopting specified mitigation measures;<sup>189</sup> in each case, individual actions can typically get by with an EA.

Under the ESA, similar modes of streamlining exist for section 7 consultations. As discussed in Part I, roughly 90 percent of section 7 consultations are informal and take less than a month to complete; even for the 10 percent of formal consultations, the completion time is typically about half a year.<sup>190</sup> Streamlining of section 7 consultations has two principal forms. First, agencies can designate specific “no effect” actions that do not require section 7 consultations.<sup>191</sup> Second, “programmatic consultations” can be used in place of

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specific actions from NEPA); Palmer Hough & Morgan Robertson, *Mitigation Under section 404 of the Clean Water Act: Where it Comes From, What It Means*, 17 WETLANDS ECOL. MGMT. 15, 18-19 (2009) (describing administrative processes that led to critically important streamlining and flexibility in the section 404 wetlands program for general permits, which Congress codified in 1977, and wetlands mitigation options, which were litigated and adopted through guidance); Leah R. Gerber, *Conservation Triage or Injurious Neglect in Endangered Species Recovery*, 113 PNAS 3563, 3563 (2016) (describing the necessity of “triage” under the ESA because the Services “lack resources to implement all recovery plans and are faced with making difficult decisions about which species and which actions are of highest priority.”).

186. Biber & Ruhl, *supra* note 26, at 138-39 (observing that “the permitting system has evolved into a far more flexible, nuanced, and innovative institution in the modern administrative state”).

187. Although now dated, the CEQ has estimated that the federal government produced 50,000 EAs each year, as opposed to 250 final EISs (0.5 percent of the NEPA documents prepared annually) in the mid-2000s. Karkkainen, *supra* note 29, at 346-48.

188. BLM is currently in the process of updating its programmatic EIS for the Western Solar Plan. See generally *Notice of Intent to Prepare a Programmatic Environmental Impact Statement to Evaluate Utility-Scale Solar Energy Planning and Amend Resource Management Plans for Renewable Energy Development*, 87 Fed. Reg. 75284 (Dec. 8, 2022) (publicizing a BLM programmatic update).

189. *Id.* (describing mitigated FONSIs as being conditioned on adoption of mitigation measures that drop a project’s environmental impacts below the EIS-triggering threshold); Karkkainen, *supra* note 30, at 348.

190. See *Infra* Part II.B.

191. ERIN H. WARD & PERVAZE A. SHEIKH, CONG. RESEARCH SERV., ENDANGERED SPECIES ACT (ESA) SECTION 7 CONSULTATION 2 (June 7, 2023) (describing programmatic consultations as allowing “[federal] agencies to consult with the Services on multiple, frequently occurring, or routine actions in a



formal consultations for recurring actions in specific geographic areas or for specific programs.<sup>192</sup> While consultations are still required for individual projects, the time needed for a programmatic consultation is dramatically shorter than for a formal consultation.<sup>193</sup> In California, the Desert Renewable Energy Conservation Plan (DRECP) enables streamlined programmatic consultations for renewable projects in the Mojave and Colorado/Sonoran desert region, which is a leading area for utility-scale solar projects.<sup>194</sup>

As the data presented in Part II make clear, most renewable projects do not trigger section 7 consultations. Very few (4 percent of wind and just 0.5 percent of solar projects) required an HCP/ITP under section 10. In such cases, consultations are voluntary and not governed by legally binding rules; instead, the FWS has issued “Land-Based Wind Energy Guidelines” to assist developers in mitigating impacts on endangered species, identifying best practices, and communicating effectively with agency officials.<sup>195</sup> The Wind Guidelines also adopt a “‘tiered approach’ for assessing potential adverse effects” on species, with the number of tiers and depth of analysis varying according to the potential impacts of a project.<sup>196</sup> Consistent with this framework, it is reasonable to assume that most voluntary consultations will be comparable to informal consultations under section 7—although relative brevity alone does not necessarily imply that navigating these processes does not significantly impact projects.<sup>197</sup> What is clear, however, is that formal HCPs/ITPs are rarely required and that the FWS routinely triages and calibrates the rigor of its consultation processes.

The preceding examples illustrate some of the ways that administrative streamlining occurs under federal environmental laws. One could acknowledge these measures, however, and still worry that even with them in place, regulators

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particular geographic area or on proposed programs, policies, or regulations that would provide a framework for future actions.”).

192. *Id.* at 11-12; Taylor et al., *supra* note 28, at 10,927 (describing programmatic consultations and providing several examples developed by BLM for energy projects, including renewables).

193. ERIN H. WARD & PERVAZE A. SHEIKH, *supra* note 187, at 11-12. In 2016 the FWS Midwest office issued the “Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and the Northern Long-Eared Bat,” which also allows for programmatic consultations that fall within the scope of the Biological Opinion. *See also* Taylor et al., *supra* note 28, at 10,927 (noting that the programmatic consultations reduced the time from 135 to 30 days).

194. BUREAU OF LAND MGMT., EXECUTIVE SUMMARY FOR THE RECORD OF DECISION: DESERT RENEWABLE ENERGY CONSERVATION PLAN ES-2 (Sept. 2016), <https://www.blm.gov/programs/planning-and-nepa/plans-in-development/california/desert-renewable-energy-conservation-plan>; *see also* Taylor et al., *supra* note 28, at 10,927.

195. U.S. FISH & WILDLIFE SERV., U.S. FISH & WILDLIFE SERVICE LAND-BASED WIND ENERGY GUIDELINES 1 (2012), <https://www.fws.gov/media/land-based-wind-energy-guidelines>.

196. *Id.* at 6-7 (the Wind Guidelines state that “[t]he tiered approach is designed to lead to the appropriate amount of evaluation in proportion to the anticipated level of risk that a project may pose to species of concern and their habitats”). While voluntary, the FWS incentivizes adherence to the Wind Guidelines through its prioritization of enforcement actions; in essence, it prioritizes prosecutions based on whether a project has adopted mitigation measures consistent with the Wind Guidelines. *Id.* at 6.

197. Weiland et al., *supra* note 96, at E1593 (observing that “even informal consultations [under section 7] can result in major changes to or abandonment of projects with substantial economic implications”). Please note that while this quote refers to informal consultations under section 7, the same basic points also apply to informal consultations outside of this statutorily mandated process.

will be overwhelmed by the unprecedented scale and speed required to decarbonize the energy sector. Commentators use a variety of examples to provide a tangible sense of what this energy transition will entail, such as “constructing 100 very large nuclear power plants every year from now through 2050”<sup>198</sup> or “bringing online two new 400 MW solar power facilities—each taking up at least 2000 acres—*every week for the next thirty years.*”<sup>199</sup> While these are unprecedented numbers of new projects in the context of the electricity sector, it is not the relevant measure for evaluating the implications of environmental reviews and permitting, which cover public and private actions throughout the U.S. economy.

The proper question is whether the number of environmental reviews and permitting associated with the energy transition is likely to be large relative to the volume of applications typically processed under the three statutes. The number of environmental reviews under NEPA and permits under the ESA and CWA have been presented in Part I. However, I still need to estimate the number of projects anticipated for the energy transition, focusing again on projections for wind and solar development. To derive this, I will use the levels of project completion projected for 2030 by BloombergNEF, which estimates that 24.3 GW of wind and 52.3 GW of solar will be constructed under its Policy Scenario.<sup>200</sup> In 2021, the average size of wind projects was 180 MW, while solar was 70 MW. Using these averages to estimate the number of projects completed in 2030 generates the following results: 135 wind projects (2.6 per week) and 747 solar projects (14 per week).<sup>201</sup>

To estimate the corresponding numbers of environmental reviews and permits, I will use the percentages in Table 1 derived from the data for 2010 through 2021. This leads to the following results: Wind—5 projects annually will require an EIS, 5.5 projects will require an HCP/ITP, and 3.3 projects will require a standard permit under section 404; Solar—24 projects annually will require an EIS, 4 projects will require an HCP/ITP, and 15 projects will require a standard permit under section 404.<sup>202</sup> I will also assume that all of the other projects undergo an ESA consultation under section 7 or a voluntary ESA consultation connected to section 10. Given that most projects will lack a federal nexus or fall

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198. Gerrard, *Time for Triage*, *supra* note 9, at 39.

199. Ruhl & Salzman, *The Greens' Dilemma*, *supra* note 19, at 10 (emphasis in original).

200. *See, e.g.*, McCarthy & Olano, *supra* note 157.

201. A recent report issued by the National Renewable Energy Lab (NREL) estimated much higher deployment rates for decarbonizing the electricity sector by 2035. PAUL DENHOLM ET AL., EXAMINING SUPPLY-SIDE OPTIONS TO ACHIEVE 100% CLEAN ELECTRICITY BY 2035 (Aug. 2022), <https://www.nrel.gov/docs/fy22osti/81644.pdf>. The report estimates that annual deployment levels of solar and wind would need to average 43-90 GW and 70-145 GW, respectively, which implies construction of 614-1,286 solar projects each year and 389-806 wind projects per year assuming the average project sizes used for the BloombergNEF estimates. If this trajectory were followed, solar deployment rates would be 0.82-1.72 times the BloombergNEF estimate and wind deployment rates would be roughly 3-6 times higher.

202. Using the higher deployment rates from the NREL study discussed in Footnote 191, increases the estimates as follows: Wind – fifteen to thirty projects annually will require an EIS, seventeen to thirty-three projects will require an HCP/ITP, and four to twenty projects will require a standard permit under section 404; Solar – twenty to forty-one projects annually will require an EIS, three to seven projects will require an HCP/ITP, and twelve to twenty-six projects will require a standard permit under section 404.

under a categorical exclusion, it is impossible to say how many EAs will be required. Similarly, with the new jurisdictional ruling for the CWA in *Sackett v. EPA*, it is difficult to estimate the number of general permits. However, in either case, the annual national totals for EAs under NEPA and general permits under section 404 are in the tens of thousands, which is an order of magnitude or more than even the highest estimates one could imagine being required for wind and solar projects.

What about the estimates for EISs and formal permits, which take the longest time and have the greatest administrative burdens? For the period 2010 through 2021, an average of 153 final EISs were issued annually.<sup>203</sup> Using this average as the benchmark, the number of final EISs issued annually for wind and solar projects in 2030 would increase by 3 and 16 percent, respectively.<sup>204</sup> The percentage increases for HCPs/ITPs are similarly modest: less than 20 percent for both wind and solar using the average of thirty HCPs/ITPs per year for the period 2010 through 2021. The absolute numbers are in the mid-single digits. For ESA section 7 consultations, the Services process more than 10,000 informal and more than 400 formal consultations annually. Assuming that the number of formal consultations/biological opinions is comparable to the number of HCPs/ITPs, the percentage increases in formal consultations from wind and solar projects would each be about 2 percent. Similarly, if you assume that all of the remaining projects undergo either an informal or voluntary consultation, the projected increase in FWS workload—using the number of informal section 7 consultations as the benchmark—would be less than 1 percent.<sup>205</sup> Under section 404, the percentage increases from wind and solar projects would also each be less than 1 percent for standard permits, as the Army Corps currently issues approximately 1,900 each year.<sup>206</sup>

None of the estimated increases in agency workload suggest that the projected deployment levels of wind and solar projects are unworkable.<sup>207</sup> The principal reason for this result is that federal agencies are already processing

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203. As recently as the 2000s it has been closer to 230 per year, so federal agencies have been able to process substantially higher volumes of EISs in the past.

204. Moreover, in absolute terms the numbers of added EISs are modest, particularly given the much higher number of final EISs issued just a decade ago.

205. If you limit the informal consultations to similar infrastructure projects (*i.e.*, oil and gas development, transportation projects, power generation, transmission lines), the number of informal consultations for such projects averaged 3,211 per year for the period 2010 through 2016. Assuming conservatively that 875 wind and solar projects will go through either an informal consultation or a voluntary consultation, the FWS workload would increase by 25 percent relative to the existing volume of informal consultations for infrastructure projects (*i.e.*, ignoring altogether the existing volume of voluntary consultations).

206. CARTER, *supra* note 106, at 2-3.

207. If you use the much higher deployment rates from the NREL study, the only area where the increases would be substantially higher, relative to current total volumes of environmental reviews and permitting, is for HCPs/ITPs, which could more than double. Even here, though, the absolute numbers are relatively low (roughly sixty to seventy annually) and the numbers of HCPs/ITPs issued in prior years has, at times, been much higher. Further, the Services could develop regional or programmatic HCPs or biological opinions to streamline the permitting processes. The much higher rates of wind deployments, especially if a large fraction of it were offshore in federal waters, could add significantly to the workload of federal agencies, but with sufficient resources, even these rates of deployment should be manageable.

large numbers of environmental reviews and permits. Each of these statutes covers an extraordinarily diverse range of federal and private actions and, because of this breadth, already processes thousands of individual actions each year. Further, while one could imagine individual agencies or regional offices getting overwhelmed—perhaps the Bureau Ocean Energy Management if offshore wind development really takes off—the existing models of programmatic streamlining appear to be well suited to mitigating just such circumstances. The federal government is also pursuing other innovative efforts through programs, such as the Fixing America’s Surface Transportation Act (FAST-41), to promote interagency coordination and provide additional resources for high-priority projects.<sup>208</sup>

This discussion highlights the importance of framing and the necessity of representative information to understand complex legal systems. In essence, commentators have not considered the scale and speed of change that must occur for the energy transition in the relevant context. The radical change required within the electricity sector is far less daunting relative to the much broader scope and scale of the regulatory programs under NEPA, the ESA, and the CWA. Public understanding has been clouded further by anecdotal evidence, particularly high-profile litigation, that has escalated fears and reinforced mistaken beliefs about the inflexibility of environmental laws and agency officials’ and stakeholders’ unwillingness to think pragmatically about balancing competing objectives. While tradeoffs and compromises will undoubtedly have to be made, the perceived conflicts between environmental laws and climate action are not nearly as stark as the public debate would have you believe.

#### *D. The Double Standard for Human Interests and Environmental Values*

The focus of the debate over permitting reform on federal environmental laws is hard to square with the weaknesses in the evidence and reasoning. To illustrate this concretely, I will briefly discuss two parallel challenges that highlight these inconsistencies: (1) the large backlogs around the country in the queues for new renewable and other generation to connect to electrical transmission grids;<sup>209</sup> and (2) project opponents’ use of local ordinances and permitting processes to block new projects, which was discussed above in Part

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208. The Fixing America’s Surface Transportation Act (FAST-41) of 2015 was “created a new governance structure, set of procedures, and funding authorities to improve Federal environmental review and authorization processes for covered infrastructure projects.” FED. PERMITTING IMPROVEMENT STEERING COUNCIL, FAST-41 FACT SHEET, (n.d.), <https://www.permits.performance.gov/documentation/fast-41-fact-sheet>; see also David J. Hayes, Comment, *Addressing the Environmental Impacts of Large Infrastructure Projects: Making “Mitigation” Matter*, 44 ENV’T L. REP. 10016, 10017 (2014) (describing a consolidated inter-agency framework for compensatory mitigation that is designed to facilitate and streamline project-specific permitting); David J. Hayes, *Leaning on NEPA to Improve the Federal Permitting Process*, 45 ENV’T L. REP. 10018, 10020-21 (2015) (describing a model for using NEPA procedures to facilitate inter-agency coordination during the permitting of large infrastructure projects that require approval from multiple federal agencies).

209. A renewable project cannot get financed and built without approval for it to connect to the transmission system, as without this approval there is no way for a project to transmit the electricity it generates to a purchaser of their power.

III.B. These examples are useful because they arise in divergent contexts; the former is highly technical, whereas the latter concerns competing public interests and individual rights. Further, the different degrees of public awareness for each expose the disconnect that can exist between the level of public attention and the urgency of a problem.

Concern about backlogs in interconnection queues, which now average about five years,<sup>210</sup> have received increasing attention, including from the Federal Energy Regulatory Commission (FERC).<sup>211</sup> Commentators have broadly assessed the contributing factors and, in doing so, recognized that the backlogs are compounded by rising costs placed on new projects for associated grid upgrades.<sup>212</sup> Together, the two trends have raised attrition rates in the pipeline for new projects, such that by 2022, just 21 percent of proposed projects were completed.<sup>213</sup> These findings have prompted calls for technical and administrative reforms to mitigate these devolving feedback loops.<sup>214</sup> Importantly, although there are serious differences of opinion about the specific measures required, there is broad agreement on the nature and severity of the underlying problems.<sup>215</sup>

The debate over interconnection queues highlights several inconsistencies in evidentiary standards. Empirical studies and the technical and practical details of approval processes inform the understanding of the interconnection backlogs. By contrast, the debate over permitting reform has relied on anecdotal evidence and generalizations rather than accurate information on how environmental reviews and permitting are conducted. There is also a broadly accepted explanation for the interconnection backlogs—the volume of projects in interconnection queues is unprecedented, which prompts project developers to enter the queues speculatively with half-baked projects; this dynamic further

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210. Joseph Rand et al., *Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection as of the End of 2022* 3 (Apr. 2023), <https://emp.lbl.gov/news/grid-connection-requests-grow-40-2022-clean> (finding that the “typical project built in 2022 took 5 years from the interconnection request to commercial operations”).

211. FERC issued an important proposed rulemaking in July 2022. See generally *Improvement to Generator Interconnection Procedures and Agreements*, 87 Fed. Reg. 29934 (July 5, 2022) (codified at 18 C.F.R. pt. 35).

212. Joachim Seel et al., *Generator Interconnection Costs to the Transmission System* 12-13 (June 2023), [https://emp.lbl.gov/interconnection\\_costs](https://emp.lbl.gov/interconnection_costs) (finding that “interconnection costs have grown across regions and request types . . . often doubling for projects that have completed all studies” and that “projects that withdraw have the highest interconnection costs”).

213. Rand et al., *supra* note 210, at 3.

214. See, e.g., Jacob Mays, *Generator Interconnection, Network Expansion, and Energy Transition*, IEEE TRANS. ON ENERGY MARKETS, POLY' & REGUL. 1, 5 (2023); Johannes Pfeifenberger & Joseph DeLosa, *Proactive, Scenario-Based, Multi-Value Transmission Planning*, BRATTLE (June 2022), <https://www.brattle.com/wp-content/uploads/2022/06/Proactive-Scenario-Based-Multi-Value-Transmission-Planning.pdf>; *Plugging In: A Roadmap for Modernizing & Integrating Interconnection and Transmission Planning* 7-8 (Enel Green Power, Working Paper, 2021) <https://www.enelgreenpower.com/content/dam/enel-egp/documenti/share/working-paper.pdf>.

215. Miranda Wilson, *FERC Aims to Fix the Grid's Renewable Energy Backlog. Can It?*, ENERGYWIRE (June 1, 2023); Brad Plumer, *The U.S. Has Billions for Wind and Solar Projects. Good Luck Plugging Them In*, N.Y. TIMES (Feb. 23, 2023), <https://www.nytimes.com/2023/02/23/climate/renewable-energy-us-electrical-grid.html>.

burdens grid operators, causing a negative spiral between queue volumes and approval times.<sup>216</sup> The case for permitting reform also falls short in this respect, as it rests on generalizations from high-profile litigation and loose extrapolations from the scale of the energy transition to infer that the volume of project development needed cannot be managed under the existing permitting frameworks.

Additionally, concerns about litigation under federal environmental laws have overshadowed project opponents' frequent use of local ordinances and permitting processes to block projects. Yet, as we have seen, the present study finds that more than 85 percent of the projects opposed by local communities were challenged in a local forum, such as a zoning board or planning commission, or before a state court or siting authority (e.g., Public Services Commission, Siting Board).<sup>217</sup> The public discourse also ignores the recent experience with local opposition to fracking, which played out largely in state and local forums rather than federal courts.<sup>218</sup> These mismatches highlight the weak connection between actual experience and public perceptions.

Fears about federal litigation also ignore important practical considerations. Filing a case in federal court entails hiring costly lawyers, is typically slow, and depends on making complex technical and legal arguments to a politically unaccountable federal judge. Challenging the decision of a local zoning board, by contrast, can be done directly, is relatively quick, and the decision-makers have broad discretion and are politically accountable and thus susceptible to local political pressure. Moreover, as the Sabin Center Report has meticulously documented, local communities can work proactively through local governments to promulgate ordinances that either block or drastically limit project development.<sup>219</sup> Institutionally, state siting authorities and courts lie somewhere between these two extremes, and thus are likely to be less attractive than local forums but preferable over federal court. In either case, there are obvious structural reasons for project opponents to favor state and local forums over federal courts.

The enthusiasm for permitting reform reflects a double standard in two respects. First, the quality of the evidence and reasoning that have prompted calls for legislative action are lower for policies that erode environmental protections than those that have the potential to impact the public directly. Second, the existence of significant structural barriers to the weaponization of environmental laws and clear disadvantages of federal courts relative to state and local forums have been discounted or ignored by commentators and policymakers. These findings suggest that environmental tradeoffs are not evaluated on a level playing field. They also show that policymakers committed to promoting new

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216. *Id.*

217. *See* Part III.B.

218. *See* Spence, *Local Vetoes*, *supra* note 25, at 351-52; Hannah J. Wiseman, *Taxing Local Energy Externalities*, 96 NOTRE DAME L. REV. 563, 580-82, 605 (2020) (explicitly identifying the parallels between fracking and renewables projects and transmission lines).

219. EISENSON, *supra* note 24, at 3 (identifying “228 local restrictions across 35 states, in addition to 9 state-level restrictions, that are so severe that they could have the effect of blocking a renewable energy project”).

infrastructure deployment will have to grapple with the rising conflicts between federal policies and land-use regulations at the state and local levels.

#### CONCLUSIONS

The opponents in the battle over Cape Wind had every imaginable advantage, yet they were unwilling to give up anything. Ironically, the advocates for permitting reform may be reinforcing this mentality. Proponents of permitting reform admonish environmentalists for not recognizing that tradeoffs must be made between competing environmental values—preserving wetlands today versus mitigating climate change in the long run. This Article demonstrates that this is a false choice because regulatory streamlining is already commonplace, and litigation under federal environmental laws is rare and limited largely to areas with unique natural resources or to federal lands or waters.

The prevailing narrative of the debate over permitting reform also springs from an older narrative. Sacrificing environmental values is often favored because the benefits at stake are diffuse and remote. Indeed, we are often resistant to making even relatively easy compromises to mitigate climate change when it directly impacts us. The logic of permitting reform uncomfortably mirrors this double standard. We should view it skeptically and reject claims that placing broad limits on citizen suits and weakening the procedures and protections of traditional environmental laws are necessary to meet the needs of the climate crisis.

Instead, reforms should target the potential problem areas highlighted in this study. Specifically, offshore wind development along the Atlantic coast, solar and wind development in ecologically sensitive areas of the desert southwest, and the threats to endangered species of bats from wind development in the Midwest and Great Plains states. Federal agencies have a solid track record of adopting regional and programmatic strategies to streamline permitting and environmental reviews under their existing statutory authority. These approaches should be adopted more broadly and supported by Congress. Similarly, programs such as FAST-41 that are designed to facilitate interagency coordination should be implemented and refined.

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**We welcome responses to this Article. If you are interested in submitting a response for our online journal, *Ecology Law Currents*, please contact [cse.elq@law.berkeley.edu](mailto:cse.elq@law.berkeley.edu). Responses to articles may be viewed at our website, <http://www.ecologylawquarterly.org>.**