Improving the Environmental Permitting Process for Clean Energy Infrastructure

The Nature Conservancy

Perkins Coie

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About This Report
This reports offers recommendations for legislative and administrative reforms to improve the environmental permitting process, as well as providing background and context on applicable statutory and regulatory frameworks. It is based on the current state of environmental permitting practice, and is intended as a starting point for ongoing and evolving policy conversations on environmental permitting modernization.

This report includes input from numerous subject matter experts at The Nature Conservancy across multiple geographies and subject matter areas, with acknowledgement to Jason Albritton, Laura Brannen, Peter Gower, Paul Heberling, Nels Johnson, Brent Keith, Melanie Santiago-Mosier, Cody Sullivan and Jessica Wilkinson. The report was developed in partnership with Perkins Coie LLP, with thanks to Ted Boling, Laura Morton, Jane Rueger and Kerensa Gimre for their support and expertise.

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About The Nature Conservancy
The Nature Conservancy is a global conservation organization dedicated to conserving the lands and waters on which all life depends. Guided by science, we create innovative, on-the-ground solutions to our world's toughest challenges so that nature and people can thrive together. We are tackling climate change, conserving lands, waters and oceans at an unprecedented scale, providing food and water sustainably and helping make cities more sustainable. The Nature Conservancy is working to make a lasting difference around the world in 77 countries and territories through a collaborative approach that engages local communities, governments, the private sector and other partners.

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Executive Summary

The United States must take concrete actions now to enable a clean energy and nature-positive future. This requires ambitious emissions reductions, while protecting and restoring sensitive natural and working lands and maximizing benefits for communities. To avoid the worst impacts of a warming climate, the nation must rapidly transition to clean energy, which will necessitate a 400 percent increase in renewable energy by 2050[1] and at least a 2.5 times expansion of inter-regional transmission.[2] Reaching the pace and scale the moment demands will require reforming and modernizing key permitting and approval processes at all levels of government and a host of complementary actions to accelerate climate mitigation and restoration projects. The Nature Conservancy's (TNC) goal is to facilitate the delivery of critical clean energy resources, related infrastructure and ecosystem restoration projects at least 50 percent faster than they are today.

THE CHALLENGE

Recent passage of landmark climate and infrastructure legislation in the U.S. offers a once-in-a-lifetime opportunity to accelerate the transition to clean energy and slash greenhouse gas (GHG) emissions. However, the process for approving clean energy generation, transmission and other infrastructure in the U.S. is complex, with all levels of government playing critical roles. This can result in long timelines for reviews and approvals and many projects never make it to construction. Project delays and cancellations account for potential lost solar and wind generating capacity of at least 4.6 gigawatts (GW) annually.[3] Currently, there are sufficient clean energy projects planned and seeking interconnection to supply 90 percent of U.S. electricity needs from zero-carbon resources by 2035.[4] Nonetheless, if the past is a predictor of the future, only some of these wind, solar and storage projects are likely to be built. For many renewable energy generation projects, the time to completion is rising—from about two years in 2000-2007 to almost four years for those built since 2018. Approval times for major transmission projects can run even longer to over a decade, yet such projects are critical for connecting new zero-emitting generation to demand centers.[5]

At the same time, these permitting and approval processes provide important safeguards by addressing conservation, public engagement, safety and economic goals, especially in ecologically sensitive areas or already overburdened communities. The environmental permitting and review process provides critical venues for potentially affected communities to learn about and influence projects; structures for agency experts to collaborate; platforms for providing decision-makers with analysis; vehicles for designing and enforcing mitigation measures; and more. Finding innovative ways to accelerate the permitting and approval process for clean energy infrastructure projects while preserving the benefits of the permitting and approval process is critical not only for getting us to a clean and equitable energy future, but also to realize recent legislation's full potential.

THE PATH FORWARD

There are multiple barriers to successful development of major infrastructure projects for climate mitigation and adaptation, including market design inefficiencies, project review and permitting delays, supply chain constraints and local opposition. Although all of these challenges must be addressed, improving how we design, permit and approve projects can remove barriers and accelerate project delivery. Reforms should:

- Target bottlenecks that slow projects that provide meaningful emission reductions;
- Balance climate, conservation and community concerns to reduce conflicts and accelerate project delivery;
- Avoid and minimize impacts to natural and working lands and local communities;
- Encourage planning processes to identify projects to prioritize for review and permitting; and
- Provide tangible and equitable benefits for impacted communities and allow for robust and early community engagement.

1 Larson, E., et al., *Net-Zero America: Potential Pathways, Infrastructure, and Impacts*. Interim report. (Princeton University, Princeton, NJ, December 2020.
2 The Nature Conservancy. *Power of Place: Clean Energy Solutions that Protect People and Nature.* (The Nature Conservancy, 2023, May 9). https://www.nature.org/en-us/what-we-do/our-priorities/tackle-climate-change/climate-change-stories/power-of-place/
3 Susskind, L., et al., *Sources of opposition to renewable energy projects in the United States.* (Energy Policy, 2022), 165, 112922.
4 Lawrence Berkeley National Laboratory. *Grid connection requests grow by 40% in 2022 as clean energy surges, despite backlogs and uncertainty*. (Lawrence Berkeley National Laboratory, 2023, April 6). https://emp.lbl.gov/news/grid-connection-requests-grow-40-2022
5 For example, Princeton University finds that the pace of building new transmission must more than double, or 80 percent of the emissions benefits of the Inflation Reduction Act could be lost Princeton University Zero Lab. Princeton University, REPEAT Team. *Electricity Transmission is Key to Unlock the Full Potential of the Inflation Reduction Act*. https://repeatproject.org/docs/REPEAT_IRA_Transmission_2022-09-22.pdf

This report offers a series of federal administrative and legislative recommendations to reform permitting and project approval processes for major infrastructure and clean energy projects. These reforms are designed to increase the efficiency and certainty of permitting and review for clean energy projects and related infrastructure while protecting the conservation and community engagement goals of the permitting process. The report outlines general reforms to increase transparency, improve planning and siting, employ programmatic approaches, efficiently resolve conflicts and better engage and share benefits with communities to accelerate the clean energy transition. The report also includes recommendations specifically for the sectors of electric transmission, solar and wind energy, hydrogen pipelines and carbon dioxide (CO_2) management. These recommendations are based on the current permitting reform landscape. As new information, practices and legislative and regulatory changes continue to develop, TNC may develop further recommendations in the future. The report appendices provide background on recent federal administrative actions and initiatives directed at improving permitting and review processes and summarize key federal statutory authorities affecting permitting and approvals of clean energy projects and related infrastructure.

Common themes highlighted throughout the recommendations include:

- **Agencies and states should undertake planning** to identify projects that are most critical for meeting climate goals, that minimize impacts to conservation and that maximize benefits to communities. Agencies should leverage these planning products to prioritize identified projects for approval and interconnection, reducing timelines and duplication in subsequent permitting and review.
- **The Permitting Council should prioritize climate mitigation and adaptation projects** with agency leadership focused on improving the efficiency of informed decision-making, collaboration and dispute resolution to expedite decisions.
- **Meaningful, early engagement with affected communities must be a part of all planning processes and project approvals** to ensure respect of sovereign rights, alignment on priorities and equitable benefits sharing and to avoid conflict and reduce delays.
- **Sustained and meaningful Tribal consultation and collaboration across regulatory and permitting processes should be enhanced and secured** as the foundation for building ongoing partnerships that uplift Tribal perspectives and authority, avoid conflicts and reduce delays.
- **Conflicts should be resolved fairly and expeditiously**, and when collaboration does not resolve conflicts, challenges to project decisions should be evaluated and resolved in an expedited, transparent and predictable manner.
- **Funding and staffing of permitting agencies should be prioritized**, with agencies at all levels receiving adequate resources and training to enable rapid and efficient environmental review and authorization decisions.
- **Federal agencies, led by the White House Council on Environmental Quality (CEQ),** must ensure consistency in agency terminology, methodologies and standards for evaluation of impacts, alternatives, mitigation and environmental costs and benefits, as well as drive improved inter-agency coordination and incorporation of existing information into environmental reviews.

Together, these recommendations would speed deployment of critical clean energy and climate mitigation projects while ensuring robust community input, equitable benefit sharing and minimization of impacts to natural and working lands.

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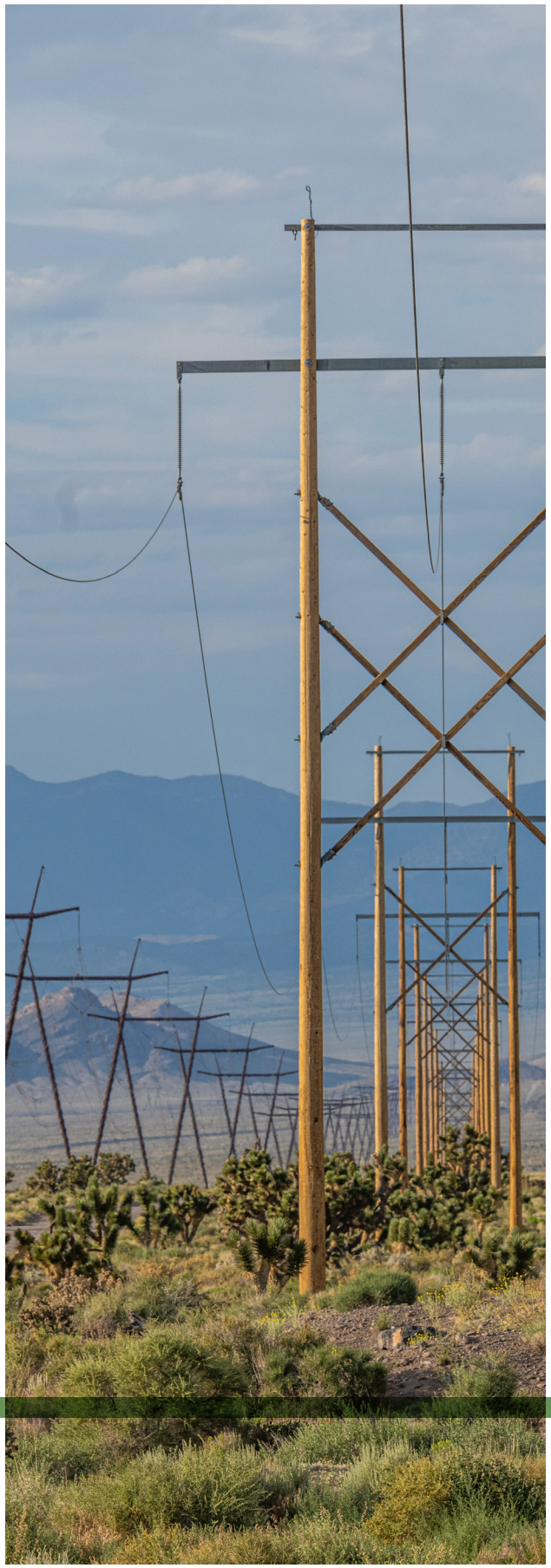

One Nevada Line is part of the infrastructure that will bring renewable energy to California and other parts of the western power grid. © *Bridget Bennett*

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Recommendation Summary Table

1. Recommendation Summary Table

PAGE	RECOMMENDATION	LEG.	ADMIN.
	GENERAL REFORMS		
11	**PLANNING**		
	Undertake annual net zero by 2050 decarbonization planning that balances land use impacts and benefits at the federal and state level.	●	
	Agencies should prioritize scale-appropriate mitigation planning in advance of and independent of individual project proposals.	●	●
12	**PROGRAMMATIC APPROACHES**		
	Encourage the use and resourcing of regional programmatic environmental reviews and tiering for project-specific reviews to speed environmental analysis for clean energy projects.	●	●
12	**COORDINATION**		
	The Permitting Council should leverage its existing and new authorities to prioritize timely permitting actions for covered projects in the renewable, electricity transmission, pipeline, carbon capture and related infrastructure sectors.	●	●
	Enhance and secure meaningful and sustained Tribal consultation and collaboration across regulatory and permitting processes.	●	●
	Better leverage technology and establish consistent standards to enable information sharing and coordination for environmental reviews.	●	●
	Provide funding and training necessary to ensure federal and state agencies have sufficient resources in their base budgets to conduct advanced planning and accelerated and coordinated reviews and permit decisions.	●	●
	Expand federal agencies' cultural competency, capacity and capabilities to support more effective stakeholder engagement processes and outcomes.	●	●
	CEQ should direct federal agencies to adopt clear and consistent mitigation guidelines to support efficient, effective and predictable decision-making.		●
15	**CATEGORICAL EXCLUSIONS**		
	Encourage continued use of categorical exclusions (CEs) for classes of projects with predictably low to no adverse environmental impacts.	●	●
	Establish CEs for projects with significant benefits for climate or biodiversity and that individually or cumulatively are demonstrated not to have a significant adverse effect on the human environment.	●	●
16	**COMMUNITY ENGAGEMENT**		
	Prioritize early and meaningful engagement with impacted landowners and communities before the Notice of Intent (NOI) and formal comment processes.	●	●
	Provide financial and technical resources and improve information accessibility about permitting decisions to affected communities to support their engagement in planning, siting and permitting processes.	●	●
	Incorporate mechanisms, such as Community Benefit Agreements (CBAs), in the environmental review process to ensure that economic and environmental benefits and burdens from decarbonization are shared equitably.	●	●
	Establish clear timeline goals and track key project information for priority projects.		●
19	**CONFLICT RESOLUTION**		
	Agencies should employ Environmental Collaboration and Conflict Resolution techniques in aid of priority infrastructure project development.		●
	The Permitting Council should dedicate resources to conflict resolution and support effective use of environmental collaboration and conflict resolution.		●
	Congress should encourage negotiated conflict resolution by expediting judicial review of final agency actions on high-priority renewable energy and transmission infrastructure projects.	●	

TRANSMISSION RECOMMENDATIONS			
21	**PLANNING**		
	CEQ should adopt regulations and issue guidance clarifying that land management agencies can and should rely on and incorporate transmission plans and related analyses developed by transmission planning entities into their environmental reviews of transmission projects and related siting, alternatives and mitigation analyses.	●	●
	The Federal Energy Regulatory Commission (FERC) should adopt reforms to all regional transmission planning processes, whether led by Regional Transmission Organizations (RTOs)/Independent System Operators (ISOs) or the Department of Energy (DOE), to require place-based long-term planning horizons and scenario-based planning, involve all levels of government and incorporate environmental and social factors in deployment of transmission.		●
	FERC should adopt requirements for minimum interregional transfer capacity.	●	
	The Bureau of Land Management (BLM) should complete the current Section 368 Energy Corridors Environmental Impact Statement (EIS) and conduct a Programmatic EIS (PEIS) to evaluate Section 368 Corridors.		
	State agencies should be provided with federal funding through Transmission Siting and Economic Development Grants to hire dedicated staff with legal and engineering backgrounds to participate actively in the regional transmission planning process and streamline siting and permitting processes for specific high priority transmission projects.		●
	Ensure that transmission planners rigorously evaluate use of reconductoring, grid-enhancing technologies (GETs) and other transmission line upgrades to right-size the scope of new build transmission projects approved in the regional transmission plan.	●	●
24	**SITING**		
	Update Section 368 energy corridors and encourage their use for transmission lines and hydrogen pipelines.	●	
	Identify opportunities and provide funding for co-location in existing highway, rail, utility and federal lands rights-of-way where technically feasible.	●	●
	DOE should continue to designate National Interest Electric Transmission Corridors (NIETCs) under Section 216(b) that connect areas of geographically constrained, low environmental impact renewable energy to load.		●
	DOE and FERC should work together to accelerate and consolidate their NIETC designation and project siting decisions	●	●
	DOE should develop an appropriately detailed environmental review of proposed NIETCs.	●	●
27	**COORDINATION**		
	DOE should identify nationally significant transmission projects and work with jurisdictional agencies to utilize the Permitting Dashboard and expedited procedures under the Fixing America's Surface Transportation Act (FAST Act) to manage their environmental review process.		●
	The Permitting Council should prioritize completion of transmission projects that meet a transmission need according to their planned in-service dates and generator queues.		●
WIND AND SOLAR ENERGY DEVELOPMENT RECOMMENDATIONS			
30	**PLANNING**		
	Land management agencies should identify priority Renewable Energy Zones sufficient for projected development in their programmatic reviews that seek to maximize community benefits and avoid significant negative environmental and social impacts through meaningful community engagement.		●
	The BLM should conduct PEISs for wind and geothermal leasing.		●
	BLM should establish consistent, effective and proportional mitigation requirements that balance wind and solar energy with resource management.	●	●
	Fish and Wildlife Service (FWS) should publish and finalize its proposed rule to update its rights-of-way regulations to allow for transmission improvements to existing transmission infrastructure through official refuges that improve conservation and energy outcomes.		●

	DOE and FWS should develop solar energy siting guidelines similar to the FWS Land-Based Wind Energy Siting Guidelines.	●	●
	Mitigate legal liability risks associated with developing renewable energy or storage at a brownfield site.	●	
33	**COORDINATION**		
	Congress should pass ambitious renewable energy targets.	●	
	Congress should increase funding for BLM's Renewable Energy Coordination Offices (RECOs).	●	●
	Congress should increase funding for FWS planning and consultation.	●	
	Congress should resource federal and state agencies and regional commissions to support renewable energy development at brownfield sites.	●	
34	**COMMUNITY ENGAGEMENT**		
	The BLM should involve Tribal and Indigenous communities early and often in all land use planning and project permitting processes.		●
	BLM should utilize conflict resolution procedures to reduce protests, appeals and litigation.		●
	HYDROGEN PIPELINE RECOMMENDATIONS		
37	**SITING**		
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37	**COORDINATION**		
	Congress should harmonize authority across federal agencies to coordinate and issue all necessary approvals for hydrogen infrastructure projects.	●	
	The Pipeline and Hazardous Materials Safety Administration (PHMSA) should promulgate regulations focused on the specifics of hydrogen transportation and safety.		●
	Agencies reviewing hydrogen projects should prioritize local safety concerns.		●
38	**COMMUNITY ENGAGEMENT**		
	Agencies granting permits should encourage and work with project developers to reduce and avoid conflict through robust engagement with stakeholders.		●
	Each regional hydrogen hub granted funding by DOE should develop a Community and Workforce Plan as part of its Community Benefit Plan.	●	●
	CO_2 MANAGEMENT RECOMMENDATIONS		
41	**PLANNING**		
	Enable storage under federal lands by clarifying authorities and incorporating CO_2 storage into federal land management planning.		●
	Ensure the Environmental Protection Agency (EPA) has the necessary resources and is effectively prioritizing resources to efficiently process Class VI well permits and state primacy applications.	●	●
42	**SITING**		
	Congress should address federal jurisdiction over CO_2 pipeline infrastructure.	●	
	Congress should expand the use of Section 368 corridors to include CO_2 pipeline projects crossing federal lands.	●	
	DOE should explore and support the use of existing rights-of-way to enable CO_2 infrastructure deployment.	●	●
	PHMSA should issue rulemakings or guidance related to the safe operation of pipelines for use in expanded Carbon Capture, Utilization and Storage (CCUS) to facilitate the buildout of a more extensive network.		●
43	**COMMUNITY ENGAGEMENT**		
	Ensure safeguards are put in place to avoid creating a process that fails to consider community concerns.		●

2

General Reforms to Improve Siting and Permitting of Infrastructure Projects

2. General Reforms to Improve Siting and Permitting of Infrastructure Projects

INTRODUCTION

The transition to a clean energy economy will require deployment of many different types of projects, including wind and solar generation, transmission lines, hydrogen pipelines, CO_2 management and others. All these types of projects will have to navigate some form of environmental permitting and review processes. This paper documents opportunities to leverage or create efficiencies in the permitting process that would benefit projects across all sectors.

This section details TNC's recommendations to improve the siting and permitting of infrastructure projects across multiple sectors. These generally applicable recommendations address planning and siting, coordination, transparency, community engagement, conflict resolution and process efficiency. Each recommendation includes background and discussion of the related issue, followed by specific suggested legislative and administrative actions. These recommendations are designed to accelerate deployment of clean energy infrastructure, improve environmental outcomes and facilitate community engagement.

RECOMMENDATIONS

Planning

RECOMMENDATION: Undertake annual net zero by 2050 decarbonization planning that balances land use impacts and benefits at the federal and state level.

Congress should provide funding and direct the DOE and its labs to undertake annual decarbonization plans with the goal of reaching economy-wide, net zero emissions by 2050. Funds should be appropriated to relevant agencies to develop and improve existing spatially explicit natural resource, community and cultural data. Such new and existing data should be integrated into existing electricity system modeling to improve our understanding of and solutions to land use trade-offs. These data should include information on sensitive wildlife habitat and species, priority areas for ensuring resilient and connected landscapes, sensitive working lands and those with high potential for co-benefits, cultural resources and environmental justice communities.

Federal-level analysis could inform state-level decarbonization planning, but state agencies may hold more detailed natural resource, community and cultural data and should be encouraged to pursue their own decarbonization planning to inform state-level policies. Congress and federal agencies could support this state-level analysis by providing incentives, funding and technical assistance.

Legislative: Congress should direct DOE, and incentivize and fund states, to undertake annual net zero by 2050 decarbonization planning that utilizes the best available, high-resolution data on sensitive conservation and community resources.

RECOMMENDATION: Agencies should prioritize scale-appropriate mitigation planning in advance of and independent of individual project proposals.

Habitat fragmentation and loss is a critical limitation to healthy populations of many species and habitat resiliency in the face of a changing climate. Federal lead agencies, particularly those that make significant, foreseeable and incremental investments in large infrastructure projects on public lands, can support improved mitigation and conservation planning in advance of project impacts to provide environmental, cost and time-saving benefits to energy infrastructure siting and mitigation decision-making. These processes should involve early, meaningful and robust Tribal consultation to respect Tribal sovereignty and incorporate their deep knowledge of relevant landscapes in decision-making and planning. Through proper analysis and application of Geographic Information System (GIS) technologies, such as the Climate and Economic Justice Screening Tool (CEJST), potential conflicts in project siting can be avoided or minimized and appropriate means of compensatory mitigation can be considered in advance of formal public processes. Several agencies, such as the Federal Highway Administration (FHWA), have recognized the value of proactively planning projects holistically and have successfully taken advantage of streamlined permitting opportunities. FHWA models and case studies have been captured in the agency's Eco-Logical approach and the Environmental Review Toolkit.

Where formal mitigation planning is not readily available, federal agencies can use their scoping and permitting processes to recognize a broad range of public and private partnerships to address cumulative impacts of major infrastructure projects on ecologically important areas. For example, the BLM has used Rapid Ecoregional Assessments (REAs) to identify important resource values and patterns of environmental change that may not be evident when managing smaller, local land areas. REAs and similar landscape-level assessments can provide the foundation for landscape-level planning to address climate and conservation goals. CEQ and the Permitting Council can guide this project-level consideration of cumulative mitigation opportunities through guidance and the examples of project decisions.

Administrative: CEQ should provide for project-level consideration of cumulative mitigation opportunities by updating its regulations based on conservation principles that inform application of permitting authorities under all relevant statutes. CEQ should codify its 2011 guidance on the appropriate use of mitigated actions and Findings of No Significant Impact.[6]

Legislative: Congress should amend Federal Power Act (FPA) Section 216 and related federal land management authorities to require federal agencies to undertake advanced mitigation planning for renewable energy generation, transmission lines and other linear infrastructure development. Congress should make clear that mitigation actions may support a Finding of No Significant Impact, consistent with previous guidance from CEQ.

Programmatic Approaches

RECOMMENDATION: Encourage the use and resourcing of regional programmatic environmental reviews and tiering for project-specific reviews to speed environmental analysis for clean energy projects.

Congress should authorize development of programmatic environmental reviews and approaches to facilitate permitting and environmental reviews for clean energy and transmission infrastructure projects across relevant federal agencies and direct those agencies to tier off those documents to facilitate speedier project development within identified areas.

Priority near-term programmatic reviews include the continued designation of NIETCs under Federal Power Act Section 216, the update to the BLM Western Solar PEIS and the West-Wide Energy Corridors. CEQ should provide guidance on when and how agencies can use such environmental reviews, including defining the applicability of tiered NEPA review documents to expedite site-specific environmental review and programmatic reviews and the relationship between a PEIS and a project-level EIS. Programmatic NEPA analyses must adequately disclose the nature and types of environmental impacts so subsequent project-level NEPA analysis can tier to or incorporate that analysis by reference.

Legislative: Congress should codify CEQ's 2014 guidance on programmatic reviews; direct the development of programmatic environmental reviews to facilitate permitting and environmental reviews for clean energy and transmission infrastructure projects across relevant federal agencies; and direct those agencies to tier off those documents. Congress should also establish incentives for project analyses that tier from a programmatic review (e.g., expedited timelines and judicial review directly by the courts of appeals for projects that implement the PEIS Record of Decision (ROD)).

Administrative: Federal agencies should complete near-term priority programmatic reviews for transmission and renewable energy projects. CEQ should provide additional guidance on the use of programmatic reviews and encourage agencies to provide expedited permitting and review decisions for transmission and renewable energy projects.

Coordination

RECOMMENDATION: The Permitting Council should leverage its existing and new authorities to prioritize timely permitting actions for covered projects in the renewable, electricity transmission, pipeline, carbon capture and related infrastructure sectors.

As originally enacted, Title 41 of the FAST Act (FAST-41) codified the sub-cabinet level organization of federal agencies for efficient infrastructure permitting. Every project covered by FAST-41 is entitled to receive a coordinated project

6 Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact.

plan and tracking of its environmental review and authorization milestones on the Permitting Dashboard. The statutory FAST-41 process is neutral in its procedures and operates regardless of the merits of the proposed project. However, using the policy direction of the Infrastructure Investment and Jobs Act (IIJA), the Infrastructure Reduction Act (IRA), and the Permitting Action Plan, the Permitting Council can provide resources and focus on high-priority projects that will make material progress toward the transition to a sustainable economy.

In addition to tracking covered projects on its Permitting Dashboard, the Permitting Council and its member agencies should focus on day-to-day management of the permitting process for high-priority projects, including coordinating authorities to accelerate environmental reviews. Permitting Council staff should work closely with project managers to ensure priority projects have the resources they need to advance project decision-making in a timely and well-informed manner. In addition, in its capacity as a center for excellence in environmental review and authorization, the Permitting Council should provide substantive expertise to assist agencies in decision-making processes. Similarly, agencies and applicants should engage with the Permitting Council to ensure that the FAST-41 procedures add value to agency decision-making processes beyond merely tracking and enforcing milestones identified in a project's coordinated project plan.

Administrative: The Permitting Council should identify priority projects, direct Permitting Council resources in support of coordinating project plans and work with member agencies to coordinate and accelerate environmental reviews.

Legislative: Congress should direct the Permitting Council to actively work with agencies to accelerate the permitting process for covered projects that reduce GHG emissions and maximize environmental and community benefits. Congress should authorize the Permitting Council to track the monitoring of and compliance with mitigation measures made during the environmental permitting and review process.

RECOMMENDATION: Enhance and secure meaningful and sustained Tribal consultation and collaboration across regulatory and permitting processes.

As reaffirmed in several Presidential Memoranda and federal agency guidance and ensconced in the U.S. Constitution, treaties, statutes, Executive Orders and court decisions, the U.S. government has a unique, legally affirmed Nation-to-Nation relationship with American Indian and Alaskan Native Tribal Nations. The clean energy buildout has the potential to benefit and adversely impact Tribal Nations, who will have a unique role in permitting processes and decisions related to clean energy projects and infrastructure. The outcomes of these decisions should avoid adverse impacts and amplify potential benefits as defined by the Tribal Nations. Realizing these outcomes will require enhancing and maintaining strong relationships with Tribal Nations built on respect for Tribal sovereignty and self-governance, honoring federal trust and treaty responsibilities, protecting Tribal homelands and engaging in regular, meaningful and robust consultation. This engagement should begin prior to the formal scoping phase of NEPA, because project proponents and agencies should consult with Tribal Nations early in clean energy infrastructure and land use planning decision-making. Early review of project routes and discussion of potential impacts fosters an inclusive participatory planning process and better ensures the economic and environmental benefits and burdens from decarbonization are shared equitably.

President Biden issued a *Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships* on January 26, 2021, directing each federal agency to develop a "detailed plan of actions" to implement Executive Order 13175, charging federal agencies to establish regular and meaningful consultation and collaboration with Tribal officials in the development of federal policies that have Tribal implications. In response to the Presidential Memorandum, all agencies subject to Executive Order 13175 submitted plans of action, including over 50 agencies that submitted a consultation plan of action for the first time. Agencies also conducted more than 90 national-level Tribal consultations, focusing specifically on agency Tribal consultation policies. Presidential Memorandum on Uniform Standards for Tribal Consultation, issued on November 30, 2022, outlined a minimum set of standards to ensure more consistency in how agencies initiate, provide notice for, conduct, record and report on Tribal consultations.

Formal Tribal consultations should follow these directives and guidance documents. These executive actions should be codified and built upon to ensure Tribal Nations' rights and sovereignty are respected and perspectives represented in agency planning and permitting decisions and other actions related to environmental reviews and project approvals.

Administrative: The federal agencies should adhere to and improve upon action plans to implement Executive Order 13175.

Legislative: Congress should codify the requirements and principles outlined in the Presidential Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships, and the Presidential Memorandum on Uniform Standards for Tribal Consultation.

RECOMMENDATION: Better leverage technology and establish consistent standards to enable information sharing and coordination for environmental reviews.

Sharing studies and analysis between agencies avoids duplication of efforts, potentially shortening environmental review timelines. Different technological platforms, data files and formats make sharing and coordination across agencies difficult, especially for analysis based in GIS. The Fiscal Responsibility Act (FRA) directed CEQ to conduct a study on the "potential for online and digital technologies to address delays in reviews and improve public accessibility," including centralizing the data, visuals and documents on a single cloud-based system. This study will help identify opportunities and needs, but Congress and CEQ should not wait for the conclusion of the study to act. Establishing more uniform practices and necessary technological upgrades that would be precursors for developing a more centralized system can begin now and would support more efficient interagency collaboration in the absence of a centralized system. These efforts would require funding and expanding agencies' expertise in information technology and data security.

Administrative: CEQ should establish standards for the digital format of environmental reviews and underlying analysis to enhance information sharing and collaboration across agencies.

Legislative: Congress should resource agencies with funding for technological upgrades and sufficient staff capacity and capabilities to facilitate more efficient data sharing and collaboration.

RECOMMENDATION: Provide funding and training to ensure federal and state agencies have sufficient resources in their base budgets to conduct advanced planning and accelerated and coordinated reviews and permit decisions.

The IRA provided a significant investment in the permitting capacity of the federal government, but to sustain this investment agencies need resources to build a skilled workforce that can make decisions efficiently. Congress should create clean energy permit teams/specialist roles within agencies and provide funding for the training, support, salaries and other expenses to ensure agencies have sufficient resources to conduct accelerated and coordinated reviews and processing of environmental permits. This would include, for example, additional funding for BLM RECOs, the FWS planning and consultation program and resources for state and Tribal Historic Preservation Offices and permitting agencies.

Administrative: The administration should seek budgetary authority and appropriations for necessary training, support, salaries and other expenses for staff necessary to ensure agencies have sufficient resources to conduct accelerated and coordinated reviews and processing of environmental permits.

Legislative: Congress should provide budgetary authority and appropriate funding for necessary training, support, salaries and other expenses for staff necessary to ensure agencies have sufficient resources to conduct accelerated and coordinated reviews and processing of environmental permits.

RECOMMENDATION: Expand federal agencies' cultural competency, capacity and capabilities to support more effective stakeholder engagement processes and outcomes.

To be successful in meaningful stakeholder engagement, federal agencies should concentrate on improving cultural competencies and capabilities. Establishing dedicated points of contact and liaison offices (e.g., Chief Public Engagement Officer) with direct connection to and authority from the head of the agency or department can help outline roles, responsibilities and expectations across the organization for community engagement in project development and permitting. Establishing clearinghouses within agencies and between agencies can facilitate information sharing on environmental justice, best practices and opportunities for community engagement. The Interagency Working Group on Environmental Justice and National Environmental Justice Advisory Council help facilitate improvements in stakeholder engagement practices and decision-making to yield more just and equitable outcomes.

Administrative: Agencies should create or maintain dedicated points of contact and liaison offices with the necessary authority and access to improve agency practices and competencies for stakeholder engagement.

Legislative: Congress should codify the Interagency Working Group on Environmental Justice and National Environmental Justice Advisory Council and adequately resource agencies to carry out meaningful stakeholder engagement.

RECOMMENDATION: CEQ should direct federal agencies to adopt clear and consistent mitigation guidelines to support efficient, effective and predictable decision-making.

A wide range of federal agencies have mitigation policies in place designed to support compliance with federal mandates and authorities, including the Clean Water Act (CWA), Water Resources Development Act, Endangered Species Act (ESA), Fish and Wildlife Coordination Act, Federal Land Policy and Management Act (FLPMA) and others.

CEQ should direct and support relevant agencies to develop "step-down" implementation guidance for implementing policies for specific habitat types and species. This would support clear and accelerated permitting and project review processes, increase predictability for industry, invigorate the growing private sector "restoration economy" and reduce the controversies and conflicts, including litigation, that can significantly delay proposed infrastructure projects.

Once developed, mitigation guidelines for specific resources should be incorporated into programmatic environmental reviews, federal land use plans and strategies and other project review and permitting mechanisms.

Administrative: CEQ should issue a memorandum directing federal agencies to adopt clear and reasonably consistent mitigation guidelines to support efficient and effective decision-making.

Agencies should develop implementing regulations or guidance defining mechanisms that are appropriate for delivering compensatory mitigation (e.g., banks, in-lieu fee programs, permittee-responsible mitigation) and the standards that all compensation programs and projects must meet to address cumulative impacts.

Agencies should be encouraged to develop compensatory mitigation guidance for resource types, species, groups of species or habitats to support efficient and effective compensatory mitigation decision making.

Categorical Exclusions

RECOMMENDATION: Encourage continued use of CEs for classes of projects with predictably low to no adverse environmental impacts.

CEs are one type of NEPA review. They define "a category of actions that do not individually or cumulatively have a significant effect on the human environment"[7] and, therefore, do not require an environmental assessment (EA) or EIS. CEs can be time consuming to establish but create greater efficiencies for NEPA reviews by ensuring resource-intensive EAs and EISs are targeted toward proposed actions that truly have the potential to cause significant environmental effects. In the FRA, Congress clarified that CEs established by one agency can be adopted by other agencies, and CEQ included in its NEPA Phase 2 rulemaking similar further clarification of this authority as well as discussion of the ability of agencies to jointly establish CEs and other CE provisions.

Legislative: Congress should encourage agencies to continue establishing CEs, direct CEQ to identify CEs available to agencies and require agencies to act on recommendations within a time frame.

Administrative: CEQ should work with agencies to identify potential CEs that would help accelerate clean energy infrastructure and meet climate goals.

RECOMMENDATION: Establish CEs for projects with significant benefits for climate or biodiversity and that individually or cumulatively are demonstrated not to have a significant adverse effect on the human environment.

Certain classes of projects will have an outsized benefit for enhancing biodiversity and reducing emissions to fight climate change with minimal adverse environmental effects. Reforestation and forest restoration, coastal restoration and other conservation activities to enhance green infrastructure are subject to the same standards and reviews as gray infrastructure, and therefore can experience the same delays. The environmental review burden should be reduced for conservation and restoration projects that will result in long-term net benefits to habitat and increase the resilience of Tribes and rural and underserved communities, correct past environmental harms and empower local communities in support of beneficial outcomes for jobs and local economies. CEQ's NEPA Phase 2 regulations include revisions

7 Council on Environmental Quality. *Establishing, Applying and Revising Categorical Exclusions under the National Environmental Policy Act.* (2020). https://ceq.doe.gov/docs/ceq-regulations-and-guidance/NEPA_CE_Guidance_Nov232010.pdf

clarifying that actions with only beneficial effects and no significant adverse effects do not require an EIS, and CEQ should further work with agencies to establish CEs for such actions.

Zero-emissions wind and solar energy are critical for reaching net-zero by 2050 targets. Although the scale and pace of the renewable energy buildout will require a significant land footprint with related environmental tradeoffs, siting these projects in low impact areas, such as existing highway, rail or transmission rights of way, certain brownfields and active or recently closed mining sites, can minimize this disturbance. Additional costs and permitting complications create barriers that lead energy developers toward lower-risk greenfields.

Establishing clearly defined, tightly constrained CEs for these types of projects with clear benefits and minimal to no adverse impacts will help speed up their delivery.

Legislative: Congress should establish or direct federal agencies to establish CEs for classes of projects that individually or cumulatively do not have a significant adverse effect on the human environment and meet the criteria for CEs in existing NEPA regulations, including beneficial restoration activities and low-impact clean energy.

Administrative: Federal agencies should prioritize establishing categorical exclusions for these classes of projects.

Community Engagement

RECOMMENDATION: Prioritize early and meaningful engagement with impacted landowners and communities before the NOI and formal comment processes.

To achieve NEPA's goal of ensuring public participation, robust public engagement is essential for the credibility and expeditious completion of the siting, permitting and review process. Major infrastructure projects, such as high-voltage transmission lines and pipelines, are likely to trigger potentially conflicting stakeholder interests and have the potential to produce significant impacts on local communities and the environment due to their complexity and scale. Early, consistent and effective engagement with stakeholders and impacted communities can reduce and mitigate conflicts for improved efficiency in decision-making processes, reduce risk of litigation and increase durability in judicial review. For example, BLM should facilitate robust community consultation at every stage of the renewable energy development process. This is especially true for programmatic reviews that will have broad effects across the western U.S. There should be open communication about the potential benefits and drawbacks of prioritizing or excluding renewable energy in certain areas, with communities given various avenues to voice their concerns.

Stakeholders and communities include, among others, industry and technical experts, federal, tribal, state, and local decision-making bodies and representatives of local communities, including underserved, fenceline, Black, Indigenous and People of Color (BIPOC) communities. Stakeholders and communities should represent various sectors: government, industry, business, advocacy, disadvantaged communities, Tribal communities, environmental non-governmental organizations, education, public health and safety, community planning and other concerned members of the public. As recommended in the Permitting Council's FY 2022 Best Practices Report to Congress, engaging with Tribal stakeholders is critical to ensure that project sponsors and agencies identify potential natural, archeological and cultural resources and locations of historic and religious significance in the area of the covered project.

Formal scoping meetings following a NOI under NEPA should not be the first opportunity to engage; instead, some method of engagement should occur earlier in the process. In particular, project proponents and agencies should consult with Tribal Nations and engage frontline communities in guiding clean energy infrastructure and land use planning decision-making. Early review of project routes and discussion of potential impacts foster an inclusive participatory planning process that will better ensure the economic and environmental benefits and burdens from decarbonization are shared equitably.

Engagement can include town hall meetings, open houses, informal targeted meetings, focus groups, one-on-one meetings and virtual workshops. Agency and applicant outreach should include expanded use of listening sessions,

small community conversations, webinars, direct email and other methods to ensure input can be shared in a way that is accessible, comprehensible and convenient.[8]

Administrative: Through NEPA rulemaking, CEQ should direct federal agencies to engage in proactive outreach to communities likely to be affected by proposals for agency action prior to a NOI and affirmatively solicit comments in a manner designed to inform those persons or organizations who may be interested in or affected by the proposed action. In addition, CEQ should review the effectiveness of stakeholder engagement on priority projects during the scoping process before or within a reasonable time after the agency issues a NOI to prepare an EIS, make recommendations to the project manager for the lead agency before the draft EIS is issued and track its recommendations through the completion of the decision-making process.

Administrative: In the programmatic reviews and project-specific decisions, BLM should support the provision of adequate compensation for the impacts of development on communities and their environment.

Legislative: Congress should encourage federal agencies to engage affected communities prior to a NOI and codify NEPA requirements to affirmatively solicit comments in a manner designed to inform those persons or organizations who may be interested in or affected by proposed actions.

RECOMMENDATION: Provide financial and technical resources and improve information accessibility about permitting decisions to affected communities to support their engagement in planning, siting and permitting processes.

Early and meaningful community engagement is critically important for planning, siting and permitting processes to run smoothly and result in a well-designed project. This engagement requires significant time, energy and technical understanding on the part of the community, which may be in short supply. Simply reaching out is not enough to meaningfully include community voices in underserved and overburdened communities. Additional support may be needed to build trust, contextualize the decisions and potential impacts and enhance accessibility. Best practices for community participation—such as arranging for translation services, multi-modal convenings and information dissemination or offering wraparound services such as childcare or transportation—are well documented and continually improving. Providing outreach funds to trusted organizations embedded in the community or technical assistance to better understand the potential impacts of both the project and broader context of the project can build trust and facilitate actionable community input. Every community is unique, and making resources available that can then be tailored to those needs is an important step.

Legislative: Congress should fund grants to state, Tribal and local agencies and to community-based organizations to increase capacity for communities to engage in planning and environmental reviews and decision making.

Administrative: Federal agencies should consider using discretionary funds to develop education or training tools or otherwise support community engagement and enhance opportunities for communities to engage in planning and environmental reviews and decision making.

RECOMMENDATION: Incorporate mechanisms, such as CBAs, in the environmental review process to ensure the economic and environmental benefits and burdens from decarbonization are shared equitably.

Agencies should engage impacted communities, especially frontline and BIPOC communities who have been historically underrepresented in these processes, in guiding clean energy infrastructure and land use planning

8 Examples of early outreach and engagement include:
- *Community Guide to EJ and NEPA methods*. https://www.energy.gov/lm/articles/community-guide-ej-and-nepa-methods-2019
- *Principles for Effective Stakeholder Engagement in Infrastructure Permitting and Review Processes*. https://udall.gov/documents/Institute/Udall-InfrastructureStakeholderEngagementPrinciples_Final.pdf
- *Suggested Best Practices for Industry Outreach Programs to Stakeholders*. https://www.ferc.gov/sites/default/files/2020-04/stakeholder-brochure.pdf
- *Promising Practices for Meaningful Public Involvement in Transportation Decision-Making*. https://www.transportation.gov/sites/dot.gov/files/2022-10/Promising_Practices_for_Meaningful_Public_Involvement-in-Transportation_Decision-making.pdf
- *Early Coordination with Indian Tribes During Pre-Application Processes*. https://www.achp.gov/sites/default/files/documents/2019-10/EarlyCoordinationHandbook_102819_highRes.pdf
- *American Indian/Alaska Native (AI/AN) Outreach Responsibilities*. https://www.fsa.usda.gov/Internet/FSA_Notice/ao_1803.pdf
- *Collaboration in NEPA: A Handbook for NEPA Practitioners*. https://ceq.doe.gov/docs/get-involved/Collaboration_in_NEPA_Oct2007.pdf
- *Promising Practices for EJ Methodologies in NEPA reviews*. https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf
- *Procedures for Consultation with Indian Tribes*. https://www.boem.gov/sites/default/files/documents/aboutboem/Chapter 5 DOI Procedures for Consultation with Indian Tribes.pdf.%22

decision-making.9 It is essential that federal agencies fully consider mechanisms for ensuring these communities benefit economically from renewable energy development. Such benefits should be above and beyond any mitigation measures that seek to avoid, minimize or offset impacts to natural or historic resources.

CBAs crafted in partnership with affected communities can help facilitate engagement and focus on community interests and needs. Special attention should be given to developing CBAs that address environmental justice and other historically excluded or overburdened communities. A CBA is a binding agreement between a developer and a community that outlines benefits the developer will provide and ensures the benefits of projects accrue locally and that communities have an opportunity to influence the benefits most appropriate to their specific communities.

NEPA analysis is designed to facilitate cooperation with concerned public and private organizations. NEPA directs federal agencies to use all practicable means and measures to achieve the statute's purposes and authorizes federal agencies to consider public/private arrangements to address the cumulative impacts of infrastructure development on host communities. CEQ regulations implementing NEPA provide for early coordination with private applicants to facilitate coordination with public organizations prior to the commencement of the NEPA process. CEQ and Congress should make clear that CBAs and other community agreements are a necessary part of the environmental review process and consistent with NEPA.

Legislative: Congress should amend NEPA to authorize and direct federal agencies to consider non-federal agreements and actions that address cumulative and historic impacts of proposals for federal agency action to communities, including CBAs.

Administrative: CEQ should issue updated regulations and guidance that recognizes CBAs and other community agreements as a necessary part of the environmental review process and consistent with NEPA Section 101. CEQ should also clarify that in scoping for environmental reviews and final decision-making, agencies should recognize the value of CBAs that help manage resource trade-offs and work to the benefit of affected stakeholders.

RECOMMENDATION: Establish clear timeline goals and track key project information for priority projects.

The May 2022 Permitting Action Plan directs all agencies to establish clear timeline goals and track progress for projects.10 Currently, this is only required for projects covered under FAST-41, as well as many transportation projects authorized by the Fast Act. All federal agencies should adopt this practice for all projects deemed a priority for a clean energy, nature-positive future.

The development of coordinated project plans and publication of timely metrics and milestones for project permitting enables public participation in the permitting process, provides agencies with information to identify and improve permitting and siting processes and increases accountability and predictability. Moreover, consistent, government-wide data will provide actionable insights into current federal permit and review practices and inform efforts to further improve the effectiveness and efficiency of these processes. However, these insights cannot be left to future applications and need to be applied to projects being planned and permitted now.

Administrative: Federal agencies should rapidly implement recommendations to establish and track permitting review timeline goals. CEQ should monitor the timeliness and effectiveness of agency NEPA processes by reporting on both the timing of environmental review processes, with analysis of the full range of factors that affected the timeline for environmental review, and the effectiveness in agency decision-making processes, with analysis of quantity, quality and the actual use of environmental information by the decision-makers.

9 The Nature Conservancy. *Voices From the West: Findings from Interviews regarding Energy on Tribal Lands.* (The Nature Conservancy, 2021). https://www.nature.org/content/dam/tnc/nature/en/documents/TNC_VoicesFromtheWest_Report_FINAL_LR.pdf

10 The White House. *The Biden-Harris Permitting Action Plan to Rebuild America's Infrastructure, Accelerate the Clean Energy Transition, Revitalize Communities, and Create Jobs.* (2022). https://www.whitehouse.gov/wp-content/uploads/2022/05/Biden-Harris-Permitting-Action-Plan.pdf

Conflict Resolution

RECOMMENDATION: Agencies should employ Environmental Collaboration and Conflict Resolution techniques in aid of priority infrastructure project development.

Environmental Collaboration and Conflict Resolution (ECCR) has been demonstrated to reduce the time and expense of decision-making processes, the likelihood of litigation and the issues in litigation. ECCR has been used successfully in thousands of cases in recent decades. It also documents numerous measurable benefits associated with the use of ECCR to address such conflicts, including saving time and money; strengthening relationships between the government and stakeholder; improving outcomes; and reducing litigation.11 Where priority infrastructure projects cannot avoid environmental conflicts, or the costs of conflict avoidance undermine environmental and economic benefits of the proposed project, federal agencies can employ conflict resolution professionals and other resources to support more efficient and durable resolution to conflicts that otherwise may endanger project implementation.

Administrative: The Office of Management and Budget (OMB) and CEQ should update and reinforce their support for environmental collaboration and conflict resolution by providing the resources and oversight needed for effective alternative dispute resolution solutions directed at priority renewable energy generation and transmission projects.

RECOMMENDATION: The Permitting Council should dedicate resources to conflict resolution and support effective use of environmental collaboration and conflict resolution.

Use of a neutral third party could include assistance with government-to-government consultation between Tribes and federal agencies, interagency and interdepartmental collaborations and conflict resolution on issues involving multiple levels of government and the public. The Permitting Council can help by funding positions dedicated to conflict resolution. For example, BLM could engage the Department of the Interior's (DOI's) Office of Collaborative Action and Dispute Resolution and the National Center for Environmental Conflict Resolution for assistance with multiparty high-conflict decisions where an impartial federal convener is needed to broker participation in a collaborative process or conflict resolution effort.

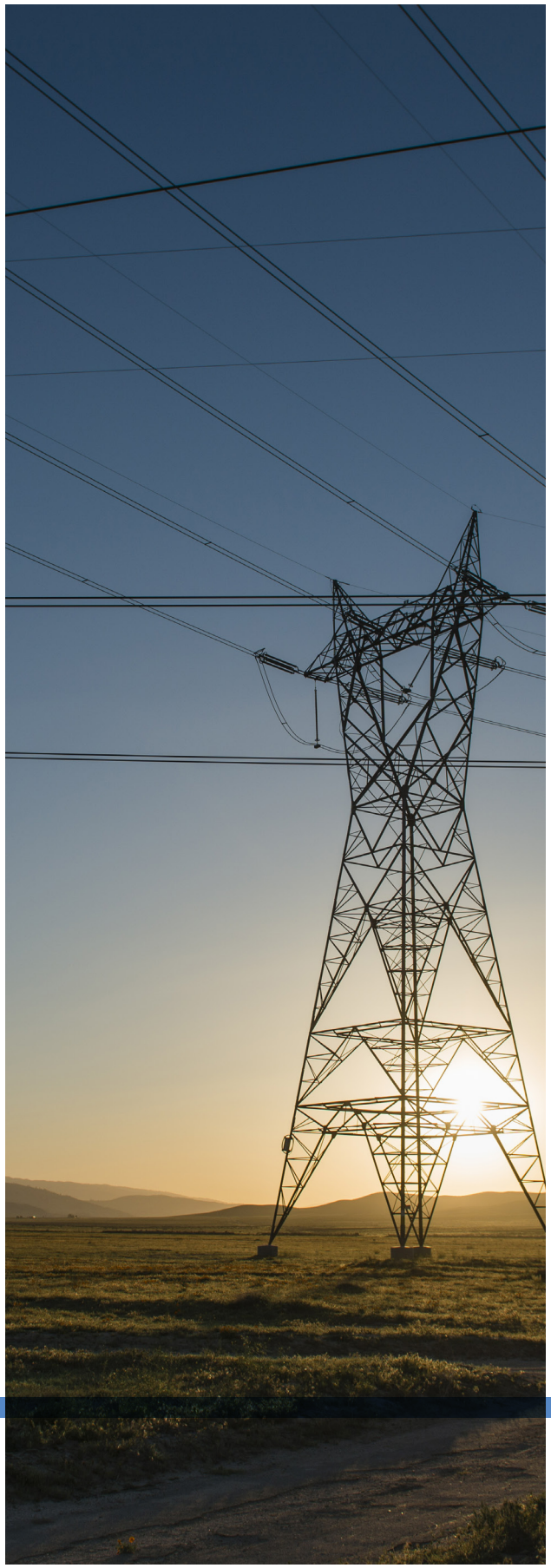
Administrative: The Permitting Council and component agencies should use their authorities and funding to support effective use of environmental collaboration and conflict resolution techniques, including neutral third parties, to reduce conflicts over infrastructure projects, including participation by affected states and Tribes in these dispute resolution processes.

RECOMMENDATION: Congress should encourage negotiated conflict resolution by expediting judicial review of final agency actions on high-priority renewable energy and transmission infrastructure projects.

Amending FAST-41 to limit judicial review to the U.S. circuit courts of appeals for covered clean energy and transmission projects would avoid the unnecessary step of litigation in over-burdened district courts on the way to de novo review by courts of appeals and effectively expedite judicial review of large clean energy infrastructure project decisions. To avoid similarly overburdening courts of appeals, this should be limited to projects of significant size and scope, such as FAST-41 covered projects. If the judicial review provision were modeled on the Federal Power Act, it would provide an opportunity for reconsideration of the decision by the lead agency and other decision-making agencies running from the date of public notice of final agency action and a limitation on court jurisdiction to those plaintiffs that had sought reconsideration and had not received agency action within a specified period. Jurisdiction would be limited to the court of appeals for any circuit where the project proponent is located or has its principal place of business, or in the U.S. Court of Appeals for the District of Columbia. The filing in such court would be required within a specified period after the ROD or upon the application for rehearing, with the petition for review styled as a notice of appeal.

Legislative: Direct judicial review of "covered" clean energy projects under FAST-41 to the U.S. circuit courts of appeals.

11 Federal Forum on Environmental Collaboration and Conflict Resolution. *Environmental Collaboration and Conflict Resolution (ECCR): Enhancing Agency Efficiency and Making Government Accountable to the People.* (2018). https://ceq.doe.gov/docs/nepa-practice/ECCR_Benefits_Recommendations_Report_%205-02-018.pdf



California Poppy Preserve in Antelope Valley, California. © *Dave Lauridsen*

3

Recommendations to improve transmission project siting and permitting

3. Recommendations to improve transmission project siting and permitting

INTRODUCTION

Transmission is critical to addressing grid stability and climate change through the modernization of the power sector and electrification of transportation and other sectors. Multiple pathways exist for the U.S. to meet clean energy goals, but all require upgrading and expanding the nation's transmission infrastructure. In particular, they require deploying or upgrading interstate high-voltage lines connecting areas with significant renewable energy resources to demand centers and linking together independently operated grid regions.[12]

Successful deployment of these lines, however, faces significant challenges, not the least of which is the environmental review and permitting process. Transmission projects proposed on federal lands that require passage across federal lands or that will involve federal funds are subject to federal permitting or review processes.[13] Permitting and siting must also be coordinated with state, local and Tribal governments that have authority to permit and site transmission projects, with differing levels of authority between various public utility commissions, central siting authorities, local governments and other entities. Proposed long-distance transmission lines that cross state boundaries must coordinate the requirements imposed by multiple states as well as local or Tribal governments. Given the diversity of jurisdictional permit and decision-making responsibilities and authorities, the process to obtain final permits to develop new interstate transmission lines or to upgrade existing lines is inherently lengthy, complicated and costly.

This section details TNC's recommendations for reforms on improving the siting and permitting of transmission projects. These reforms would address planning and siting, interagency coordination and community engagement. Each recommendation includes background and discussion of the related issue followed by specific suggested legislative and administrative actions. Implementing these recommendations should accelerate the transmission project deployment, improve environmental outcomes and facilitate community engagement.

RECOMMENDATIONS

Planning

RECOMMENDATION: CEQ should adopt regulations and issue guidance clarifying that land management agencies can and should rely on and incorporate transmission plans and related analyses developed by transmission planning entities into their environmental reviews of transmission projects and related siting, alternatives and mitigation analyses.

FRA amendments to NEPA provide an opportunity for CEQ to amend its NEPA regulations to clarify the relationship between Federal Power Act environmental review and planning and the environmental review developed by or with federal land management agencies. Under the FPA, entities with primary responsibility for transmission planning and authorizing transmission projects are RTOs, ISOs and state utility regulators for states in which proposed transmission projects will be located. RTOs, ISOs and state utility regulators are uniquely qualified to determine whether a proposed transmission project would best meet future state and regional transmission needs and whether there are alternative means through which these transmission needs could be met (i.e., GETs). In addition, DOE undertakes significant studies on a regular basis to identify transmission needs and plan for future transmission.

Land management agencies have no authority (nor do they have the necessary expertise) to act as a transmission planning authority and override these determinations. Where the purpose and need for a transmission line has been established by an RTO/ISO or state utility regulator, land and natural resource managers should rely on that FPA-based purpose and need in their environmental review of siting alternatives and mitigation measures. Federal land and

12 United State Department of Energy. National Transmission Needs Study. (2023). https://www.energy.gov/sites/default/files/2023-12/National%20Transmission%20Needs%20Study%20-%20Final_2023.12.1.pdf

13 As set forth in Appendix B (legal authorities), depending on the areas through which a pipeline or transmission line is proposed, there are a variety of Federal permitting or review processes that may apply in addition to state and local permits: Clean Water Act Section 401 water quality certificates (33 U.S.C. §§ 1251–1387), Section 402 National Pollutant Discharge Elimination System Permits (33 U.S.C. § 1342), Section 404 dredge and fill permits from the Army Corps of Engineers (33 U.S.C. § 1344), permits under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403), Clean Air Act permits (42 U.S.C. § 7401 et seq.), the Endangered Species Act (16 U.S.C. §§ 1531–1544), and the National Historic Preservation Act (16 U.S.C § 470). In addition, compliance with the National Environmental Policy Act is always required when a proposed infrastructure project necessitates Federal action (such as funding, permitting, or otherwise approving a pipeline or electricity transmission project).

resource managers should not be expected to develop expertise in the management of the electrical grid but may appropriately defer to expert agencies (including DOE and FERC) in assessing the need for transmission projects.

DOE's Grid Deployment Office (GDO) and labs, as appropriate, should assist lead and cooperating agencies on high-priority projects in using previously completed EA and EIS documents to help satisfy the requirements of NEPA with respect to approving any proposed energy infrastructure project where the new proposed action is substantially similar to a previously analyzed proposed action or alternative analyzed in a previous EA or EIS and the effects of the proposed action are similar to the effects analyzed in such existing EA or EIS documents. GDO should be authorized to speak authoritatively regarding the need for transmission projects and the availability of alternatives and to work with land management agencies on their assessment of site-specific considerations for the authorization of transmission and renewable generation projects.

CEQ should clarify that land management agencies should rely on and incorporate the findings of transmission and renewable energy planning by reference in their NEPA analyses. This will enable land management agencies to appropriately limit their purposes and need statements as well as their alternatives analyses to aspects within their jurisdiction and expertise instead of requiring land management agencies to make technical determinations about the need for transmission and renewable energy projects.

Administrative: CEQ should adopt regulations and issue guidance clarifying that land management agencies can and should rely on and incorporate plans, studies and projections of DOE, RTOs and state utility regulators.

Legislative: Congress should authorize and direct CEQ to adopt regulations and issue guidance clarifying that land management agencies can and should rely on and incorporate plans, studies and projections of DOE, RTOs and state utility regulators.

RECOMMENDATION: FERC should adopt reforms to all regional transmission planning processes, whether led by RTO/ISOs or DOE, to require place-based long-term planning horizons and scenario-based planning, involve all levels of government and incorporate environmental and social factors in deployment of transmission.

To identify the most efficient package of transmission infrastructure needed to accommodate the changing resource mix, transmission providers must clearly articulate project benefits. As FERC identified, there remains a patchwork of practices across transmission providers when it comes to long-range transmission planning. Some regions focus heavily on near-term to mid-term time horizons, while others incorporate long-range planning studies to identify transmission needs over a twenty-year time frame. Ensuring consistent application of long-range planning over a twenty-year time horizon will help identify transmission needs sooner. Moreover, FERC's emphasis on ensuring transmission planning considers changing resource mix and demand on the grid will help ensure that transmission projects needed to connect new clean energy resources to the grid are planned for in the regional transmission planning process in advance of when they are needed. One example of successful implementation of long-range transmission planning is Midcontinent Independent System Operator's (MISO) Long Range Transmission Planning process. The 2022 Long Range Transmission Plan implements a value-based planning process and creates a consolidated transmission plan that delivers regional value over the long term while meeting near-term system needs. Transmission planning that accounts for environmental and social factors in deployment of transmission and the indirect effects of transmission development on energy generation can significantly reduce negative environmental and community impacts of development projects.[14]

Early and engaged participation in the regional transmission planning process by state authorities could streamline siting processes down the road for transmission lines included in regional transmission plans. Providing state authorities with access to information so they understand the basis and need for a particular transmission project, as well as the benefits estimated from constructing such a project, would improve the efficiency of subsequent siting and permitting proceedings and reduce the time it takes to reach decisions on proposed projects. Moreover, state agencies would have the opportunity to advocate in the regional transmission planning process for transmission infrastructure that supports state energy goals, thereby shaping the scope and scale of transmission projects that are ultimately before them in siting and permitting proceedings. FERC's efforts to carve out a more prominent and defined role for states in the regional transmission planning process is a good first step.

14 The Nature Conservancy. *Power of Place National Executive Summary*. (The Nature Conservancy, May 2023). https://www.nature.org/content/dam/tnc/nature/en/documents/FINAL_TNC_Power_of_Place_National_Executive_Summary_5_2_2023.pdf

Administrative: FERC should ensure regional transmission planning supports place-based long-term planning involving state agencies and accommodating changing resource mixes and sensitive ecosystems and communities and requires identification of clear benefits metrics for selection of transmission projects.

RECOMMENDATION: FERC should adopt requirements for minimum interregional transfer capacity.

Multiple studies have demonstrated that increased investment in interregional transmission can significantly reduce costs for customers to allow more flexibility in accessing the lowest-cost energy options at a given time.[15] More interregional transmission also means that different regions of the country will need to build less wind, solar and other generation to accommodate energy demand, further reducing costs for customers and impacts to nature and communities.

Historically, regional transmission planners have not been appropriately incentivized to undertake robust interregional transmission. FERC is currently considering establishing a minimum requirement for interregional transfer capability for public utility transmission providers in transmission planning and cost allocation processes.

Legislative: Congress should require FERC to outline requirements for interregional transmission planning and establish minimum interregional transmission transfer capacity.

RECOMMENDATION: The BLM should complete the current Section 368 Energy Corridors EIS and conduct a PEIS to evaluate Section 368 Corridors.

The BLM is preparing an EIS to evaluate revisions to seven Section 368 Energy Corridors designated in 2009.[16] The energy corridors are the land use plan-level designated areas to which the agency seeks to direct future linear electrical transmission and pipeline projects. The agency prepared a report in 2022, which recommended dozens of revisions to the designated corridors. In 2024, the BLM initiated a NEPA review to amend seven corridors. The agency should complete that EIS and initiate another programmatic planning-level EIS to evaluate other recommended changes. The corridor revisions are essential to reflect recently approved infrastructure and other land use changes since 2009.

RECOMMENDATION: State agencies should be provided with federal funding through Transmission Siting and Economic Development Grants to hire dedicated staff with legal and engineering backgrounds to participate actively in the regional transmission planning process and streamline siting and permitting processes for specific high priority transmission projects.

Under Section 50152 of the IRA, Congress appropriated US$760 million to make transmission siting and economic development grants to siting authorities to facilitate the siting and permitting of interstate onshore and offshore transmission lines.

The receipt of grants under the program are subject to the condition that a siting authority agree to reach a final decision on the application relating to the siting or permitting of the applicable transmission project not later than two years after the date on which such grant is provided, unless extended by the Secretary of Energy. On January 13, 2023, the DOE issued a request for information (RFI) seeking comment on the scope of activities that could be supported with these grants.

The DOE should view the categories of activities covered by the grant program broadly enough to include participation in the regional transmission planning process. Active involvement of state agencies in the regional transmission planning process where a transmission project was selected can improve the chances of, and shorten the time required for, approval by the state siting authority down the road.

Administrative: DOE should provide funding to states to participate in regional transmission planning processes.

15 Brattle Group. *The Benefits of Interregional Transmission: Grid Planning for the 21st Century*. https://www.brattle.com/wp-content/uploads/2022/03/The-Benefits-of-Interregional-Transmission-Grid-Planning-for-the-21st-Century.pdf; Americans for a Clean Energy Grid. Benefits of Interregional Transmission. https://www.cleanenergygrid.org/wp-content/uploads/2023/05/Benefits-of-Interregional-Transmission-Factsheet.pdf

16 Bureau of Land Management. *Approved Resource Management Plan Amendments/Record of Decision (ROD) for Designation of Energy Corridors on Bureau of Land Management-Administered Lands in the 11 Western States*. https://www.corridoreis.anl.gov/documents/docs/Energy_Corridors_final_signed_ROD_1_14_2009.pdf

RECOMMENDATION: Ensure that transmission planners rigorously evaluate use of reconductoring, GETs and other transmission line upgrades to right-size the scope of new build transmission projects approved in the regional transmission plan.

Technical improvements to existing transmission facilities can serve as substitutes or complements to investments in costly expansion for the purpose of supporting new generation capacity and higher levels of variable renewable resource penetration. As the administration recognized in its permitting reform recommendations, under certain conditions, it may be possible for reconductoring, GETs and other transmission line upgrades that could more than double the amount of new renewables to be integrated into the grid.[17]

In addition to acting as solutions to capacity expansion needs, these technologies can complement development of large new lines by effectively multiplying new system capacity and, in turn, enabling more cost-effective absorption of large volumes of renewable resources from regions previously inaccessible to the bulk power system.

On December 16, 2021, FERC adopted Order No. 881, which supports a subset of these technologies by requiring transmission providers and RTOs/ISOs to implement ambient-adjusted ratings and allow for hourly line ratings. In addition, FERC has focused on certain types of GETs that can make existing transmission lines more efficient in transmitting electricity. FERC focused on advanced power flow control, which can move power away from overloaded facilities or drive power to under-utilized facilities, and dynamic line ratings, which adjust the thermal ratings of transmission lines based on real-time monitoring of line performance. FERC should evaluate other opportunities to integrate new technologies or other transmission-upgrades into the transmission planning process.

Administrative: FERC should include consideration of all applicable GETs and transmission line upgrades in its triennial review of transmission capacity constraints and congestion under Section 216 of the FPA and should incorporate requirements to consider GETs in all relevant transmission planning rulemakings.

Legislative: Congress should require FERC to include consideration of all applicable GETs and transmission line upgrades in its triennial review of transmission capacity constraints and congestion under Section 216 of the FPA.

Siting

RECOMMENDATION: Update Section 368 energy corridors and encourage their use for transmission lines and hydrogen pipelines.

Section 368 of the Energy Policy Act of 2005 required DOI, Department of Agriculture (USDA), Department of Commerce (DOC), Department of Defense (DOD) and DOE—in consultation with FERC and Tribal entities—to work together to designate energy rights-of-way corridors for oil, gas and hydrogen pipelines and electricity transmission and distribution facilities on federal lands—first in 11 western contiguous states (Section 368(a)) and later, if warranted, in the remaining states (Section 368(b)). In 2009, DOI and USDA designated more than 6,000 miles of these corridors across 11 western states (otherwise known as West-wide Energy Corridors). Once a Section 368 energy corridor is designated, it is considered to be a preferable pathway for interstate energy transport until it is amended. Although their use is voluntary, project developers and relevant federal agencies have, to varying extents, used portions of the western energy transport corridors for projects since 2009.

Following a multi-year review of the originally designated corridors, on April 20, 2022, the BLM and the U.S. Forest Service (USFS) published a final report that identified potential improvements to the corridors that balance the need for delivering clean energy with protecting America's lands, water and wildlife habitat.[18] The BLM conducted regional reviews as a part of this final report.

17 The White House. *Biden-Harris Administration Outlines Priorities for Building America's Energy Infrastructure Faster, Safer, and Cleaner*. https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/10/fact-sheet-biden-harris-administration-outlines-priorities-for-building-americas-energy-infrastructure-faster-safer-and-cleaner/; Brattle Group. *Unlocking the Queue with Grid Enhancing Technologies*. https://watt-transmission.org/wp-content/uploads/2021/02/Brattle__Unlocking-the-Queue-with-Grid-Enhancing-Technologies__Final-Report_Public-Version.pdf90.pdf

18 West-wide Energy Corridor. *Regional Review Final Report*. https://corridoreis.anl.gov/regional-reviews/report/; Note also that on June 7, 2013, the President issued a separate but related memorandum, directing Federal agencies that laid out principles for designation of energy right-of-way corridors on Federal lands under Section 368 of the Energy Policy Act of 2005. It also directed Federal agencies to re-evaluate existing energy rights-of-way corridor designations to determine the necessity for revisions, deletions, or additions to those energy corridors and to develop interagency mitigation plans, where appropriate, for environmental and cultural resources potentially impacted by projects sited in energy corridors.: The White House. *Presidential Memorandum–Transforming our Nation's Electric Grid Through Improved Siting, Permitting, and Review* (June 7, 2013). https://www.whitehouse.gov/the-press-office/2013/06/07/presidential-memorandum-transforming-our-nations-electric-grid-through-i

As preferred locations for energy transport projects on federally administered public lands, Section 368 energy corridors are intended to facilitate long-distance movement of oil, gas or hydrogen via pipelines and transmission and distribution of high-voltage electric power. Although project applicants are not required to locate projects in Section 368 energy corridors, applicants who would choose to use them should be able to take advantage of a more efficient application process that provides applicants with a clear set of actions required by each agency to build projects in designated corridors, including: siting options for compatible projects in designated corridors; coordinated corridor designations across agency administrative barriers; coordinating agency administrative processes within corridors; interagency operating procedures that assist in preparing and evaluating right-of-way (ROW) applications; a single federal point of contact for each ROW application; incorporation by reference from the PEIS for project-specific environmental review; and focused project planning data collection and project-specific engineering on issues specific to the proposed project and the associated within-corridor ROW and not on alternative locations. These benefits could expedite the application, authorization and construction of energy transport projects as directed by Section 368.

Because Section 368 energy corridors on federal lands may affect routing of projects on adjacent non-federal lands, robust stakeholder outreach is appropriate when considering site-specific projects utilizing Section 368 energy corridors and proposals to revise, delete or add Section 368 energy corridors. The BLM should expeditiously complete a regional, programmatic environmental review to update prior environmental review for the West-wide Energy Corridors to include stakeholders and better integrate the corridors with current energy conditions, projections for future growth and BLM and USFS land management planning. For priority transmission projects, plan amendments should be incorporated into the environmental review for project decisions.

Legislative: Congress should direct the BLM, as lead agency, to expeditiously complete a regional, programmatic environmental review to update prior environmental review for the West-wide Energy Corridors, to include Tribal rights holders and stakeholders such as underserved communities, and better integrate the corridors with current energy conditions, projections for future growth and BLM and USFS land management planning.

RECOMMENDATION: Identify opportunities and provide funding for co-location in existing highway, rail, utility and federal lands rights-of-way where technically feasible.

DOE should prioritize investments in co-locating transmission lines and reconductoring existing lines while continuing to plan for new low-impact transmission investments when connecting to demand centers.19 Co-location could include existing highway, rail, utility or other rights-of-way.

The National Electrical Manufacturers Association established the Railroad Electrification Council to promote the use of underutilized Class 1 and Class 2 railway rights-of-way for transmission.[20] A 2008 Government Accountability Office report found that co-locating transmission with existing highway and rail rights-of-way provides a number of economic, environmental and visual advantages.[21]

DOT should encourage use of its ROWs for renewable energy generation, electrical transmission and distribution projects, as co-locating transmission in transportation corridors can help mitigate siting and land acquisition conflicts and issues.[22] Addressing electrical transmission and distribution in the ROW of a federal-aid highway can follow two methods, either accommodation as a utility or approval as an alternative use of the highway ROW. Co-location on an existing highway ROW will enable transmission projects to make use of already disturbed rights-of-way. State laws and regulations may be narrower in scope than the federal definition, and states should broaden their state laws and regulations to cover the full scope of the federal definition to ensure transmission projects can be accommodated in highway ROWs as a utility.

19 Federal Energy Regulatory Commission. *Report on Barriers and Opportunities for High Voltage Transmission*. https://www.congress.gov/116/meeting/house/111020/documents/HHRG-116-II06-20200922-SD003.pdf; See also Conservation Groups' Transmission Recommendations to President Biden, December 15, 2022 ("Ensure that, to the extent reasonably feasible but without impairing its mandate to assess and minimize environmental impacts on EJ and Tribal communities, the route makes use of any already disturbed existing rights of way, for any type of infrastructure.").

20 National Electrical Manufacturers Association. *NEMA Launches Railroad Electrification Council*. (February 11, 2020). https://www.nema.org/news-trends/view/NEMA-Launches-Railroad-Electrification-Council

21 United States Government Accountability Office. *Transmission Lines: Issues Associated with High-Voltage Direct-Current Transmission Lines along Transportation Rights of Way*. (February 1, 2008). https://www.gao.gov/assets/100/95342.pdf

22 FERC (2020) indicates, however, that there are barriers to such co-location. "Some state laws prohibit or in other ways restrict the co-location of transmission in highway rights-of-way. Co-location may also increase costs if the highway does not run in the direction compatible with the project. Further, electrical interference can affect the protection systems of oil and gas pipelines and accelerate corrosion, and the induced currents from high voltage lines can also affect railroad signaling systems. These issues could limit co-location of transmission in pipeline or railroad rights-of-ways. Finally, additional safety and security concerns arise when facilities are co-located. Incidents related to one facility can affect the co-located facility due to the physical proximity."

In some cases, utilities may have an opportunity to co-locate transmission capacity in existing transmission ROW that cross federal lands. Transmission projects and upgrades can increase utilization of existing transmission ROW by reconductoring existing lines, increasing line voltage, adding additional circuits or converting the standard alternate current design to direct current. Co-locating transmission in existing ROW minimizes the risks of habitat fragmentation on public lands. It can also reduce the permitting burden on utilities enabling them to get the necessary permits and approvals much faster.

Administrative: DOE should work with DOT, DOI, USFS, other federal and state agencies and utilities to make use of existing rights-of-way, including existing rail and highway rights-of-way, BLM's West-wide Energy Corridors and other existing federal land and utility rights-of-way.[23] Agencies overseeing existing rights-of-way, such as highway and rail rights-of-way, should develop guidance for project developers and state agencies highlighting best practices and procedures for developing in existing rights-of-way. Transmission projects that make use of these existing transmission or other infrastructure corridors should be a priority for agency funding both because of their obvious conservation benefits and their increased ability to get the necessary permits and approvals from land management agencies.

Legislative: Congress should authorize and direct DOE, with DOT, DOI, USFS, other federal and state agencies and utilities to integrate existing rights-of-way into existing rail and highway rights-of-way and other existing federal land and utility rights-of-way. Congress should also direct relevant federal agencies to develop guidance for co-locating transmission within rights-of-way under their jurisdiction.

RECOMMENDATION: DOE should continue to designate NIETCs under Section 216(b) that connect areas of geographically constrained, low environmental impact renewable energy to load.

DOE has proposed utilizing a route-specific, applicant-driven process to designate NIETCs. There is a strong case that an applicant-driven process for a specific project route could benefit from consolidated environmental review. DOE intends to give particular consideration to proposed NIETCs that overlap with or utilize existing highway, rail, utility and federal land ROW. In addition to shortening permitting timelines, this approach has the added benefit of reducing habitat fragmentation. DOE should continue this approach in the designation of new NIETCs that are appropriately tailored to the locations of priority.

When making NIETC designations, DOE should use the authority provided by Section 216(a) to consider how new transmission will benefit customers by connecting areas with geographically constrained high renewable potential to load. Corridors may be designated in any area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers. Although there is no generally accepted understanding of what constitutes constraints or congestion, DOE can find constraints based on expectations of future congestion and based on the absence of a transmission line that hinders development of desirable generation. Geographic areas with high renewable penetration but little access to customers due to a lack of transmission meet this standard. Similarly, areas facing overloaded generator interconnection queues as a result of insufficient transmission face a constraint that adversely affects consumers by driving up the cost of obtaining clean energy for customers such as large corporate energy users. IIJA amendments specifically allow for a corridor designation to connect intermittent (e.g., renewable) energy to the electric grid. DOE should consider available data on high-priority environmental resources to inform identification of geographic areas of high renewable energy potential and low environmental impact and prioritize these areas for transmission corridors.

Administrative: DOE should continue to designate NIETCs under its Section 216(b) authority through a process that are applicant-driven and geographically specific, reflect both national and community needs and rigorously apply the mitigation hierarchy.

RECOMMENDATION: DOE and FERC should work together to accelerate and consolidate their NIETC designation and project siting decisions.

Under the sequential two-step process where FERC will issue a permit only after DOE has completed its NIETC designation, federal siting would seem to require two separate consultations, two separate NEPA reviews and two separate agency processes before a new transmission project can be completed. This additional process can significantly increase the time it takes to develop critical transmission lines and, as a result, the cost of doing so.

23 DOE NOI Building a Better Grid Initiative; Yixing Xu, et al. *A 2030 United States macro grid–Unlocking geographical diversity to accomplish clean energy goals.* (Breakthrough Energy Sciences, 2021). https://bescdn.breakthroughenergy.org/publications/MacroGridReport.pdf

In order for Section 216 to be used most effectively, DOE and FERC should work simultaneously to designate project-specific NIETCs and issue a federal permit for each project. The specific responsibilities given to DOE and FERC suggest Congress intended a harmonized process that would lead to additional transmission development.

In some instances, Congress has required DOE, FERC and other federal agencies to coordinate all authorizations required to site a transmission facility, including all environmental reviews, under Section 216 of the FPA. DOE has already taken this broad authorization a step further by establishing a simplified Integrated Interagency Preapplication (IIP) process for the siting of electric transmission facilities. A joint DOE and FERC process can be informed by the IIP process, which, for applicants that opt into the process, requires preapplication coordination with non-federal entities, including state governments.[24]

In order to consolidate the NIETC designation process with the transmission siting process and integrate DOE revisions to its IIP regulations, FERC will have to update its regulations. Currently, those regulations permit prospective developers to submit an application for a federal permit only after DOE has completed a NIETC designation.[25] Instead, FERC should consider issuing joint regulations with DOE. These regulations would incorporate elements of the NIETC designation, including initiation of state consultation and corridor related NEPA review, into the FERC pre-filing process. The regulations should include robust public engagement processes that are accessible to potentially impacted communities. The regulations could align the timing and content of the permit application and permitting decision with the filings, comment opportunities and decision-making required for a project-specific corridor designation.

Administrative: FERC and DOE should align the NIETC designation and transmission siting processes.

Legislative: Congress should direct FERC and DOE to align NIETC designation and transmission siting processes and avoid duplicate environmental reviews.

RECOMMENDATION: DOE should develop an appropriately detailed environmental review of proposed NIETCs.

As part of the NIETC designation process, DOE should develop an appropriately detailed environmental analysis of those proposed transmission corridors. If DOE finds, based on an environmental review, that the corridor designation would not result in significant environmental impacts, it may be able to conclude its environmental review with a finding of no significant impact. However, if DOE expects significant impacts (e.g., that multiple transmission lines would likely be permitted within a single NIETC), it may be more efficient for DOE to conduct a programmatic EIS in which it evaluates potential environmental impacts of constructing transmission throughout the transmission corridor. Although such an approach might extend the time for making specific corridor designations, through interagency coordination and adoption or tiering it would reduce the extent of additional project-specific analysis and therefore time required for FERC to act on individual permit applications within a transmission corridor.

Administrative: DOE, as lead agency, should conduct environmental reviews of NIETC proposals using best practices for procedures for transparency, interagency coordination and issue resolution.

Legislative: Congress should direct DOE, as lead agency, to conduct environmental reviews of NIETC proposals using best practices for procedures for transparency, interagency coordination and issue resolution.

Coordination

RECOMMENDATION: DOE should identify nationally significant transmission projects and work with jurisdictional agencies to utilize the Permitting Dashboard and expedited procedures under the FAST Act to manage their environmental review process.

DOE should work with jurisdictional agencies to recommend nationally significant transmission projects for management of their environmental review and authorization processes through the Permitting Dashboard. Multiple transmission projects have successfully used the Permitting Dashboard and gone through the FAST-41 process, such as the Ten West Link that was added to the Permitting Dashboard in 2016 and completed review in 2022. Following this model, the Permitting Dashboard should be used to enhance coordination, transparency, predictability and

24 *Id.* at 66,507. Early consultation can provide states an opportunity to raise concerns and make suggestions about the specific location of a project that receives a federal permit within the transmission corridor, as well as any appropriate mitigation measures.

25 *The Federal Power Act*, 18 C.F.R. § 50.6(d). https://www.law.cornell.edu/cfr/text/18/50.6 (requiring applicants verify that the proposed route lies within a Transmission Corridor).

accountability of federal environmental reviews and authorizations required prior to construction. The project environmental review and authorization target completion dates for all FAST-41 covered projects must be posted on the publicly available Permitting Dashboard to allow stakeholders to track the status of federal permitting activities to improve coordination, transparency, predictability and accountability throughout the process.

Two DOE efforts hold promise in supporting this approach. DOE has issued an NOI, an RFI and guidance on the designation of NIETCs and is currently conducting its phased designation process that includes public engagement and information gathering. These applicant-driven and geographically specific designations should reflect both national and community needs and rigorously apply the mitigation hierarchy. DOE's rule establishing an integrated and comprehensive Coordinated Interagency Transmission Authorizations and Permits (CITAP) Program also offers an important opportunity to strengthen the transmission permitting process, expanding efforts to ensure pre-construction coordination and providing updated direction to federal agencies in expediting the siting, permitting and construction of electric transmission infrastructure, including robust public engagement elements.

Administrative: DOE should work with jurisdictional agencies to recommend nationally significant transmission projects for management of their environmental review and authorization processes through the Permitting Dashboard.

RECOMMENDATION: The Permitting Council should prioritize completion of transmission projects that meet a transmission need according to their planned in-service dates and generator queues.

For transmission projects necessary to reduce an existing or foreseeable backlog in the renewable energy generation project queue, DOE and the Permitting Council should be tasked with establishing clear timeline goals according to the project's scheduled in-service date and track project permitting milestones information. A transmission project's in-service date is a scheduling concern for project proponents, as well as all the generation capacity that is either constrained by a lack of transmission capacity or resides in queue awaiting the opportunity to connect to the grid. Thus, the in-service date is the dominant consideration against which permitting and authorization milestones should be measured.

FAST-41 does not require covered projects to go through the environmental review and authorization processes "fast," but the Permitting Council can use its oversight of implementation of a coordinated project plan to ensure that nationally and regionally important projects adhere to their timelines. While any project that meets the FAST-41 definition of "covered" project is entitled to have its permitting schedule tracked on the Permitting Dashboard, the Permitting Council should focus its efforts on advancing nationally and regionally significant transmission projects that meet identified transmission needs and set project schedules according to planned in-service dates.

Administrative: The Permitting Council should focus on advancing priority transmission projects with all deliberate speed by using its dispute resolution authorities—including elevation of schedule and methodological disputes to OMB and CEQ—and set schedules according to planned in-service dates.

Woman walks among vineyards and wind turbines at sunset. © *Fábio Maffei*

4

Recommendations to improve onshore wind and solar energy development

4. Recommendations to improve onshore wind and solar energy development

INTRODUCTION

Renewable energy provides tremendous benefits to people and nature—health benefits from cleaner air and water and economic benefits from jobs and local tax revenue—and supports community access to affordable and reliable electricity. Achieving the clean energy build-out necessary to meet our climate goals will require quadrupling our renewable energy capacity in the U.S. by 2050. These goals will not come to fruition absent reasonable improvements to siting and permitting of renewable energy projects on public lands, including a focus on finishing priority projects; bolstering required interagency coordination by leveraging the Permitting Council's authorities under the FAST Act; prioritizing project review and permitting in identified low-impact areas and through programmatic approaches; actively engaging with communities; and sharing benefits equitably.

Between 3,100 and 3,500 GW of wind and solar generation capacity are needed for the U.S. to reach net zero by 2050.[26] The pace of new utility-scale project announcements has been increasing rapidly in recent years and needs to grow further. In general, few utility-scale solar and wind projects on private lands fall under federal jurisdictions for project approvals. Institutional barriers at the state and local level create roadblocks and project delays.[27] Although state legislatures and agencies are best positioned to address these barriers, Congress and federal agencies can support more efficient and effective state processes by contributing resources, sharing information and incentivizing states to act. Developing solar and wind on federal lands is a direct nexus with federal authorities. In April 2024, the Department of the Interior announced it has approved nearly 29 GW of renewable energy on federal lands, surpassing the 25 GW by 2025 target. Perceptions of burdensome permitting processes and other hurdles mean project development on federal lands is not yet reaching its full potential.

This section details TNC's recommendations for reforms to improve the siting and permitting of wind, solar and geothermal energy projects. These reforms would address planning and siting, permitting targets, financial resources and community engagement. Each recommendation includes background and discussion of the related issue followed by specific suggested legislative and administrative actions. Implementing these recommendations should accelerate clean energy deployment, improve environmental outcomes and facilitate community engagement.

RECOMMENDATIONS

Planning

RECOMMENDATION: Land management agencies should identify priority Renewable Energy Zones in their programmatic reviews that seek to maximize community benefits and avoid significant negative environmental and social impacts through meaningful community engagement.

Programmatic environmental reviews developed by public land management agencies should identify spatially explicit priority areas for clean energy that have the least potential to conflict with environmental and community interests, i.e., Renewable Energy Zones.

These zones should be located in areas with minimal resource impacts; right-sized to accommodate the demand for new energy generation; sited to maximize interconnection with the electrical grid; identified through timely and meaningful engagement with impacted communities and Tribes; and distributed geographically to help meet state-specific demand for renewable energy, thereby providing critical regional grid balancing and reducing the need for fossil fuel baseload generation.

In the identification of Renewable Energy Zones with minimal resource impacts, planners should use high-resolution conservation, land use, demographic and cultural data. Where available, agencies should rely upon existing data, such as TNC's Site Renewables Right and Power of Place data, as well as Argonne's Geospatial Energy Mapper.

26 The Nature Conservancy, *Power of Place: National*, (The Nature Conservancy, May 2023). https://www.nature.org/content/dam/tnc/nature/en/documents/FINAL_TNC_Power_of_Place_National_Executive_Summary_5_2_2023.pdf

27 Energy and Environmental Economics. *Assessment of Renewable Energy Siting and Permitting Policies*. (Prepared for Clean Air Task Force, The Nature Conservancy and Natural Resources Defense Council, April 17, 2024). https://www.ethree.com/wp-content/uploads/2024/04/Renewable-Siting-and-Permitting-Policies-E3-04.16.2024.pdf

When determining appropriate zones relative to transmission, agencies should work with DOE for technical skills and modeling. Where not available, investments should be made in developing such resources. The highest priority zones should be previously disturbed areas, such as mine lands and brownfields. In identification of these areas, agencies should consult with the Department of the Interior's Office of Surface Mining Reclamation and Enforcement and EPA's Re-Powering Program, which identifies previously disturbed lands potentially appropriate for renewable energy deployment.[28]

When considering locations for Renewable Energy Zones, public land management agencies should evaluate the potential for grid interconnection as determined by proximity to electrical infrastructure, specifically substations. For example, the BLM Arizona's Restoration Design Energy Project EIS identified new priority areas based on transmission infrastructure proximity. These analyses should take place in collaboration with the DOE and other agencies with expertise on transmission capacity and planning.

Identification of Renewable Energy Zones must also be undertaken with regular engagement with state and county governments and Tribal nations to ensure coordination and robust consideration of environmental justice and equity concerns.

Administrative: Agencies should identify Renewable Energy Zones and take into consideration transmission capacity and needs and least conflict areas.

RECOMMENDATION: The BLM should conduct PEISs for wind and geothermal leasing.

The BLM is updating the agency's 2012 Western Solar Plan, which will help expedite future NEPA reviews while directing projects to least conflict areas. The same opportunity exists for wind and geothermal energy development. The BLM issued the Wind PEIS in 2005 and the Geothermal Leasing PEIS in 2009. Updated programmatic guidance is needed for the efficient permitting of these technologies.

Administrative: Allocate resources to BLM to revise the Wind and Geothermal Leasing PEISs.

RECOMMENDATION: BLM should establish consistent, effective and proportional mitigation requirements that balance wind and solar energy with resource management.

The BLM's Mitigation Policy[29] expressly recognizes and has implemented a mitigation hierarchy as part of its landscape-scale approach to resource protection, directing all agency staff to follow the global mitigation hierarchy by avoiding damage to public lands and resources, minimizing damage that cannot be avoided and compensating for residual impacts.

Programmatic environmental reviews for clean energy should include clear and appropriate mitigation standards to expedite permit review for projects in designated low-impact zones. There is no doubt that utility-scale solar, wind and associated infrastructure will displace habitat and species and disturb landscapes. However, a "smart from the start" approach to development will minimize resource impacts by directing development to areas that are relatively low conflict from an ecological, cultural and social point of view. Unavoidable direct and indirect adverse impacts to resources from present and reasonably foreseeable development should be identified, analyzed and addressed through compensatory mitigation in subsequent project-level NEPA analyses.

One immediate opportunity for the BLM to incorporate appropriate and clear mitigation standards into its programmatic reviews is through updates to the Western Solar Plan PEIS. Ideally, the Western Solar Plan PEIS would provide a regional-scale mitigation framework to ensure minimal compensatory mitigation requirements are needed in priority areas beyond the standard measures identified in the PEIS. Both within and outside of priority areas, impacts should be avoided and minimized to the extent possible through project siting and design. The BLM should, when appropriate, facilitate offsetting any remaining impacts by relying upon well-tested mechanisms for delivering permittee-responsible compensatory mitigation obligations, such as mitigation banks or in-lieu fee programs. As stated in the BLM's mitigation handbook, compensatory mitigation should seek to achieve a no net loss or net benefit outcome. The BLM should strive to achieve a net benefit standard to ensure that the lands restored or preserved for compensatory mitigation more than offsets the areas lost to development and ecological change.

28 Environmental Protection Agency. *What is RE-Powering?* https://www.epa.gov/re-powering/what-re-powering

29 Bureau of Land Management. *Instruction Memorandum 2021-046, Reinstating the Bureau of Land Management (BLM) Manual Section (MS-1794) and Handbook (H-1794-1) on Mitigation.* (2021). blm.gov/policy/im-2021-046

Administrative: BLM planning, guidance and site-specific decisions should implement a consistent approach to mitigation and ensure that projects will appropriately mitigate impacts, with the result being maintenance of conservation status and net conservation benefit wherever feasible.

Siting

RECOMMENDATION: FWS should publish and finalize its proposed rule to update its rights-of-way regulations to allow for transmission improvements to existing transmission infrastructure through official refuges that improve conservation and energy outcomes.

FWS has indicated its intent to issue a revised proposed rule to update and streamline its regulations for permitting rights-of-way by aligning FWS processes more closely with those of other DOI bureaus, which remains pending. Project decisions such as the BLM ROD for the Sun Zia transmission project demonstrate how transmission projects need to evaluate alternatives to use of existing transmission rights-of-way through refuges, but in some cases the use of an existing transmission ROW is the best alternative. FWS needs the regulatory tools to allow for reasonable uses of valid existing rights with conditions necessary to protect refuge purposes and resources, and regulations should provide for compensatory mitigation, land exchanges and other means to take advantage of opportunities to improve the location of transmission lines in and adjacent to refuge land and waters.

Administrative: FWS should finalize regulations that provide for reasonable uses of valid existing rights with conditions necessary to protect refuge purposes and resources and provide for compensatory mitigation, land exchanges and other means to take advantage of opportunities to improve the location of transmission lines in and adjacent to refuge land and waters, consistent with the applicable comprehensive conservation plan for the refuge.

RECOMMENDATION: DOE and FWS should develop solar energy siting guidelines similar to the FWS Land-Based Wind Energy Siting Guidelines.

FWS has developed federal land-based wind energy guidelines with broad input from state wildlife agencies, conservation and sporting organizations, the wind industry and others. The guidelines discuss risks to species of concern from wind energy projects, including collisions with wind turbines and associated infrastructure; loss and degradation of habitat from turbines and infrastructure; fragmentation of large habitat blocks into smaller segments that may not support sensitive species; displacement and behavioral changes; and indirect effects such as increased predator populations or introduction of invasive plants.

The guidelines assist developers in identifying species of concern that may potentially be affected by proposed projects. In the last decade, having standards and a mitigation framework in place for developers to evaluate potential adverse impacts to fish, wildlife and habitat has proven effective. Critically, the guidelines also set expectations for early consultation with state and federal fish and wildlife agencies to ensure that potential projects are planned and designed with the input of the nation's wildlife professionals.

Although there are no similar national-level siting guidelines for solar energy, many renewable energy developers voluntarily utilize the framework outlined in the guidelines for solar siting decisions. As the solar industry matures and the scientific understanding of its impacts on wildlife and habitat evolves, demand for national solar siting guidelines will increase. A recent survey undertaken by the Association of Fish and Wildlife Agencies found that 88 percent of responding states indicated that solar photovoltaic energy guidelines should be developed, similar to the FWS Land-Based Wind Energy Guidelines.[30]

With the accelerating scale and pace of solar energy development noted above, DOE and FWS should partner in development of solar energy guidelines modeled on the wind energy guidelines. DOE or FWS are appropriate entities to lead development of these guidelines given their expertise and purviews. This process should be undertaken through a formal process directed by the Federal Advisory Committee Act (FACA), which will ensure transparency and engagement of a broad group of stakeholders. Development of federal wind energy guidelines followed this process, which led to broad buy-in, support for and utilization of the recommendations.

30 Association of Fish and Wildlife Agencies. *Solar Siting Survey Final Report*. (2023). https://www.fishwildlife.org/application/files/7616/8053/3632/Solar_Siting_Survey_Summary_AFWA_FINAL.pdf

Administrative/Guidance: DOE and FWS should partner with industry, state wildlife agencies and conservation and sporting organizations in development of solar energy guidelines through a formal FACA process.

Legislative: Congress should direct FWS to develop solar siting guidelines through a formal FACA process and allocate funds to do so.

RECOMMENDATION: Mitigate legal liability risks associated with developing renewable energy or storage at a brownfield site.

Siting renewable energy and storage at a brownfield site, such as a former mine or industrial site, can help reduce pressure to convert valuable natural and agricultural lands. These sites should be prioritized in establishing clean energy zones, categorical exclusion, programmatic approaches and other mechanisms to accelerate project approvals for renewable energy and storage. Even with these steps, other barriers will make developing on brownfield sites more challenging and lead developers to pursue green fields. Legal liabilities, such as risks associated with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), can stymie project financing. Extending existing exemptions from CERCLA liability for a developer of renewable energy or storage at a known brownfield site would help lower this hurdle. Any exemption should be carefully crafted and include detailed qualification criteria to ensure clean-up liability remains with responsible parties and that new project developers exercise the appropriate care in developing the site. Consultation with the appropriate federal, state or Tribal authorities should also be incorporated into the process.

Legislative: Congress should add an exemption from CERCLA liability for a developer of renewable energy or storage at a brownfield site with detailed qualification criteria and a requirement to consult with the appropriate federal, state or Tribal authorities.

Coordination

RECOMMENDATION: Congress should pass ambitious renewable energy targets.

Congress should pass ambitious renewable permitting targets for public lands with goals for 2030 and 2035 to facilitate ongoing identification of zones for development of renewable energy and siting of necessary transmission. Ambitious targets for renewable energy permitting will provide additional incentive to the Department of the Interior to move forward pending priority projects and designate additional ones.

Legislative: Congress should pass ambitious renewable permitting targets for renewable energy zones or other designated low-impact priority areas for public lands with goals for 2030 and 2035.

RECOMMENDATION: Congress should increase funding for BLM's RECOs.

Co-location of energy infrastructure environmental review and permitting staff from multiple federal agencies helps to ensure coordinated, efficient and expeditious permitting. Congress should ensure that the BLM RECOs are provided with adequate resources, including employees who are experts in NEPA, FLPMA, relevant wildlife statutes and historical and cultural resource protection statutes to ensure all decisions are informed and legally supportable.

Congress should provide funding requested in BLM's annual budget request to hire and train additional RECO personnel in BLM Washington Office Headquarters, Western Headquarters and select state and district offices experiencing the highest volume of renewable energy ROW applications. This would accelerate environmental review and permitting of priority renewable energy project site proposals on public land. This funding would facilitate creation of a taskforce of interdisciplinary experts to relieve permitting bottlenecks and challenges, improve interagency coordination and Tribal consultation and provide for additional temporary and contracted support to augment RECO capabilities.

The budget will enable BLM to perform essential activities and studies needed to prepare or review baseline studies, conduct meaningful Tribal consultation, develop programmatic biological assessments, engage with the FWS under Section 7 of the ESA and prepare quality NEPA documents. A coordinated team operating at multiple levels will enable the agency to review ecological regions for appropriate renewable energy deployment scenarios where substantial renewable energy development interest exists and in priority locations identified by BLM.

The proposal also provides funding for dedicated interagency RECO support staff from the Environmental Protection Agency (EPA), FWS, National Park Service (NPS), Bureau of Reclamation, Bureau of Indian Affairs, U.S. Army Corps of Engineers (USACE), and USFS to expedite coordination for environmental review and compliance requirements on renewable energy projects.

Another critical component of RECO success would be funding of state, local and Tribal cost-share positions to support State Historic Preservation Offices and other state, local and Tribal engagement during the NEPA process to increase the efficiency and completeness of permit review.

Legislative: Congress should provide funding requested in BLM's annual budget requests to hire and train additional RECO personnel in BLM headquarters, state and high-permit volume District offices.

Administrative: BLM should ensure funding of state, local and Tribal cost-share positions to support State Historic Preservation Offices, and other state, local and Tribal engagement during the federal agency permitting process.

RECOMMENDATION: Congress should increase funding for FWS planning and consultation.

Congress should provide additional funding to FWS annual budgets to facilitate consultation and increase efficiency, consistency, transparency and effectiveness of environmental review and permitting infrastructure projects. The goal of reaching 25 GW of renewable energy by 2030 and provisions of the IIJA and IRA have significantly increased the workload of FWS and the number of Section 7 consultations and Section 10 permitting activities under the ESA for renewable energy and transmission projects. However, the FWS did not receive dedicated funds under the IIJA or IRA for environmental review. To review, permit and provide technical assistance for renewable energy, including through programmatic consultations and other streamlining efforts, the FWS requires additional funding. This would include additional field office capacity, which is necessary to ensure that FWS project review and permitting functions are not bottlenecks in the environmental clearance process for economic revitalization projects.

Legislative: Congress should provide additional funding to FWS annual budgets to facilitate consultation for renewable energy projects.

RECOMMENDATION: Congress should resource federal and state agencies and regional commissions to support renewable energy development at brownfield sites.

Special attention to renewable energy development on brownfield sites, such as mine lands and former industrial sites, can help accelerate project approvals as these sites have a lower risk of conflicting land use and community interests than green fields. Beyond planning and permitting mechanisms noted elsewhere in this report, federal agencies, state agencies and regional commissions could provide additional support in preparing brownfields for redevelopment, facilitating community engagement, assessing cumulative environmental impacts, providing workforce training and offering other technical and legal assistance to better facilitate renewable energy projects on brownfields and mine lands. This support should include establishing and funding a clean energy function within the Office of Surface Mining, Reclamation and Enforcement (OSMRE) to help facilitate clean energy development on mine lands; ongoing funding appropriations for EPA's RE-Powering America's Land Initiative; extending and expanding DOE's Clean Energy on Mine Lands pilot program; providing federal funding and other incentives to encourage federal-state cooperative agreements; establish state programs to facilitate permitting of clean energy on brownfields and mine lands; and expand capacity for states to enhance brownfield reclamation, management, redevelopment and other activities; and authorizing regional commissions to support the siting, construction, permitting and operation of renewable energy at brownfield sites, including proactive community engagement, workforce development and coordination with state and federal agencies.

Legislative: Congress should direct, authorize and fund federal agencies and regional commissions to provide more support to state agencies and local communities that would facilitate renewable energy development on brownfields.

Community Engagement

RECOMMENDATION: The BLM should involve Tribal and Indigenous communities early and often in all land use planning and project permitting processes.

Critical to the success of the Western Solar Plan PEIS and subsequent project-level NEPA reviews will be identification of solar energy priority areas and measures to avoid impacting culturally significant Tribal resources and maximize

benefits such as local jobs and energy security in rural communities. It is essential that the BLM recognize its unique legal relationship with Tribes and ensure early, ongoing and meaningful consultation with Tribes throughout the PEIS process and during subsequent project-level reviews. This consultation must be consistent with the requirements of Joint Secretarial Order No. 3403, which pertains to federal agencies' trust responsibility to Indian Tribes in the stewardship of federal lands and waters. Indigenous community engagement should follow the Tribal guiding principles and prioritize sovereignty and self-determination, meaningful collaboration, relationship and trust-building through mutual respect and Tribal capacity-building while recognizing that all land is Indigenous land.

Administrative: BLM should conduct frequent and meaningful government-to-government consultations with Tribes during all land use planning and project-level permitting processes to uphold the agency's responsibility to ensure Tribal sovereignty and self-determination, meaningful collaboration and relationship and trust- and capacity-building.

RECOMMENDATION: BLM should utilize conflict resolution procedures to reduce protests, appeals and litigation.

BLM should engage in early participation in projects, plans and decision-making by conducting outreach to stakeholder groups and to Tribal communities. Utilizing its National Natural Resources Policy for Collaborative Stakeholder Engagement and Appropriate Dispute Resolution will help BLM prevent conflict and resolve disputes on public lands. Such collaborative engagement can include one-on-one meetings, meetings with groups and stakeholders, public scoping meetings, town halls, workshops, community-based collaboratives and other methods, including internet, print, phone and mail. Other methods to consider include creation of an ombudsman, increased resources for solicitor staffing and early involvement and communication with Tribes based on trust responsibilities, including formal government-to-government consultation.

Administrative: BLM should engage in early participation in projects, plans and decision-making by conducting outreach to stakeholder groups and Tribal communities and utilize its National Natural Resources Policy for Collaborative Stakeholder Engagement and Appropriate Dispute Resolution to prevent conflict and resolve disputes on public lands.

Jason Whalen | Fauna Creative Wind and Solar farms. © *Fauna Creative*

Wildflowers, pasture and farm at Rodney Meadow in West Virginia. © *Kent Mason*

5

Recommendations to improve hydrogen pipeline siting and permitting

5. Recommendations to improve hydrogen pipeline siting and permitting

INTRODUCTION

Hydrogen is increasingly viewed as critical to a clean energy economy and a key driver of economic growth and significant decarbonization, particularly for economic sectors that are more difficult to decarbonize. Zero- and low-carbon hydrogen offers a cleaner alternative for the industrial sector (e.g., chemicals, steel and refining) and heavy-duty transportation where limited deep decarbonization options exist, and it could support long-duration energy storage complementing renewable energy in a clean, reliable grid. DOE estimates clean hydrogen can reduce U.S. emissions approximately 10 percent by 2050 relative to 2005 and that the hydrogen economy could result in 100,000 net new direct and indirect jobs by 2030. As with the entire suite of decarbonization solutions and clean energy options, multiple factors should be considered alongside the emissions reduction potential, including land and water requirements, potential habitat impacts and opportunities and risks for local communities.

Clean hydrogen can play a role in decarbonizing sectors where electrification proves challenging, such as some industrial processes (e.g., fertilizer production, steel) or shipping. The IIJA provided $9.5 billion for clean hydrogen deployment, and the IRA created a $3/kg production tax credit. Together these incentives are expected to rapidly boost U.S. production and demand. As clean hydrogen grows from a specialty chemical to a globally traded fuel and feedstock, development of midstream transportation infrastructure will need to keep pace, as will laws and regulations governing the expansion and operation of associated infrastructure. Safety and siting are paramount concerns. Currently, authority to permit and regulate hydrogen pipelines is covered by overlapping state and federal jurisdictions that are subject to interpretation. Clarifying these authorities and improving the processes will provide greater certainty to project developers and better ensure communities' and other stakeholders' concerns will be addressed.

This section details TNC's recommendations for reforms on improving the siting and permitting of hydrogen pipelines. These reforms address planning and siting, transparency and accountability and community engagement. Each recommendation includes background and discussion of the related issue, followed by specific suggested legislative and administrative actions. Implementing these recommendations should accelerate the deployment of hydrogen pipeline projects, improve environmental outcomes and facilitate community engagement.

RECOMMENDATIONS

Siting

RECOMMENDATION: Agencies should work with applicants to identify existing rights-of way for co-locating hydrogen pipelines, including energy corridors under Section 368.

To the extent possible, hydrogen project developers should seek to mitigate risk and maximize efficiencies by using existing ROW. Using existing ROW will minimize potential permitting barriers and stakeholder concerns. Siting projects within Section 368 energy corridors updated by DOE could serve this purpose. Those corridors could streamline and expedite the processing of energy-related permits and projects. Federal agency use of these corridors could provide applicants for individual ROW with a clear set of actions required by each of the agencies to implement projects in designated corridors; reduce duplicative assessment of generic environmental impacts by focusing further impact assessment on site-specific environmental studies to determine route suitability and appropriate mitigation; ensure interagency coordination; and encourage new and innovative technologies to increase corridor capacity.

Administrative: Agencies should collaborate with applicants for hydrogen pipelines to identify existing ROW on which to site future projects, including energy corridors under Section 368.

Coordination

RECOMMENDATION: Congress should harmonize authority across federal agencies to coordinate and issue all necessary approvals for hydrogen infrastructure projects.

Existing regulatory structures could provide much-needed clarity on federal authority over hydrogen infrastructure.[31] Proposals to provide FERC jurisdiction over hydrogen pipelines like that which it asserts over natural gas under the Natural Gas Act (NGA) offers one policy option.

Given FERC's expertise in regulating energy markets, the agency is positioned to assume the role of regulating hydrogen pipelines. Under the NGA, FERC is the single federal agency that issues the certificate of public convenience and necessity required for an interstate natural gas pipeline project. Further, FERC serves as the lead agency for the federal environmental review required under NEPA and thereby coordinates with other federal and state agencies with jurisdiction over the project. FERC could begin the process of regulating the blending of hydrogen into interstate natural gas pipelines, an important step for hydrogen demonstrations that aligns with FERC authority under the NGA.[32] However, FERC must determine, and Congress should provide guidance on, the extent to which the agency would regulate hydrogen as a natural versus an artificial gas, a distinction that would provide clarity to project developers and avoid time consuming litigation.

Legislative: Congress should consider how to best harmonize authority among federal, state and local agencies for planning and siting hydrogen transportation infrastructure and clarify the definition of hydrogen as an artificial or natural gas.

RECOMMENDATION: PHMSA should promulgate regulations focused on the specifics of hydrogen transportation and safety.

Under the Natural Gas Pipeline Safety Act and the Hazardous Liquid Pipeline Act, the DOT's PHMSA has promulgated regulations for pipelines that transport combustible gases and hazardous liquids. As hydrogen is a flammable gas, it falls within the purview of the PHMSA's regulations, which currently are focused on the unique properties of natural gas pipelines. Hydrogen-specific safety regulations will be required, as hydrogen's chemical characteristics pose unique constraints on pipelines. Hydrogen is colorless, odorless, highly flammable and potentially explosive even in small concentrations. Hydrogen pipelines will need to be constructed out of stronger materials, and more sensitive leak detection systems will be required. As new infrastructure could utilize existing rights-of-way and other designated infrastructure corridors, PHMSA should consider additional safety risks that co-location could pose and potential mitigation measures, while also taking care to avoid inadvertently blocking colocation options that could minimize further fragmenting landscapes or impacting communities.

Administrative: PHMSA should promulgate regulations focused on the specifics of hydrogen transportation and safety.

RECOMMENDATION: Agencies reviewing hydrogen projects should prioritize local safety concerns.

The risks arising from the unique safety considerations with transporting hydrogen will be disproportionately borne by vulnerable communities. Hydrogen infrastructure projects must address frontline communities' concerns around hydrogen safety. Regional hubs should dedicate resources to align safety requirements with frontline community needs and bolster the capacity and capabilities of local first responders. [33]

Administrative: DOE should work with regional hydrogen hub grantees to ensure their projects align safety requirements with frontline community needs and reflect robust community input.

Community Engagement

RECOMMENDATION: Agencies granting permits should encourage and work with project developers to reduce and avoid conflict through robust engagement with stakeholders.

As with all infrastructure projects, hydrogen project developers should seek to mitigate risk and maximize efficiencies in the permitting and environmental review process by reducing and avoiding potential conflicts in projects early in the application process. Through robust engagement with stakeholders, concerns over potential impacts can be identified in advance. The lead agency reviewing applications (e.g., for ROW across federal lands or the designated lead agency if Congress grants authority for all siting) should work with the project developer to identify appropriate project locations and pathways based on best practices and eliminate locations with significant environmental or

31 See Appendix A, Overview of Key Federal Authorities, for a fuller description of how three federal statutes could provide structure to the regulation of interstate hydrogen pipelines.

32 Energy Futures Initiative. *The U.S. Hydrogen Demand Action Plan*. (2023). https://energyfuturesinitiative.org/wp-content/uploads/sites/2/2023/02/EFI-Hydrogen-Hubs-FINAL-2-1.pdf

33 Department of Energy. *Funding Notice: Regional Clean Hydrogen Hubs*. (September 22, 2022). https://www.energy.gov/oced/funding-notice-regional-clean-hydrogen-hubs

environmental justice concerns. Developers should use the climate and economic justice screening tools to identify potentially affected communities.

As hydrogen production and transport is commonly co-located with existing fossil fuel infrastructure, environmental justice communities may face increased burdens and safety risks. Hydrogen project sponsors should coordinate major challenges of building clean hydrogen and its enabling infrastructure with main stakeholders. Engaging in early, frequent and meaningful dialogue with impacted groups can mitigate risks to the project developer and to the surrounding communities, which can, in turn, minimize project permitting and environmental review timelines. Outreach should expand beyond traditional public comment processes and include expanded use of listening sessions, small community conversations, webinars, direct email and other methods to ensure input can be shared in a way that is accessible, comprehensible and convenient. Community members should also be asked how they prefer to receive information and be offered the opportunity to engage in their languages on the technical risks and rewards of hydrogen.

Administrative: The lead agency reviewing applications for hydrogen pipelines (e.g., BLM for ROW across public lands) should work with the project developer to identify appropriate project locations and pathways based on best practices, avoid locations with significant environmental or environmental justice concern and mitigate impacts, if any.

RECOMMENDATION: Each regional hydrogen hub granted funding by DOE should develop a Community and Workforce Plan as part of its Community Benefit Plan.

Projects funded under DOE's regional hydrogen hub solicitation are expected to include a community benefits plan to support meaningful community and labor engagement; invest in America's workforce; advance diversity, equity, inclusion and accessibility; and contribute to the goal that 40 percent of the overall benefits of certain federal investments flow to disadvantaged communities. [34]

Within the community benefits plan, applicants are encouraged to provide specific details about how they intend to deliver measurable community and jobs benefits, e.g., through milestones and the use of tools such as good neighbor agreements, local hire agreements, project labor agreements, other collective bargaining agreements or similar agreements.

Each regional hydrogen hub should develop a community and workforce plan as part of their community benefits plan focused on long-term planning for the regional hydrogen hub and broader hydrogen market creation. In the community and workforce plan, hydrogen hubs should focus on the needs of impacted frontline communities and address environmental justice implications. Such alignment with impacted communities can yield better project decisions, which prevents unnecessary conflict and delay, increases permitting efficiency and creates successful outcomes for communities and project developers.

The community and workforce plan should be crafted in meaningful partnership with potentially impacted communities. Outreach should expand beyond traditional public comment processes, with expanded use of listening sessions, small community conversations, webinars, direct email and other methods to ensure input can be shared in a way that is accessible, comprehensible and convenient. Community members should also be asked how they prefer to receive information and be offered the opportunity to engage in their languages on the technical risks and rewards of hydrogen.

Administrative: Require hydrogen hubs to develop community benefit plans that include a community and workforce plan.

34 Department of Energy. *Regional Clean Hydrogen Hubs*. https://www.energy.gov/oced/regional-clean-hydrogen-hubs

Female operator walks through a Colorado wind farm at sunset. © *TNC*

6

Recommendations to improve carbon dioxide management

6. Recommendations to improve carbon dioxide management

INTRODUCTION

Carbon management—the capture of CO_2, either from a point source like a power generation or industrial facility or from the ambient air, that is then compressed, transported and either used in a range of applications or injected into deep geological formations for permanent storage—can contribute to reaching net-zero by 2050, especially for hard-to-decarbonize sectors. With extended and updated tax credits, significant demonstration and deployment, federal financing and funding and regulatory actions, carbon management technologies and related infrastructure are expected to rapidly expand in the coming decade. In the year after the IRA's passage, which included an increased tax credit for captured and permanently stored CO_2, over fifty new carbon capture and/or storage projects were announced.[35] CCUS capacity in the U.S. is estimated to increase rapidly by 2030.[36] Although potentially helpful in addressing climate change and facilitating decarbonization, industrial-scale development of this technology could result in potential ongoing or new harms to traditionally overburdened communities.

Capture, transportation and storage investments will be pursued in parallel for the industry to scale up, and a lag in one segment of the system will delay other parts from coming online. Project approvals and oversight of each segment is governed by a mismatch of state and federal authorities. CO_2 pipelines, the safest, most reliable form of transport, face a patchwork of permitting processes defined state-by-state, and sometimes county-by-county. The federal PHMSA sets and enforces safety standards for pipeline design, construction, operation and maintenance. Carbon storage projects are largely permitted by the EPA, but the agency has delegated that authority to an expanding list of states. If projects cross federal lands, still other federal agencies may be involved.

Improving current planning and permitting processes within and between federal and state agencies will help coordinate the expected infrastructure buildout and more effectively address potential impacts to nature and local communities. As with any long and linear infrastructure or new industrial project, robust community engagement is a key step to protect and support the interests of local communities, avoid conflicts and meet project timelines.

This section details TNC's recommendations for reforms on improving carbon dioxide management. These reforms would address planning and siting, permanent storage and stakeholder engagement. Each recommendation includes background and discussion of the related issue, followed by specific suggested legislative and administrative actions. Implementing these recommendations should accelerate the review of proposed CO_2 pipelines, improve environmental outcomes and facilitate community engagement.

RECOMMENDATIONS

Planning

RECOMMENDATION: Enable storage under federal lands by clarifying authorities and incorporating CO_2 storage into federal land management planning.

Because of the geographic reach and subsurface dynamics of potential CO_2 storage reservoirs, some underground injection well sponsors will face a choice between entering deals with multiple private land holders, subject to various differing state laws, or engaging in the complex federal permitting process subject to NEPA. By establishing clear, predictable and expedient processes for approving underground injection wells on federal lands, federal land managers can help support the scaling up of CCUS. Altering current restrictions addressing either the type of activities permitted or the terms of agreements permitted will be needed to allow underground injection wells to be developed on lands managed by the BLM, USFS, DOE, DOD and other agencies. USFS has proposed a rule that would allow exclusive or perpetual right-of-use or occupancy of National Forest System (NFS) lands for carbon storage. These activities will also need to be incorporated into land use planning processes to direct carbon storage infrastructure away from sensitive

35 Sheff, E. and Ulama, D. *From Act to action: How the Inflation Reduction Act is accelerating decarbonization in the United States with carbon capture and storage.* (Clean Air Task Force, August 18, 2023). https://www.catf.us/2023/08/from-act-action-inflation-reduction-act-accelerating-decarbonization-united-states-carbon-capture-storage/

36 Boston Consulting Group for Breakthrough Energy and Third Way. *Impact of IRA, IIJA, CHIPS, and Energy Act of 2020 on Clean Technologies*. (2023). https://breakthroughenergy.org/recently-enacted-legislation-can-help-the-us-lead-in-clean-technology/

habitat and address local community input, which will require devoted resources, expanded capacity and interagency collaboration.

Administrative: Federal land management agencies should issue necessary rulemakings or guidance to remove restrictions that bar CO_2 storage under federally managed lands and incorporate siting and distribution of injection wells and CO_2 transportation pipelines into land-use planning.

RECOMMENDATION: Ensure EPA has the necessary resources and is effectively prioritizing resources to efficiently process Class VI well permits and state primacy applications.

As demand for permanent storage increases, EPA's Class VI well permitting process could become a bottleneck in the absence of adequate and focused resources. Delegating authority to states with sufficient regulatory foundation and experience would alleviate some pressure on EPA and potentially yield outcomes that better reflect local input and considerations. EPA should efficiently process state primacy applications. State agencies must also be adequately resourced for efficiencies to be gained.

Administrative: EPA should devote the necessary resources to efficiently process Class VI well permits and state primacy applications in the EPA's Office of Water and regional offices expected to receive an influx of applications.

Legislative: Congress should ensure adequate funding for EPA's Office of Water consistent with influx of applications for Class VI wells and state primacy.

Siting

RECOMMENDATION: Congress should address federal jurisdiction over CO_2 pipeline infrastructure.

Project developers face hurdles where regulations and permit requirements are unclear. Predictable and timely federal and state project permitting processes are needed to be able to take advantage of financial incentives. Although the inclusion of CO_2 pipelines in the FAST Act benefits proponents of transport infrastructure, the lack of clarity about the lead federal agency when pipelines do not cross federal lands or have federal financing causes uncertainty for this key infrastructure sector. Congress should address the siting of carbon dioxide pipelines and storage infrastructure and provide federal siting authority for such infrastructure.[37] Similar to hydrogen pipelines, Congress should determine whether and under what circumstances FERC should be that lead agency.

If FERC were to be granted siting authority over CO_2 pipelines comparable to its authority under the NGA, FERC could follow the process it now utilizes for interstate pipeline certification, which requires environmental review under NEPA as well as any necessary actions under the ESA, National Historic Preservation Act (NHPA) and statutes relating to wetlands, historic preservation and similar matters.

Legislative: Congress should consider how to best harmonize authority among federal, state and local agencies for planning and siting carbon dioxide transportation infrastructure.

RECOMMENDATION: Congress should expand the use of Section 368 corridors to include CO_2 pipeline projects crossing federal lands.

Congress should expand the authority under Section 368 of the Energy Policy Act of 2005 (EPAct 2005) in both prospectively designated and previously designated corridors to include CO_2 pipelines and should require federal agencies to designate CO_2 transport infrastructure corridors on federal lands and incorporate the designated corridors into the relevant agency land use and resource management plans or equivalent plans.

Legislative: Congress should amend Section 368 of EPAct 2005 to expand the use of energy corridors to include CO_2 pipeline projects crossing federal lands.

RECOMMENDATION: DOE should explore and support the use of existing rights-of-way to enable CO_2 infrastructure deployment.

Using existing ROW provides opportunities to quickly scale up CO_2 transport infrastructure. Co-locating CO_2 pipelines on existing ROWs would enable developers to avoid construction on undisturbed land, negotiate with fewer property

37 The White House. *Fact Sheet: Biden-Harris Administration Outlines Priorities for Building America's Energy Infrastructure Faster, Safer, and Cleaner.* (May 10, 2023). https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/10/fact-sheet-biden-harris-administration-outlines-priorities-for-building-americas-energy-infrastructure-faster-safer-and-cleaner/

owners and reduce permitting complexity. DOE could lead a study of the potential use of existing ROWs for CO_2. Many successful energy infrastructure projects have used existing highway or railway ROWs. Opportunities to use existing ROWs for CO_2 pipelines, however, are not well explored compared to other infrastructure such as renewable energy or transmission lines. DOE could explore the opportunities for potential use of existing ROWs in collaboration with DOI and the DOT.[38]

Administrative: DOE should conduct analysis of the opportunities for and supporting policy changes to enable the use of existing ROW for CO_2 infrastructure deployment.

Legislative: Congress should direct DOE to conduct an analysis of the opportunities for and supporting policy changes to enable the use of existing ROW for CO_2 infrastructure deployment and allocate the necessary funding.

RECOMMENDATION: PHMSA should issue rulemakings or guidance related to the safe operation of pipelines for use in expanded CCUS to facilitate the buildout of a more extensive network.

Pipeline safety is established at the federal level under PHMSA, and although states can be authorized as safety inspectors for intrastate pipelines, the responsibility for enforcement of pipeline safety for interstate pipelines remains at the federal level. States may adopt the federal minimum pipeline safety regulations and be authorized to inspect and enforce such regulations for intrastate pipelines by submitting a certification to PHMSA. The federal pipeline safety regulations do not include standards for CO_2 composition or purity.

Administrative: PHMSA should issue rulemakings or guidance related to the construction and safe operation of pipelines for use in expanded CCUS.

Community Engagement

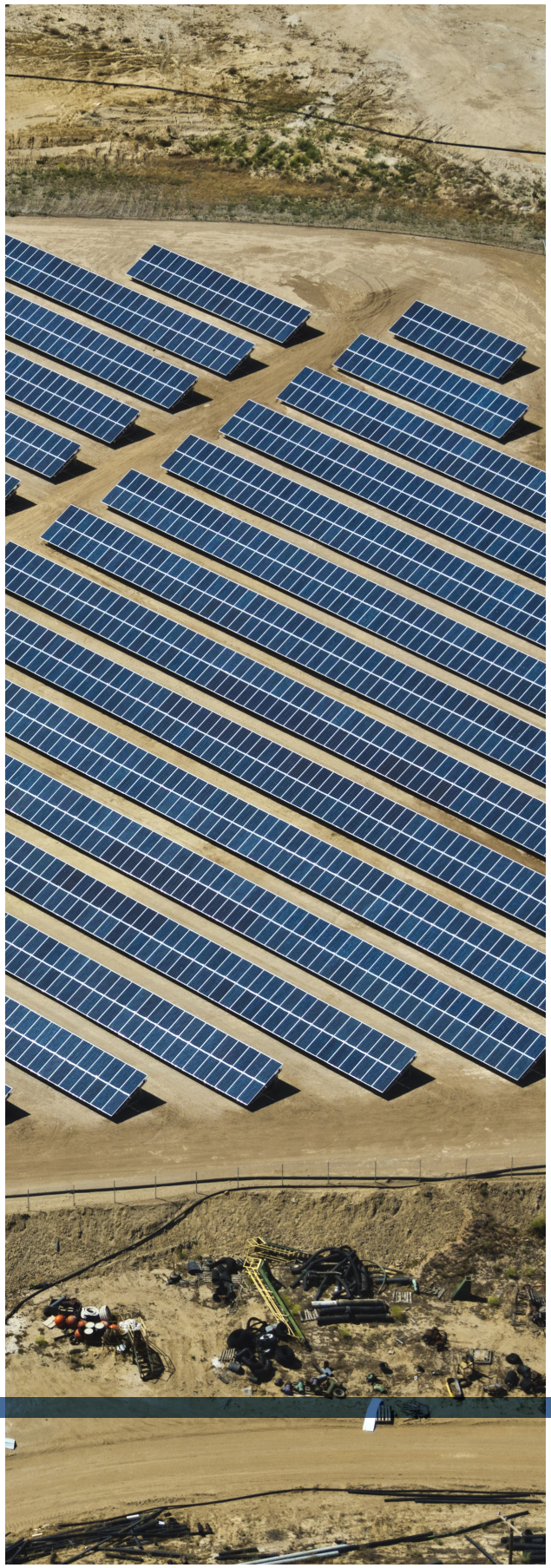
RECOMMENDATION: Ensure safeguards are put in place to avoid creating a process that fails to consider community concerns.

Programmatic review of CCUS deployment offers promising opportunities for essential CCUS infrastructure to be established in ideal geologic areas and geographies where some of the most difficult-to-decarbonize industries predominate. Programmatic environmental reviews can encourage efficient siting and use of critical transport and storage infrastructure; facilitate thorough scoping of regional technical and engineering issues; and help drive down costs by taking advantage of regional-scale analyses of key issues. In its 2022 interim *Carbon Capture, Utilization, and Sequestration Guidance*, CEQ has called out the need for scoping to evaluate all reasonably foreseeable direct, indirect and cumulative effects—including cumulative pollution from numerous sources—and work with communities and Tribes during the scoping phase to identify alternatives to the proposed action, including alternatives that reduce environmental impacts, especially on overburdened and underserved communities. Environmental reviews of CCUS deployment should seek to mitigate risk and maximize efficiencies in the permitting and environmental review process by reducing and avoiding potential conflicts in projects early in the application process. Through robust engagement with stakeholders, concerns over potential impacts can be identified in advance. The federal lead agency should work to identify appropriate project locations and pathways based on best practices and eliminate locations with significant environmental or environmental justice concerns.

Although these steps are essential, agencies must also move to ensure programmatic or regional analyses do not prohibit or avoid investigation of community and social impacts from individual projects. Historic patterns of racial and economic discrimination have resulted in concentrated siting of industrial facilities in and near communities with the fewest resources to influence these decisions. Changes to new and existing infrastructure that impact these frontline communities must receive project-level attention that reflects the circumstances and needs of each community. Historical environmental harms must not be perpetuated, even inadvertently, through use of broad-scale analysis that fails to account for impacts on a community's health and well-being. A robust environmental justice screening process should be used to scope CCUS deployment.

Administrative: When scoping CCUS deployment, agencies must conduct a robust environmental justice screening process.

38 Recommendation of the Energy Futures Initiative. Labor Energy Partnership, *Building to Net-Zero: A U.S. Policy Blueprint for Gigaton-Scale CO_2 Transport and Storage Infrastructure.* (June 2021).



Aerial image of a crop next the The Maricopa West Solar project site in the San Joaquin Valley, near the town of Taft, California. © *Stuart Palley*

Appendix A

Background on Federal permitting reform initiatives

Appendix A: Background on Federal permitting reform initiatives

BACKGROUND ON GENERAL REFORMS TO IMPROVE SITING AND PERMITTING

Congress and recent administrations have taken action to improve the efficiency of environmental permitting and review of infrastructure projects, taking significant administrative and legislative actions that are broadly applicable to environmental permitting and review across infrastructure sectors or project types. Later sections detail actions with targeted applicability to specific infrastructure sectors or types of projects.

RECENT FEDERAL ADMINISTRATIVE ACTION

Obama Administration Actions

To drive progress in federal reviews of significant infrastructure projects,[39] the Obama administration launched a government-wide initiative to modernize the federal permitting and review process. President Obama signed Executive Order No. 13604, *Improving Performance of Federal Permitting and Review of Infrastructure Projects*, on March 22, 2012, followed by a Presidential Memorandum on May 17, 2013, charging an interagency steering committee to lead development of a plan to turn best practices into standard practice. Federal agencies identified a set of best practices for infrastructure permitting and review, ranging from expansion of information technology tools to strategies for improving collaboration and synchronizing processes across federal agencies. The Obama administration issued several subsequent executive directives to improve the federal permitting and review process.

- On May 17, 2013, President Obama issued a Presidential Memorandum directing an interagency steering committee to develop a plan to turn permitting and review best practices identified by the federal agencies.
- On June 7, 2013, the President issued a separate but related memorandum directing federal agencies to "develop an integrated, interagency pre-application process for significant onshore electric transmission projects requiring Federal approval." That 2013 memorandum also lays out principles for designation of energy right-of-way corridors on federal lands under Section 368 of the EPAct 2005; it also directs federal agencies to re-evaluate existing energy rights-of-way corridor designations to determine the necessity for revisions, deletions or additions to those energy corridors and develop interagency mitigation plans, where appropriate, for environmental and cultural resources potentially impacted by projects sited in energy corridors.

On May 14, 2014, the Obama administration released the *Implementation Plan for the Presidential Memorandum on Modernizing Infrastructure Permitting*,[40] which included strategies, initiatives and best practices to achieve the direction of the administration's previous initiatives.

Trump Administration Actions

One of President Trump's first actions as President was to issue Executive Order 13766, *Expediting Environmental Reviews and Approvals for High Priority Infrastructure Projects* (Jan. 24, 2017), directing CEQ to begin efforts to identify high priority infrastructure projects and expedite federal environmental reviews required by the NEPA. President Trump subsequently issued Executive Order 13807, *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects* (August 15, 2017), which sought to expedite federal review and approval of infrastructure projects by imposing new timelines and procedures, including a two-year deadline for completing reviews under NEPA and issuing permits for major infrastructure projects. Executive Order 13807 establishes the One Federal Decision policy, which, among other things, requires federal agencies to publish all authorization decisions for major infrastructure projects in a single ROD document. In 2020, CEQ issued a comprehensive revision of its NEPA regulations, codifying many of the provisions of the One Federal Decision policy.

39 As defined in the Presidential Memorandum, infrastructure projects included electricity transmission, pipelines, renewable energy infrastructure, water resource projects, ports and waterways, transit systems, broadband Internet, roads, bridges, railways, and airports. Executive Order No. 13604, *Improving Performance of Federal Permitting and Review of Infrastructure Projects* (March 22, 2012).

40 Steering Committee on Federal Infrastructure Permitting and Review Process Improvement. *Implementation Plan for the Presidential Memorandum on Modernizing Infrastructure Permitting*. (May 14, 2014). https://www.permits.performance.gov/sites/permits.dot.gov/files/2021-03/pm-implementation-plan-2014.pdf

On June 4, 2020, President Trump signed an additional Executive Order to expedite the federal permitting process for infrastructure projects, including new mines, highways, pipelines and other projects, to boost the economy. The executive order, titled *Accelerating the Nation's Economic Recovery from the COVID-19 Emergency by Expediting Infrastructure Investments and Other Activities*, directs agencies, including the USDA, DOD, DOI and USACE, to fast-track the permitting processes required under NEPA, ESA and CWA.

Biden Administration Actions

The Biden administration has taken several significant actions to address issues related to climate, environmental permitting and reviews, equity and nature-based solutions.

CLIMATE

President Biden made addressing the climate crisis a national priority in Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*. The Executive Order calls for a "government-wide" approach to the climate crisis, including "to organize and deploy the full capacity of its agencies to combat the climate crisis to implement a government-wide approach that reduces climate pollution in every sector of the economy." Through historic investments under the IIJA and the IRA, there are significant opportunities for large-scale deployment of clean energy and associated transmission infrastructure. To fully realize the potential of these programs and maximize the benefits of clean energy infrastructure, the administration is also engaging in permitting reform efforts to advance federal permitting and environmental reviews.

CEQ published guidance on January 9, 2023, regarding how to evaluate GHG emissions and climate change under NEPA. This interim guidance updates the CEQ's 2016 guidance and states that agencies should quantify a project's reasonably foreseeable direct and indirect gross and net GHG emissions and monetize the social cost of those GHG emissions. The guidance also encourages agencies to avoid and mitigate GHG emissions to the greatest extent possible. The notice and comment period on this new guidance ended in March 2023, and CEQ may still revise this guidance in response to the comments received.

ENVIRONMENTAL PERMITTING AND REVIEWS

Permitting Action Plan

In May 2022, the Biden administration released a permitting action plan intended to accelerate and deliver infrastructure projects, including renewable energy and transmission projects, "on time, on task, and on budget" by strengthening and accelerating federal permitting and environmental reviews.[41] The Permitting Action Plan outlines the administration's strategy to ensure federal environmental reviews and permitting processes are effective, efficient and transparent. The Permitting Action Plan is built on five elements: (1) ensuring early coordination and effective communication across federal agencies; (2) publishing clear timelines and goals and tracking key information to increase accountability; (3) engaging in early and meaningful outreach with states, Tribal nations and local communities; (4) improving agency responsiveness to permit applicants, stakeholders and affected communities; and (5) making better use of skilled agency staff and budgetary resources in environmental reviews.

In 2021, CEQ began a comprehensive reconsideration of the 2020 NEPA revisions through a phased approach.[42] On April 20, 2022, CEQ issued its final Phase 1 rulemaking to amend the revised regulations. In its final Phase 1 NEPA rule, CEQ reverses several changes codified in the 2020 NEPA revisions and clarifies that agencies should continue to apply their existing NEPA procedures while CEQ conducts a more extensive Phase 2 rulemaking. On April 30, 2024, CEQ released its final Phase 2 revisions to NEPA. The Phase 2 NEPA rule includes improvements to NEPA efficiency and flexibility; promotion of better environmental outcomes; restoration of certain longstanding definitions; direction on public engagement and agency coordination; clarification around mitigation and beneficial effects; and consideration of specific issues such as environmental justice and greenhouse gas emissions. The Phase 2 NEPA rule also retains certain provisions of the 2020 NEPA rule, including timelines and other elements of the One Federal Decision Policy.

41 The White House. *Fact Sheet: Biden-Harris Administration Releases Permitting Action Plan to Accelerate and Deliver Infrastructure Projects On Time, On Task, and On Budget*. (May 11, 2022). https://www.whitehouse.gov/omb/briefing-room/2022/05/11/fact-sheet-biden-harris-administration-releases-permitting-action-plan-to-accelerate-and-deliver-infrastructure-projects-on-time-on-task-and-on-budget/

42 National Environmental Policy Act Implementing Regulations Revisions. 86 Fed. Reg. 55757. (Oct. 7, 2021). https://www.govinfo.gov/content/pkg/FR-2021-10-07/pdf/2021-21867.pdf

EQUITY

Justice40 Initiative

Section 223 of Executive Order 14008 established the Justice40 Initiative, which sets a goal of delivering at least 40 percent of the overall benefits from federal investments in climate and clean energy to disadvantaged communities. Specifically, Executive Order 14008 states that "[a]gencies shall make achieving environmental justice part of their missions by developing programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts."

Climate and Economic Justice Screening Tool

As directed by Executive Order 14008, CEQ developed a CEJST[43] that uses census tract-level data to identify "disadvantaged communities." Communities are considered disadvantaged if they are in a census tract that meets the threshold for at least one of the tool's categories of burden and corresponding economic indicators, are on the lands of a Federally Recognized Tribe including Alaska Native Villages or are completely surrounded by disadvantaged communities and at or above the 50th percentile for low income. The categories under which a community will be identified as "disadvantaged" include climate change, energy, health, housing, legacy pollution, transportation, water and wastewater and workforce development.

Interim Implementation Justice40 Guidance

To meet the goals of the Justice40 Initiative and make historic levels of investment in supporting environmental justice, the administration is transforming hundreds of federal programs, including those funded or created by the IRA and the IIJA. The CEJST is being used to support consistency and uniformity across all federal agencies as they implement their Justice40-covered programs. In July 2021, the administration released formal interim implementation guidance directing all federal agencies to identify and begin transforming programs covered under the Justice40 Initiative. [44] All Justice40 covered programs are required to engage in stakeholder consultation and ensure community stakeholders are meaningfully involved in determining program benefits. Covered programs are also required to report data on the benefits directed to disadvantaged communities.

Permitting Council Environmental Justice Community Listening Series

In March 2022, the Permitting Council launched an environmental justice (EJ) community listening series in an effort to provide a "seat at the table" for communities of color and low-income communities during the federal infrastructure permitting process. According to the Permitting Council, these listening sessions were dedicated to making sure low-income and minority communities are involved at the very start of the infrastructure permitting process.[45]

Nature-Based Solutions Roadmap

On November 9, 2022, the Biden administration released the Nature-Based Solutions Roadmap. Nature-based solutions are actions to protect, sustainably manage or restore natural or modified ecosystems as solutions to societal challenges, including fighting climate change. Examples of nature-based solutions include protection or conservation of natural areas, reforestation, restoration of marshes or other habitats and sustainable management of farms, fisheries and forests. The Roadmap's policy recommendations include updating permitting processes and agency review methods and clarifying that general permits and programmatic reviews ensure efficient agency review of many types of infrastructure and are ripe for expansion to nature-based solutions. The Roadmap calls for updating benefit cost and accounting guidance to make the economic benefits of investing in nature-based solutions more visible on the nation's balance sheets and in regulatory and funding decisions. For example, natural hazard reduction standards, insurance standards, guidance and risk management tools should be established or updated to pave the way for nature-based

43 Council on Environmental Quality. *Climate and Economic Justice Screening Tool*. (November 22, 2022). https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5; Federal agencies must also use the *Memorandum on Using the CEJST for the Justice40 Initiative* published on January 27, 2023, available here: https://www.whitehouse.gov/wp-content/uploads/2023/01/M-23-09_Signed_CEQ_CPO.pdf; and the *Instructions to Federal Agencies on Using the CEJST* available here: https://static-data-screeningtool.geoplatform.gov/data-versions/1.0/data/score/downloadable/CEQ-CEJST-Instructions.pdf

44 The White House. *The Path to Achieving Justice 40*. (July 20, 2021). https://www.whitehouse.gov/omb/briefing-room/2021/07/20/the-path-to-achieving-justice40/

45 Federal Permitting Improvement Steering Council. *Fiscal Year 2024 Budget Request*. https://www.permits.performance.gov/sites/permits.dot.gov/files/2023-03/FPISC%20FY24%20Budget%20Request%20FINAL_0.pdf

solutions, such as restoring rivers and floodplains. Along with the Roadmap, the administration published a Resource Guide with federal examples, guidance, resource documents, tools and technical assistance.[46]

RECENT FEDERAL LEGISLATIVE ACTION

Fixing America's Surface Transportation Act

In 2015, Congress enacted the FAST Act, which included provisions to improve federal permitting for transportation. The FAST Act also included Title 41 to improve federal permitting for other major infrastructure projects, with a focus on better interagency coordination, accountability and transparency.

The Infrastructure Investment and Jobs Act (IIJA)

The $1.2 trillion IIJA, signed in 2021, set aside historic investments in clean energy, including the allocation of $47 billion toward climate-related funding and $100 million to DOI for development of "more efficient, accurate and timely reviews for the planning, permitting and approval processes."

Section 70801 of the IIJA also amends FAST-41, which reduces environmental review and permitting decision-making timelines for infrastructure projects while improving outcomes for communities and the environment. The amendments to FAST-41 codify some aspects of the *One Federal Decision* policy, allowing Tribal projects to use FAST-41's streamlined environmental review and permitting procedures and placing an increased emphasis on timing and transparency.

Most notably, Section 70801 of the IIJA establishes the Permitting Council as permanent by removing an original seven-year "sunset" limitation. The FAST-41 amendments of the IIJA also establish interim deadlines for agency actions and require agencies to disclose more project information on the Permitting Dashboard, an online database that tracks the status of federal environmental reviews and authorizations for covered projects.[47] Moreover, the IIJA improved access to the benefits of FAST-41 for Tribal-sponsored projects on Tribal-managed lands and gave the Executive Director of the Permitting Council expanded authority to transfer funds directly to state, local and Tribal governments to facilitate timely and efficient reviews of FAST-41 projects. In the interest of transparency, the IIJA also expanded the Executive Director's authority to direct federal agencies to post permitting timetables on the Federal Permitting Dashboard for projects other than FAST-41 covered projects.

The Inflation Reduction Act

The $437 billion H.R. 5376, IRA, signed into law on August 16, 2022, by President Biden, makes historic investments in clean energy and contains significant investment and policy changes aimed at facilitating development of critical clean energy infrastructure. The IRA allocates $369 billion toward energy security, carbon emissions reduction and climate resilience. The IRA also allocates significant amounts to support internal agency processes for permit review, including an additional $150 million to DOI, $125 million to DOE and $40 million to the EPA to "hire and train personnel, support the development of programmatic environmental documents, the procurement of technical or scientific services for environmental reviews, the development of environmental data or information systems, stakeholder and community engagement, and the purchase of new equipment for environmental analysis to facilitate timely and efficient environmental reviews and authorizations."

The Permitting Council also received $350 million under the IRA to advance permitting efficiency and make the federal permitting process more accountable. In December 2022, the Permitting Council announced the allocation of $5 million in funding to be made available to federally recognized Tribes to enhance Tribal engagement in the permitting review and authorization process for FAST-41 covered projects.

The IIJA also set aside funding for internal agency processes, including $160 million to support the USACE's regulatory program, to remain available until 2026.

46 White House Council on Environmental Quality, White House Office of Science and Technology Policy, White House Domestic Climate Policy Office. *Opportunities to Accelerate Nature-Based Solutions: A Roadmap for Climate Progress, Thriving Nature, Equity, & Prosperity*. (Report to the National Climate Task Force, 2022). https://www.whitehouse.gov/wp-content/uploads/2022/11/Nature-Based-Solutions-Roadmap.pdf; White House Council on Environmental Quality, White House Office of Science nd Technology Policy, White House Office of Domestic Climate Policy. *Nature-Based Solutions Resource Guide*. (2022). https://www.whitehouse.gov/wp-content/uploads/2022/11/Nature-Based-Solutions-Resource-Guide-2022.pdf

47 Appendix A, Overview of Key Federal Authorities, provides more details on the IIJA and FAST-41.

Fiscal Responsibility Act of 2023, BUILDER Act Amendments to NEPA

The FRA includes the most substantive amendments to NEPA since Congress enacted the statute in 1969, effectively codifying much of the 2020 CEQ NEPA regulations. These include amendments to the basic requirements for an environmental impact statement in NEPA Section 102(2)(C), with language that tracks the regulatory focus on NEPA's "rule of reason" in the analysis of "reasonably foreseeable environmental effects of the proposed agency action" and analysis of a "reasonable range" of alternatives that are "technically and economically feasible" and meet the purpose and need of the proposed action. These amendments are consistent with the 2022 CEQ amendment to the definition of "effects." However, emphasis is placed on the benefits of agency action with the consideration of a No Action alternative focused on the negative effects of not implementing the proposed action.

The amendments codify the longstanding hierarchy of environmental review in environmental impact statements, assessments and categorical exclusions. The amendments add a new Section 106 to codify the CEQ 2020 rule's provisions for threshold determinations regarding applicability of NEPA, but with treatment of a categorical exclusion as an exception to NEPA documentation. A new Section 107 creates a strong lead agency role with provisions for joint lead agencies and authority to coordinate the preparation of an environmental document and related permits and authorizations. It codifies provisions for appeals of denial of cooperating agency status and the "One Federal Decision" requirement that lead and cooperating agencies evaluate the proposal in a single environmental document. The page limits and time limits provided in the 2020 CEQ regulations are codified without provision for exceptions subject to senior agency official oversight. The bill codifies an abbreviated version of the 2020 provisions for agency responsibility for oversight of an applicant's preparation of an environmental document. The predecessor BUILDER Act provisions for penalties for lead agency delay have been replaced with an unusual provision for an applicant petition for a court-ordered schedule for completion of the environmental document.

Provisions for inter-agency adoption of categorical exclusions are codified with additional requirements for consultation with the originating agency and public notice of the agency plans to use the categorical exclusion. A new definitions section includes a definition of "major Federal action" that adds "substantial" as a limitation on federal control and responsibility that defines the scope of NEPA's applicability. The definition also excludes Small Business Administration loan guarantees and other financial instruments where the agency "does not exercise sufficient control and responsibility over the subsequent use of such financial assistance or the effect of the action."

BACKGROUND ON REFORMS TO IMPROVE TRANSMISSION PROJECT SITING AND PERMITTING

Congress and federal agencies have recognized the need for improvements to the national transmission grid to accommodate anticipated growth in energy generation and demand. Legislative and administrative steps have been targeted at identifying transmission needs, improving transmission facility siting, developing of grant programs, strengthening interregional planning processes and exploring collocation with existing rights-of-way.

Congressional and Administrative Actions

IIJA AND BACKSTOP SITING AUTHORITY UNDER SECTION 216

The IIJA, which became law in November 2021, revised FERC's authority under section 216 of the FPA. As described more fully in Appendix A, EPAct 2005, Congress created section 216 of the FPA with the goal of increasing the buildout of important electric transmission infrastructure. This statutory provision gives DOE power to coordinate all applicable federal authorizations, Tribal consultations and state agency reviews required to designate "national interest electric transmission corridors" and construct needed transmission lines in those corridors.

The IIJA expands FERC's backstop transmission siting authority to cover situations where a state commission has denied a certificate rather than simply failed to act. Specifically, the IIJA provides that FERC can use its backstop permit authority where a state (1) has not made a determination on an application within one year, (2) has conditioned its approval such that the proposed project will not significantly reduce transmission constraints or congestion or is not economically feasible, or (3) has denied an application.[48] In addition, as a precondition to granting a developer eminent domain authority, FERC must determine the developer made good faith efforts to engage with landowners and other

48 Although FERC already has backstop authority, a 2009 federal appellate ruling held that FERC lacked the authority to overturn a state's rejection of power lines planned in DOE sanctioned corridors. See Appendix B. Thus, if a state rejected an application for transmission build-out, there was nothing FERC could do. The Infrastructure Act addresses this loophole by clarifying FERC's backstop siting authority and allowing FERC to overrule state objections.

stakeholders early in the permitting process. The IIJA also expanded DOE's authority to designate national interest electric transmission corridors in areas currently experiencing or that are expected to experience transmission capacity constraints or congestion.

ADMINISTRATION INITIATIVES TO ACCELERATE PERMITTING OF TRANSMISSION

Department of Energy Initiatives

Building A Better Grid Initiative: DOE launched the Building a Better Grid Initiative through an NOI published for public comment on January 12, 2022. Through the Initiative, DOE plans to "identify critical national transmission needs and support the buildout of long-distance, high-voltage transmission facilities that meet those needs through collaborative transmission planning, innovative financing mechanisms, coordinated permitting, and continued transmission related research and development. DOE commits to robust engagement on energy justice and collaboration, including with states, American Indian Tribes and Alaska Natives, industry, unions, local communities, and other stakeholders for successful implementation of the program."

Elements of the required notice include coordination through regional convenings, planning to identify high-priority national transmission needs, national-scale, long-term transmission planning and planning technical assistance.

Transmission Needs Study: In response to the IIJA, DOE issued a 2023 Transmission Needs Study (DOE Needs Study) in October 2023. Formally known as the National Electric Transmission Congestion Study, the DOE Needs Study identifies high impact needs and provides information about current and anticipated capacity constraints and congestion on the nation's electric transmission grid. The DOE Needs Study identifies multiple transmission needs—defined as the existence of present or expected electric transmission capacity constraints or congestion in a geographic area—across the country and notes a steady decline in transmission investment since 2015. Although additional investment is needed in all regions across the country, according to the study, the Midwest and New England regions contributed the most substantial projections for what the study authors described as the most likely future scenario in light of recently enacted laws; the study reflects the need for new transmission deployment growth of 136 percent and 140 percent in those regions, respectively.

Many of the transmission needs identified in the study arise in connection with the effects of climate change and the need for increased resilience, including stresses to the grid from extreme heat and wildfires in the Southwest and Mountain regions and stronger winter storms in the Southeast and Midwest regions. The DOE Needs Study concludes that "interregional transmission investments will help improve system resilience by enabling access to diverse generation resources across different climatic zones, which is becoming increasingly important as climate change drives more frequent extreme weather events that damage the power system."

The transmission needs identified in the DOE Needs Study also reflect continued evolution of the generation mix away from coal and natural gas toward higher concentrations of renewables. The DOE Needs Study is intended to inform the implementation of DOE's Loan Program and Transmission Infrastructure Program, future federal efforts such as the DOE's potential designation of NIETCs under section 216(b) of the FPA and regional transmission planning.

Designation of National Interest Electric Transmission Corridors: On May 9, 2023, the DOE published a combined NOI and RFI that proposes a new applicant-driven, route-specific process to designate NIETCs. Areas designated as a NIETC enjoy certain permitting advantages and unlock funding opportunities for federal investment under the $2.5 billion Transmission Facilitation Program under the IIJA and the $2 billion Transmission Facility Financing Loan Program under the IRA. In addition, sponsors of projects in a designated NIETC can apply to become FAST-41 covered projects, entitling them to permitting timetable management, interagency coordination, transparency and other benefits.

By adopting an applicant-driven, route-specific process, DOE hopes to overcome the gating consultation and environmental review issues it ran into when it previously designated NIETCs of much broader geographic scope. DOE also seeks to streamline and coordinate its NIETC designation process with processes across the federal government for transmission planning, federal funding and backstop siting.

On December 21, 2023, DOE issued final guidance on the four-phase NIETC designation process. On May 8, 2024, DOE released a preliminary list of 10 potential NIETCs based on the results of the DOE Needs Study, other information related to transmission capacity constraints and congestion and numerous comments submitted by a variety of entities and individuals during Phase 1 of the NIETC designation process. DOE intends to narrow the list of potential NIETCs before moving forward to the next phase of the designation process.

Transmission Siting and Economic Development Grants program: Section 50152 of the IRA authorizes the Secretary of Energy to make grants to siting authorities to carry out certain eligible activities that will facilitate the siting and permitting of certain interstate onshore and offshore electricity transmission lines. Section 50152 also authorizes the Secretary to make grants to siting authorities or other state, Tribal or local governmental entities for economic development activities in communities that may be affected by the construction and operation of these transmission projects. Under Section 50152(b)(1), the Secretary may issue grants for:

- Studies and analysis of the impacts of the transmission project;
- Examination of up to three alternative siting corridors within which the transmission project feasibly could be sited;
- Participation by the siting authority in regulatory proceedings or negotiations in another jurisdiction or under the auspices of a Transmission Organization[49] that is also considering the siting or permitting of the covered transmission project;
- Participation by the siting authority in regulatory proceedings at FERC or a state regulatory commission for determining applicable rates and cost allocations for the covered transmission project; and
- Other measures and actions that may improve the chances of, and shorten the time required for, approval by the siting authority of the application relating to the siting or permitting of the covered transmission project, as the Secretary determines appropriate.

The IRA requires that siting authorities that receive a grant for siting activities with respect to a covered transmission project must reach a final decision on the application relating to the siting or permitting of the applicable covered transmission project no later than two years after the date the grant is provided. DOE issued an RFI on January 13, 2023, seeking public input to help inform the implementation of section 50152.

Federal Energy Regulatory Commission (FERC) Initiatives

Revisions to FERC Backstop Siting Authority Under Section 216 of the FPA: On December 15, 2022, FERC issued a notice of proposed rulemaking (NOPR) to update its regulations governing backstop siting authority for electric transmission to reflect recent changes to section 216 of the FPA resulting from IIJA.[50] The NOPR proposed to, among other things, effectuate FERC's authority to supersede a state regulatory body's rejection of a proposed transmission project located in a national interest electric transmission corridor; allow for simultaneous processing of state applications for siting authority and FERC prefiling proceedings; and update FERC's NEPA regulations. The changes proposed in the NOPR could encourage development of needed electric transmission infrastructure and support the build-out of electric transmission envisioned in the IIJA, supporting further development of multistate transmission lines needed to deliver significant wind and solar resources to market.

On May 13, 2024, FERC issued Order 1977, amending its regulations on applications for permits to site transmission lines under Section 216.

Regional Transmission Planning and Cost Allocation: On April 21, 2022, FERC issued a NOPR proposing to reform the regional transmission planning processes it requires individual transmission providers to undertake. The NOPR would require public utility transmission providers to (1) conduct long-term regional transmission planning on a sufficiently forward-looking basis to meet transmission needs driven by changes in the generation resource mix and demand on the grid; (2) more fully consider dynamic line ratings and advanced power flow control devices to help ensure regional transmission planning processes identify more efficient or cost-effective transmission facilities for selection in the regional transmission plan; (3) seek the agreement of relevant state entities within the transmission planning region regarding the cost allocation method or methods that will apply to transmission facilities selected in the regional transmission plan for purposes of cost allocation through long-term regional transmission planning; (4) adopt enhanced transparency requirements for local transmission planning processes and improve coordination between regional and local transmission planning with the aim of identifying potential opportunities to "right-size" replacement transmission facilities; and (5) revise their existing

49 The term "Transmission Organization" means a Regional Transmission Organization (RTO), Independent System Operator (ISO), independent transmission provider, or other transmission organization finally approved by FERC for the operation of transmission facilities as defined in the Federal Power Act. 16 U.S.C. 796(29).

50 For more details on the rulemaking, see Appendix A, Overview of Key Federal Authorities.

interregional transmission coordination procedures to reflect these long-term regional transmission planning reforms. FERC proposes that transmission providers engage in more frequent long-term planning covering at a minimum a twenty-year time horizon and that transmission providers more clearly identify and quantify the benefits criteria used to select transmission projects for development in long-term regional transmission plans.

On May 13, 2024, FERC issued Order 1920, requiring transmission providers to plan for future transmission needs, detailing a new set of requirements for transmission planning, cost allocation, enhanced transparency and improved coordination.

Improvements to Generator Interconnection Procedures: Lawrence Berkeley National Laboratory released a report in April 2023 finding that generator interconnection queue backlogs across the U.S. are ballooning.[51] Over 700 GW of proposed generation was added to interconnection queues in 2022 alone, much of it for carbon-free energy resources, and the federal incentives in IIJA and IRA are expected to increase pressure on queues. At the same time, Berkeley Labs noted that the average time projects spend in interconnection queues has grown substantially to five years from submission of an interconnection request to commercial operation (compared to three years in 2015 and less than two years in 2008). Moreover, only about 20 percent of projects requesting interconnection over the period 2000-2017 reached commercial operation by the end of 2022.

To address these problems, FERC issued a NOPR on June 16, 2022, proposing reforms to its *pro forma* generator interconnection procedures and *pro forma* generator interconnection agreements. These reforms would require transmission providers to transition from a "first come, first served" linear queue to a "first ready, first served" cluster study process, seeking to ensure that the most commercially viable projects are not stuck in the queue behind less viable projects. The reforms would also provide more transparency about transmission constraints to developers before they enter the interconnection queue in a bid to reduce the "churn" effect where developers submit multiple interconnection requests at different points of interconnection to try to determine the most efficient option for a project. Moreover, the NOPR proposes reforms to increase the speed of processing interconnection queues, such as providing structure around affected systems studies required to address potential reliability impacts on neighboring transmission systems from interconnecting a particular project. In addition, FERC proposed to require transmission providers to allow more than one resource to co-locate on a shared site behind a single point of interconnection and share a single interconnection request, thereby removing barriers to co-located resources such as solar + storage or wind + solar sites.

Transmission Planning and Cost Management: On October 6, 2022, FERC held a technical conference to discuss transmission planning and cost management for transmission facilities developed through local or regional transmission planning processes. At that conference, FERC heard from state commissioners and ratepayer advocates, transmission providers from both RTO/ISO and non-RTO/ISO regions and other stakeholders on a wide variety of transmission planning and cost containment issues. Among other things, many states voiced concerns about a lack of staffing and resources necessary to participate meaningfully in regional transmission planning processes, as well as inefficiencies between the regional transmission planning process and the subsequent certificate proceedings at the state level for siting, construction and operation of transmission projects incorporated into regional transmission plans. FERC subsequently requested industry comments on whether it should revisit its transmission planning principles adopted in Order No. 890, whether its planning principles should be made applicable to local as well as regional planning processes, whether there are barriers to state regulators and other stakeholders analyzing information made available in the local and regional transmission planning processes and whether it should require creation of Independent Transmission Monitors to review and evaluate a wide range of elements of the transmission planning process and, if so, what the role should be.

Department of the Interior Initiatives

As detailed above, Section 368 of EPAct 2005 required DOI, USDA, DOC, DOD and DOE—in consultation with FERC and Tribal entities—to designate energy rights-of-way corridors for oil, gas and hydrogen pipelines and electricity transmission and distribution facilities on federal lands.

Following a lawsuit and subsequent multi-year review of the originally designated corridors, BLM and the USFS published a final report that identified potential improvements to the Corridors that balance the need for delivering

51 Joseph Rand, et al. *Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection As of the End of 2022*. (Lawrence Berkeley National Laboratory, April 2023). https://emp.lbl.gov/sites/default/files/queued_up_2022_04-06-2023.pdf

clean energy with protecting America's lands, water and wildlife habitat.[52] The BLM conducted Regional Reviews as a part of this final report.

The Regional Reviews were guided by the following corridor siting principles from the Settlement Agreement, to ensure that:

- Corridors are thoughtfully sited to provide maximum utility and minimum impact to the environment;
- Corridors promote efficient use of landscape for necessary development;
- Appropriate and acceptable uses are defined for specific corridors; and
- Corridors provide connectivity to renewable energy generation to the maximum extent possible while also considering other generation to balance the renewable sources and ensure the safety and reliability of electricity transmission.

An interim step to the agencies' considerations for potential corridor revisions, deletions or additions was the development of corridor abstracts, i.e., an initial analysis of the corridors. Corridor abstracts assisted the agencies and the stakeholders in identifying specific environmental concerns and other challenges, such as pinch points, for each corridor. These abstracts provided a condensed record for each corridor. Stakeholders had the opportunity to review and comment on the abstracts and, subsequently, on any considerations identified by the agencies.

The findings in the report were reached after substantial input from Tribes, states, local governments, conservation community groups, electric utilities, renewable energy developers, oil and gas industry, wildlife organizations, advocacy groups, private landowners and BLM and USFS staff. This final report supports BLM and USFS regulations that direct land use planning efforts to consider existing information (including transportation and utility corridor studies) to determine appropriate placement of utility corridors. Any potential revisions, deletions and additions to the corridors identified through the Regional Reviews will be considered by the BLM and USFS during subsequent land-use planning and environmental review processes.

These energy corridors are designated on federal lands only as directed in Section 368 of the EPAct 2005. Because Section 368 energy corridors on federal lands may affect routing of projects on adjacent non-federal lands, robust stakeholder outreach is appropriate when considering site-specific projects utilizing Section 368 energy corridors and proposals to revise, delete or add Section 368 energy corridors.

Priority Projects: In 2022, three major transmission projects received final approvals for construction from DOI.

In April 2023, BLM announced the approval for construction of the 732-mile TransWest Express Project, a high-voltage transmission line that will extend from south-central Wyoming through northwestern Colorado and central Utah, ending in southern Nevada. TransWest Express will deliver electricity from the Chokecherry and Sierra Madre Wind Energy Project in Wyoming.

In May 2023, BLM announced a ROD for the SunZia Southwest Transmission Project, which, when completed, will transport up to 4,500 megawatts of primarily renewable energy from New Mexico to markets in Arizona and California. The BLM completed the review period for this project—from the NOI to ROD—in less than two years. This is one of the final steps the BLM needs to take before the project proponent can formally break ground. Note that BLM recommended the creation of Cross-Tie, Transwest Express and Gateway West as new energy corridors in the Final Report under the Section 368 Energy Corridor Review.[53]

52 West-wide Energy Corridor Information Center. *Regional Review Final Report*. https://corridoreis.anl.gov/regional-reviews/report/. Note also that on June 7, 2013, the President issued a separate but related memorandum, directing Federal agencies that laid out principles for designation of energy right-of-way corridors on Federal lands under Section 368 of the Energy Policy Act of 2005. It also directed Federal agencies to re-evaluate existing energy rights-of-way corridor designations to determine the necessity for revisions, deletions, or additions to those energy corridors and to develop interagency mitigation plans, where appropriate, for environmental and cultural resources potentially impacted by projects sited in energy corridors. The White House. *Presidential Memorandum–Transforming our Nation's Electric Grid Through Improved Siting, Permitting, and Review*. (June 7, 2013). https://www.whitehouse.gov/the-press-office/2013/06/07/presidential-memorandum-transforming-our-nations-electric-grid-through-i

53 Bureau of Land Management, U.S. Forest Service and U.S. Department of Energy. *Energy Policy Act of 2005* Section 368 Energy Corridor Review. https://corridoreis.anl.gov/documents/docs/Final-Report-Summaries.pdf

Advancing major project reviews: DOI has taken major steps on environmental reviews for several new transmission lines, including initiating review

- For the Greenlink West Transmission Project from northern to southern Nevada, and
- Initiating review for the Cross-Tie 500-kV Transmission Project from Utah to Nevada.

Department of Transportation Initiatives

In April 2021, DOT issued guidance that encourages State DOTs to host transmission lines and build renewable energy projects and electrical transmission and distribution projects on highway ROWs. The guidance document encourages the consistent utilization of ROWs for renewable energy generation and electrical transmission and distribution projects, among other uses. DOT notes that these uses of the highway ROWs also "better utilize the full value and productivity of the existing asset while also reducing or eliminating the ongoing maintenance expenses for State DOTs." Such use of highway ROWs can reduce greenhouse gas and other pollutant emissions; promote energy security by diversifying energy generation and delivery methods; create a potential revenue source for state DOTs to develop projects and negotiate agreements that include land lease or land license payments and power purchase agreements; and reduce or eliminate ongoing maintenance expenses for state DOTs. The guidance document encourages state DOTs to consider addressing renewable energy and electrical transmission and distribution facilities as accommodations as a utility under federal law, to the extent practicable and consistent with state law. The FHWA can also approve alternative uses of a highway ROW if it is determined that such occupancy, use or reservation is in the public interest and will not impair the highway or interfere with the free and safe flow of traffic thereon.

BACKGROUND ON REFORMS TO IMPROVE WIND AND SOLAR ENERGY DEVELOPMENT

Congress recognized the need to rapidly advance renewable energy production when it set a goal in the Energy Policy Act of 2020 to permit 25 gigawatts of renewable energy (wind, solar and geothermal) on public lands by 2025. The IIJA's updates to the FAST Act provided the opportunity for the Permitting Council and other agencies to work toward this goal. Moreover, section 70601 of the IIJA provided $100 million to DOI to remain available until September 30, 2031, for the development of "more efficient, accurate, and timely reviews for the planning, permitting, and approval processes for specified Interior agencies." Funding in the IRA increased appropriations for DOI, DOE and EPA "to hire and train personnel, support the development of programmatic environmental documents, the procurement of technical or scientific services for environmental reviews, the development of environmental data or information systems, stakeholder and community engagement, and the purchase of new equipment for environmental analysis to facilitate timely and efficient environmental reviews and authorizations."

Administrative Actions

To date the BLM has approved more than 126 renewable energy projects, including 42 solar projects with an approved capacity of over 9,000 MW, 36 wind projects with an approved capacity of over 3,000 MW and 48 operating geothermal power plants with federal interest that have an installed capacity of over 2,500 MWs.[54] In pursuit of the goal of permitting 25 GW of renewable energy by 2025, the BLM has approved 35 projects (10 solar, 8 geothermal and 17 gen-ties) on approximately 23,396 acres of BLM-managed lands. These projects are expected to produce 8,160 megawatts of electricity—enough to power approximately 2,618,723 homes.[55] BLM has reported that, as of July 2023, there were 35 wind, geothermal and gen-tie projects on BLM lands expected to produce 8,160 MW megawatts. An additional 26 projects were under review (22 solar, 3 wind and 1 geothermal) with the potential to generate 17,069 MW on 147,443 acres.[56]

RENEWABLE ENERGY COORDINATION OFFICES

On May 31, 2022, DOI established RECOs pursuant to the Energy Policy Act of 2020. In accordance with section 3001(2)(b) of that Act, DOI, USDA, DOD (USACE and the Military Aviation and Installation Clearinghouse), DOE and EPA signed a pursuant to sections 3001-3005 to streamline reviews for renewable energy projects. The BLM RECOs will leverage the interagency agreement under the MOU to implement improved coordination among agencies, help avoid and resolve potential conflicts and bottlenecks, identify best practices, accelerate information sharing and promote efficient and timely reviews to support smart agency decision-making.

54 Bureau of Land Management. *Budget Justification and Performance Information Fiscal Year 2024*. https://www.doi.gov/sites/doi.gov/files/fy2024-blm-greenbook.pdf-508.pdf
55 Bureau of Land Management. *Active Renewable Projects*. https://www.blm.gov/programs/energy-and-minerals/renewable-energy/active-renewable-projects
56 Bureau of Land Management. *Active Renewable Projects, Proposed Renewable Energy Projects in Review*. https://www.blm.gov/programs/energy-and-minerals/renewable-energy/active-renewable-projects - Review

The BLM is actively partnering with key federal agencies to fund dedicated positions for the RECOs to prioritize robust environmental compliance coordination for renewable energy proposals. The coordination offices include a national office at the BLM's headquarters; within state offices in Arizona, California and Nevada; and a regional office led by BLM Utah. The BLM is also actively hiring project managers in other states, such as Idaho and Colorado, to support renewable permitting work. Under the MOU, the FWS committed to prioritize review and permitting coordination and to work with the RECOs to expedite coordination of federal agency reviews, including those required pursuant to section 7 of the ESA, the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act, the Fish and Wildlife Conservation Act and NEPA, and authorization of eligible projects.

SOLAR PEIS

Secretary of the Interior Deb Haaland announced on December 5, 2022, that the BLM will develop an updated Solar PEIS to help guide solar energy development on public lands throughout the West.[57] The proposed updated PEIS will replace the existing Solar PEIS developed in 2012. The Solar PEIS covered six western states—Arizona, California, Colorado, Nevada, New Mexico and Utah—and provided a comprehensive solar energy program applicable to all utility-scale (20 MW or greater) solar energy development on BLM-administered lands. The Solar Plan also categorized land according to its suitability for solar infrastructure by establishing ,[58] which are areas of land prioritized for development; areas of land that should be excluded from development; and variance zones, or areas of land that are neither excluded nor prioritized. In replacing the Solar PEIS, the new and updated PEIS would, among other things, expand the study area to 11 western states, change exclusion criteria and land use allocations and potentially create a new definition to expand the meaning of utility-scale development.

The BLM, in the 2012 Solar PEIS, developed action plans for each SEZ identifying SEZ-specific actions that could be undertaken to facilitate future development within each SEZ.[59] The analysis from the Solar PEIS informed the BLM in its designation of the SEZs and formed the basis for further evaluation of the potential environmental impacts of the specific projects within each SEZ. In addition to its programmatic analysis, the Solar PEIS contained a comprehensive environmental review of all the SEZs, including direct, indirect and cumulative impacts for each one. The primary purpose of this more rigorous SEZ-specific analysis, which included in-depth data collection and environmental analysis, was to provide documentation from which the BLM could tier future project authorizations, thereby limiting the required scope and effort of project-specific NEPA analyses.[60]

After initial public scoping meetings on the proposed updates to the Solar PEIS, BLM determined that it would not include areas covered by the Desert Renewable Energy Conservation Plan (DRECP) in Southern California. The 2016 DRECP is a landscape-scale planning effort that covers 22.5 million acres in Southern California and was developed to advance conservation goals, meet ESA and FLPMA requirements and facilitate the timely and streamlined permitting of renewable energy projects.[61] The DRECP identified Development Focus Areas (DFAs),[62] Variance Process Lands, Conservation Areas, Recreation Areas and unallocated lands (i.e., lands that did not have a specific land allocation or designation). The DRECP also identified a specific set of Conservation and Management Actions designed to achieve the goals and objectives for activities within the various land use allocations. The BLM decided to exclude the DRECP from the planning area as it believes that the DRECP "supports an acceptable balance between conservation and renewable energy opportunities within its planning area boundary."

The 2012 Solar PEIS did not eliminate the need for site-specific environmental reviews for future utility-scale solar energy development projects. All future projects proposed in SEZs nonetheless were expected to tier to the analysis in the Solar PEIS. The extent of this tiering, however, was expected to vary from project to project, as would the necessary

57 Department of the Interior. *Secretary Haaland Announces New Steps to Accelerate Solar Energy Development on Public Lands in the West*. https://www.doi.gov/pressreleases/secretary-haaland-announces-new-steps-accelerate-solar-energy-development-public-lands

58 The 2012 Solar PEIS designated 17 SEZs on about 285,000 acres of BLM-administered lands. The SEZs are identified as Designated Leasing Areas (DLAs) in BLM's leasing regulations (43 CFR 2800), which allow for the BLM to issue solar energy "leases" (43 C.F.R. § 2809) through a competitive process for utility-scale solar energy development within DLAs. Projects outside DLAs (and others designated as BLM deems would be in the public interest) are authorized with a right-of-way grant issued for up to 30 years.

59 These action plans described additional data that could be collected for individual SEZs and proposed data sources and methods for the collection of those data. For example, for the Dry Lake SEZ, the action plan recommended a Class III survey be completed for cultural resources which the BLM initiated prior to the competitive auction. Solar PEIS at ES-4.

60 In the Solar PEIS, the BLM established a set of proposed programmatic design features that would be required for all utility-scale solar energy development on BLM-administered lands under both action alternatives. In addition to this upfront work in SEZs, the BLM committed to establishing regional mitigation plans for SEZs to "simplify and improve the mitigation process for future projects in these priority areas."

61 Bureau of Land Management. *California 2016 DRECP ROD*. (2016). https://blmsolar.anl.gov/drecp/

62 DFAs are locations which contain a combination of available renewable energy resources including solar, wind, and geothermal areas that have been pre-screened for development potential and minimal resources conflicts, and therefore provide opportunities for streamlined development.

level of NEPA documentation. The level of effort required to review applications for projects in SEZs has been reduced because these areas underwent intensive site-specific analyses and consultations as part of the Solar PEIS. For some of the SEZs, it was expected that development could proceed with limited additional environmental analysis. The range of issues that are evaluated in detail at the project level therefore were reduced to site-specific and species-specific issues and concerns. The Final Solar PEIS included a detailed summary of the environmental impacts that might be associated with solar energy development under the program alternative and the ways in which the impacts would be avoided, minimized and/or mitigated by the programmatic exclusions, policies and design features and whether there were site- or project-specific issues that could be addressed by the programmatic design requirements.

The EA for the Dry Lake Solar Energy Center (Dry Lake SEC EA) provides a good example of effective tiering to a PEIS. The affected environment and the potential environmental impacts resulting from the implementation of the Proposed Action and the No Action Alternative tiered to the analysis in the Solar PEIS and were incorporated by reference to the extent practicable. The issues discussed in the Dry Lake SEC EA focused on those identified through public involvement. Following comments and scoping, the proposed action was presented to the BLM interdisciplinary team, which conducted a review of the application and Plan of Development (POD) and identified additional issues for further consideration (e.g., air quality, vegetation, forestry, wildlife, cultural resources, Native American concerns, visual resources etc.).

Although the Solar PEIS contained the results of a comprehensive environmental review conducted by the BLM for all SEZs, applicants completed additional project-specific resource surveys in support of projects to complement the BLM's environmental review. The BLM then provided a summary of the relevant impacts and related design features that were fully analyzed in the PEIS and were incorporated into the EA. As required by the Solar PEIS ROD, applicants incorporated design features into the Project development process to avoid and minimize impacts to the surrounding environment, including the design features set forth in the EA. In addition, the EA included required mitigation measures, including those set forth in the Solar PEIS and the Solar Regional Mitigation Strategy (SRMS) prepared for the Dry Lake SEZ. The SRMS for the Dry Lake SEZ presents an approach for compensating for the unavoidable impacts that are expected from development of the Dry Lake SEZ. The analysis in the EA relies upon and tiers to the protective measures and design features established in the Solar PEIS and includes updated language with specific Mitigation Measures.

The Dry Lake SEC EA notes impacts to resources that are beyond those described in the PEIS and would require detailed analysis in the EA. The EA also relied on the Solar PEIS programmatic consultation, which recognized that an ESA Section 7 project-specific consultation would have to occur and would tier to programmatic consultation and resulting programmatic Biological Opinion (BO) for SEZs. A Biological Assessment (BA) was prepared for the Project to address impacts to federally listed species and the requisite project-specific consultation concluded with the issuance of a BO and incidental take statement. As expected, the project implemented applicable mitigation measures identified in the BO as part of this decision.

UPDATES TO REGULATIONS AND INTERNAL GUIDANCE

BLM permitting processes for solar and wind projects

BLM has undertaken an update to its application processes for solar and wind applications and nominations/expressions of interest. On March 17, 2022, BLM released an Instruction Memorandum guidance[63] intended to clarify initial screening measures and prioritization methodologies for solar and wind ROW grant applications and lease nominations. The guidance is intended to facilitate accelerated decision-making for projects with the greatest technical and financial feasibility and least anticipated natural and cultural resources conflicts. All new project proposals, including those for projects covered under the FAST-41, are screened and prioritized under this policy. Required pre-application meetings with the BLM are intended to identify potential environmental and siting constraints and clarify where development may not be available.

63 Bureau of Land Management. *Initial Screening and Prioritization for Solar and Wind Energy Applications and Nominations/Expressions of Interests*. (March 17, 2022). https://www.blm.gov/policy/im-2022-027

Mitigation Approaches

In 2021, BLM reinstated its manual and handbook on mitigation.[64] This new guidance directs BLM to implement mitigation through a landscape-scale approach, utilize best management practices, maintain durability for mitigation measures, monitor mitigation measures for compliance and effectiveness and adaptively manage mitigation measures.

On July 27, 2022, the FWS issued an Advanced Notice of Proposed Rulemaking (ANOPR) seeking comments on development of a rule establishing objectives, measurable performance standards and criteria uses consistent with ESA for species conservation banking. In February 2023, FWS proposed to revise permitting under ESA Section 10 to promote species conservation through voluntary agreements and make the process more efficient. The proposed changes would: (1) clarify the appropriate use of enhancement of survival permits and incidental take permits; (2) clarify FWS authority to issue permits for non-listed species without also including a listed species; (3) simplify the requirements for enhancement of survival permits by combining safe harbor agreements (SHAs) and candidate conservation agreements with assurances (CCAAs) into one agreement type, e.g., a "conservation benefit agreement"; and (4) codify the FWS "five-point policies" for SHAs and CCAAs in the regulations to reduce uncertainty. FWS stated that it was doing so to reduce the costs and time associated with negotiating and developing the required documents to support the applications and that "these improvements will encourage more individuals and companies to engage in these voluntary programs, thereby generating greater conservation results overall."

On May 15, 2023, the FWS announced final revisions to their Mitigation Policy and the ESA Compensatory Mitigation Policy. The revised ESA Compensatory Mitigation Policy adopts the mitigation principles established in the FWS Mitigation Policy, establishes compensatory mitigation standards and provides guidance for the application of compensatory mitigation through implementation of the ESA. The ESA Compensatory Mitigation Policy covers all compensatory mitigation mechanisms, including proponent-responsible mitigation, conservation banking and in-lieu fee programs. FWS states that the Mitigation Policy provides a framework for applying a landscape-scale approach to achieve "no net loss of resources and their values, services, and functions resulting from proposed actions." These policies step back from the more aggressive "net conservation gain" approach pursued by the Obama administration.

Environmental Justice

DOI has partnered with agencies across the federal government to develop a strategy to address current and historic environmental injustices and ensure accountability. In 2022, BLM issued guidance for considering EJ in NEPA reviews and when making land management decisions. The guidance applies to all environmental reviews under NEPA, including for land use planning and individual projects.[65]

Tribal Consultation and Engagement

On November 15, 2021, DOI and USDA signed Joint Secretarial Order No. 3403 on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters. On September 13, 2022, DOI released new guidance to improve federal stewardship of public lands, waters and wildlife by strengthening the role of Tribal governments in federal land management. New guidance from BLM and USDA outlines how each bureau will facilitate and support agreements with Tribes to collaborate in the co-stewardship of federal lands and waters.[66]

Geospatial Energy Mapper

In January 2023, Argonne National Laboratory announced the redesign of the Energy Zones Mapping Tool. The Geospatial Energy Mapper is an interactive online mapping tool that can help identify areas suitable for wind, solar and other clean energy infrastructure projects. This includes energy resources and infrastructure and other information that might influence energy infrastructure siting decisions. With over 190 mapping layers—including demographics, boundaries and utilities—users can locate areas for clean power generation, electric vehicle charging stations and more.[67]

64 Bureau of Land Management. *Instruction Memorandum, Reinstating the Bureau of Land Management (BLM) Manual Section (MS-1794) and Handbook (H-1794-1) on Mitigation*. (2021). https://www.blm.gov/policy/im-2021-046; Bureau of Land Management. *BLM Handbook, H-1794-1 – MITIGATION*. (September 22, 2021). https://www.blm.gov/sites/default/files/docs/2021-10/IM2021-046_att2.pdf; https://www.blm.gov/policy/im-2021-046

65 Bureau of Land Management. *Addressing Environmental Justice in NEPA Documents: Frequently Asked Questions*. (2022). https://www.blm.gov/sites/default/files/docs/2022-09/IM2022-059_att1.pdf

66 Bureau of Land Management. *Co-Stewardship with Federally Recognized Indian and Alaska Native Tribes Pursuant to Secretary's Order 3403*. (September 13, 2022). https://www.blm.gov/sites/default/files/docs/2022-09/PIM2022-011%20+%20attachment.pdf

67 Marguerite Huber. *A new tool helps map out where to develop clean energy infrastructure*. (Argonne National Laboratory, 2023). https://www.anl.gov/article/a-new-tool-helps-map-out-where-to-develop-clean-energy-infrastructure

BACKGROUND ON REFORMS TO IMPROVE HYDROGEN PIPELINE SITING AND PERMITTING

Large-scale hydrogen transportation infrastructure is in its initial stages of development. Only 25 hydrogen pipelines exist in the U.S., spanning approximately 1,600 miles, compared to 300,000 miles of natural gas transmission pipelines and 200,000 miles of petroleum product pipelines. Most hydrogen pipelines are in the Gulf Coast and used to carry merchant or excess hydrogen to petrochemical users. As noted in the Energy Futures Initiative's U.S. Hydrogen Demand Action Plan, clean hydrogen will depend on new energy infrastructures such as electricity supply systems (e.g., generation, transmission and distribution equipment), natural gas networks and CO_2 and hydrogen storage facilities among others.

Congressional and Administrative Actions

Recognizing the significant opportunities and greenhouse gas emission reductions available from hydrogen infrastructure, the IIJA invests $9.5 billion in clean hydrogen technology development. The IIJA program envisions the widely adopted use of distributed hydrogen generation and storage and focuses on funding the development of factors that support both hydrogen infrastructure and vehicle and electric power for critical consumer and commercial applications.[68]

For example, Section 40314 of the IIJA authorizes and appropriates $8 billion to the DOE to establish a program to support six to ten Regional Clean Hydrogen Hubs (Hydrogen Hubs).[69] The Hydrogen Hubs are designed to be clustered networks of clean hydrogen producers, consumers and connected infrastructure, with the purpose of accelerating hydrogen use as a clean energy carrier. DOE notes that these hubs "will be a central driver in helping communities across the country benefit from clean energy investments, good-paying jobs and improved energy security."[70] The Clean Hydrogen Hubs initiative follows the 2021 launch of DOE's Hydrogen Shot and the release of DOE's draft National Clean Hydrogen Strategy and Roadmap (Hydrogen Roadmap), which provides an overview of the potential for hydrogen to "contribute to national decarbonization and economic development goals." The Hydrogen Roadmap provides a comprehensive overview of the potential for hydrogen production, transport, storage and use in the U.S. and outlines how clean hydrogen can contribute to national decarbonization and economic development goals.

In September 2022, DOE issued a Funding Opportunity Announcement (FOA) for the Hydrogen Hubs. DOE will pick at least one hub centered on "green" hydrogen produced by renewable energy with no associated direct carbon emissions.[71] As required by the IIJA, DOE must prioritize "regional clean hydrogen hubs that are likely to create opportunities for skilled training and long-term employment to the greatest number of residents in the region." Consistent with that requirement, any application must include a CBP.[72] As DOE explains, project planning should include engagement with a wide range of local stakeholders such as labor unions, local governments, Tribal governments and community-based organizations that support or work with disadvantaged communities. Applicants must establish a Justice40 Initiative section within their CBP. DOE is currently assessing the full applications that were submitted on April 7, 2023.

On May 10, 2023, the Biden administration issued a fact sheet outlining priority reforms, including a recommendation that Congress address the siting of hydrogen and provide federal siting authority for such infrastructure."

BACKGROUND ON REFORMS TO IMPROVE CARBON DIOXIDE MANAGEMENT

To reach an ambitious domestic climate goal of net-zero emissions economy-wide by 2050, the U.S. will likely have to capture, transport and permanently sequester significant quantities of carbon dioxide. To prioritize direct reduction or avoidance of emissions of greenhouse gasses, pragmatic applications of CCUS strategies must be deployed as soon as possible with a high priority placed on achieving net emissions reductions from emissions sources that are not likely to be abated or do have not technically feasible alternatives. Even as the U.S. takes all feasible steps to decarbonize the energy

68 The IRA also incentivizes clean hydrogen projects, including through a new 10-year hydrogen production tax credit under 26 U.S.C. § 45V of the Internal Revenue Code (IRC). 42 U.S.C. § 16151 et seq. In October 2022, the U.S. Treasury Department issued a Request for Comment on the credits for clean hydrogen provided for in the IRA. The comments will inform Treasury's regulations or guidance, which must be published by mid-August 2023 (a year after the IRA's enactment).

69 Section 813 of the Energy Policy Act, as amended, requires the development of at least four regional clean hydrogen hubs that: demonstrably aid the achievement of the clean hydrogen production standard; demonstrate the production, processing, delivery, storage, and end-use of clean hydrogen; and can be developed into a national clean hydrogen network to facilitate a clear hydrogen economy.

70 Department of Energy. *Regional Clean Hydrogen Hubs*. https://www.energy.gov/oced/regional-clean-hydrogen-hubs

71 Green hydrogen can be produced by splitting water into hydrogen and oxygen molecules (electrolysis) using renewable energy. Unlike clean hydrogen, which requires the capture and storage of carbon emitted as part of its production, green hydrogen production has no direct carbon emissions.

72 DOE is now requiring that Community Benefits Plans accompany all agency funding opportunity announcements (FOAs)-related projects. These plans advance four of the Administration's policy priorities: invest in America's workforce; engage community and labor; advance diversity, equity, inclusion, and accessibility; and contribute to Justice 40.

system, engineered carbon removal and natural climate solutions will likely be necessary to close the gap in achieving net-zero. Carbon management technologies and related infrastructure must be "responsibly scaled in a timely manner, while maintaining the integrity of public health, the environment, and the economy."[73]

Reaching the necessary scale will require rapid development of projects to capture CO_2 either at the point of emissions or from the ambient air, as well as storage wells to permanently sequester the CO_2 and transport pipelines to connect the two. Each segment of this overall system will be developed and permitted separately—distinct projects subject to different statutes and permitting agencies—but the entire system must be developed in parallel. Storage and transport must be available for companies to invest in carbon capture at industrial facilities and power plants. Conversely, the expected demand for CO_2 transport must be sufficient for companies to invest in pipelines. Permitting delays in one segment could delay development of another.

Overview of Siting and Permitting CO_2 Pipelines and Storage Wells

CO_2 PIPELINES

CO_2 pipeline infrastructure at present totals 5,500 miles and is located mostly within U.S. oil-producing states and Canadian provinces.[74] Current CO_2 pipelines are almost entirely used for enhanced oil recovery.[75]

Where proposed CO_2 pipelines cross federal land, the BLM has authority to grant rights-of-way as a "natural gas" pursuant to the Mineral Leasing Act. There is no comprehensive federal siting and permitting process for interstate or intrastate CO_2 pipelines on non-federal lands.[76] Only safety considerations are subject to comprehensive federal regulation by PHMSA. However, numerous federal laws and regulations influence CO_2 pipeline siting, design or operation. NEPA, the CWA, NHPA and ESA, among other statutes, provide opportunities for federal agencies to influence CO_2 pipeline siting. These opportunities are most abundant where the pipeline crosses federal lands or waterways—as is often true in the western U.S.

Requirements for siting (including the use of eminent domain), construction and operations of CO_2 pipelines are largely handled at the state level.[77] State laws may authorize siting authorities and establish set back, permitting or industrial siting requirements.

Only a few states have CO_2 -specific pipeline siting rules; in some states, regulation of CO_2 pipelines falls within the statutes for other types of pipelines such as those for hazardous waste and oil and natural gas.

Differences in state regulations "have not significantly impeded on interstate CO_2 pipeline development because many interstate pipelines serve single sources and single end users and are in western states that tend to have more developed regulatory frameworks for CO_2 pipelines. However, as CO_2 pipeline networks become more extensive and complex, and more participants enter the market, a clearer regulatory framework will be needed."[78] As with hydrogen pipelines, "developers of interstate CO_2 pipelines may increasingly encounter a range of regulatory obstacles due to inconsistent or unclear regulations of the states a pipeline passes through."[79]

PERMANENT STORAGE WELLS

Once the CO_2 is captured, permanent storage involves injecting the concentrated CO_2 stream underground into a subsurface formation where it will remain safely and permanently stored. The EPA's Class VI well permitting program regulates dedicated geologic storage of CO_2. Like other well classes regulated by EPA, states may apply to EPA and be granted primacy over Class VI wells. As of July 2023, EPA has permitted two Class VI wells with over 50 pending permits. EPA has delegated Class VI implementation authority to North Dakota, Wyoming and Louisiana.

73 Council on Environmental Quality. *Council on Environmental Quality Report to Congress on Carbon Capture Utilization, and Sequestration*. (2021). https://www.whitehouse.gov/wp-content/uploads/2021/06/CEQ-CCUS-Permitting-Report.pdf

74 The major regions in the U.S. that host CO_2 pipelines typically are oil-producing basins of the Northern Rockies, Permian Basin, Mid-Continent, and the Gulf Coast. Comments From the Edison Electric Institute On Request for Comments On The Council On Environmental Quality Carbon Capture, Utilization, And Sequestration Guidance Docket No. CEQ–2022–0001 (April 18, 2022).

75 For a detail analysis of legal authorities governing CO_2 pipeline siting, see Tara K. Righetti, Siting Carbon Dioxide Pipelines, 3 OIL & GAS, NAT. RESOURCES & ENERGY J. 907 (2017); see also U.S. Department of Energy. *Siting and Regulating Carbon Capture, Utilization and Storage Infrastructure Workshop Report*. (2016).

76 CO_2 concurrently falls outside the scope of "natural gas" within the Natural Gas Act (NGA) and within the "gas" exclusion in the Interstate Commerce Act (ICA). Natural Gas Act of 1938 § 1, Pub. L. No. 75-688, 52 Stat. 821 (codified as amended at 15 U.S.C. § 717 (2012); Interstate Commerce Act, 49 U.S.C. §§ 1(4), 2, 3(1) (1887). CO_2 is also excluded from FERC regulation under the ICA.

77 U.S. Department of Energy. *Siting and Regulating Carbon Capture, Utilization and Storage Infrastructure Workshop Report*. (2016). p 25. https://www.energy.gov/fecm/articles/siting-and-regulating-carbon-capture-utilization-and-storage-infrastructure-workshop

78 Labor Energy Partnership. Building to Net-Zero: *A U.S. Policy Blueprint for Gigaton-Scale CO^2 Transport and Storage Infrastructure*. (June 2021). p 29.

79 *Id.*

Congressional and Administrative Actions

INFRASTRUCTURE INVESTMENT AND JOBS ACT

DOE has invited eligible parties to apply for secured or "direct" loans or loan guarantees under the Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) program established by Section 40304 of the IIJA. The IIJA will invest $2.1 billion to provide federal government financing to large capacity Common Carrier CO_2 transportation infrastructure projects to move CO_2 from points of capture to conversion facilities and/or storage wells.

INFLATION REDUCTION ACT

The IRA provides critical updates to the 45Q tax credit, which incentivizes the use of carbon capture and storage. The law extends the existing 45Q tax credit, adds an enhanced credit for direct air capture (DAC) and lowers the carbon capture threshold requirements for certain facilities to benefit from the credit. Facilities meeting prevailing wage and registered apprenticeship requirements can qualify for bonus credits. This tax credit complements funding in the Bipartisan Infrastructure law for CCUS and DAC, $2.537 billion for the Carbon Capture Demonstration Projects Program, $937 million for Carbon Capture Large-Scale Pilot Programs and $3.5 billion for Regional Clean Direct Air Capture Hubs.[80]

UTILIZING SIGNIFICANT EMISSIONS WITH INNOVATIVE TECHNOLOGIES (USE IT) ACT

FAST-41 Coverage

In 2020, Congress established CCUS as a sector of "covered project" under FAST–41, so both CO_2 pipelines and CCUS projects are covered projects under FAST-41. Construction of infrastructure for carbon capture is a specific sector eligible for FAST-41 coverage even if the project is worth less than $200 million in economic investment. In this context, carbon capture infrastructure includes construction of any facility, technology or system that captures, utilizes or sequesters carbon dioxide emissions, including DAC projects. As described in depth above, AST-41 covered projects are subject to coordinated federal agency review and permitting supervised by the Permitting Council, which requires the establishment and execution of a coordinated project plan and project permitting timetable that is transparent and accountable to the project sponsor and the public through the Federal Permitting Dashboard.

CEQ Regional Task Forces

Under the USE IT Act, Congress directed CEQ to establish regional task forces to: (1) identify challenges and successes that permitting authorities, project developers and operators face to permit CCUS projects in an efficient, orderly and responsible manner; and (2) provide recommendations to improve the performance of the permitting process and regional coordination for the purpose of promoting the efficient, orderly and responsible development of CCUS projects and carbon dioxide pipelines. CEQ established two taskforces: one to address permitting and other challenges for CCUS projects on federal lands and the Outer Continental Shelf and another for permitting and other challenges for CCUS projects on non-federal lands.[81]

The duties of the task forces are to identify challenges; inventory federal and state approaches to facilitate reviews associated with the deployment of CCUS projects and carbon dioxide pipelines; identify gaps in the current federal and state regulatory framework and in existing data for the deployment of CCUS projects and carbon dioxide pipelines; identify priority carbon dioxide pipelines; improve permitting processes; identify priority carbon dioxide pipelines needed to enable efficient, orderly and responsible development of CCUS projects at increased scale; and facilitate regional coordination of CCUS projects and pipelines.[82]

80 The White House. *Building A Clean Energy Economy: A Guidebook to The Inflation Reduction Act's Investments In Clean Energy And Climate Action* (December 2022). https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf

81 On July 28, 2022, CEQ published two notices in the Federal Register requesting nominations for membership on the task forces. 87 Fed. Reg. 45304; 87 FR 45306 (July 28, 2022). CEQ published an additional notice on December 28, 2022, seeking additional members for the federal lands and the OCS. 87 Fed. Reg. 79876 (December 28, 2022).

82 The White House. *CEQ Announces Members of Task Forces to Inform Responsible Development and Deployment of Carbon Capture, Utilization, and Sequestration.* (March 24, 2023). https://www.whitehouse.gov/ceq/news-updates/2023/03/24/ceq-announces-members-of-task-forces-to-inform-responsible-development-and-deployment-of-carbon-capture-utilization-and-sequestration/

CEQ Carbon Capture, Utilization, and Sequestration Guidance

In accordance with the USE IT Act, CEQ also developed and requested comments on its Carbon Capture, Utilization, and Sequestration Guidance to assist federal agencies with the regulations and permitting of CCUS activities. Broadly, CEQ's guidance suggests that "agencies consider developing programmatic environmental reviews, including tiered documents or programmatic environmental impact statements under NEPA, or programmatic biological opinions under the ESA, where such analyses can facilitate more efficient and effective environmental reviews of multiple projects while maintaining strong community engagement."

CEQ recommended that the Permitting Council establish an appropriate facilitating agency for each general CCUS project category; develop recommended performance schedules for each category of CCUS project; and identify the environmental reviews and authorizations most commonly required to help facilitate timely reviews of such projects. Separately, agencies may also consider implementing memoranda of understanding to establish the process by which they will collaborate on anticipated CCUS projects and related activities."

CEQ recommended that agencies with oversight authority for CO_2 pipelines update regulations to address the deployment of CCUS technologies. In developing CCUS projects, CEQ encourages engagement of communities and Tribes in co-development of projects and approaches; protection of communities from pollution; and incorporation of environmental justice and equity concerns, particularly in communities already exposed to multiple pollution sources. CEQ's guidance also noted that agencies should collaborate on studies regarding the effect of carbon capture deployment on air quality in the U.S. Noting that CCUS consists of new technologies, CEQ stressed the importance of increased transparency to build public confidence in the emissions reductions associated with these projects and their durability. Specifically, CEQ recommended preparation of publicly available analyses, including life-cycle analyses and/or establishment of certification or standards for products. Finally, "because multiple Federal and State agencies will be responsible for planning and permitting priority pipeline pathways" under CIFIA (see above), and "in order to ensure that these actions are aligned with climate, economic and public health objectives, CEQ will convene the relevant agencies to assess opportunities for improvement in carbon dioxide permitting."

DEPARTMENT OF ENERGY

On May 17, 2023, DOE selected three projects for a total of $9 million in funding to perform detailed engineering design studies for regional CO_2 pipeline networks.

DEPARTMENT OF THE INTERIOR

In January 2021, the BLM released the ROD and approved resource management plans for the Wyoming Pipeline Corridor Initiative (WPCI),[83] designating almost 1,111 miles of pipeline corridors on BLM-administered public lands within the state of Wyoming across nine BLM field office areas. The WPCI corridors utilize existing corridors designated under section 368; collocate with existing infrastructure to minimize impacts across the landscape; and provide for a contiguous network of corridors for CO_2 and enhanced oil recovery across BLM lands within Wyoming. The corridors designated through the WPCI are reserved for pipelines that transport carbon dioxide and enhanced oil recovery products and for other compatible uses. The trunk corridors would be 300 feet wide and lateral corridors would be 200 feet wide.

83 The Wyoming Pipeline Corridor Initiative (WPCI) is a State of Wyoming-initiated proposal to develop a pipeline ROW network whose goal is to meet future carbon dioxide (CO_2) pipeline needs required for oil extraction.

An array of solar panels at a quarry near Byron CA. © *TNC*

Appendix B

Overview of key Federal authorities

Appendix B: Overview of key Federal authorities

FEDERAL LAND POLICY AND MANAGEMENT ACT

Under FLPMA, the BLM and USDA's USFS have the authority to issue ROWs for the development of solar and wind energy and electric transmission lines crossing their federal lands. A ROW grants the right and privilege to use a specific piece of land for a specified time and purpose. Per their discretion, BLM and the USFS can grant ROWs on any land in their jurisdiction, except: (1) when prohibited by statute, regulation or order specifically excluding rights-of-way; (2) the lands are specifically segregated or withdrawn from right-of-way uses; or (3) the area is identified in land use plans or in the analysis of an application as inappropriate for right-of-way uses. FLPMA requires BLM to develop land use plans or resource management plans, in partnership with state, local and Tribal governments and the public, to guide BLM's management of public lands and resolve inconsistencies between BLM's land use plans and local land use plans. Per the terms of FLPMA, BLM must manage lands for multiple uses and sustained yield.

Right-of-Ways for Solar and Wind Development on BLM Land

In 2016, BLM amended its FLPMA implementing regulations, creating a competitive leasing program for solar and wind development on public lands. The rule updated the application process, rents, fees, siting of projects and administration of the program. Under the new implementing regulations, BLM designated three categories of land for renewable energy development: excluded areas (where solar and wind energy development is prohibited), designated leasing areas (DLAs) (where energy development encouraged, as BLM has identified few or no likely resource conflicts) and variance areas (energy development is permitted, but the environmental review will be more complex than in designated leasing areas). ROWs granted competitively within DLAs are referred to as "leases" and ROWs granted noncompetitively or outside DLAs are referred to as "grants." BLM can offer lease or grant auctions on its own initiative or upon application by a developer.

To offer leases within DLAs, BLM uses a competitive bidding process and awards a lease to the winning applicant. After BLM awards the lease, the process under NEPA is expedited because the environmental analysis tiers from a PEIS.[84] Outside DLAs, BLM offers grants through competitive auctions or noncompetitive sales, depending on whether competition exists. BLM has not identified designated leasing areas for wind energy but has identified multiple solar designated leasing areas, including SEZs identified in the 2012 Solar Energy Development Programmatic Environmental Impact Statement, which details the potential direct, indirect and cumulative effects of establishing broad Solar Energy Program elements and strategies across the six-state study area.[85] This programmatic analysis considered potential environmental effects over a broad geographic and time horizon and, as a result, was fairly general. In addition to the programmatic analysis, the Solar PEIS contained a comprehensive environmental review of all the SEZs, including direct, indirect and cumulative impacts for each. The primary purpose of this more rigorous SEZ-specific analysis, which included in-depth data collection and environmental analysis, was to provide documentation from which the BLM could tier future project authorizations, thereby limiting the required scope and effort of project-specific NEPA analyses.[86]

On December 5, 2022, Secretary Haaland announced that BLM would develop an updated Solar PEIS. According to the NOI to prepare the new PEIS, technology advances, new resource information and shifts in energy market economics necessitated an updated assessment for renewable energy planning. In replacing the Solar Plan, the new and updated PEIS would, among other things, expand the study area to 11 western states (including Idaho, Montana, Nevada, Oregon and Washington), change exclusion criteria and land use allocations and potentially create a new definition to expand the meaning of utility-scale development. On January 19, 2024, the BLM offered its draft PEIS for public notice and comment.

84 In 2005, BLM published Wind Energy Programmatic Environmental Impact Statement, which explored the potential impacts of utility-scale wind generation in all Western states, except Alaska, identifying 20.6 million acres of public lands with wind energy development potential. The Wind PEIS and accompanying ROD established best management practices for wind development on BLM land. It has not been updated since 2005.

85 In 2012, BLM published a Solar PEIS that evaluated solar development on public lands in California, Nevada, Utah, Colorado, Arizona, and New Mexico, creating seventeen SEZs, which have now been expanded. Final Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States.

86 The detailed analyses are found both in the Draft Solar PEIS and in Volumes 2-5 of PEIS, which update the Affected Environment and Impact Assessment for the Proposed SEZs in the 6 states. The Final Solar PEIS was intended to be used in conjunction with the Draft Solar PEIS.

In its update to the Solar Plan, the BLM is considering modernizing the existing variance process. It is possible that changes to the process would mirror those already announced this year when BLM issued its IMs[87], which helped clarify and streamline the variance process.

The first IM was intended to accelerate decision-making for solar and wind energy development projects that have the greatest technical and financial feasibility and least anticipated natural and cultural resource conflicts to provide consistency and reduce workloads for BLM staff. The IM outlines procedures applicable to initial screening for ROW lease and grant applications and details how BLM officers are to prioritize the processing of each application.

The second IM identifies requirements for assessing applications for solar development on public lands allocated as variance areas under the Solar Plan. This IM clarifies that the procedures should apply only once an application has gone through the initial screening procedures in IM 2022-027. Once the initial screening has been completed, applications that are ranked either as high- or medium-priority would be eligible to move into the variance process. IM 2023-015 states that the variance process should take approximately six months. The process includes reviewing reasonably foreseeable effects of the project and consulting with federal, state, Tribal and local governments. The BLM may also consider whether the proposed project is likely to receive the required permits and authorizations of all other relevant jurisdictions to implement the project. If the BLM determines that the application is appropriate for continued processing, the application will be processed in compliance with NEPA and all other applicable laws, regulations and policies at the applicant's expense.

ROWs for Transmission on BLM Land

Under Title V of FLPMA, BLM can issue a ROW for electric transmission lines crossing BLM lands. Notably, as the developer is not granted a lease, BLM (and the United States) still retain substantial rights, including the right to use the land in question, authorize others to use the ROW for compatible uses, retain ownership of the resources of the land and change the terms and conditions of the ROW as required by changes in law or as necessary. In approving the ROW, BLM can also modify the proposed route and change the location or type of facilities. BLM can also include terms in the ROW that prohibit its use until BLM approves a POD and issued a Notice to Proceed. In holding a ROW, developers are required to pay rents to BLM.

USFS Special Use Authorizations

Developers seeking to build solar and wind energy projects and associated electric transmission lines on USFS lands require a "special use authorization" from the USFS. Permitted authorizations under the special use authorization program include ROWs for the generation, transmission and distribution of electric energy. Upon receipt of an application for a special use authorization, the authorized officer screens the application to ensure the proposed use is consistent with the laws, regulations, orders and policies establishing or governing NPS lands; that the proposed use is consistent with the standards and guidelines in the applicable forest land and resource management plan (RMP); that the proposed use will not create an exclusive or perpetual right of use or occupancy; and that other USFS initial screening concerns are satisfied. After the screening, a formal application is submitted and public comment is solicited. Authorizations issued under FLPMA must be consistent with the applicable land management plan, developed pursuant to the National Forest Management Act of 1976 (NFMA).

Despite granting a ROW to a developer, the United States retains the right to access all USFS lands, including a continuing right of physical entry to any authorized facilities and the right to require common use of the land or to authorize the use by others. Developers must pay an annual rental fee for the ROW. The USFS can suspend, revoke or terminate the ROW.

NATIONAL FOREST MANAGEMENT ACT

NFMA requires that the USFS prepare a comprehensive land and resource management plan for each NFS unit, known as a "forest plan." The forest plan guides management of the plan area by specifying objectives, standards and guidelines for activities and uses. The plans must be revised every 15 years to properly address changing conditions, management goals and public use. Public participation is required in the development, review and revision of land management plans.

The planning rules, which establish the procedures to develop, amend and revise forest plans, were last revised in 2012 and amended in 2016. The 2012 planning rule establishes an adaptive three-phase planning framework to emphasize ecological

87 Bureau of Land Management. Initial Screening and Prioritization for Solar and Wind Energy Applications and Nominations/Expressions of Interests. (2022). https://www.blm.gov/policy/im-2022-027; Bureau of Land Management. Variance Process for Solar Energy Applications. (2022). https://www.blm.gov/policy/im-2023-015

sustainability, landscape-scale restoration and science-based decisions informed by public values. Plans are to also account for potential impacts of climate change. Adaptive management is an integral component of the 2012 rule.

NFMA gives the government latitude to exchange national forest lands for lands owned by others. NFMA grants the Secretary of Agriculture broad authority to exchange national forest lands for lands which, "in his opinion, are chiefly valuable for the purposes of this Act" as long as "public interests will be benefitted," the lands offered will be of equal value to the lands conveyed and the Secretary complies with the statute's notice requirement.

NATIONAL PARK SERVICE ORGANIC ACT

The National Park Service Organic Act (Organic Act), as amended, requires that the NPS follow a dual mission to (1) "conserve the scenery, natural and historic objects, and wild life in the System units" and (2) "to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." NPS laws, regulations and policies emphasize the conservation of park resources in conservation and use conflicts. The 1978 Redwoods National Park Expansion Act amended the Organic Act to state that all park management activities shall be "conducted in light of the high public value and integrity of the NPS and not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress." The Organic Act does not clarify what constitutes "impairment" under its terms.[88]

Courts have held that the NPS has "has broad discretion in determining which avenues best achieve the Organic Act's mandate."[89] And the NPS, under the Organic Act, can promulgate regulations it deems "necessary or proper for the use and management of the parks." The NPS interprets the Organic Act through the development of National Park Service Management Policies.

Each park within the NPS, created by an individual act of Congress, is managed through its own legislation and management systems, recognizing that each park has unique goals and needs. Each park must be managed by the NPS according to the overarching goals of the Organic Act and the park's own policies.

NATIONAL WILDLIFE REFUGE SYSTEM ADMINISTRATION ACT

The National Wildlife Refuge System (NWRS) mission is established in the National Wildlife Refuge System Administration Act (Refuge Act), as amended. Under the Refuge Act, FWS manages the NWRS as a "dominant use" system dedicated primarily to wildlife conservation but tempered by a compatibility doctrine that permits a wide variety of secondary public uses that are deemed compatible with refuge purposes.

Under the Refuge Act, the Secretary of the Interior, acting through the FWS, may authorize numerous activities within a refuge. As part of their broad grant of authority from Congress, the Secretary may "permit the use of any area within the System for *any purpose*... whenever [they] determine that such uses are compatible with the major purposes for which such areas were established." Compatible uses are statutorily defined to include those that, in the Regional Director's opinion, will not "materially interfere with or detract from" the purposes of a refuge.

A decision to "initiate or permit a new use of a refuge or expand, renew or extend an existing use" requires a compatibility determination. For decades, refuge managers have relied on FWS guidance when approving new uses or activities in their refuges. If a proposed use does not "materially interfere" with refuge purposes, the refuge manager may find it compatible and allow the use.

New and expanded powerline rights-of-way are—and have been—an anticipated secondary use of wildlife refuges. The Refuge Act specifically lists powerlines among the uses that may be permitted in a refuge if found compatible. In addition, to implement this statutory authority, FWS has created rules that identify requirements for approving powerlines in refuges.

In addition, the Refuge Act authorizes the Secretary, acting through FWS, to "[a]cquire land... by exchange... for acquired lands or public lands... under his jurisdiction which [they] find to be suitable for disposition." Thus, the Secretary can acquire land outside the refuge system in exchange for land within the refuge system, provided they determine that the latter is "suitable for disposition." FWS must follow a detailed process before exchanging land, including appraisal, environmental review, title review and (depending on the value of the exchange) Congressional review.

88 *S. Utah Wilderness Alliance v. Dabney*, 222 F.3d 819, 826 (10th Cir. 2000) ("It is unclear from the statute itself what constitutes impairment, and how both the duration and severity of the impairment are to be evaluated or weighed against the other value of public use of the park.").
89 *Bicycle Trails Council of Marin v. Babbitt*, 82 F.3d 1445, 1454 (9th Cir. 1996).

WILDERNESS ACT

The Wilderness Act created the National Wilderness Preservation System, reserved to Congress the authority to designate wilderness areas and directed the Secretaries of Agriculture and of the Interior to review certain lands' potential wilderness designation. Under the Wilderness Act, "wilderness" is defined as an area of undeveloped federal land but the Act did not establish the criteria or standards to determine whether an area should be so designated. Wilderness areas are ultimately whatever areas Congress designates as wilderness, regardless of development status.

Under the Wilderness Act, commercial enterprises, permanent or temporary roads, motor vehicles and structures or installations are prohibited in wilderness areas. The Act makes an exception for "activities which are proper for realizing the recreational or other wilderness purposes of the areas," and for some specific commercial activities, including grazing.

As Congress designates wilderness through individual wilderness laws, many wilderness laws have allowed for nonconforming uses and conditions in the designated wilderness. For example, some wilderness laws have authorized the continued operation and maintenance of utility facilities and rights-of-way; other wilderness laws have directed continued energy development while others have withdrawn the wilderness from energy development.

GENERAL ANTIQUITIES ACT

The Antiquities Act authorizes the President to proclaim national monuments on federal lands that contain historic landmarks, historic and prehistoric structures or other objects of historic or scientific interest. The President is to reserve "the smallest area compatible with the proper care and management of the objects to be protected." In designating a monument, existing or future uses of the land may be prohibited or limited depending on the proclamation designating the land, agency policy or how an agency develops a management plan for the monument lands. Recent monument proclamations have included language to withdraw the lands within the monuments from entry, location, selection, sale, leasing or other disposition under public land laws, mining laws and mineral and geothermal leasing laws.

ELECTRIC TRANSMISSION INFRASTRUCTURE—PLANNING, PERMITTING AND ENVIRONMENTAL REVIEW

The federal government does not have general siting authority for transmission lines. States have primary authority over siting, permitting and review of electric transmission projects. Each state has different procedures to follow for approving a transmission line. Interstate lines must comply with the legal requirements of each state. Federal permits may be necessary for portions of some transmission lines, such as those that cross federal lands (e.g., BLM or National Forests, see above) or waters under jurisdiction of the USACE. Congress gave FERC backstop authority for siting transmission lines in areas designated by DOE to be in the national interest. In these cases, FERC can site transmission lines when state or local governments fail to take action or deny an application. To date, no transmission lines have been approved under this authority.

Energy Policy Act of 2005

EPAct 2005, enacted in response to rising energy prices and concern over dependence on foreign oil, was intended to address energy security, environmental quality and economic growth. In EPAct 2005, Congress added provisions addressing federal jurisdiction over and processes for siting electricity transmission.

EPAct 2005 encourages production of energy on federal lands, although it is primarily focused on oil and gas exploration on federal lands. It also provides for the establishment of energy corridors for oil, gas and hydrogen pipelines and electricity transmission and distribution facilities on federal lands.

SECTION 368 CORRIDORS

Section 368 of the EPAct 2005 required DOI, USDA, DOC, DOD and DOE—in consultation with FERC and Tribal entities—to work together to designate energy rights-of-way corridors for oil, gas and hydrogen pipelines and electricity transmission and distribution facilities on federal lands—first in 11 Western contiguous states (Section 368(a)) and later, if warranted, in the remaining states (Section 368(b)). As part of designating Section 368 corridors, the agencies are directed to perform required environmental reviews and incorporate designated corridors into relevant agency land use and resource management plans or equivalent plans. The goal is that designating agency-preferred siting locations will provide industry and the public with greater certainty in infrastructure planning and speed development of future energy infrastructure on federal land with the least impact. Section 368 also directs agencies to consider the

need for upgraded and new infrastructure to prioritize the improvement of reliability, relieve congestion and enhance the capability of the national grid to deliver energy.

DOI and USDA designated more than 6,000 miles of these corridors in 2009 for 11 Western states (otherwise known as West-wide Energy Corridors). Once a Section 368 energy corridor is designated, it is considered to be a preferable pathway for interstate energy transport until it is amended. While their use is voluntary, project developers and relevant federal agencies have, to varying extents, used portions of the Western energy transport corridors for projects since 2009.

Following a multi-year review of the originally designated corridors, on April 20, 2022, the BLM and the USFS published a final report that identified potential improvements to the corridors that balance the need for delivering clean energy with protecting America's lands, water and wildlife habitat.[90] The BLM conducted Regional Reviews as a part of this final report.

As preferred locations for energy transport projects on federally administered public lands, section 368 energy corridors are intended to facilitate long-distance movement of oil, gas or hydrogen via pipelines and transmission and distribution of high-voltage electric power. While project applicants are not required to locate projects in Section 368 energy corridors, applicants who choose to use them can take advantage of a more efficient application process that includes:

- Providing applicants with a clear set of actions required by each agency to build projects in designated corridors
- Providing siting options for compatible projects in designated corridors
- Coordinating corridor designations across agency administrative barriers
- Coordinating agency administrative processes within corridors
- Applying Interagency Operating Procedures that would assist in preparing and evaluating ROW applications
- A single federal point of contact for each ROW application
- Incorporation by reference from the PEIS for project-specific environmental review
- Focusing project planning data collection and project-specific engineering on issues specific to the proposed project and the associated within-corridor ROW and not on alternative locations

These benefits could expedite the application, authorization and construction of energy transport projects as directed by Section 368.

Section 1222

DOE further has the authority under Section 1222 of the Act to engage in or participate with other entities in designing, developing, constructing, operating, maintaining or owning (1) electric power transmission facilities and related facilities needed to upgrade existing transmission facilities owned by the Western Area Power Administration or Southwestern Area Power Administration, or (2) new electric power transmission facilities and related facilities located within any state in which either operates.

Federal Power Act

FERC regulates the transmission and sale of electric energy in interstate commerce under the FPA. The FPA gives FERC broad jurisdiction over "all facilities for such transmission or sale of electric energy" with some exceptions, including facilities used in local distribution or only for the transmission of electric energy in intrastate commerce and many matters subject to regulation by the States." A key focus of FERC regulation under its FPA Section 205 authority is ensuring the rates charged for transmission services are just and reasonable and not unduly discriminatory or preferential.

For many years, FERC has used its broad authority under the FPA to regulate utility transmission planning and interconnection processes and transmission rates. For example, FERC has used its authority under FPA section 205 and section 206 to implement transmission planning reforms intended to prevent undue discrimination that would make transmission rates unjust and unreasonable. In Order 888, FERC required transmission providers to offer open-access transmission service in accordance with an open-access transmission tariff. FERC established in Order No. 888 that "the Commission's power under the FPA 'clearly carries with it the responsibility to consider, in appropriate circumstances, the

90 West-wide Energy Corridor Information Center. *Regional Review Report*. (2022). https://corridoreis.anl.gov/regional-reviews/report/

anticompetitive effects of regulated aspects of interstate utility operations ..." therefore, it had broad legal authority under the mandates of the FPA and federal court precedent "to order the filing of non-discriminatory open access transmission tariffs if we find such order necessary as a remedy for undue discrimination or anticompetitive effects." Over the years, FERC has expanded this concept to further regulate transmission planning and interconnection processes and encourage formation of RTOs and ISOs.

Transmission Planning Reform

In Order 890, FERC required each transmission provider to have a coordinated, open and transparent regional transmission planning process. FERC again relied on the need to eliminate opportunities for undue discrimination, this time in the context of transmission planning. FERC found that "reforms are needed to ensure that transmission infrastructure is evaluated, and if needed, constructed on a nondiscriminatory basis and is otherwise sufficient to support reliable and economic service to all eligible customers," citing concerns for the "critical need for new transmission infrastructure," which largely remains the case today with the rapid development of offshore wind. FERC found that it was necessary to "ensure that the planning process .... is sufficient to prevent undue discrimination and transparent enough to detect any remaining instances of undue discrimination."

In Order No. 1000, FERC implemented further reforms intended to improve regional coordination of transmission planning among transmission providers. FERC concluded that these reforms "are necessary to address remaining deficiencies in transmission planning and cost allocation processes so that the transmission grid can better support wholesale power markets and thereby ensure that Commission-jurisdictional transmission services are provided at rates, terms and conditions that are just and reasonable and not unduly discriminatory or preferential."

The courts have upheld FERC's determination of its authority in Order No. 1000 over the objection of many stakeholders. Notably, the court rejected arguments that Order No. 1000 infringes on the states' traditional regulation of transmission planning, siting and construction.[91] The courts affirmed FERC's broader authority over transmission planning and noted that "because the planning mandate relates wholly to electricity transmission, as opposed to electricity sales, it involves a subject matter over which the Commission has relatively broader authority."[92] The courts also reasoned that "because the [Order No. 1000] planning mandate is directed at ensuring the proper functioning of the interconnected grid spanning state lines ... the mandate fits comfortably within Section 201(b)'s grant of jurisdiction over "the transmission of electric energy in interstate commerce."[93]

Some RTOs and ISOs have adopted innovative categories of transmission upgrades that result in regional cost allocations that consider a wider array of project benefits and beneficiaries. For example, the MISO's transmission planning process includes a category of transmission upgrades called "multivalue projects" (MVPs). MVPs are network upgrades that (1) reliably and economically enable regional public policy needs, (2) provide multiple types of regional economic value, and (3) provide a combination of regional reliability and economic values. If an MVP is selected to be included in the MISO transmission expansion plan, the cost of that MVP is allocated regionally rather than solely to customers in the zone where the project physically exists. This regional cost allocation allows for cost-sharing that has a positive impact on development.

Similarly, the PJM[94] has incorporated into its regional transmission expansion planning process (RTEP) a State Agreement Approach (SAA) intended to take a state's (or a group of states') policy goals into account in transmission planning. The SAA requires that, if a state or group of states selects a state public policy project, the costs associated with that project will be recovered from customers in those states. In early 2021, New Jersey became the first state in PJM to initiate an SAA agreement with PJM that addresses planning studies PJM will perform to identify system improvements to interconnect and provide for the deliverability of offshore wind capacity at certain interconnection points. The SAA thus assists PJM and states like New Jersey in implementing state public policies regarding procurement of renewable generation.

91 South Carolina Pub. Serv. Authority v. FERC, 762 F.3d 41, 62 (DC Cir 2014).
92 *Id.* at 63.
93 *Id.* at 63-64.
94 PJM a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia.

Interconnection Reform

FERC has used its authority under FPA Sections 205 and 206 to require that transmission providers incorporate *pro forma* interconnection procedures in their tariffs.[95] For example, in Order No. 2003, FERC adopted generator interconnection procedures and *pro forma* agreement for large generator interconnections finding that action "will reduce interconnection costs and time for Interconnection Customers and Transmission Providers; resolve most interconnection disputes; minimize opportunities for undue discrimination; foster increased development of economic generation; and improve system reliability." FERC extended these requirements to small generator interconnections in Order No. 2006.[96]

Currently, FERC policy generally requires a "first come first served" approach in which generator-interconnect requests are studied in an interconnection queue based primarily on application date. In some cases, transmission providers have adopted cluster windows that allow groups of projects to be studied together. This approach can result in great cost uncertainty, as the studies for one project assume that earlier queued projects have been placed in service, and as earlier queued projects drop out, cost allocation for necessary interconnection upgrades can skyrocket. This approach also engenders a first-mover problem for offshore wind, where the first project to seek interconnection to a particular region will shoulder more of the network upgrade costs than projects that come along later.

Developments in Transmission Planning and Generator Interconnection

Beginning in 2021, FERC signaled potential wide-reaching reforms to regional electric transmission planning, cost allocation and generator interconnection processes. In July 2021, FERC issued an ANOPR which examines whether existing approaches adequately account for the transmission needs of a changing resource mix.[97] The ANOPR probes a wide range of topics and appears likely to generate specific proposals for fundamental reform to grid planning. The ANOPR notes that there are presently limited resources at the regional transmission planning level "to proactively plan for the resource mix of the future, including both commercially established resources, such as onshore wind and solar, as well as emerging ones, such as offshore wind." In addition, FERC laid out its concerns with regional transmission planning processes and whether they are "sufficiently integrated with the generator interconnection processes" or too "overwhelmingly focused on relatively near-term transmission needs" to meet emerging energy resources like offshore wind. The ANOPR invited comments on transmission planning, generator interconnection and cost allocation.

In April 2022, FERC issued a NOPR on the topic, exploring wide-ranging reforms to the transmission planning processes and generator interconnection processes of transmission providers across the country. In the NOPR, FERC has proposed a variety of reforms designed to promote long-term regional transmission planning that anticipates changes in generating supply (such as the addition of large quantities of renewables) in the future and attempts to incentivize interregional planning and coordination. As part of these reforms, FERC has proposed new defined roles for relevant state entities within the transmission planning region regarding the cost allocation method or methods that will apply to transmission facilities selected in a regional transmission plan. The NOPR would also permit the exercise of federal rights of first refusal for regional transmission facilities establishing joint ownership of transmission facilities.

In June 2022, FERC issued another NOPR focused on the generator interconnection process. FERC proposed reforms intended to address interconnection queue backlogs, improve certainty and prevent undue discrimination for new technologies. The reforms are intended to ensure that the generator interconnection process is just and reasonable and not unduly discriminatory or preferential.

On May 13, 2024, FERC issued Order 1920, addressing regional transmission planning and cost allocation.

DOE-GDO Transmission Needs Study

In October 2023, the DOE-GDO issued its National Transmission Needs Study (DOE-GDO Needs Study) that identifies multiple transmission needs in every region of the country and suggests these needs could be met through greater interregional transmission development.

95 Standardization of Generator Interconnection Agreements and Procedures, Order No. 2003, 68 FR 49845 (August 19, 2003), FERC Stats. & Regs. ¶ 31,146 (2003) (Order No. 2003) (FERC noting that its authority to require these additions and changes to the OATT derives from its findings of undue discrimination in the interstate electric transmission market that formed the basis for Order No. 888. Order No. 2003 at P 4.).

96 Standardization of Small Generator Interconnection Agreements and Procedures, Order No. 2006, FERC Stats. & Regs. ¶ 31,180, order on reh'g, Order No. 2006-A, FERC Stats. & Regs. ¶ 31,196 (2005), order granting clarification, Order No. 2006-B, FERC Stats. & Regs. ¶ 31,221 (2006) (Order No. 2006).

97 Federal Energy Regulatory Commission. *Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection.* (July 15, 2021). 176 FERC ¶ 61,024.

The DOE-GDO Needs Study identifies multiple transmission needs—defined as the existence of present or expected electric transmission capacity constraints or congestion in a geographic area—across the country and notes a steady decline in transmission investment since 2015. While additional investment is needed in all regions across the country, according to the study, the Midwest and New England regions contributed the most eye-popping figures for what the study authors described as the most likely future scenario in light of recently enacted laws; the study reflects the need for new transmission deployment growth of 136 percent and 140 percent in those regions, respectively.

Many of the transmission needs identified in the study arise in connection with the effects of climate change and the need for increased resilience, including stresses to the grid from extreme heat and wildfires in the Southwest and Mountain regions and stronger winter storms in the Southeast and Midwest regions. The DOE-GDO Needs Study concludes that "interregional transmission investments will help improve system resilience by enabling access to diverse generation resources across different climatic zones, which is becoming increasingly important as climate change drives more frequent extreme weather events that damage the power system."

The transmission needs identified in the DOE-GDO Needs Study also reflect continued evolution of the generation mix away from coal and natural gas toward higher concentrations of renewables. The DOE-GDO Needs Study is intended to inform implementation of the DOE's Loan Programs and Transmission Infrastructure Program; future federal efforts such as the DOE's potential designation of National Interest Electric Transmission Corridors (NIETCs); and regional transmission planning.

Federal Power Act Section 216(a): FERC Backstop Transmission Permitting Authority

FERC has limited authority under the FPA to issue construction permits for transmission facilities. This permitting authority has traditionally resided with the individual states. Where a proposed transmission project must cross several state jurisdictions, this has posed a steep and sometimes insurmountable obstacle to getting needed transmission infrastructure built.

In 2005, Congress added Section 216 to the FPA to address this issue. FPA Section 216 directs the DOE to conduct a study of electric transmission congestion triennially in consultation with affected states and RTO/ISOs (see above draft DOE-GDO Needs Study). Based on these studies, DOE may designate "any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers" as a "national interest electric transmission corridor." Section 216 enumerated certain broad considerations DOE may consider in designating NIETCs, including that "the economic vitality and development of the corridor, or the end markets served by the corridor, may be constrained by lack of adequate or reasonably priced electricity."

Once DOE has designated NIETCs, Section 216(b) allows FERC to "issue one or more permits for the construction or modification of electric transmission facilities" within such corridors if it makes certain findings. First, it must find that a state in which the transmission facility is to be built either does not have authority or refuses to exercise authority to approve the project.

In addition, FERC must find that the facilities to be authorized by the permit will be used for the transmission of electric energy in interstate commerce; the proposed construction or modification is consistent with the public interest; the proposed construction or modification will significantly reduce transmission congestion in interstate commerce and protects or benefits consumers; the proposed construction or modification is consistent with sound national energy policy and will enhance energy independence; and the proposed modification will maximize, to the extent reasonable and economical, transmission capabilities.

As FERC's authority to issue a construction permit is limited to instances where a state's process is insufficient to allow a transmission project in a national interest electric transmission corridor to proceed, it is often called "backstop" permit authority. DOE acts as lead agency to coordinate all applicable federal authorizations, Tribal consultations and state agency review required to construct the permitted transmission line. Section 216 also grants the power of eminent domain to developers that receive a FERC construction permit under Section 216(b).

Early on, efforts by DOE and FERC to use the authority granted them under Section 216 stalled, and so far, no national interest electric transmission corridors have been established (nor any transmission projects built pursuant to a FERC construction permit). In 2007, DOE made two transmission corridor designations, both of which were successfully challenged on appeal to the Ninth Circuit Court. In *California Wilderness Coalition v. DOE*,[98] the Court found DOE failed

98 *Cal. Wilderness Coalition v. U.S. Dept. of Energy*, 631 F.3d 1072 (9th Cir. 2011).

to meet its statutory obligations in two areas. First, it failed to consult sufficiently with the affected states when developing its congestion study that led to the designation of the corridors. The Court concluded that DOE must disclose the data and technical information DOE relied upon to reach its study conclusions, and that DOE is required to engage with states for sufficient time to provide a "real opportunity for consultation."[99] Second, the court found that DOE failed to conduct an adequate environmental analysis under NEPA. DOE had not performed any NEPA analysis, reasoning that the designation of the transmission corridors did not have environmental impacts (only the actual transmission project siting decisions would have such impacts). The court's majority rejected this argument, finding that designating transmission corridors still "influence[s] the areas in which the transmission facilities will be located."[100] As such, the court directed DOE to take the "hard look" at environmental impacts of such designations required by NEPA by completing either an environmental assessment or environmental impact statement.

The scope of FERC's backstop permitting authority was also questioned by the courts early on, and FERC's recently expanded backstop siting authority under IIJA is untested. The Fourth Circuit Court of Appeals reviewed FERC's rulemaking adopting requirements for applications seeking transmission construction permits and adopted a very narrow reading of FERC's ability to act when a state commission has "withheld approval for more than one year after the filing of an application." FERC had interpreted the statutory language as allowing it to act when a state had denied a permit application as well as when a state had failed to act; the Fourth Circuit reversed, concluding that "[t]he word 'deny' is broad enough to include 'withhold' in its definition, but the world 'withhold' is not broad enough to include 'deny' in its definition."[101] This interpretation had chilled prospects for extensive use of FERC's backstop siting authority, but the IIJA clarified FERC's backstop siting authority and allows FERC to overrule state objections.

The IIJA, which became law in November 2021, revised FERC's FPA section 216 authority. In light of the court decisions described above, the IIJA provides that FERC can use its backstop permit authority where a state (1) has not made a determination on an application by the one-year date, (2) has conditioned its approval such that the proposed project will not significantly reduce transmission constraints or congestion or is not economically feasible, or (3) has denied an application. In addition, as a precondition to granting a developer eminent domain authority, FERC must determine the developer made good faith efforts to engage with landowners and other stakeholders early in the permitting process. The IIJA also expanded DOE's authority to designate national interest electric transmission corridors in areas currently experiencing or that are expected to experience transmission capacity constraints or congestion.

In December 2022, FERC issued a NOPR to update its regulations governing backstop siting authority for electric transmission projects. The proposed rule is intended to account for recent changes to section 216 of the FPA that stem from the IIJA. In the NOPR, FERC seeks to: 1) implement the new electric transmission siting authority it was granted in the IIJA; 2) establish processes that allow concurrent state and federal review of construction permits for new transmission lines; 3) implement a new landowner engagement process and require developers to meet certain conditions to protect landowners; 4) evaluate environmental justice issues in the siting process; and 5) update and revise FERC's NEPA regulations. Overall, the NOPR is designed to effectuate FERC's authority to supersede a state regulatory body's rejection of a proposed transmission project located in a national interest electric transmission corridor, allow simultaneous processing of state applications for siting authority and FERC prefiling proceedings and update FERC's NEPA regulations. The changes proposed in the NOPR could encourage the development of needed electric transmission infrastructure and support the build-out of electric transmission envisioned in the IIJA. This could support further development of multistate transmission lines needed to deliver significant wind and solar resources to market.

In May 2024, FERC issued Order 1977 addressing applications for permits to site interstate electric transmission facilities.

DOE NOI and RFI Regarding Designation of NIETCs

On May 9, 2023, DOE published a combined that proposes a new applicant-driven, route-specific process to designate NIETCs.

Areas designated as a NIETC enjoy certain permitting advantages and unlock funding opportunities for federal investment under the $2.5 billion Transmission Facilitation Program under the Infrastructure Investment and Jobs Act and the $2 billion Transmission Facility Financing Loan Program under the IRA. In addition, sponsors of projects in a designated

99 *Id.* at 1086.
100 *Id.* at 1098.
101 *Piedmont Env't Council v. FERC*, 558 F.3d 304, 313 (2009).

NIETC can apply to become FAST-41 covered projects, entitling them to permitting timetable management, interagency coordination, transparency and other benefits.

UNDERLYING STATUTORY AUTHORITY AND PROPOSED PROCESS

As noted above, section 216(a) FPA authorizes DOE to "designate as a [NIETC] any geographic area that (1) is experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers; or (2) is expected to experience such energy transmission capacity constraints or congestion."[102] Under the process proposed by DOE, applicants can apply for DOE to designate as a NIETC a specific route where one or more potential transmission projects could be sited.

The potential route must be within a geographic area where DOE has identified present or expected transmission capacity constraints or congestion that adversely impacts consumers. DOE is finalizing its Needs Study, anticipated to be released in late summer of 2023, which will catalog both historical and anticipated electric transmission needs and identify high-priority national transmission needs. As noted above, in February 2023, DOE released a draft of the Needs Study for public comment with a comment deadline of April 20, 2023. The results of the Needs Study will thus be a prerequisite to the designation of NIETCs.

DOE expects that proposed routes for NIETC designation may be associated with specific transmission projects under "active development," by which DOE means projects that have progressed beyond preliminary concept to active routing and community and landowner outreach activities. This will allow DOE to designate NIETC's that are "route-specific" and relatively narrow in geographic scope, potentially streamlining the environmental review process compared to broad NIETCs. DOE anticipates that applicants submitting routes for designation will have to demonstrate that their proposed route balances the need to ensure that the potential route is defined with sufficient specificity to allow for meaningful evaluation of the potential energy and environmental impacts of one or more transmission projects along that route, while also sufficient in size and scope to construct, maintain and safely operate one or more transmission projects in accordance with applicable regulatory requirements and reliability standards and accommodate routine route changes that often occur when siting and permitting infrastructure. Interested parties are invited to comment on the appropriate application requirements to achieve this balance.

DOE issued a proposed list of ten NIETCs in May 2024.

Section 216(h) of FPA

Under Section 216(h) of the FPA, Congress granted DOE authority to coordinate applicable federal authorizations and related environmental reviews for transmission projects. In 2009, pursuant to Section 216(h)(4)(C), nine federal agencies signed a memorandum of understanding to expedite the siting and construction of qualified onshore electric transmission infrastructure projects in the U.S.[103]

On June 7, 2013, President Obama issued a Presidential Memorandum—Transforming our Nation's Electric Grid through Improved Siting, Permitting, and Review—directing federal agencies to "develop an integrated, interagency pre-application process for significant onshore electric transmission projects requiring Federal approval."

INTEGRATED INTERAGENCY PRE-APPLICATION PROCESS (IIP PROCESS)

The IIP process published in regulations pursuant to section 216(h) on September 21, 2016, provides transmission project proponents a mechanism for early coordination and information sharing with federal permitting agencies and non-federal entities.

Under the final rule, the IIP process would apply to interstate "non-marine high voltage electric transmission line" projects that cross jurisdictions administered by more than one federal agency or where federal financial assistance would be provided. The proponent of such a project may, but is not obliged to, invoke the IIP process as established in the new regulations. While proponents of transmission line projects that do not meet these criteria may request that DOE invoke the IIP process, DOE is not required to do so.

To initiate the IIP process, the project proponent must submit an application that provides specific details on the project, including descriptions and maps, that (among other things) outline the project goals and impacts and identify

102 Further, DOE may consider additional factors in designating NIETCs including: (A) the economic vitality and development of the corridor, or the end markets served by the corridor, may be constrained by lack of adequate or reasonably priced electricity; (B) (i) economic growth in the corridor, or the end markets served.

103 Department of the Interior, Regarding Coordination in Federal Agency Review of Electric Transmission Facilities on Federal Land," (October 23, 2009).

known potential siting conflicts. This aspect of the IIP process requires the project proponent to make a significant "upfront" investment, and commenters have suggested that the rigor of the application could discourage proponents from using the voluntary IIP process. In response to this concern, DOE states that the burden should be minimal, as this information likely will be required as part of a NEPA review or at some other stage of the federal approval process for the project.

Once initiated, the IIP process involves two meetings: an initial meeting and a close-out meeting. In advance of the initial meeting, DOE will, based on its review of the information submitted by the project proponent, notify other federal agencies; state, local and multistate government entities; and Indian Tribes that DOE identifies "as potentially having an authorization or consultation responsibility or other relevant expertise related to the ... project." DOE has no ability to compel participation of any of these entities, raising concern from some commenters about the usefulness of the IIP process.

During the initial meeting, the project proponent describes the project, and the other participants have an opportunity to provide advice and ask questions to inform project siting to avoid, for example, environmental impacts, impacts to cultural and historical resources and conflicts with military installations. Following the initial meeting, the project proponent has an opportunity to update the materials and information and resubmit them as part of the close-out meeting request. At the close-out meeting, the agencies will identify "remaining issues of concern, ... information gaps or data needs, and potential issues or conflicts that could impact" processing time once the project proponent officially applies for the necessary project permits and approvals. Following the meeting, DOE prepares a "Final IIP Resources Report" to summarize and commemorate the process. The IIP process is intended for a project proponent who has identified potential study corridors and/or potential routes within an established project area and the proposed locations of any intermediate substations for a qualifying project. The IIP process is also intended to accommodate qualifying projects that have been selected in a regional electric transmission plan for purposes of cost allocation or a similar process where an electric transmission plan has been identified and the permitting and siting phase must commence. The IIP process is strictly voluntary, and the agency itself acknowledges "that a project proponent requesting DOE coordination assistance [will have] made the calculation that the request ... is in the best interests of the project proponent."

Pursuant to the IIP and provisions that allow project proponents to engage in early project information sharing and development of an applicant-prepared environmental assessment intended to inform any subsequent environmental review by federal agencies under the NEPA, DOE facilitates initial and close-out meetings.

2023 Memorandum of Understanding

On May 10, 2023, the administration released an update to the 2009 MOU. The 2023 MOU supersedes a 2009 MOU to expand efforts to ensure pre-construction coordination and provide updated direction to federal agencies in expediting the siting, permitting and construction of electric transmission infrastructure under section 216(h). The new MOU is not limited to projects sited on federal lands but would include projects for which federal financial assistance would be provided. DOE will establish prompt and binding intermediate milestones and ultimate deadlines for decisions on federal authorizations and related environmental reviews, including a final decision on all federal authorizations within two years of publishing a notice of intent to prepare an EIS or as soon as practicable. If the qualified project is not a "covered" project under FAST-41, DOE will post and manage project-specific schedules on the Federal Permitting Dashboard as a "Transparency Project." The signatory agencies also agree to proceed with their project authorization schedules according to the schedules established by DOE. Any disagreements will be elevated to the chair of CEQ and director of OMB. The secretary of DOE, FPISC executive director and other signatory agencies will consult to ensure the harmonization of section 216(h), FAST-41 and the MOU.

The MOU requires the Secretary of Energy to update DOE's regulations implementing section 216(h), including those establishing the IIP, within six months, to do the following:

- Make participation by applicants in the IIP process a precondition for a decision under the section 216(h) coordinated permitting process.
- Require applicants to submit applicant-prepared resource reports and public engagement plans for communities that would be affected by the proposed project.
- Require applicants to conduct robust engagement with all Tribes and communities that would be affected by the proposed project.

- Align and harmonize the IIP process and implementation of section 216(h) of the FPA with the process set forth in FAST-41, administered by FPISC.

FPISC and OMB are now signatories to the MOU, while FERC is no longer a party. Additional changes from the 2009 MOU include (1) a limitation that the MOU does not "apply to" the siting of any electric transmission facility within the boundaries of any unit of the NWRS, National Wilderness Preservation System, NPS or National Marine Sanctuary System and (2) at the discretion of the signatory agencies, the inclusion of offshore transmission projects that are authorized under section 8(p) of the Outer Continental Shelf Lands Act and that are independent of any generation project.

In May 2024, DOE finalized the CITAP Program, codifying the MOU into regulation.

State Agencies

State agencies and public service commissions have original authority to site and permit electric transmission infrastructure within state lines, and they continue to play an integral role in the development of offshore wind projects from the bidding phase to the construction of these facilities and transmission lines related to offshore wind projects. However, these agencies' processes are not well coordinated, though some of the PJM states have indicated a willingness to engage in collaborative planning processes and policy developments with RTOs/ISOs and other states.

NATIONAL ENVIRONMENTAL POLICY ACT AND TITLE 41 OF THE FAST ACT

This section provides an overview of NEPA and the central role it plays in renewable energy generation and transmission line development. Whether referred to as "environmental impact assessment" in the international context, "environmental review" under authorities of the FPISC or simply the "NEPA process," NEPA ensures all federal agencies consider the environmental effects of proposed federal actions before making final decisions on the proposal. Used as a framework for interagency coordination, environmental documents serve as the record-of-agency consideration of alternatives that could avoid a proposal's effects on the human environment; of mitigation measures that can reduce environmental effects; or of measures to compensate for effects that cannot be avoided. They also establish the basis for the agency's finding that a proposed activity would comply with applicable statutes and regulations. The evaluation of reasonably foreseeable effects, alternatives and mitigation measures that NEPA prescribes can minimize and sometimes eliminate conflicts over a proposal and is used as a basis for negotiation and conflict resolution.

NEPA Background

NEPA requires federal agencies to evaluate the reasonably foreseeable environmental effects of proposals for actions they would carry out, fund, permit or otherwise authorize.[104] Where a proposed federal action may significantly affect the quality of the human environment, the action agency must prepare a detailed EIS on the environmental impact of the proposed action, any adverse effects that cannot be avoided and alternatives to the proposed action, among other topics. For actions that are designed to avoid significant environmental impacts but are not categorically excluded from NEPA analysis, agencies will typically prepare a less-detailed EA to document their analysis of the reasonably foreseeable effects of the actions, alternatives and mitigation measures designed to ensure that the effects of the action are not significant.

Federal agencies have implemented NEPA for a half century, and the process continues to evolve. NEPA established the CEQ to advise agencies on the environmental decision-making process, review their NEPA implementation and coordinate development of federal environmental policy. CEQ has issued regulations defining the basic terms and steps in the NEPA process, to which the courts have afforded "substantial deference." In accordance with CEQ's regulatory framework, all federal agencies involved in the authorization of renewable energy projects or transmission lines have also promulgated their own regulations or procedures for adapting the NEPA process to their decision-making authorities.

104 Administrative decision issued by an agency that is required or authorized under Federal law in order to implement a proposed action." 42 C.F.R. 1508.1(c). See Title 41 of the FAST Act, 42 U.S.C. § 4730m(3) ("any license, permit, approval, finding, determination, or other administrative decision issued by an agency that is required or authorized under Federal law in order to site, construct, reconstruct, or commence operations of a covered project administered by a Federal agency or, in the case of a State that chooses to participate in the environmental review and authorization process in accordance with section 4370m–2(c)(3)(A) of this title, a State agency.").

In 2020, CEQ issued a comprehensive revision of its NEPA regulations. In 2021, CEQ began an equally comprehensive reconsideration of those revised regulations through a phased approach.[105] On April 20, 2022, CEQ issued its final Phase 1 rulemaking to amend the revised regulations. In its final Phase 1 rule, CEQ clarifies that "agencies can and should continue to apply their existing NEPA procedures, consistent with the CEQ regulations in effect, while CEQ completes its review of and revisions to the 2020 regulations in its Phase 2 rulemaking." Amongst other changes, the Phase 1 amendments restore the "purpose and need" regulation for an EIS back to the text that was in effect until the 2020 revisions. CEQ made clear that it had removed the requirement to consider an applicant's goals and agency's statutory authority from the purpose and need regulation, 40 CFR 1502.13, and the definition of reasonable alternatives, 40 CFR 1508.1(z), only because the language is "unnecessary and confusing." CEQ also finalized its definition of "effects" as including direct, indirect and cumulative effects. The final rule revises the definition of "effects" and "impacts" as "changes to the human environment from the proposed action or alternatives that are reasonably foreseeable."[106]

No agency has yet undertaken a comprehensive revision of its NEPA procedures to incorporate the changes made in the 2020 CEQ regulations. In April 2021, the Secretary of the Interior ordered the DOI bureaus to follow the 2020 CEQ regulations, DOI's own NEPA regulations and established policies and procedures. Where compliance with the 2020 CEQ regulations creates a conflict with DOI's NEPA regulations, the Secretarial Order directs bureaus to refer the conflict to DOI for resolution with CEQ. The following discussion of NEPA in the context of renewable energy and infrastructure projects is based on this current patchwork of old, new and evolving requirements. Recommendations for managing NEPA processes through this unsettled regulatory framework are addressed in the Permitting Section of this Report.

On April 30, 2024, CEQ released its final Phase 2 revisions to NEPA. The Phase 2 NEPA rule includes improvements to NEPA efficiency and flexibility; promotion of better environmental outcomes; restoration of certain longstanding definitions; direction on public engagement and agency coordination; clarification around mitigation and beneficial effects; and consideration of specific issues such as environmental justice and greenhouse gas emissions. The Phase 2 NEPA rule also retains certain provisions of the 2020 NEPA rule, including timelines and other elements of the One Federal Decision Policy.

NEPA Lead and Cooperating Agency Framework

NEPA review for renewable energy and infrastructure projects serves as the means for coordination of permitting under numerous federal and state laws and provides the analytical basis for decisions by cooperating agencies. Compliance with these federal laws may also occur in conjunction with reviews required under state "mini-NEPA" statutes such as the Massachusetts Environmental Policy Act, the New York State Environmental Quality Review Act and the California Environmental Quality Act. The federal and state agencies involved in implementing these authorities will typically participate in the lead agency's NEPA review as cooperating agencies.

The decision-making framework of coordinated lead or co-lead and cooperating agencies was established in CEQ's NEPA regulations as a means of ensuring that environmental analysis and documentation is developed efficiently (avoiding redundancy and delay) and consistently (providing a common base of facts and analysis). CEQ guidance has continually encouraged the participation of non-federal cooperating agencies through an EIS-specific MOU that spells out agency roles and responsibilities.[107] In the 2020 update to CEQ's NEPA regulations, these provisions for interagency coordination were expanded to provide for early involvement of states, Tribes and local agencies in the scoping and development of EISs that can serve as a common basis for decision-making by the federal government, states, Tribes and local agencies. CEQ also required development of and adherence to a schedule for the environmental review of—and any authorizations required for—a proposed action and resolution of disputes and other issues that may cause delays in the coordinated

105 *National Environmental Policy Act Implementing Regulations Revisions*. 86 Fed. Reg. 55757 (October 7, 2021). https://www.govinfo.gov/content/pkg/FR-2021-10-07/pdf/2021-21867.pdf. CEQ's proposed rulemaking addressed three modifications: (1) To eliminate language in the description of purpose and need for a proposed action when it is an agency's statutory duty to review applications for authorization (see 40 C.F.R. § 1502.13) and make a conforming edit to the definition of "reasonable alternatives" (see 40 C.F.R. § 1508.1(z)); (2) To remove limitations on agency NEPA procedures for implementing CEQ's NEPA regulations (see 40 C.F.R. § 1507.3); and (3) To return to the definition of "effects" in the prior longstanding NEPA regulations (see 40 C.F.R. § 1508.1(g)).

106 In response to comments, CEQ stated that agencies should treat cumulative effects under the final rule "in the same fashion as they treated cumulative impacts under the 1978 regulations." Id. at 23466. CEQ noted that some commenters requested CEQ issue guidance on analysis of effects, and some indicated that guidance might be more efficient than updating the regulations further in a Phase 2 rule. Id. CEQ is considering these comments in the development of its Phase 2 rulemaking and its guidance on assessing greenhouse gas emissions and climate change in environmental reviews.

107 Council on Environmental Quality. *Memorandum on Designation of Non-Federal Agencies as Cooperating Agencies*, (8/23/99). https://ceq.doe.gov/docs/ceq-regulations-and-guidance/regs/ceqcoop.pdf

schedule for analysis and decision-making. CEQ explained these regulatory modifications as intended to "improve the efficiency and outcomes of the NEPA process—including cost reduction, improved relationships and better outcomes that avoid litigation—by promoting environmental collaboration."

Title 41 of the FAST Act

Most major renewable energy and transmission infrastructure projects under federal jurisdiction will qualify for coverage under FAST-41, a program designed to facilitate the environmental review and authorization processes for large infrastructure projects. The environmental review and authorization processes of pending projects are tracked on the Permitting Dashboard, either at the initiative of the project proponent or by direction of Executive Order.[108] This section briefly discusses how FAST-41 changed permitting for large infrastructure projects, what it did *not* change and the expected effect of FAST-41 on the permitting process.

FAST-41 is a voluntary program designed to enhance coordination among federal agencies to ensure more timely and efficient project environmental reviews and authorizations. Only a "covered" project can elect to take advantage of the environmental coordination provisions in FAST-41. A FAST-41 "covered" project is any infrastructure project involving a total investment of over $200 million that is subject to NEPA analysis, authorization by more than one agency and in one of several infrastructure categories that include renewable energy production. Several renewable energy and transmission projects currently under federal permitting jurisdiction have initiated FAST-41 procedures as "covered" projects, and future projects should continue to qualify, assuming they exceed the $200 million threshold.

The FAST-41 environmental review framework is intended to provide better coordination, specific deadlines, increased transparency and more effective means for resolving interagency disputes. The statutory framework was further defined in a detailed joint guidance document to federal agencies issued by the OMB and CEQ on January 13, 2017. Importantly, FAST-41 did not substantively amend NEPA or any other federal environmental review law; the existing procedural and substantive requirements of those laws remain in effect. Nor did FAST-41 assume or guarantee project approval. Unless the authorities of FAST-41 are used by agency leadership, the environmental review process for major infrastructure projects remains as complex after passage of the FAST Act as it was before.

Key elements of the FAST-41 framework include:

- **Permitting Council.** The Permitting Council is an interagency council of Deputy Secretaries with responsibility for overseeing federal agencies' implementation of the FAST-41 process. The Executive Director is appointed by the President to serve as chair of the council and given specific responsibilities for maintaining project timelines and assisting in the resolution of interagency disputes. The Director of OMB and Chair of CEQ are also members of the council and are authorized to provide guidance and resolve interagency disputes.
- **Chief Environmental Review and Permitting Officers**. Each federal agency with a role in approving infrastructure projects is required to designate one or more Chief Environmental Review and Permitting Officers (CERPOs). CERPOs report directly to the Deputy Secretary on all matters related to environmental reviews and authorizations, providing accountability for agency performance by giving a specific individual responsibility for overseeing an agency's compliance with FAST-41.
- **Permitting Dashboard**. The Permitting Dashboard is an online database to track the status of federal environmental reviews and authorizations for any covered project. The Executive Director must maintain an entry on the Dashboard of all federal infrastructure projects that are subject to FAST-41 requirements and are actively undergoing an environmental review process.
- **Coordinated Project Plan**. Within 60 days of a covered project's entry on the Dashboard, the lead agency must establish a concise plan for coordinating public and agency participation in, and completion of, any required federal environmental review and authorization for the project. The plan must include a permitting timetable with intermediate and final completion dates for action by each participating agency on any federal environmental review or authorization required for the project. The lead agency is charged with developing the permitting timetable in consultation with each cooperating and participating agency, the project sponsor, any state in which the project is located and with the concurrence of each cooperating agency (subject to dispute resolution by OMB and CEQ). Subsequent modifications of the permitting timetable are allowed by agreement with affected cooperating agencies and, if the modification would extend the final completion date by more than 30 days, by the Permitting Council executive director.

108 Federal Infrastructure Project Permitting Dashboard. https://www.permits.performance.gov/

- **MOU**. To the maximum extent practicable, the lead federal agency must coordinate the federal environmental review and authorization processes with any state, local or Tribal agency responsible for conducting any separate review or authorization of the covered project and post on the Dashboard its coordination plan with the state, local and Tribal agencies in the form of a MOU.
- **Limitation on Claims**. Any claim for judicial review of an authorization issued by a federal agency for a covered project must be brought within two years after the publication of a notice of the final record of decision. NEPA claims must be filed by a party that submitted a comment during the environmental review, and the comments must have been "sufficiently detailed comment[s] so as to put the lead agency on notice of the issue on which the party seeks judicial review, or the lead agency did not provide a reasonable opportunity for such a comment on that issue."

The IIJA, which became law in November 2021, made FAST-41 permanent law. Meeting the permitting milestones has been challenging for projects involving complex environmental issues or strong disagreements among agencies. However, the IIJA envisions even more aggressive timelines, as follows. Under the IIJA amendments, the Permitting Council must develop performance schedules that do not exceed two years "to the maximum extent practicable, and consistent with applicable federal law." The relevant agencies and Permitting Council must provide an explanation if a recommended performance schedule exceeds two years. Federal agencies must, "to the maximum extent practicable," issue a record of decision within 90 days of issuance of a final environmental impact statement.

Previously, the lead or facilitating agency had 45 days (after the deadline for posting a project on the Permitting Dashboard) to identify all federal and non-federal agencies likely to have financing, environmental review, authorization or other responsibilities with respect to the proposed project and to identify and invite federal agencies to become participating or cooperating agencies. Under the IIJA, this timeframe is shortened to 21 days, and potential participating and cooperating agencies will be required to respond within 14 days of receiving the invitation.

One Federal Decision policy is codified to require preparation of a single, joint interagency environmental impact statement unless the lead agency provides justification in the coordinated project plan that multiple environmental documents are more efficient.

Lastly, the IIJA amendments make the process of amending a permitting timetable more onerous. A permitting timetable may be modified only after the lead agency consults with the executive director of the Permitting Council, which must occur at least 15 days before the lead or facilitating agency and affected cooperating agencies engage in consultation with the participating agencies and the project sponsor to agree upon a different completion date.

NATIONAL HISTORIC PRESERVATION ACT

The NHPA recognizes the national interest in the preservation of historic properties and directs federal agencies to assume responsibility for the preservation of historic properties owned or controlled by the agency or that are potentially affected by agency actions. The NHPA established the National Register of Historic Places, which is maintained by the DOI and includes districts, sites, buildings, structures and objects that are noteworthy in American history, architecture, archeology and culture of national, state or local significance. The NHPA also provides funding for states and Tribes to establish historic preservation programs.

Under NHPA Section 106, federal agencies must consider the effects of their undertakings on historic properties and resources, including on the OCS. The Section 106 process is detailed in regulations established by the Advisory Council on Historic Preservation (ACHP), an independent federal agency established under the NHPA. Section 106 requires federal agencies to identify and assess the effects of their actions on historic properties that are listed, or eligible for listing, in the National Register of Historic Places.

In determining whether there are adverse effects on historic resources, agencies must consult with the relevant State Historic Preservation Officer, Tribal Historic Preservation Officer or the Tribe itself, Native Hawaiian organizations and other parties, including the ACHP, local governments, and members of the public. Agencies must acknowledge that Tribes and Native Hawaiian organizations possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance to them. Adverse effects can include physical disturbance and noise or visual impacts. The Section 106 process can be coordinated with other required reviews, and an agency can substitute review under NEPA for the Section 106 process through procedures specified in the ACHP regulations.

If a federal agency determines that an undertaking will have adverse effects on historic properties, the agency must attempt to resolve the adverse effects through additional consultation with the relevant parties. If agreement between the consulting parties is reached, a Memorandum of Agreement or Programmatic Agreement establishes binding terms and conditions on the federal undertaking that will avoid, minimize or mitigate the adverse effects on historic properties. Essential elements may include a commitment by the parties to compliance with Section 106 and related authorities; identification of specific individuals tasked with reviewing and acting on information defined as necessary for consultation; and an indicative schedule based on an expected date of the relevant decision that would serve as a guide to the resources and timing necessary to conduct consultation throughout the permitting process. Such agreements are non-exclusive and public, allowing government agencies and stakeholders to assess the degree of support for a project proposal and the timing and resources necessary to conduct the environmental review and authorization process. If no agreement can be reached, the federal agency must consider the comments of the ACHP in making a final decision regarding the undertaking.

Consultation With Federally Recognized Tribes

Various authorities require federal agencies to consult with affected Tribes in the development of renewable energy and transmission infrastructure. Federal agencies must consult with Tribes regarding impacts to cultural resources and other historic properties under the NHPA as mentioned above. More generally, Executive Order 13175 directs all federal agencies to consult with Tribes regarding actions and policies that affect Tribal interests.

Consultation with DOI agencies is subject to the DOI's policies on Tribal consultation.[109] Secretarial Order No. 3317 requires DOI agencies to develop and participate in meaningful consultation with federally recognized Tribes where a Tribal implication may arise. More than simply the opportunity to participate in public comment periods, Tribal consultation is carried out on a government-to-government basis and is intended to be a meaningful dialogue. These consultation requirements afford affected Tribes the opportunity to ensure that Tribal views are fully considered and incorporated into decision-making processes.

ENDANGERED SPECIES ACT

Before approving a project, the lead agency must consult with the National Marine Fisheries Service (NMFS) and FWS ('Services'), depending on the project, to determine whether a project will comply with the ESA at all phases. Past examples make clear that no two projects are alike, and the extent of review and mitigation required under the ESA depends on the potential harm a project may cause to threatened and endangered species or critical habitat within the action area.

Background

The ESA was enacted in 1973 to protect and conserve endangered and threatened fish, wildlife and plant species and their habitats. NMFS administers ESA Section 7 consultations for marine and anadromous species, while FWS administers consultations for select pelagic, terrestrial and freshwater species. It is unlikely that a terrestrial wind, solar or transmission project would need to consult with both Services. The FWS has issued guidance for land-based wind energy development.[110]

The sections of the ESA relevant to renewable energy and transmission development include Sections 7 and 9. Section 7—Interagency Cooperation—requires federal agencies to ensure that any action they authorize, fund or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Section 9—Prohibited Acts—prohibits the taking of endangered species. However, under Section 7(o)(2), the action agency and project proponents are exempt from the Section 9 taking prohibition as long as they demonstrate clear compliance with the implementing terms and conditions of the Services' incidental-take statement.

109 Department of the Interior. Departmental Manual, 512 DM 5, Procedures for Consultation with Indian Tribes. (November 9, 2015). https://www.doi.gov/sites/doi.gov/files/512-dm-5-procedures-for-consultation-with-indian-tribes.pdf

110 U.S. Fish and Wildlife Service. Land-Based Wind Energy Guidelines OMB. (March 23, 2012). https://www.fws.gov/ecological-services/es-library/pdfs/WEG_final.pdf

Section 7 Consultation

The ESA process starts with informal consultation between the lead agency and the Services to determine whether formal consultation or a conference is required. This process can occur both during the identification and assessment of project areas. Once a lease has been issued and the lessee submits an application or plan of development to the lead agency for approval, the lead agency initiates project-specific consultation with the Services. The purpose of informal consultation is to allow the agencies to discuss modifications to the project that might eliminate the need for formal consultation by avoiding, minimizing or offsetting the potential negative impacts of the project. The result of informal consultation is a BA, which evaluates the proposed project and potential effects on listed species and critical habitat. The project developer may be required to conduct additional studies prior to completion of the BA, which can be both time- and cost-intensive. Project applicants often play a direct role during informal consultation when assigned the status of a designated nonfederal representative. If the lead agency determines in the BA that its project "may affect but is not likely to adversely affect" any listed species or critical habitat, and the Services concur with that determination, the consultation is terminated, and no further action is required under Section 7. The Services will issue a Letter of Concurrence (LOC), which includes any conditions to which the lead agency agreed are necessary to avoid adverse effects. Any action that qualifies for a "not likely to adversely affect" determination is consistent with the ESA duty to avoid jeopardy to listed species and adverse modification of critical habitat.

If the BA concludes that the proposed action may adversely affect a listed species or critical habitat, formal consultation is required. Formal consultation results in a BO that states whether the proposed action will jeopardize the continued existence of listed species or adversely modify critical habitat.

Incidental Take Statement

BOs typically include an incidental take statement (ITS).[111] The ITS expresses the amount or extent of anticipated "take"[112] (e.g., death, injury, harm or harassment) of listed species caused by the proposed action and provides an exemption from the Section 9 prohibitions on such take. The ITS's terms and conditions are non-discretionary. Thus, if incidental take is anticipated, the action agency and project proponent must comply with the reasonable and prudent measures and implementing terms and conditions in the ITS to avoid potential liability for incidental take.

Once the Services issue a BO and ITS, the lead agency is required to determine "whether and in what manner to proceed with the action in light of its Section 7 obligations and the Services' biological opinion." 50 C.F.R. § 402.15. Although the BO is not binding on the action agency, it is afforded substantial deference by any reviewing court. Failure to explain in the administrative record how the agency addressed the BO could expose the agencies to a judicial challenge under both the ESA and the Administrative Procedure Act. Further, the protective coverage of Section 7(o)(2) lapses if the action agency and project proponent fail to implement the terms and conditions of the ITS.

MIGRATORY BIRD TREATY ACT

In addition to having a potential impact on protected wildlife, renewable energy and infrastructure development may impact birds that migrate through or live in project areas. When siting and scoping project locations, developers should consider the risks associated with the MBTA and associated regulations.

Congress enacted the MBTA in 1918 to implement the 1916 Convention between the U.S. and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the U.S. and Mexico, the U.S. and Japan and the U.S. and the Soviet Union (now Russia).[113] The MBTA prohibits the taking or killing of over 1,000 species of migratory birds or any action that causes death to a protected bird species. Specifically, the MBTA makes it a crime to "pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess ... any migratory bird ... or any part, nest, or egg of any such bird." The MBTA primarily protects the bird species and families listed in the treaties that it implements.[114]

Unlike the ESA, which explicitly prohibits the intentional and incidental taking of listed species, neither the MBTA nor its legislative history directly addresses whether it was intended to prohibit the incidental take of migratory birds in addition to intentional take of those birds (e.g., hunting). FWS regulations establish permits for various purposes such as import and export and scientific collection, but there is no permit that authorizes the unintentional taking of birds by a wind turbine, solar panel or other industrial activity.

111 ITS are not issued for ESA-listed plant species.
112 "Take" means "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."16 U.S.C. § 1532(19).
113 The MBTA implemented four treaties between the U.S. and Canada in 1916; Mexico in 1936, Japan in 1972; and Russia in 1976 to ensure the sustainability of and protection of migratory bird species.
114 See 50 C.F.R. § 10.13 (includes a list of bird species covered under the MBTA).

The scope of "incidentally" taking migratory birds

In recent years, the MBTA has been subject to changing regulations regarding its applicability to incidental take by industrial sources. Federal courts have been split on this issue and regulations promulgated by FWS have been in flux.

In January 2017, during the final days of the Obama administration, the DOI issued a memorandum concluding that the MBTA applied to both intentional and incidental take. In December 2017, the DOI issued another memorandum stating that the MBTA excluded criminal penalties against companies and individuals who incidentally take migratory birds through fossil fuel production and renewable energy generation. The December 2017 memorandum was codified in a final rule published on January 7, 2021.

On October 4, 2021, FWS published a final rule, revoking the January 2021 final rule, which again states that the MBTA applies to the incidental take of birds by industrial sources. FWS based its reasoning on past agency decisions and a recent federal court decision that reversed the December 2017 legal interpretation, prompting further review of the scope of the MBTA and incidental takings of migratory birds.[115] Further, on October 4, 2021, FWS published an advance notice of proposed rulemaking and notice of intent to propose regulations to authorize the incidental take of migratory birds under prescribed conditions and prepare a draft environmental review pursuant to NEPA.

Developers are advised to review the latest guidance throughout the permitting process. FWS has developed several guidelines pertaining to the take of birds, but compliance does not shield a developer from liability under the MBTA.

The Land-Based Wind Energy Guidelines were developed by FWS in conjunction with the Wind Turbine Guidelines Advisory Committee to provide a process for wind energy developers and federal, state and local agencies to address wildlife conservation concerns at all stages of land-based wind energy development. The guidelines use a "tiered approach" that involves "an iterative decision-making process for collecting information in increasing detail; quantifying the possible risks of proposed wind energy projects to species of concern and their habitats; and evaluating those risks to make siting, construction, and operation decisions."

The Avian Protection Plan Guidelines were jointly developed by the Avian Power Line Interaction Committee and FWS to help utilities develop avian protection plans—a utility-specific document that outlines a program to reduce the operational and avian risks that result from avian interactions with power lines. The voluntary guidelines serve as a reference point from which utilities can pull to tailor their avian protection plans to increase conservation of avian species, decrease avian-caused outages and reduce the risk of enforcement under the MBTA.

When bringing enforcement actions, the government will typically consider whether companies have made "good faith efforts" to avoid impacts on migratory birds.[116] FWS has not given any indication that it intends to implement an incidental-take system like the one under the ESA.

Several agencies, including DOE, BLM and USDA, have entered MOUs with FWS to promote the conservation of migratory birds. The MOUs generally focus on the management of migratory birds and their habitats and ways to strengthen conservation efforts.

BALD AND GOLDEN EAGLE PROTECTION ACT

The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles including their parts, nests or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Regulations further define "disturb" as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." In addition to immediate impacts, this definition also covers effects that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding or sheltering habits, and causes injury, death or nest abandonment.

115 *Natural Res. Def. Council v. U.S. Dep't of the Interior*, 478 F. Supp. 3d 469 (S.D.N.Y. 2020) (holding that the MBTA's plain language encompasses the incidental killing of migratory birds).

116 Adam Vann, *Wind Energy: Offshore Permitting*, (U.S. Congressional Research Service, R40175, 2021), p 11.

In September 2022, the FWS proposed authorizing the issuance of a general permit for qualifying wind-energy generation projects and power line infrastructure. FWS proposed this change as the permitting regime authorizing only specific permits was perceived as too administratively burdensome and creation of a general permit could encourage broader participation in the permitting program; it is likely that there has been unauthorized take of bald and golden eagles without any mitigating conservation. The new rule created (1) separate specific and general permits for incidental take; (2) activity-specific eligibility criteria and permit requirements; (3) new monitoring requirements; and (4) compensatory mitigation, among other changes.

Under the general permit for incidental take for wind energy generation projects, FWS restrictions require the wind energy generation project be in areas with relative abundance values for bald and golden eagles, placed greater than 660 feet from bald eagle nests and greater than two miles from golden eagle nests, with no more than four eagle mortalities of either species at the site. Under the proposed general permit for incidental take for power lines, FWS require that all poles are electrocution-safe, including the development of a reactive retrofit strategy for lines when an eagle electrocution is discovered and implementation of a proactive retrofit strategy to convert all existing infrastructure to electrocution-safe; require consideration of eagle nesting, foraging and roosting areas in siting and design; require implementation of an eagle collision response strategy; and require adequate training of personnel. FWS also established a general permit for disturbance of bald eagle nests (not golden eagle nests) for linear infrastructure construction taken near bald eagle nests.

CLEAN WATER ACT AND RIVERS AND HARBORS ACT

USACE issues permits under Section 404 of the CWA authorizing the discharge of dredged or fill material into waters of the U.S.[117] The Corps also regulates potential obstructions to or alterations of navigable waters of the U.S. pursuant to Section 10 of the Rivers and Harbors Act. Based on these approvals, USACE often participates as a cooperating agency in NEPA review of project-specific approvals.

EPA has authority over proposed USACE permits under Section 404 and has other authorities under the CWA, including section 402, which is also known as the National Pollutant Discharge Elimination System (NPDES). States also have CWA permitting authority under section 401.

State Water Quality Certifications Section 401

Prior to obtaining a CWA Section 404 or Rivers and Harbors Act Section 10 permit for a project, a developer must first obtain a water quality certification under CWA Section 401 for any activities that may result in a discharge to waters of the U.S.[118] The State or Tribe from where the discharge would originate has the primary responsibility for verifying compliance with water quality requirements.[119] The agency approving the project must provide public notice and the opportunity for comment and may add conditions to the certification that must be incorporated into the final federal license.

Applications for state water quality permits are often processed at the same time as the 401 certification since projects that are approved under state standards are also often sufficient to meet 401 water quality standards.[120] Because 401 permit applications are approved by states and Tribes, evaluation criteria are state-specific and waterbody-specific.

CWA Section 404 and Rivers and Harbors Act Section 10

Section 10 requires a permit for activities that involve construction in or over waters of the U.S. It prohibits the unlawful excavation, modification or filling of waters of the USACE will typically adjudicate a Section 10 permit simultaneously with a developer's permit under Section 404 of the CWA. A CWA section 404 permit is required for activities that involve the "discharge of dredged or fill material" into waters of the U.S. USACE has primary permitting authority but jointly runs the section 404 permitting program with EPA. USACE administers the permits and enforces permit provisions, while EPA interprets policies, determines the scope of exemptions and comments on individual applications.[121]

117 The term "waters of the United States" refers to waters that are navigable in fact or waters with a "significant nexus" to navigable waters. Environmental Protection Agency. *About Waters of the United States*. https://www.epa.gov/nwpr/about-waters-united-states. 33 U.S.C. § 1344.

118 Environmental Protection Agency. *Overview of CWA Section 401 Certification*. https://www.epa.gov/cwa-401/basic-information-cwa-section-401-certification. 33 U.S.C. § 1341.

119 Environmental protection Agency. *Overview of CWA Section 401 Certification*. https://www.epa.gov/cwa-401/basic-information-cwa-section-401-certification

120 See, e.g., Jeff Thaler, *Permitting and Leasing for Main Offshore Wind Energy Projects: Offshore Wind Energy Project Roadmap* (January 2013), 17. https://e2tech.org/Resources/Documents/MOWII_Offshore_Wind_Roadmap_JAN2013.pdf

121 Environmental Protection Agency, *Permit Program under CWA Section 404*. https://www.epa.gov/cwa-404/permit-program-under-cwa-section-404

The Rivers and Harbors Act and CWA have different geographical reaches, and only one permit may apply depending on where the project is sited. CWA jurisdiction extends to waters of the U.S. plus "territorial seas." The USACE jurisdiction ends three miles offshore for the purposes of Section 404.[122] The USACE jurisdiction under the Rivers and Harbors Act is generally limited to navigable waters of the U.S. up to three miles off the coast.

The Corps follows its general policies for evaluating permit applications when conducting review for both Section 404 and Section 10 permits. During its public interest review, the Corps considers the "probable impacts, including the cumulative impacts" of the activity on the public interest. The general criteria considered for every application are: (1) the relative extent of the public and private needs for the proposed structure or work; (2) where there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work; and (3) the extent and permanence of the beneficial and/or detrimental effects that the proposed structure or work is likely to have on the public and private uses to which the area is suited.

In addition, the USACE will evaluate project-specific impacts on factors including conservation, economics and aesthetics. The USACE will also account for where the applicant has implemented mitigation measures to minimize adverse project impacts and whether the applicant has complied with other related laws.

When evaluating Section 404 permits, under Section 404(b)(1) guidelines, the USACE must determine that the proposed discharge is the least environmentally damaging practicable alternative; will not violate any state or federal laws; and will not result in a "significant degradation of the waters of the U.S." In addition, no discharge of dredge or fill material is permitted unless all "appropriate and practicable steps" have been taken to minimize the impact of the project. The USACE also investigates the project's potential impacts on the aquatic ecosystem, special aquatic sites and human use characteristics. With respect to aquatic ecosystems, the USACE evaluates the project's impact on the physical, chemical and biological characteristics of the disturbed area.

State Permitting Approval

States may also seek federal approval to issue their own section 404 permits under the CWA. To administer its own individual and general permit program, the governor of the state must submit a description of the program and a statement from the state's attorney general stating that it has the authority to issue permits under state law. Once approved, the state can administer individual permits evaluated under CWA guidance. For example, New Jersey operates its State Freshwater Wetland Protection Act program in place of the federal 404 program for discharges to wetlands or covered waters within its jurisdiction.[123] Unless operating in non-delegable waters, such as rivers used for interstate commerce, applicants need only obtain approval under the state program. Currently, only Michigan, New Jersey and Florida have assumed section 404 permitting authority.[124]

States and localities can also develop their own regional general permits for activities within their coastal zones.[125]

National Pollution Discharge Elimination System Permits Section 402

Projects may be required to obtain a NPDES permit under section 402 of the CWA from EPA or the applicable state for any covered discharges, commonly associated with construction and operations. The NPDES permit program regulates the discharge of pollutants from a point source to waters of the U.S. NPDES permits specify the acceptable amount of pollutants a polluter may discharge and the "best management practices" for achieving those levels.[126] Under the CWA, the definition of "pollutants" covered by NPDES is very broad and includes "any type of industrial, municipal and agricultural waste discharged into water."[127]

122 Jurisdiction, Army Corps. of Engineers. https://www.nwp.usace.army.mil/Missions/Regulatory/Jurisdiction/
123 The United States Environmental Protection Agency and its relationship with the New Jersey Department of Environmental Protection & The Division of Land Use Regulation. https://www.nj.gov/dep/landuse/lu_epa.html#:~:text=1251%20et%20seq.)%2C%20passed,in%20place%20of%20the%20Federal
124 Environmental Protection Agency. U.S. Interactive Map of State and Tribal Assumption under CWA Section 404. https://www.epa.gov/cwa404g/us-interactive-map-state-and-tribal-assumption-under-cwa-section-404
125 Army Corps of Engineers. Obtain a Permit. https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Obtain-a-Permit/
126 Environmental Protection Agency. NPDES Permit Basics. https://www.epa.gov/npdes/npdes-permit-basics
127 Environmental Protection Agency. NPDES Permit Basics. https://www.epa.gov/npdes/npdes-permit-basics

Like other CWA permits, there are individual and general permits available, and the public is invited to participate in the permitting process. Individual permits are issued to a single discharger after the evaluation of site-specific conditions. General permits are issued to a group of dischargers with similar operations and types of discharges.[128] Although EPA has the primary permitting authority for NPDES, all coastal states except for New Hampshire and Massachusetts have obtained authorization from EPA to issue their own NPDES permits for discharges into state waters. The application form and approval process will differ depending on the proper permitting authority for the project. Regardless, Section 402 requires that the public be notified of any applications and provided the opportunity to comment.[129]

DEPARTMENT OF DEFENSE AND FEDERAL AVIATION ADMINISTRATION INVOLVEMENT

The DOD and Federal Aviation Administration (FAA) are not permitting agencies but nonetheless can play a key role in the siting process for energy and infrastructure projects. Through the Obstruction Evaluation/Airport Airspace Analysis program and Military Aviation and Installation Assurance Siting Clearinghouse, FAA and DOD assess the compatibility of projects with military assets and aviation activities. DOD also participates in renewable energy task forces, which are key forums for identifying suitable areas for renewable energy development.

FAA Air Hazard Determination

The FAA is required to assess all structures that "may result in an obstruction of the navigable airspace" or interfere with navigation equipment or military operations. This review is conducted under the Obstruction Evaluation/Airport Airspace Analysis program, which requires FAA notification for all projects higher than 200 feet above ground regardless of location and structures near airport runways or approach paths. Structures higher than 499 feet above ground level, structures that interfere with radar or lower structures near airports are presumed to be hazards to air navigation.[130] If the project is likely to present a hazard, the project proponent or FAA may initiate an aeronautical study to assess whether the project will have an adverse impact on aviation. Applications must be submitted to FAA at least 45 days prior to construction.

Although FAA Air Hazard Determinations have "no enforceable legal effect," the DOI has assigned FAA a "significant role in its decision-making process."[131] Courts have also found that an FAA Determination can be a prerequisite to the issuance of a construction permit even though these decisions may be "advisory in nature."[132]

Military Aviation and Installation Assurance Siting Clearinghouse

DOD requires developers to seek review of proposed energy projects because they could impact areas or technologies utilized by DOD, such as radar, installation boundaries, military training routes, special use airspace and other uses. These reviews are required as part of the FAA's Air Navigation Hazard Assessment process and handled by the DOD Siting Clearinghouse (Clearinghouse). The Clearinghouse review process applies to all energy projects submitted for FAA review.[133]

Congress wrote the Clearinghouse review process into law as part of the 2011 National Defense Authorization Act to promote renewable energy and preserve national security. The Clearinghouse must determine whether the project poses "an unacceptable risk to the national security of the United States," which is defined as proposed or actual construction, alteration, expansion or establishment of a structure that would endanger air safety, interfere with the use of navigable airspace or significantly impair or degrade virtually any domestic military activity. DOD is also responsible for identifying mitigation options that the developer or the military may take to lessen the impact of the proposed project.

128 Environmental Protection Agency, NPDES Permit Basics. https://www.epa.gov/npdes/npdes-permit-basics
129 Environmental Protection Agency, NPDES Permit Basics. https://www.epa.gov/npdes/npdes-permit-basics
130 See Town of Barnstable, Mass. v. F.A.A., 740 F.3d 681, 689 (D.C. Cir. 2014); 14 C.F.R. § 77.17.
131 Town of Barnstable, 659 F.3d at 32.
132 *Id.*
133 Office of the Under Secretary of Defense. Military Aviation and Installation Assurance Siting Clearinghouse Reviews, Mil. Aviation and Installation Assurance Siting Clearinghouse. https://www.acq.osd.mil/dodsc/contact/dod-review-process.html; Office of the Under Secretary of Defense. Frequently Asked Questions, Mil. Aviation and Installation Assurance Siting Clearinghouse. https://www.acq.osd.mil/dodsc/about/faq.html

The regulations provide for both formal and informal review of projects. Formal project review begins when FAA sends the Clearinghouse a properly filed Obstruction Evaluation/Airport Airspace Analysis application. Some states, such as Texas, also have state-level notification requirements.[134] Proponents of activities anticipated to interfere with radar surveillance or a military training route must file a preliminary project layout at least one year prior to planned construction. The Clearinghouse will distribute the application to other DOD entities that may have an interest in its contents. After receiving comments, the Clearinghouse will then evaluate comments and make a determination on the project. If it determines that the project may have an adverse impact on DOD operations, the Clearinghouse must notify the applicant and initiate mitigation discussions. If a mitigation agreement cannot be reached, the Clearinghouse must request that a senior DOD official make a determination of whether the project poses "an unacceptable risk to the national security of the United States." However, FAA has the final decision on whether the project poses a hazard, and the Clearinghouse's determination is only one of the factors it considers.[135]

Unlike the FAA, DOD has a process for conducting informal reviews of projects when requested and, in fact, encourages developers to seek such review by submitting project information directly to the Clearinghouse. Like the formal review process, the Clearinghouse solicits comments and recommendations from interested agencies during the informal review. Determinations of no impact during an informal review do not equate to a binding determination, but DOD will enter into mitigation discussions with the applicant if the project is expected to have an adverse impact. DOD will also keep any proprietary information confidential during the review process and information provided will be used only for determining the project's potential impact on military activities.[136]

Most onshore wind projects submitted for review by the Clearinghouse have been approved without the need for mitigation measures. Between 2012 and 2015 only 39 out of about 2,000 wind energy projects entered into mitigation discussions, and only 11 resulted in formal mitigation agreements.[137] Over 40 mitigation agreements have been published since 2014.[138]

CLEAN AIR ACT

The CAA was enacted "to protect and enhance the quality of the nation's air resources so as to promote the public health and welfare and the productive capacity of its population." The CAA Amendments of 1990 added a Title V to the Act that requires states to administer a comprehensive permit program for the operation of sources emitting air pollutants, modeled after similar provisions in the CWA. Sources subject to the permit requirements generally include major sources (those that emit or have the potential to emit 100 tons per year of any regulated pollutant) and stationary and area sources that emit or have potential to emit lesser specified amounts of hazardous air pollutants. However, in nonattainment areas, the permit requirements also include minor sources of volatile organic compounds (VOCs), with permit eligibility depending on the severity of the region's ozone nonattainment status.

Although renewable energy development is promoted to alleviate some air pollution concerns associated with the use of conventional fossil fuels in electricity production, renewable energy project development still triggers air quality requirements under the CAA, particularly during the construction phase. The CAA permitting requirements applicable to a project depend on several factors, including the location of the project, the air quality of the ambient area, the number of sources of air pollution and those sources' potential to emit pollutants.

MINERAL LEASING ACT

Under the Mineral Leasing Act (MLA), federal agencies may grant an easement to cross federal land for the pipeline transport of oil, natural gas, synthetic liquid or gaseous fuels or any refined product produced therefrom in accordance with the provisions of Section 28 of the MLA. Under the terms of the MLA, the width of the ROW cannot exceed fifty feet in addition to the ground occupied by the pipeline and its related facilities unless the secretary of the appropriate agency finds a wider ROW is necessary. The agency is also required to issue regulations or impose stipulations applicable to

134 Office of the Under Secretary of Defense. *Military Aviation and Installation Assurance Siting Clearinghouse Reviews, Mil. Aviation and Installation Assurance Siting Clearinghouse*. https://www.acq.osd.mil/dodsc/contact/dod-review-process.html

135 Michael Casillo. *Impacts of Wind Energy*. JAG Reporter. (January 28, 2021). https://www.jagreporter.af.mil/Post/Article-View-Post/Article/2552548/impacts-of-wind-energy/

136 Office of the Under Secretary of Defense. *Military Aviation and Installation Assurance Siting Clearinghouse Reviews, Mil. Aviation and Installation Assurance Siting Clearinghouse*. https://www.acq.osd.mil/dodsc/contact/dod-review-process.html

137 Office of the Under Secretary of Defense. *Report on the Impact of Wind Energy Developments on Military Installations, Dept. of Defense 4*. (April 2016). https://www.acq.osd.mil/dodsc/library/RTC%20Report%20on%20Wind%20Energy%20Impacts%20-%20Letters%20and%20Report%20-%20(USA000910-16).pdf

138 Office of the Under Secretary of Defense. *Library, Mil. Aviation and Installation Assurance Siting Clearinghouse*. https://www.acq.osd.mil/dodsc/about/library.html

every ROW permit that includes requirements for the restoration, revegetation and curtailment of erosion of the surface of the land; requirements designed to control or prevent (1) damage to the environment (including damage to fish and wildlife habitat), (2) damage to public or private property and (3) hazards to public health and safety; and requirements to protect the interests of individuals living in the general area of the ROW or permit who rely on the fish, wildlife and biotic resources of the area for subsistence purposes.

The BLM has promulgated regulations governing various aspects of pipeline ROWs, including requirements as to which lands are available for ROW; qualifications for holding a ROW; and terms and conditions on holding ROW.[139] In addition, other federal land management agencies have promulgated regulations addressing grants of ROW for pipelines across lands they manage, including the USFS[140] and the FWS.[141]

HYDROGEN PIPELINES

Siting Interstate Pipelines

There is no statute that expressly provides for federal regulation of construction or siting of interstate hydrogen pipelines or their rates or services. For lines that do not carry gas in interstate commerce, states have jurisdiction over construction and siting. Where ROWs are needed for crossing federal lands, BLM has the authority to issue permits under the MLA. If the pipeline crosses only USFS lands, USFS issues a special use permit. There are three additional federal statutes that could provide structure to the regulation of siting interstate hydrogen pipelines, depending on how hydrogen is classified:

THE NATURAL GAS ACT

The NGA requires FERC to regulate the interstate transportation of natural gas. The NGA governs any gasses that can be used for energy, giving FERC jurisdiction over "natural" gas and "artificial" gas that is blended with "natural gas," exempting any "artificial" gas not blended with "natural" gas.

FERC could assert jurisdiction over hydrogen pipelines under the NGA if hydrogen is defined as a "natural" gas. Under this interpretation, to construct new interstate gas facilities, a company must obtain a certificate of "public convenience and necessity" from FERC, which, once granted, gives the company eminent domain authority, allowing a pipeline company to condemn private property along its ROW and repurpose it for construction and operation of the pipeline. Operators of interstate pipelines are also required to charge just and reasonable rates and may be required to maintain public tariffs and establish their terms and conditions of service.

If hydrogen is defined as an "artificial" gas, then it would only be subject to the NGA if it was mixed with a "natural" gas. If it is not mixed with a "natural" gas, then a hydrogen pipeline could be constructed only under state regulation. A pipeline would still be subject to federal permitting requirements under other statutes described herein, including the CWA, ESA, NHPA and others.

THE INTERSTATE COMMERCE ACT

The Interstate Commerce Act (ICA) requires FERC to regulate the interstate transportation of oil. FERC regulates liquid sources of energy under the ICA except for liquefied natural gas, which is regulated under the NGA, above. If hydrogen is defined as a "liquid source of energy," then FERC would regulate it under the ICA.

The ICA provides FERC with jurisdiction over rates and services of oil pipelines, which are subject to the same "just and reasonable" standard as natural gas pipelines and are also required to file tariffs providing "just and reasonable," non-discriminatory terms and conditions of service. Further, oil pipelines are considered "common carriers" and must reserve some percentage of their capacity—typically 10 percent—for shippers that do not have long-term contracts with the pipeline. Unlike the NGA, the ICA does not provide for the federal regulation of the construction and siting of pipelines; instead, state and local authorizations for construction and siting must be obtained.

139 The regulations describe ROWs as "nonpossessory, nonexclusive" rights and temporary use permits as "revocable, nonpossessory" privileges. 43 C.F.R. § 2881.5.

140 The Forest Service decides whether to concur in BLM's grants of ROW under the MLA and issue special use authorizations for pipelines transporting fuel products on National Forest System land, consistent with other federal laws. 36 C.F.R. § 251.53(e).

141 50 C.F.R. § 29.21-1; see also 16 U.S.C. § 668dd(d). Specific requirements for ROWs for the pipeline transportation of fuels across FWS lands are located at 50 C.F.R. § 29.21-9.

THE INTERSTATE COMMERCE CLAUSE TERMINATION ACT

The Interstate Commerce Clause Termination Act (ICCTA) requires the Surface Transportation Board (STB) to regulate the interstate transportation of "a commodity other than water, gas or oil." The ICCTA governs non-energy commodities, which hydrogen could be defined as if it does not fall under any of the definitions outlined above. Pipelines under ICCTA are also subject to the same "common carrier" and non-discriminatory requirements as oil pipelines and must charge "reasonable rates" and maintain tariffs providing rates and terms of service. The ICCTA does not provide for the federal regulation and siting of pipelines; instead, state and local authorizations for construction and siting must be obtained. Any eminent domain authority must be obtained from the states.

Corridors through Public Lands

As described above, Section 368 of EPAct 2005 directs the Secretaries of Agriculture, Commerce, Defense, Energy and Interior to designate corridors for hydrogen pipelines on federal lands in 11 Western States. DOI and the USFS designated more than 6,000 miles of these corridors in 2009 for 11 Western states.[142] Once a Section 368 energy corridor is designated, it is deemed a preferable pathway for interstate energy transport until it is amended. While their use is voluntary, project developers and relevant federal agencies have, to varying extents, used portions of the western energy transport corridors for projects since 2009. Following a lawsuit and settlement, DOI and USFS developed and published a final report covering six regions and 420 energy corridors. This final report supports BLM and USFS regulations that direct land use planning efforts to consider existing information (including transportation and utility corridor studies) to determine appropriate placement of hydrogen pipelines, among others.

Safety

Under the Natural Gas Pipeline Safety Act and the Hazardous Liquid Pipeline Act, DOT's PHMSA has promulgated regulations relevant to pipelines transporting combustible gasses and hazardous liquids. As hydrogen is a flammable gas, it falls within the purview of the PHMSA's regulations at 49 C.F.R. Part 192, although the regulations are currently focused on the unique properties of natural gas pipelines. Hydrogen-specific safety regulations will be required.

CARBON CAPTURE, UTILIZATION, AND STORAGE

CO_2 Pipelines

There is no comprehensive federal siting and permitting process for interstate or intrastate carbon dioxide pipelines on non-federal lands. BLM regulates carbon dioxide pipelines under the MLA as a commodity shipped by a common carrier.

The regulation of CO_2 pipelines is currently a joint responsibility of federal and state governments. CO_2 transportation pipelines are subject to federal safety regulations administered by DOT's PHMSA (see above). The administration directly oversees pipeline safety for all interstate lines, while intrastate pipelines are subject to state agency oversight (if the standards are at least as stringent as the federal rules). If a pipeline crosses federal land, then, prior to construction, permits from the relevant federal agency and compliance with NEPA are required. Otherwise, the power of oversight of siting (including the use of eminent domain), construction and operations of CO_2 pipelines is largely handled at the state level.

CCUS

Permitting a CCUS project would follow the process for permitting any industrial activity, with the mix of permitting and review needed for a particular process determined by the project specifics. As applicable to the renewable energy and transmission projects discussed above, federally funded CCUS projects or CCUS activities on federally managed lands will need to comply with NEPA, the ESA, the CAA and other federal land management statutes and environmental regulations. They may trigger obligations under a variety of other statutes including the NHPA, CWA, CAA, Safe Water Drinking Act, Marine Protection, Research, and Sanctuaries Act, Outer Continental Shelf Lands Act, Marine Mammal Protection Act, MBTA, Bald and Golden Eagle Protection Act, the Natural Gas Pipeline Safety Act, the Rivers and Harbors Act of 1899, FLPMA and Hazardous Liquid Pipeline Safety Act.

142 Department of the Interior and Bureau of Land Management. *Approved Resource Management Plan Amendments/Record of Decision (ROD) for Designation of Energy Corridors on Bureau of Land Management-Administered Lands in the 11 Western States.* (2009). http://www.corridoreis.anl.gov/documents/docs/Energy_Corridors_final_signed_ROD_1_14_2009.pdf; U.S. Department of Agriculture Forest Service. *Designation of Section 368 Energy Corridors on National Forest System Land in 10 Western States.* (2009). http://corridoreis.anl.gov/documents/docs/WWEC_FS_ROD.pdf

A CCUS project on federal lands also must procure the appropriate ROWs. Per the Consolidated Appropriations Act of 2021, CCUS projects are covered projects under FAST-41, and construction of infrastructure for carbon capture is a specific sector eligible for FAST-41 coverage even if the project is worth less than $200 million in economic investment.

The USE IT Act

Under the USE IT Act, Congress directed CEQ to establish regional task forces to: (1) identify challenges and successes that permitting authorities, project developers and operators face to permit CCUS projects in an efficient, orderly and responsible manner; and (2) provide recommendations to improve the performance of the permitting process and regional coordination for the purpose of promoting the efficient, orderly and responsible development of CCUS projects and carbon dioxide pipelines. CEQ established two task forces: one to address permitting and other challenges for CCUS projects on federal lands and the Outer Continental Shelf, and another for permitting and other challenges for CCUS projects on non-federal lands. The duties of the task forces are to identify challenges, improve permitting processes and facilitate regional coordination of CCUS projects and pipelines.

In accordance with the USE IT Act, CEQ announced the availability of, and requested comments on, its Carbon Capture, Utilization, and Sequestration Guidance to assist federal agencies with the regulations and permitting of CCUS activities. CEQ's guidance suggests that agencies consider developing programmatic environmental reviews, including tiered documents or programmatic environmental impact statements under NEPA, where such analyses can facilitate more efficient and effective environmental reviews of multiple projects while maintaining strong community engagement. CEQ also recommended that agencies with oversight authority for carbon dioxide pipelines update regulations, as appropriate, to address the deployment of CCUS technologies.

In developing CCUS projects, CEQ encourages engagement of communities and Tribes in co-development of projects and approaches; protection of communities from pollution; and incorporation of environmental justice and equity concerns, particularly in communities already exposed to multiple pollution sources. CEQ's guidance also noted that agencies should collaborate on studies regarding the effect of carbon capture deployment on air quality in the U.S. Finally, noting that CCUS consists of new technologies, CEQ stressed the importance of increased transparency to build public confidence in the emissions reductions associated with these projects and their durability. Specifically, CEQ recommended the preparation of publicly available analyses, including life-cycle analyses, and/or the establishment of certification or standards for products.

Canton Wind Farm in western Maine © *Phoebe Parker / TNC*