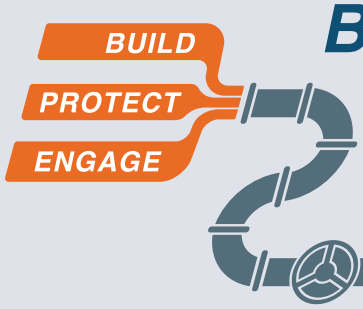
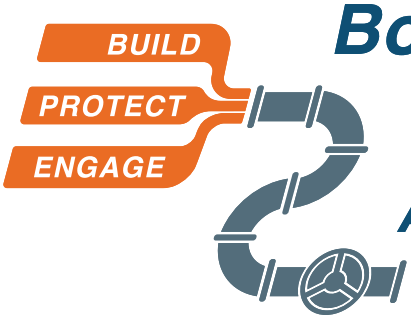


Bottleneck to Breakthrough

A Permitting Blueprint to Build

Affordable • Safe • Reliable Energy

National Petroleum Council | 2025



Bottleneck to Breakthrough

A Permitting Blueprint to Build

Affordable • Safe • Reliable Energy

Committee on Oil and Natural Gas
Infrastructure Permitting

François Poirier, Chair

National Petroleum Council 2025

The National Petroleum Council is a federal advisory committee to the Secretary of Energy.

The sole purpose of the National Petroleum Council is to advise, inform, and make recommendations to the Secretary of Energy on any matter requested by the Secretary relating to oil and natural gas or to the oil and gas industries.

Library of Congress Control Number: 2026932182

Washington, D.C.
Printed in the United States of America

TABLE OF CONTENTS

PREFACE

I. NATIONAL PETROLEUM COUNCIL

The National Petroleum Council (NPC) is an organization whose sole purpose is to provide advice to the federal government. After successful cooperation during World War II, President Harry Truman requested this federally chartered and privately funded advisory group to be established by the Secretary of the Interior to represent the oil and natural gas industry's views to the federal government by advising, informing, and recommending policy options. Today, the NPC is chartered by the Secretary of Energy under the Federal Advisory Committee Act of 1972, and the views represented are broader than those of the oil and natural gas industry.

NPC members, about 200 in number, are appointed by the Energy Secretary to assure well-balanced representation from all segments of the oil and natural gas industry, from all sections of the country, and from large and small companies. Members are also appointed from outside the oil and natural gas industry, representing related interests such as large consumers, states, Native Americans, and academic, financial, research, and public interest organizations and institutions. The NPC promotes informed dialogue on issues involving energy, security, the economy, and the environment of an ever-changing world.

II. STUDY REQUEST

On June 30, 2025, Secretary of Energy Chris Wright requested that the NPC undertake a *Future Energy Systems* study to provide advice on ensuring the availability of affordable, reliable, and secure energy for American consumers and allies. In his letter, the Secretary emphasized the need to address immediate priority topics—permitting and gas-electric coordination—in support of the administration's directives on energy reliability, infrastructure, and national security. The request specifically called for the delivery of this short-term study on streamlining and expediting oil and natural gas infrastructure permitting to meet future energy needs. A separate short-term study is also being completed on gas-electric coordination to ensure energy system reliability.

III. STUDY SCOPE

The Secretary asked the NPC to reevaluate and update the permitting section of the NPC's 2019 *Dynamic Delivery* report with recommendations based on current legislation and regulations that can provide meaningful input to support the effective redesign of government systems and siting of new infrastructure.

Specifically, the study will provide:

1. An assessment of the major economic and geopolitical events and policy trends since 2019 that are challenging energy delivery today and that require streamlined energy infrastructure permitting.
2. An examination and status report of NPC *Dynamic Delivery* findings and recommendations, including a review of federal-state alignment on linear infrastructure permitting.
3. A review of the policy objectives of infrastructure permitting and whether these objectives are being met by current law and agency implementation processes.
4. A proposed list of reforms that would streamline permitting reviews and minimize timelines without compromising environmental and natural resource protection.

While the study will use components of prior NPC work, specifically in the 2019 *Dynamic Delivery* report, this study will focus on process areas

of permitting. This focus is because of the specific request and in part the short timeframe for completing the work. The 2019 report includes broad aspects of oil and natural gas infrastructure siting and technology. The portions of the 2019 report not specifically addressed do not in any way diminish the importance of those topics—they just did not fit into the narrow parameters of the focus on improving government processes for permitting infrastructure.

IV. STUDY GROUP ORGANIZATION

The study was directed by a study committee composed of a cross section of NPC members, including the oil and natural gas supply chain and representatives from government, academia, energy consumers, and public interest organizations. The coordinating subcommittee oversaw the development of scope areas, supported by task groups focused on specific technical and policy issues. This structure is designed to ensure that a broad range of expertise and perspectives are incorporated into the analysis, deliberations, and recommendations of the NPC.

Participants in this study contributed in a variety of ways, ranging from work in all study areas, to involvement in a specific topic, to reviewing proposed materials, to participating in technical workshops. Involvement in these activities should not be construed as a participant's or their organization's endorsement or agreement with all the statements, findings, and recommendations in this report. Additionally, while U.S. government participants provided significant assistance in the identification and compilation of data and other information, they did not take positions on the study's recommendations.

V. REPORT STRUCTURE

The report is organized into four detailed chapters:

1. Supply, Demand, and Intervening Infrastructure Hurdles
2. Review of the 2019 *Dynamic Delivery* Report Recommendations
3. Permitting at a Crossroads: Addressing Legal Barriers to Build a Durable Permitting System that Works
4. Policy Solutions for Timely, Efficient Infrastructure Expansion

EXECUTIVE SUMMARY

I. THE URGENT NEED FOR PERMITTING REFORM

The United States stands at a pivotal moment, one that will not only define its energy future but shape its economic prosperity, national security, and global standing for decades to come. A surge in energy demand, driven by widespread electrification, the resurgence of domestic manufacturing, the proliferation of data centers, and the strategic expansion of liquefied natural gas (LNG) exports is colliding with aging and limited infrastructure. The country has reached the point where capacity has been expanded as much as possible. Outdated and fragmented permitting processes are increasingly unable to keep pace with these shifts, widening the gap between the infrastructure that is needed to sustain U.S. growth and reliability, and what is actually being built. This is exemplified by the fact that between 2013 and 2024, natural gas demand increased by 49%, while pipeline capacity grew only 26%, and storage capacity rose an incremental 2% from 2013 to 2023.[1]

The current energy infrastructure shortfall is not merely a logistical challenge—it is also a structural vulnerability. The inability to deliver energy where and when it is needed has led to regional price volatility, diminished supply security, higher prices for American families, and lost job opportunities. These trends will compound if permitting continues to be a drag on the acceleration of energy demand across different sectors of the economy.

Without reform, the United States risks missing opportunities for economic growth that extend beyond the oil and gas industry. Artificial intelligence (AI) is a case in point. The AI boom is driving a massive expansion of data centers and other high-performance computing infrastructure, facilities that require enormous amounts of electricity.[2] Next-generation AI applications, from advanced manufacturing to cloud computing, are fast becoming the cornerstones of innovation, but they can only fulfill that role if the supporting energy infrastructure can scale at pace. This means that permitting has become more than just an energy-sector concern; it is now a decisive factor in industrial and economic competitiveness. A country that can rapidly build the power systems and high-speed networks that AI demands will hold an edge in the global technology race.

Adding to these domestic pressures are the substantial geopolitical shifts that have occurred since the National Petroleum Council (NPC) published its report *Dynamic Delivery: America's Evolving Oil and Natural Gas Transportation and Infrastructure* in 2019.[3] These global and national events have further amplified the consequences of U.S. infrastructure deficiencies. Russia's invasion of Ukraine, the weaponization of energy exports, and the resulting restructuring of global LNG markets have underscored the strategic importance of U.S. energy infrastructure, not just for domestic resilience, but for supporting U.S. allies abroad. This need will only grow more pressing in a world that is bifurcating, with the United States and China vying for dominance across energy, technology, and industrial domains—a rivalry that is rapidly reshaping trade flows, alliances, and geopolitical influence.

1 Data from EIA, 2025. Demand: https://www.eia.gov/naturalgas/monthly/. Storage capacity: https://www.eia.gov/naturalgas/storagecapacity/. Pipeline capacity (U.S. state-to-state capacity file): https://www.eia.gov/naturalgas/data.php#pipelines.

2 International Energy Agency. "AI Is Set to Drive Surging Electricity Demand from Data Centres While Offering the Potential to Transform How the Energy Sector Works." April 10, 2025. https://www.iea.org/news/ai-is-set-to-drive-surging-electricity-demand-from-data-centres-while-offering-the-potential-to-transform-how-the-energy-sector-works.

3 NPC. "Dynamic Delivery: America's Evolving Oil and Natural Gas Transportation Infrastructure." 2019. https://dynamicdelivery.npc.org/.

At the same time, the COVID-19 pandemic exposed deep vulnerabilities in global supply chains, revealing how limited access to critical equipment and materials can stall even well-financed projects. These disruptions have intensified global competition as nations race to secure critical equipment and components needed to expand energy systems. The United States must respond with urgency. Without the ability to build and maintain energy infrastructure at scale, the United States risks ceding ground in the global energy economy, weakening its leverage in international affairs, and forfeiting the opportunity to bolster its economic prosperity and national security.

Today's permitting environment leaves the United States ill equipped to compete. The permitting system has become a major barrier to timely infrastructure delivery. National Environmental Policy Act (NEPA) reviews are increasingly lengthy and vulnerable to litigation, while Clean Water Act (CWA) provisions often create procedural chokepoints.[4] Fragmented jurisdiction, inconsistent timelines, and overlapping reviews add complexity and delay. The result is a process-heavy system that slows investment, deters innovation, and undermines national energy goals.

Permitting reform is the linchpin to balancing domestic infrastructure with national energy goals while ensuring energy remains secure, reliable, and affordable. A modernized permitting framework would enable critical projects such as pipelines, power plants, refineries, and LNG export terminals to be built at the pace and scale necessary to meet market demand and fuel economic growth. Importantly, this can be achieved without compromising safety, environmental protection, and stakeholder engagement. Effective models that help streamline permitting by emphasizing categorical as opposed to project-specific review already exist, proving that efficiency and appropriate oversight are not mutually exclusive. Future reforms that build on this and other lessons can eliminate delays, establish clear and reasonable timelines, and ultimately unleash abundant U.S. energy supplies.

Building off the recommendations in the 2019 *Dynamic Delivery* report, this report provides a pragmatic, forward-looking roadmap for improving the speed, predictability, and effectiveness of U.S. energy infrastructure permitting. It emphasizes the need for renewed leadership and coordinated action to advance these recommendations. Taken together, the proposed reforms would establish a durable, efficient system that fulfills a triple mandate: authorizing projects efficiently, protecting environmental and community interests, and ensuring transparent, meaningful public engagement early in the process.

II. FROM BOTTLENECK TO BREAKTHROUGH: POLICY SOLUTIONS FOR TIMELY, EFFICIENT INFRASTRUCTURE EXPANSION

To create a durable, effective permitting system that meets the United States' expanding energy needs, impactful policy change is needed. To accomplish this, the NPC offers a set of strategic recommendations structured into two overarching reforms:

1. **Enact near-term improvements to the current system, starting with NEPA.** The NPC recommends a suite of pragmatic actions to start delivering results immediately. These include legislative, administrative, and regulatory reforms that would accelerate infrastructure development by improving the speed and predictability of today's permitting system. Examples include clarifying the scope of NEPA reviews, reforming the judicial review process, and improving various agencies' processes under current law. Collectively, these measures will reduce review times and bring more certainty to the permitting process. Though essential for achieving national energy goals, these near-term reforms by themselves should not be viewed as the complete solution for maximizing efficiency in federal permitting processes.
2. **Development of a reimagined permitting approval system for qualified infrastructure projects.** Congress should explore and adopt a new permitting framework that shifts qualified infrastructure activities from project-specific, process-heavy reviews to standardized, expedient approvals. This approach would accelerate infrastructure development by offering quicker approval for projects that are designed to meet predetermined standards for protecting environmental resources, with agencies ensuring

4 Trembath, A., McCarthy, E., Teixeira, L., Smith, A., and Levitt, M. "The Procedural Hangover." The Breakthrough Institute. July 24, 2025. https://thebreakthrough.org/issues/energy/the-procedural-hangover.

compliance through ongoing monitoring and enforcement. A more standardized authorization process for qualified infrastructure projects would reduce permitting timelines while maintaining strong environmental protection. This Qualified Infrastructure Authorizations (QIA) system will take time to enact, and the NPC has set forth a set of actions in this report that should be pursued immediately across administrative, regulatory, and legislative changes to improve permitting speed and predictability.

By executing a coordinated set of short- and long-term measures, policymakers can gain early wins (shaving months off reviews, reducing uncertainty) while the larger overhaul is being developed. This study emphasizes that these incremental reforms are not a substitute for big changes, but a necessary bridge: They will deliver meaningful improvements in the interim and lay the groundwork for the broader outcome-based system. Accountability mechanisms (such as clear timelines and performance metrics for agencies) are a key part of this roadmap, ensuring that efficiency gains are transparent, sustained, and properly incentivized.

The NPC's recommendations introduce innovative approaches to modernizing the permitting process while advancing key national objectives: enabling the timely development of critical energy infrastructure to enhance reliability and affordability, maintaining strong environmental and community safeguards, reducing unnecessary litigation, and improving government efficiency so that projects are reviewed thoroughly and responsibly without undue delay.

III. A ROADMAP FOR NEAR-TERM PERMITTING IMPROVEMENTS

Elements of the current permitting framework, particularly under NEPA and the CWA, have become structural impediments to timely infrastructure delivery. Reviews under NEPA have grown increasingly time intensive and expansive and are often a target of litigation. Similarly, CWA Sections 401 and 404 have evolved into procedural chokepoints, with inconsistent application and prolonged state-level reviews undermining federally authorized projects. These inefficiencies are compounded by litigation that, even when unsuccessful at stopping a project's development, routinely adds years to project timelines and deters investment.

To address these systemic challenges, the NPC recommends a focused set of legislative and regulatory actions that Congress, the Federal Energy Regulatory Commission (FERC), and other federal and state agencies should take immediately to improve permitting predictability, reinforce environmental safeguards, and accelerate deployment of critical energy infrastructure (see Table ES-1).

IV. PROGRESS AND CHALLENGES SINCE 2019: A MIXED RECORD

This study builds on the NPC's 2019 *Dynamic Delivery* report, which issued 25 recommendations to improve oil and gas infrastructure permitting. Some progress has been made in the intervening years: Industry-led efforts have improved stakeholder engagement and reduced emissions, and bipartisan legislation, such as the 2021 Infrastructure Investment and Jobs Act and the 2023 Fiscal Responsibility Act (FRA), has introduced modest permitting improvements. Notably, these efforts extended FAST-41, a program to streamline federal reviews and set page and time limits for environmental reviews. Despite these successes, only five of the recommendations from the 2019 report have seen meaningful progress toward completion.

Key reforms targeting the development of consistent and clear permitting processes and several recommendations related to NEPA have been partially implemented or remain untouched. Many efforts stalled due to inaction from relevant federal agencies, a lack of coordination between federal agencies and states, changes in administration, judicial rulings, and congressional inaction. Consequently, without congressional guidance or sustained interagency coordination, successive administrations have pursued differing approaches to CWA-related recommendations, resulting in shifting policies and few enduring outcomes.

Three key lessons emerge from the past six years:

1. **Empower the right stakeholders.** Progress is most likely when responsibility rests with those closest to the issue and most invested in its success. Agencies should be incentivized to act urgently to deliver results, and their missions

Recommendation	Rationale/Findings
A Roadmap for Near-Term Permitting Improvements	
Amend NEPA to clarify its procedural nature and focus the scope of environmental review.	Expanding interpretations of NEPA result in prolonged permitting review and increased litigation, constraining infrastructure development.
Enact judicial reforms to streamline environmental permitting litigation.	Legal challenges, even when unsuccessful, delay projects and deter investment; reforms would reduce uncertainty and expedite resolution.
Amend CWA Section 401 to limit the scope of state review to direct water quality impacts.	Section 401 has become a chokepoint due to regulatory ambiguity and procedural manipulation, delaying federally licensed energy projects.
Revise and expand general permits and categorical exclusions.	General permits and categorical exclusions help agencies build infrastructure more efficiently and direct attention where it is needed most.
Extend the validity of U.S. Army Corps of Engineers Nationwide Permits to ten years.	Frequent litigation and five-year renewal periods undermine certainty and efficiency for routine, low-impact projects.
Permanently increase cost thresholds and expand eligibility under FERC's blanket certificate program.	Current cost thresholds are outdated and limit the scope of projects eligible for expedited authorization, despite minimal environmental impacts.
Charge FERC and other federal agencies to adhere to the 90-day permit issuance deadline via executive order.	FERC routinely misses its own regulatory deadlines, causing delays, cost increases, and uncertainty in energy project delivery.
Direct agencies to identify and eliminate duplicative permitting process requirements and promote greater consistency across federal, state, and local jurisdictions.	Cooperating agencies often conduct parallel reviews to satisfy their own distinct statutory responsibilities and procedural requirements, establishing their own record for their decision-making, adding time, duplication, and complexity to the review.
Prioritize improvements to energy systems adjacent to oil and natural gas infrastructure.	The nation's natural gas and electric sectors are now deeply interdependent, with infrastructure constraints and coordination gaps posing significant risks to reliability, resilience, and affordability.
Long Term: Streamlined Permitting for Energy Infrastructure	
Congress should explore and adopt a new approach to infrastructure permitting that maximizes reliance on standardized approaches in lieu of case-specific review. Under this new approach, efficient approval of qualified energy infrastructure would be granted if projects meet clearly articulated standards and monitoring requirements that provide reliable environmental protection and stakeholder engagement consistent with the law and the public interest.	This approach would reorient energy project development in the United States, such that infrastructure authorizations are granted more quickly and environmental protection is ensured through compliance with transparent, enforceable standards and strong intergovernmental oversight, while preserving the existing division of authority between federal and state entities.

***Table ES-1.** Summary of Recommendations and Rationale*

should be aligned with national energy priorities.

2. **Bipartisan solutions are key to advancing major permitting reforms.** Reforms backed by both major parties, like the FRA and CHIPS and Science Act, are more likely to pass Congress and endure changes in administration, avoiding the cycle of rules being issued and rescinded.
3. **Align missions and encourage flexibility.** Agencies should have clear mandates that reflect the importance of the U.S. energy industry and remain open to solutions regardless of origin, rather than being territorial.

Despite some encouraging developments, the fundamental permitting challenges identified in the 2019 report persist. Federal and state agencies often continue to operate independently, and permitting processes remain complex and time consuming—frustrating project developers and stakeholders alike. These delays and uncertainties have prolonged energy bottlenecks that once primarily affected prices and reliability but now carry broader implications. In an era defined by rapid technological advancement, the rise of AI, and the growing strategic importance of LNG, the pace of U.S. permitting has become a critical factor for national competitiveness, resilience, and global leadership.

V. BALANCING THE TRIPLE MANDATE

Permitting in the United States rests upon the tenets of Build, Protect, and Engage. In other words, the country must Build infrastructure to support economic growth and energy security, Protect the environment and public safety, and Engage stakeholders and communities in decisions. These three imperatives are codified in U.S. laws and are meant to work in concert. In practice, however, the current system struggles to balance them.

Although the core language of major permitting statutes has changed little over the past 30 to 40 years, laws originally designed to balance economic, environmental, and public interests have evolved into complex regulatory systems that now impede timely infrastructure development. Reviews meant to ensure protection have become lengthy paperwork exercises, sometimes with duplicative studies that do not materially improve environmental outcomes. Public engagement, though vital, has often expanded into protracted legal battles that can halt projects outright rather than improve them. Major projects now routinely spend tens or even hundreds of millions of dollars just to obtain authorization to proceed. Meanwhile, the urgent need to *build* is not being met, jeopardizing the very economic and reliability goals that infrastructure is supposed to deliver.

Key permitting challenges that have persisted since 2019 include:

- **Prolonged review timelines:** Environmental impact statements (EISs) and multiagency permit reviews can take four to five years, delaying benefits to the public and increasing costs.[5] Despite modest improvements to timelines since 2019, 61% of EISs still take more than two years to complete,[6] and this timeline does not include preplanning and potential postdecision litigation, which can extend permitting timelines further for applicants.
- **Jurisdictional complexity:** The federal permitting process operates within a fragmented legal and political landscape involving federal, state, and Tribal authorities. Cooperative federalism and Tribal sovereignty grant these entities independent review powers, which can delay or halt projects. The lack of centralized coordination, outdated procedures, and limited staffing across agencies adds friction and administrative bottlenecks that are not always reflected in federal review timelines.
- **Legal uncertainty and litigation:** Major permits are frequently challenged in court, and as a result, project developers and agencies have grown overly cautious, compelled to produce ballooning documents and analyses in an attempt to "litigation-proof" decisions. Even so, lawsuits are common. Approximately 30% of projects requiring an EIS face a lawsuit, and nearly 90%

5 McKinsey & Company. "Unlocking US Federal Permitting." July 28, 2025. https://www.mckinsey.com/industries/public-sector/our-insights/unlocking-us-federal-permitting-a-sustainable-growth-imperative.

6 Council on Environmental Quality. "Environmental Impact Statement Timelines (2010-2024)." January 13, 2025. https://ceq.doe.gov/docs/nepa-practice/CEQ_EIS_Timeline_Report_2025-1-13.pdf.

of these cases allege a NEPA violation.[7] Though federal agencies prevail in 80% of these cases, the lawsuits still result in project delays of one to two years and, if appealed to circuit courts, require an average of 4.2 years to be resolved.[8]

The current permitting framework places disproportionate emphasis on process rather than outcome. As a result, critical infrastructure is often delayed or deferred, undermining economic growth and energy security goals without delivering commensurate environmental or public benefits. Lengthy reviews tend to produce more documentation, not necessarily better decisions, while public engagement processes can leave stakeholders feeling overwhelmed rather than empowered. Incremental adjustments are unlikely to resolve these systemic inefficiencies. Comprehensive reform is needed to modernize the nation's approach to infrastructure permitting—rebalancing the "Build, Protect, Engage" mandate to achieve timely results, uphold environmental stewardship, and foster meaningful public participation in efficient decision-making.

VI. THE PATH FORWARD

The NPC's permitting study, *Bottleneck to Breakthrough: A Permitting Blueprint to Build*, concludes that the challenges facing U.S. energy infrastructure approvals, though daunting, are not insurmountable. Without timely and efficient permitting processes, the nation risks energy shortfalls, higher costs for families and businesses, and a loss of technological and industrial leadership. By modernizing the permitting framework, the United States can unlock investment, create jobs, boost competitiveness, and continue to act as a stabilizing force against geopolitical unrest.

The country's ability to provide affordable, reliable energy hangs in the balance. By acting on these recommendations, leaders can ensure that permitting processes enable, rather than impede, the infrastructure needed for economic prosperity and national security. The decisions made in the next few years will shape the energy foundation of the United States through 2040 and beyond. Now is the time to turn insights into action and create a permitting system capable of powering the nation's ambitions in an efficient, responsible, and forward-looking way.

As the nation confronts rapidly rising electricity demand and the deepening interdependence between the natural gas and electric power sectors, permitting reform must prioritize infrastructure that supports both systems. The interconnected nature of U.S. energy networks—where natural gas fuels power generation, electricity enables oil and gas production, and both underpin growth in AI and digital technologies—means that delays in developing power infrastructure now directly threaten the performance, reliability, and competitiveness of oil and natural gas operations. Ensuring adequate generation, transmission, interconnections, and fuel supply is essential to sustaining U.S. economic leadership, maintaining system reliability, and supporting emerging industrial and digital loads.

By executing a coordinated set of short- and long-term measures, policymakers can gain early wins (shaving months off reviews, reducing uncertainty) while the larger overhaul is being developed. The study emphasizes that these incremental reforms are not a substitute for big changes, but a necessary bridge. They will deliver meaningful improvements in the interim and lay the groundwork for the broader outcome-based system. Accountability mechanisms (such as clear timelines and performance metrics for agencies) are a key part of this roadmap, ensuring that efficiency gains are transparent, sustained, and properly incentivized.

7 Congressional Research Service. "National Environmental Policy Act: Judicial Review and Remedies." June 26, 2025. https://www.congress.gov/crs-product/IF11932.

8 Chiappa, N., Nordhaus, T., Trembath, A., and McCarthy, E. "Understanding NEPA Litigation: A Systematic Review of Recent NEPA-Related Appellate Court Cases." The Breakthrough Institute, July 11, 2024. https://thebreakthrough.org/issues/energy/understanding-nepa-litigation.

Chapter 1

SUPPLY, DEMAND, AND INTERVENING INFRASTRUCTURE HURDLES

I. INTRODUCTION

In 2019, the National Petroleum Council (NPC) conducted a comprehensive study analyzing the changing dynamics of the United States' oil and natural gas transportation infrastructure.[9] This report, titled *Dynamic Delivery*, examined changing supply and demand factors and the resulting need to enhance and expand infrastructure to connect America's abundant energy supplies with domestic and global demand. It identified several critical infrastructure bottlenecks including natural gas pipeline access to New England and New York, channel capacity in the Port of Houston, and insufficient oil and natural gas export capability. The 2019 key recommendations included the need to encourage infrastructure investment, streamline permitting, enhance stakeholder engagement, enact clear processes for addressing greenhouse gas emissions, promote technology advancements, and address cybersecurity.

Dynamic Delivery specifically found that "[e]xisting infrastructure has been modified and adapted to near-maximum capacity. To connect America's abundant energy supplies with domestic and global demand, significant public and private investment in new and existing pipelines… will be essential." The report also described the importance of infrastructure to "ensure the delivery of reliable and affordable energy," but highlighted that "[t]he permitting and construction of numerous energy infrastructure projects have been challenged, delayed, or stopped as a result of litigation."

Most of *Dynamic Delivery's* findings and recommendations are still relevant today – and in many cases, have only grown more urgent. The United States has experienced several major economic and geopolitical events in the last six years that have exacerbated the need for oil, natural gas liquids (NGLs),[10] and natural gas infrastructure development; making the need for permitting reform more pressing than ever.

II. THE CASE FOR POLICY ACTION

The U.S. economy depends on safe, reliable, and affordable energy to support millions of jobs, bolster national security, and drive sustained economic growth. While the United States possesses vast energy resources,[11] it faces a monumental challenge: The infrastructure required to adequately connect

9 NPC. "Dynamic Delivery: America's Evolving Oil and Natural Gas Transportation Infrastructure." 2019. https://dynamicdelivery.npc.org/.

10 NGLs are principally ethane, propane, butane, and natural gasoline (also called C5+ naphtha). They are a byproduct of wet natural gas production and are used as petrochemical feedstocks and for heating and gasoline blending.

11 "The Department of the Interior announced a USGS report on undiscovered oil and gas resources under the federally managed public lands of the U.S., estimating that there are technically recoverable resources of 29.4 billion barrels of oil and 391.6 trillion cubic feet of gas." See USGS. "USGS Releases Report on Oil and Gas Potential Beneath U.S. Public Lands. June 20, 2025. https://www.usgs.gov/news/science-snippet/usgs-releases-report-oil-and-gas-potential-beneath-us-public-lands.

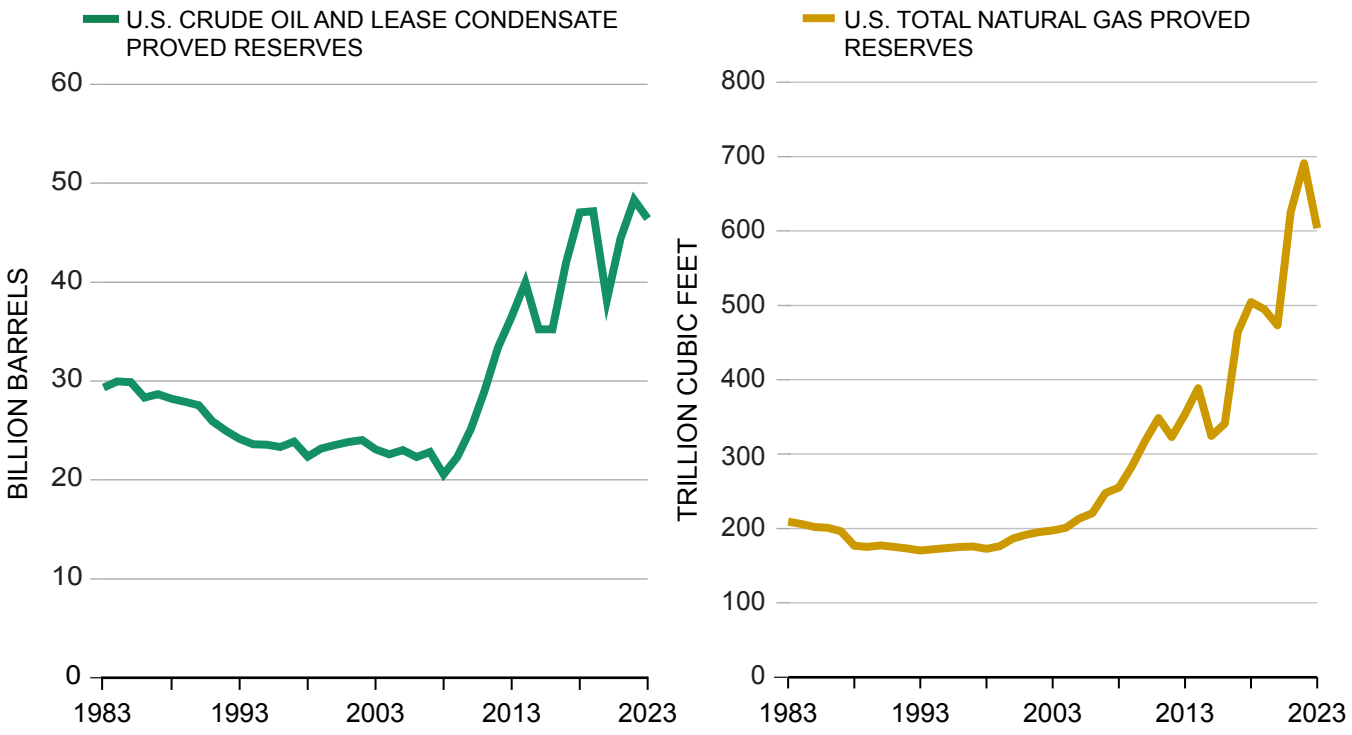
these supplies to surging domestic and global demand centers remains drastically insufficient.

Figure 1-1 shows, as of 2023, the vast level of crude oil and natural gas reserves in the United States that are estimated to be both technically and economically recoverable. Despite having significant energy resources, the current U.S. pipeline network has not kept pace with shifting supply and demand needs. The current pipeline network includes approximately 3 million miles of natural gas pipelines[12] and more than 230,000 miles of crude and refined oil products and NGL pipelines,[13] and represents the safest and most reliable way to deliver affordable energy across the country. However, much of this system was built for a different era—it primarily linked Gulf Coast natural gas and oil production to regional markets for industrial and heating end uses. Historically, most customers had predictable flow needs and typically supported infrastructure investments through entering firm, long-term transportation contracts aligned with heating demand and industrial use. Today's energy landscape is fundamentally different. Prolific production hubs (like the Permian and Marcellus shales) have emerged far from traditional demand centers, and new energy-intensive customers—liquefied natural gas (LNG) exporters, power generators, data centers, and industrial facilities—are driving unprecedented demand growth. According to the U.S. Energy Information Administration (EIA), LNG exports have surged, growing from 5 billion cubic feet per day (Bcf/d) in 2019 to an estimated 14.7 Bcf/d in 2025; DOE expects LNG exports to reach 26 Bcf/d by 2030.[14] Natural gas used by the power sector has also significantly increased from 31 Bcf/d in 2019 to an estimated 36 Bcf/d in 2025. Power generation accounted for ~41% of total U.S. gas

12 EIA. "Natural Gas Explained: Natural Gas Pipelines." 2024. https://www.eia.gov/energyexplained/natural-gas/natural-gas-pipelines.php.

13 Pipeline 101. "Where are Liquid Pipelines Located? Key Takeaways." 2023. https://pipeline101.org/topic/where-are-liquid-pipelines-located/.

14 DOE. "U.S. Liquefied Natural Gas (LNG) Exports Fact Sheet." 2025. https://www.energy.gov/sites/default/files/2025-03/U.S.%20Liquefied%20Natural%20Gas%20%28LNG%29%20Exports%20Fact%20Sheet_0.pdf.



Source: Data from EIA. 2025.

Figure 1-1. *U.S. Proven Reserves, 1983–2023*

consumption in 2024.[15] This shift in customer base has introduced new operational complexities and capacity constraints. The country has reached a pivotal moment where the consequences of insufficient and aging infrastructure are now driving exponentially higher consumer costs, reduced energy reliability, and heightened risks to safety.

Despite clear market signals to build more capacity, and even when infrastructure additions have been underpinned by sufficient contractual market support, many expansion projects have been blocked or delayed by permitting and litigation challenges. In regions like New England, the Mid-Atlantic, and the Carolinas, multiple market-supported natural gas pipelines were delayed or canceled, contributing to sharp price spikes, fuel shortages, and system strains during peak demand and extreme weather events. On the supply side, when production has been unable to reach markets, prices in the producing region have collapsed, resulting in reduced economic incentives to drill, and threatening supply security. In short, infrastructure constraints have made the energy system more vulnerable, less flexible, more expensive, and less able to integrate renewable energy.[16]

These challenges reveal a systemic issue: The pace of infrastructure development is no longer aligned with the demands of the United States' rapidly expanding energy system. Project delays and cancellations have been translated into higher costs, reduced reliability, and lost opportunities for economic growth and job creation. As electrification accelerates, industrial manufacturing returns to the United States, data centers proliferate, and global energy trade is reshaped, the consequences of inaction will only compound. The United States must reform its permitting processes to allow energy infrastructure to keep pace with demand that is already racing ahead.

15 EIA. "U.S. Natural Gas Consumption Set New Winter and Summer Monthly Records in 2024." March 31, 2025. https://www.eia.gov/todayinenergy/detail.php?id=64845.

16 Renewable integration refers to the ability of the energy system to reliably incorporate electricity generated from renewable resources (e.g., wind and solar) into the grid, Because these resources are intermittent and weather-dependent, natural gas plays a critical role as a flexible, dispatchable resource that can quickly ramp up or down to maintain grid stability and meet demand when renewable output fluctuates.

III. THE IMPORTANCE OF INFRASTRUCTURE TO ENSURE DELIVERY OF AFFORDABLE AND RELIABLE ENERGY

Energy transacts in competitive markets that send clear price signals where infrastructure is needed. Yet in recent years, nonmarket forces, protracted permitting, regulatory uncertainty, policy hurdles, and litigation have hindered industry's ability to respond and build the necessary infrastructure. This mismatch between market demand and infrastructure capacity presents serious consequences not just for domestic energy systems, but for the broader economy as well.

FINDING 1-1: The inability to develop infrastructure in response to price signals has several negative consequences, including increased consumer energy costs, diminished energy reliability, and damage to investments and supply chains.

A. Impacts on Markets and Consumer Pricing

U.S. production of oil, NGLs, and natural gas has continued to grow in response to rising demand. This sustained growth has helped keep national benchmark prices, such as West Texas Intermediate crude oil and Henry Hub natural gas, relatively stable and low since 2022, after spiking early that year following Russia's invasion of Ukraine. However, these national averages mask significant regional disparities. In areas where infrastructure is insufficient, particularly pipeline and storage capacity, consumers face elevated energy costs and price volatility.

One of the most striking examples is in the Appalachian region, where natural gas at Eastern Gas South, near production activities, trades at a discount compared with nearby demand centers, Transco Zone 6 in New York and Algonquin Citygate in Boston. Furthermore, prices in these markets typically spike in the winter with increased heating demand, widening the differential to Henry Hub. These pricing variations persist despite the geographic proximity of these hubs, underscoring how pipeline constraints prevent low-cost gas from

reaching high-demand markets, creating "energy deserts."

Despite strong market support for infrastructure expansion, several fully approved pipeline projects in the Northeast and Mid-Atlantic have been canceled due to permitting and legal challenges (see Table 1-1). Atlantic Coast Pipeline, Constitution Pipeline, Northern Access, Northeast Supply Enhancement Pipeline, and PennEast Natural Gas Pipeline were all abandoned after facing prolonged and coordinated opposition. Each of these projects was designed to alleviate supply constraints and stabilize regional energy prices. Their cancellation has left the Northeast and Mid-Atlantic vulnerable to sharp price spikes during cold snaps or periods of high demand.

These elevated natural gas prices reflect a regional failure to respond to clear market signals urging investment in infrastructure to alleviate supply constraints. This is evident in the EIA's delivered natural gas pricing data for Eastern markets (Figure 1-2), which consistently show that New England and South Atlantic residents pay more for natural gas than those in other Eastern regions; a disparity that is projected to persist.[17]

This is also illustrated in Figure 1-3, which shows that in 2024, the natural gas residential price in New England was the highest of the Eastern markets and 79% higher than the average price in the East North Central Region. The East North Central Region is where many pipelines that transport natural gas converge, making it relatively well supplied compared with other Eastern markets.

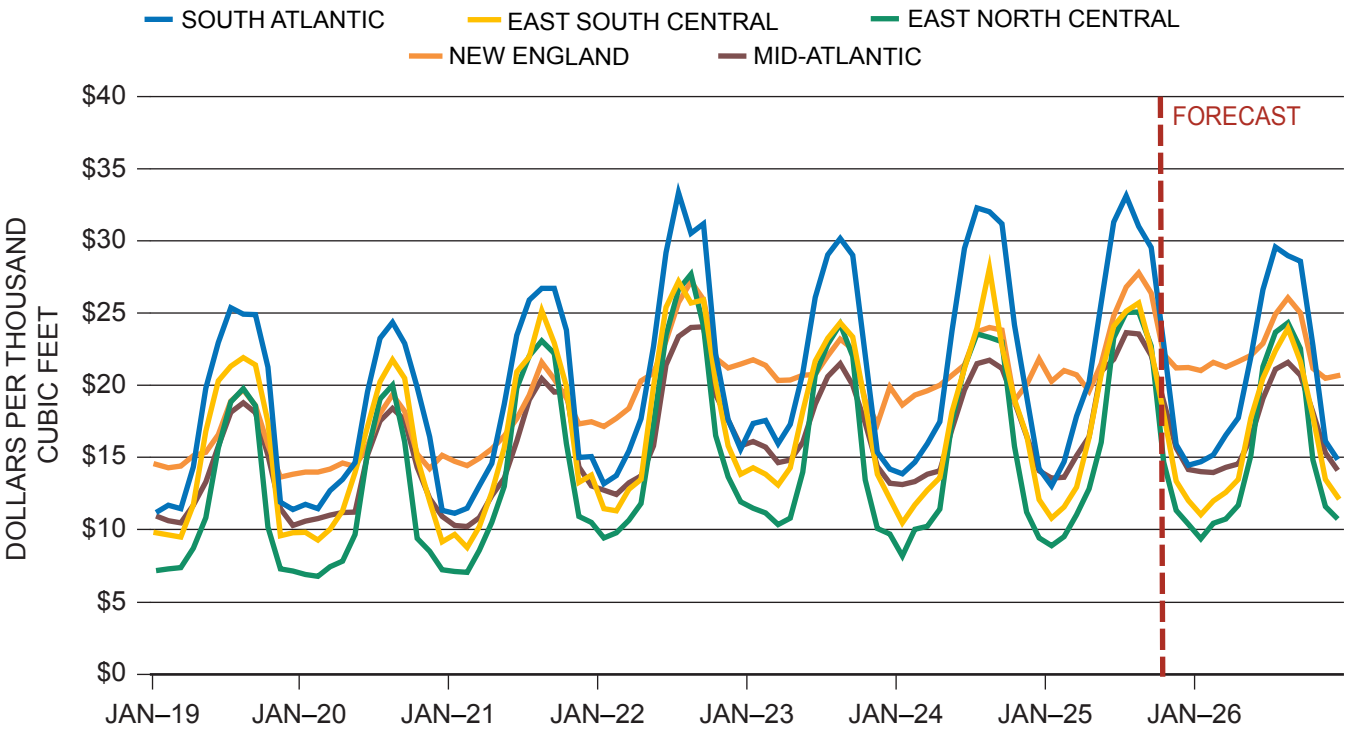
Pipeline constraints along the East Coast have restricted the flow of natural gas from the Appalachian Basin, leading to persistent price disparities. For example, average basis differentials to Henry Hub for major trading hubs in the Northeast show seasonal spikes (Figure 1-4).

These elevated gas prices have cascading effects that spill into electricity markets. In June 2025, the External Market Monitor for ISO New England ("ISO-NE"), Potomac Economics, reported "ISO-NE has exhibited the highest energy prices in

17 EIA. "Short-Term Energy Outlook," August 2025. Table 5b. U.S. Regional Natural Gas Prices. https://tinyurl.com/ms6cpfux.

Project	Purpose & Outcome
Atlantic Coast Pipeline	Intended to connect West Virginia gas supplies to Virginia and North Carolina to support coal plant retirements. Canceled on July 5, 2020, by Dominion and Duke Energy due to legal uncertainty and rising costs; despite 31.4 miles of pipe already installed.
Constitution Pipeline	A 124-mile project to deliver 650 million cubic feet per day (MMcf/d) from Northeast Pennsylvania to New York. Canceled in February 2020 after New York denied a required Water Quality Certificate.
Northern Access Project	Proposed by National Fuel Gas Company to move 0.49 Bcf/d from the Marcellus Shale to New York via a 99-mile pipeline. Blocked by delays and increased costs following New York's refusal to issue a water quality permit.
Northeast Supply Enhancement (NESE)	Designed to transport gas from Pennsylvania to New York, including an offshore segment between New Jersey and Long Island. Delayed due to water permit denials in both states. In 2019, supply constraints led to temporary moratoriums on new hookups by Con Edison and National Grid. The project has since been reproposed.
PennEast Pipeline	A 118-mile project backed by a consortium to move Appalachian gas through Pennsylvania and New Jersey. Canceled after failing to secure all required permits, including a water quality certification in New Jersey.

***Table 1-1.** Cancellations of Recent Pipeline Projects*

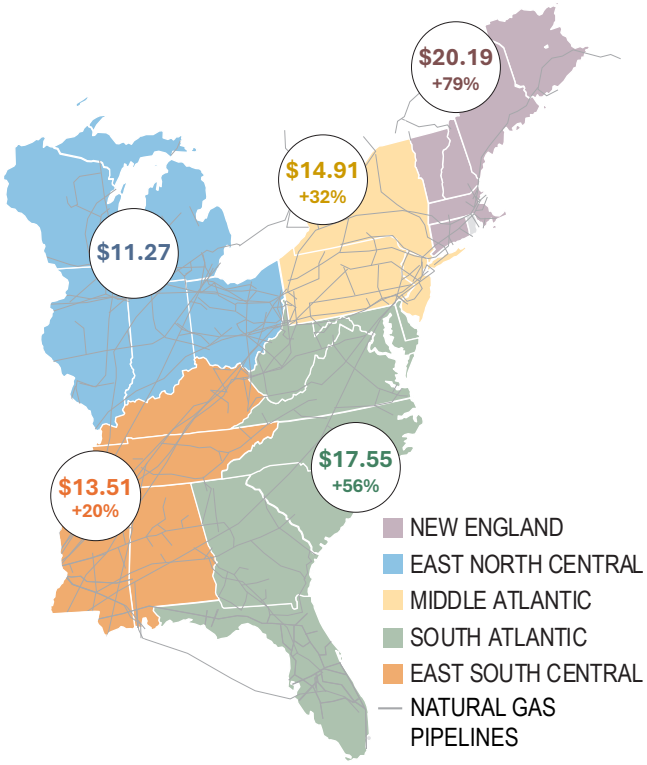


Source: Data from EIA. 2025.

Figure 1-2. *Monthly Residential Natural Gas Prices, Eastern Region*

the Eastern Interconnect, primarily due to higher natural gas prices at pipeline delivery locations in New England."[18] The report included Figure 1-5 to support their finding.

The Progressive Policy Institute (PPI) further highlighted the real-life consequences of these infrastructure gaps in its 2025 report.[19] It found that opposition to "substation upgrades, transmission lines for hydropower imports from Quebec, and pipelines bringing Appalachian shale gas across Pennsylvania and New York," have disproportionately impacted lower-income residents. According to PPI, "politically powerful elites in one of America's most progressive regions are using federal laws like the [National Environmental Policy Act (NEPA)], the Clean Water Act, and state laws like

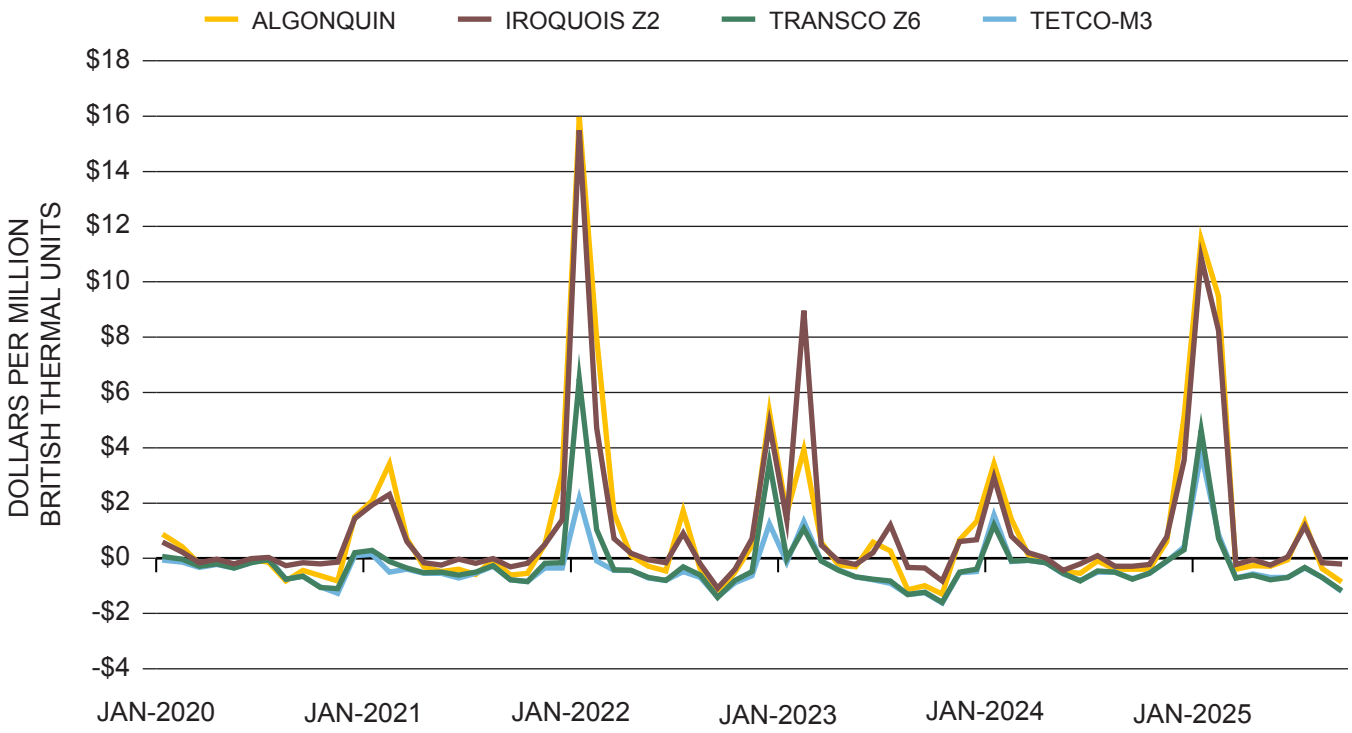


Source: Data from EIA. 2025.

Figure 1-3. *Price of Natural Gas ($/Mcf)*

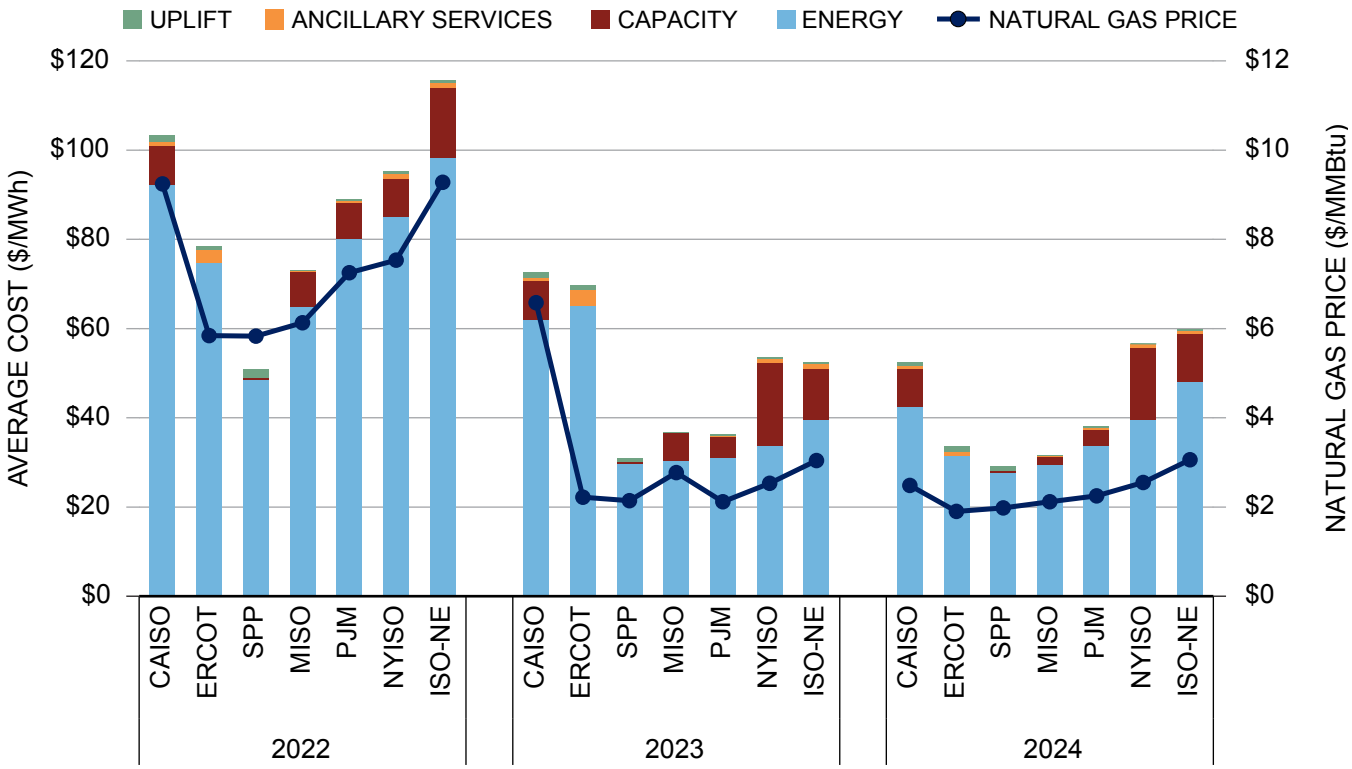
18 Potomac Economics. "2024 Assessment of the ISO New England Electricity Markets." 2024 at vi; *see also id.* at 2 ("ISO-NE has exhibited the highest energy prices in the Eastern Interconnect, primarily due to higher natural gas prices at pipeline delivery locations in New England.") https://www.iso-ne.com/static-assets/documents/100025/iso-ne-2024-emm-report-final.pdf.

19 Sykes, Elan. "Energy Costs Come First: A New Approach to Environmental Justice." 2024. Progressive Policy Institute. https://www.progressivepolicy.org/wp-content/uploads/2025/02/PPI_Energy-Costs-Come-First-Feb25.pdf.



Source: LSEG Eikon. 2025.

Figure 1-4. *Average Natural Gas Basis Differentials to Henry Hub at Major Northeast Trading Hubs*



Source: Potomac Economics, 2024 Assessment of the ISO New England Electricity Markets. 2025.

Figure 1-5. *All-In Prices in Regional Transmission Organization (RTO) Markets*

the Massachusetts Environmental Policy Act to subject their lower-income neighbors to unnecessary price volatility and prolonging reliance on coal and oil."[20]

Weaponization of legal and regulatory policies and permitting provisions, while originally intended to protect environmental and community interests, has in practice contributed to unnecessary price volatility and energy scarcity. As a result, residents in underserved areas face higher energy costs and reduced reliability. A comparative chart (Figure 1-6) shows electricity prices in Boston significantly exceeding those in cities like Chicago, Dallas, Los Angeles, and New York.

FINDING 1-2: Infrastructure bottlenecks lead to higher energy prices for consumers. Even though national supply is ample, pipeline-constrained regions experience price spikes and persistently higher fuel and related electricity costs, underscoring the need to expand pipeline capacity where the market is signaling shortages.

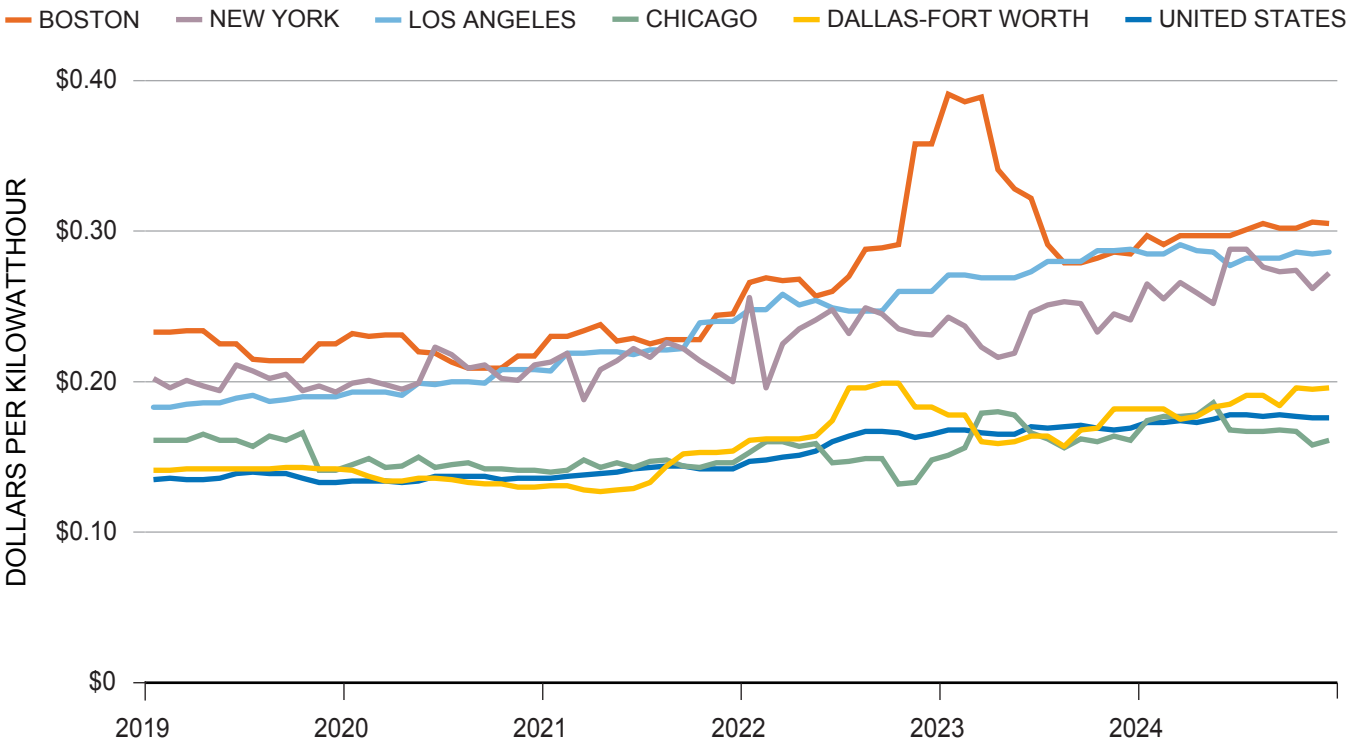
B. Permitting Delays and Reliability Consequences

A stable and robust energy supply chain is essential to ensuring reliability across sectors—from household gas distribution to electricity generation and industrial operations. However, the growing mismatch between rising demand and insufficient infrastructure is creating serious reliability concerns, particularly as the nature of energy demand becomes more diversified and dynamic.

The Department of Energy (DOE), in its June 30, 2025, request to the NPC, warned that "electricity demand and shifting load patterns are straining natural gas pipelines in key regions of the United States."[21] This concern is echoed in the NPC's own accompanying Gas-Electric Coordination

20 Sykes, Elan. "Energy Costs Come First: A New Approach to Environmental Justice." 2024.

21 See Appendix A.



Source: Data from Bureau of Labor Statistics. 2025.

Figure 1-6. *Major Metro Area Electricity Prices*

study, *Reliable Energy: Delivering on the Promise of Gas-Electric Coordination*, which documents how constrained pipeline capacity has already limited gas generator availability and threatens the reliable generation and transmission of electricity.[22]

These concerns are particularly acute in New England where constrained pipeline conditions have limited the ability of pipeline operators to support the growing demand and ramping needs of gas-fired generators. In its assessment prepared for ISO-NE, Potomac Economics identified gas pipeline constraints as a key driver of growing winter risk.[23] Further, the North American Electric Reliability Corporation (NERC) has emphasized that "additional pipeline infrastructure is needed to reliably serve electric load."[24] Without additional infrastructure, some regions face a real "risk of a shortfall in natural gas pipeline capacity" that could result in serious reliability threats during periods of peak demand.[25] Four electric grid operators, serving 144 million people across 36 states and the District of Columbia, have jointly stressed that expanding natural gas infrastructure is critically important to improving gas-electric coordination and strengthening energy security.[26] Two grid operators further "urge[d] [the Federal Energy Regulatory Commission (FERC)] to keep in mind that the continued availability of natural gas and associated infrastructure is a key component in ensuring long-term resource adequacy, and by extension, in meeting [the operators'] significant reliability responsibilities under Section 215 of the Federal Power Act."[27]

The slowdown in infrastructure expansion is increasingly impacting reliability not just for power generation but for all pipeline shippers. The largest areas of natural gas demand growth are the power sector, which now accounts for ~40% of total U.S. gas consumption,[28] and LNG exports.[29] This shift has introduced new operational complexities and capacity constraints because infrastructure growth in certain regions has not kept pace with increasing demand, and also because the LNG and power sectors have fundamentally different flow and infrastructure requirements compared to traditional users like industrial facilities or local distribution companies.

The pipelines that serve LNG exporters must offer flow flexibility to accommodate variable demand and reroute gas during upstream or midstream disruptions. Added storage capacity near export terminals is essential to buffer supply during pipeline outages or maintenance, ensuring continuous feedstock availability and minimizing export interruptions. Figure 1-7 shows that the market started adding storage capacity in 2023, a trend that is expected to continue, but S&P reports that most of the added underground storage capacity between 2024 and 2031 will be located along the Gulf Coast or Southeast to serve the flexibility needs of growing LNG export demand.[30]

FINDING 1-3: Added storage capacity near LNG export terminals is essential to buffer supply during pipeline outages or maintenance, ensuring continuous feedstock availability and minimizing export interruptions.

Similarly, power generation demand is not entirely baseload[31] or predictable. A portion of the power industry's growing demand for natural gas is

22 NPC. "Reliable Energy: Delivering on the Promise of Gas-Electric Coordination." 2025. https://gas-electric.npc.org/.

23 Potomac Economics. "2024 Assessment of the ISO New England Electricity Markets." 2025. https://www.iso-ne.com/static-assets/documents/100025/iso-ne-2024-emm-report-final.pdf.

24 NERC. "2022 Long-Term Reliability Assessment." December 18, 2022. https://www.nerc.com/globalassets/programs/rapa/ra/nerc_ltra_2022.pdf.

25 NERC. "2024 Long-Term Reliability Assessment." December 29, 2024. https://tinyurl.com/ak244zec.

26 ISO-NE, MISO, PJM, SPP. "Strategies for Enhanced Gas-Electric Coordination: A Blueprint for National Progress." February 21, 2024. https://tinyurl.com/443b9nsb.

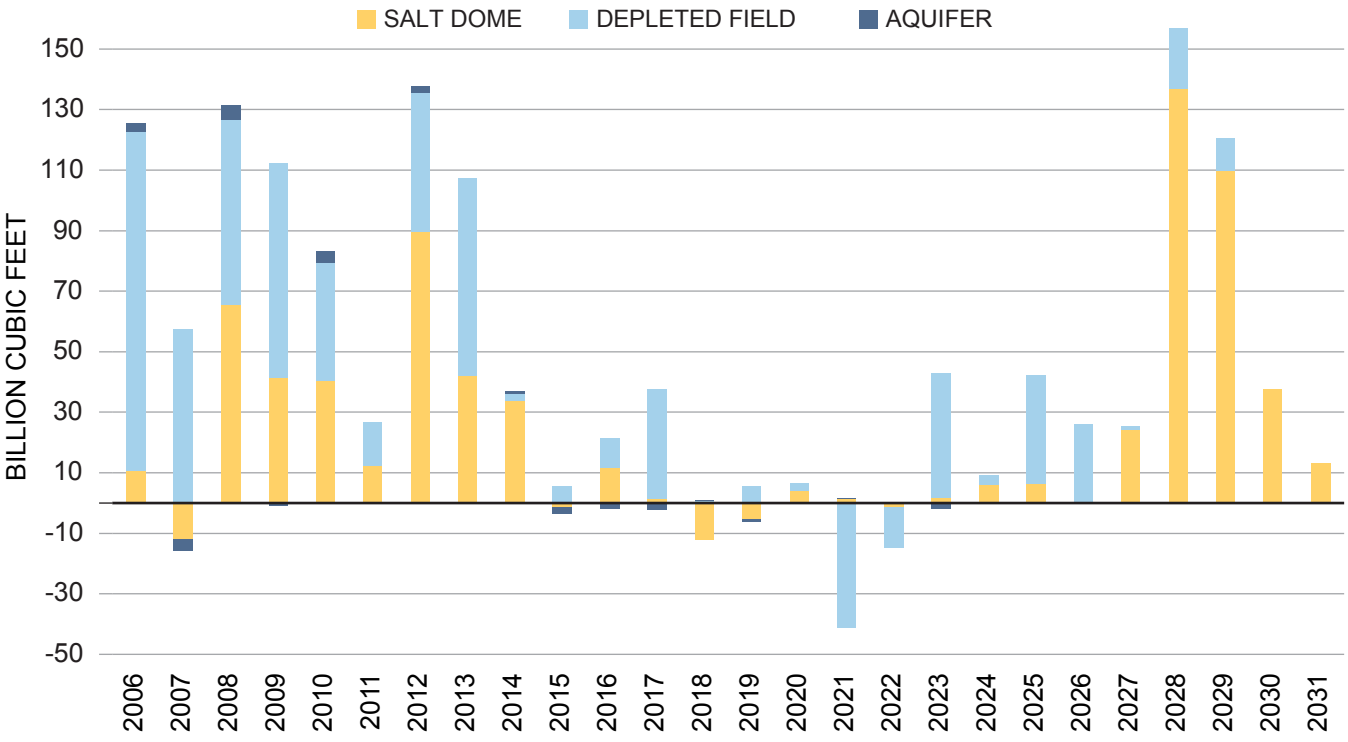
27 PJM Interconnection, LLC, and Midcontinent Independent System Operator, Inc. "Limited Reply Comments." at 2, Docket No. PL18-1-001 (filed May 25, 2022). https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20220525-5045&optimized=-false&sid=580e1c2b-9bc9-4d1d-ab3c-64db5l173aff.

28 EIA. "Short-Term Energy Outlook Data Browser." https://www.eia.gov/outlooks/steo/data/browser/#/?v=15&f=A&s=0&start=2020&end=2026&ctype=linechart&maptype=0&linechart=NGTCPUS~NGEPCON&map=.

29 DOE. "U.S. Liquefied Natural Gas (LNG) Exports Fact Sheet." 2025. https://www.energy.gov/sites/default/files/2025-03/U.S.%20Liquefied%20Natural%20Gas%20%28LNG%29%20Exports%20Fact%20Sheet_0.pdf.

30 American Gas Association. "Assessing the Value of Natural Gas Storage: A Strategic Asset for Grid Reliability, System Resilience, and Operational Flexibility in a Changing Energy Landscape." 2025. https://www.aga.org/wp-content/uploads/2022/04/Value-of-Storage-FINAL.pdf.

31 Baseload generation refers to the steady, constant production of electricity from power plants that run 24/7 to meet the minimum, continuous demand on an electrical grid.



Source: S&P Global Energy; American Gas Association. Data as of January 14, 2026. Subject to revision.

Figure 1-7. *U.S. Lower 48 Working Gas Storage Capacity Changes*

highly variable, influenced by real-time electricity market dynamics, weather fluctuations, and intermittent renewable generation. The power industry must contract for the services that meet their greater flexibility requirements, including fluctuating nonratable hourly flows, so pipelines can plan for—and size their systems to accommodate—such dynamic usage. When customers flow more natural gas or flow gas differently (e.g., nonratably) than their contract allows without authorization from the pipeline, it can impair the operational integrity of the pipeline and can threaten reliable service to other customers that adhere to their contracts. The threat to reliability increases during high-demand periods and when multiple customers want to rely on the extra-contractual flexibility of the pipeline at the same time and location.

As natural gas demand and flow variability rise without corresponding infrastructure growth, pipelines are increasingly issuing operational alerts that restrict nonratable flows and secondary point access, reducing flexibility and service quality for all shippers. Operational alert notices are necessary to protect other shippers on the pipeline as well as the pipeline system itself. Consequently, any shipper that needs a pipeline service that is more flexible or tailored than the one that it purchased faces a growing risk that it either cannot obtain natural gas when needed, or it must pay more for pipeline capacity in a secondary market. These impacts will only grow as energy demands increase, as seen during Winter Storm Elliott. Such real-world events demonstrate the potentially catastrophic consequences of system imbalances.

FINDING 1-4: Stronger incentives for appropriate contracting could expand pipeline capacity and enhance access to market-area gas storage, enabling more responsive, demand-driven flows that better support the evolving needs of power generation.

During Winter Storm Elliott (December 21–27, 2022), competition for limited pipeline capacity between gas-fired generators and heating customers caused pipeline pressures to drop dangerously low. Williams Company issued a report following the

storm,[32] which described the disconnect between nationwide growth rates in natural gas consumption and gas pipeline capacity and gas storage delivery capacity from 2010 to 2022. According to the report:

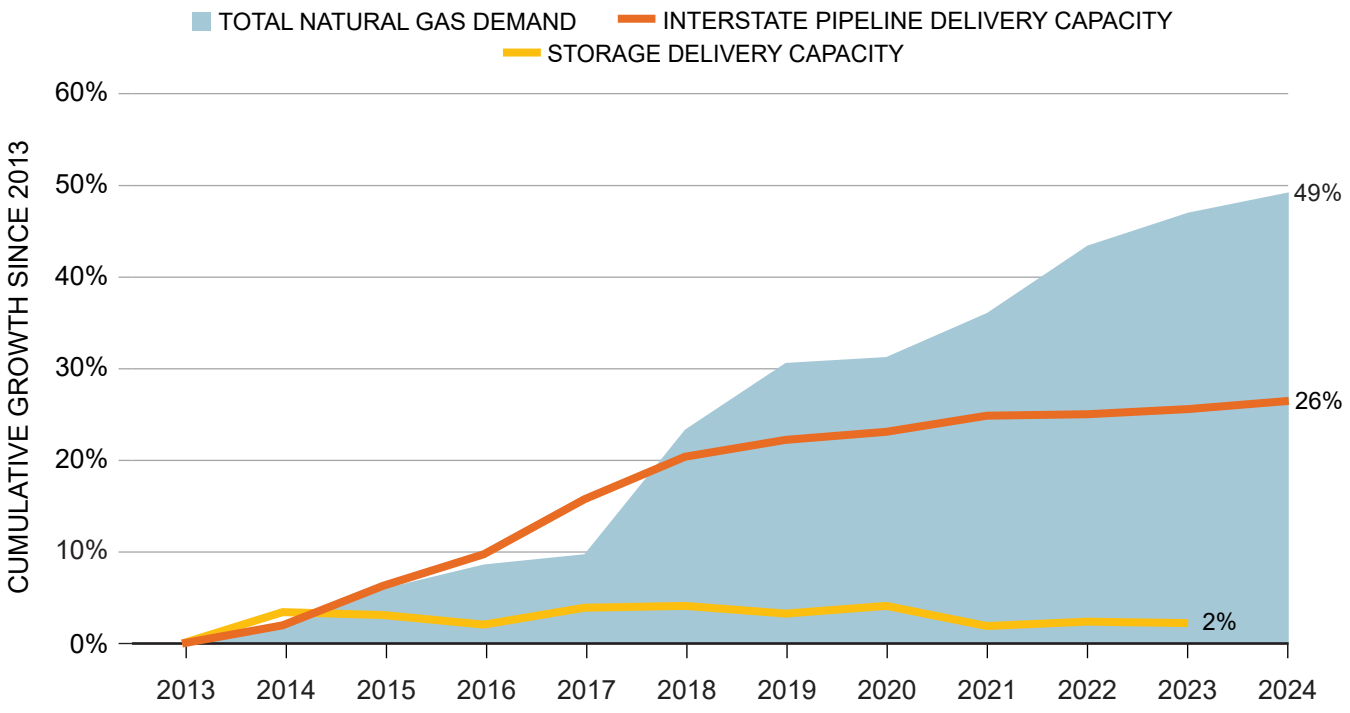
> *. . . gas consumption [across the country] increased 56%, primarily from electricity demand growth, while at the same time, pipeline capacity grew only 27% and gas storage delivery capacity grew only 12%. Storage delivery capacity is particularly important in seasonal high demand as it is the source of the linepack that is used to help balance differing rates of supply and demand on a peak day.*

Figure 1-8 shows that storage delivery capacity in the U.S. has been relatively steady since 2014, while natural gas demand has grown nearly 50% from 2013 through 2024.

The disconnect between pipeline capacity growth and gas demand growth contributed to the difficulty the pipeline system had in meeting demand across New England, the Northeast, the Mid-Atlantic, and the Carolinas during Winter Storm Elliott. During the storm, there was significant competition for the region's limited natural gas pipeline capacity and gas supply, between the ramping needs of natural gas-fired generators and residential and commercial heating customers. Con Edison's customers were exposed to extreme levels of risk when pipeline pressures became unstable, particularly on the Transcontinental Gas Pipeline system (Transco). Transco's owner, Williams, described the situation as follows:

> *Transco assets performed well during Elliott, meeting all contractual obligations despite the massive storm. However, pipeline pressures at several delivery points in the Southeast fell below normal levels due to utility customers taking quantities of gas at delivery locations at a significantly greater rate than the gas supplies that were being received into Transco's system. Even though Transco took steps with customers to reduce receipt and delivery imbalances and engaged system storage resources to help make up the*

32 Williams Company. "Winter Storm Elliott White Paper." 2023. https://www.williams.com/winter-storm-elliott/.



Note: 2023 is the most current data for storage delivery capacity.
Source: Williams. Data from EIA. 2025.

Figure 1-8. *Graph Comparing Growth in Pipeline Capacity, Storage Delivery Capacity, and Demand for Gas from 2010–2022*

difference, the pipeline still lost 2.0 Bcf of natural gas linepack in one day because utilities and electric generators took more gas to meet demand—including a demand for electricity—that was higher than originally predicted. Losing linepack is not unusual on a high-demand day and is one of a pipeline's primary tools to cope with short-term imbalances in system flows, but the rate of loss during Elliott was unprecedented and was the cause of lower-than-expected pipeline pressures. For context, 2.0 Bcf per day of linepack gas could provide electric power for 10.7 million American homes.[33]

The October 2023 FERC, NERC and Regional Entity Staff Report[34] described how Con Edison, which serves over a million gas customers in New York City and surrounding areas, declared a Gas System Emergency to preserve system reliability. The operator was able to maintain its natural gas local distribution system pressure by using its own LNG (storage) facility, among other measures. "Had pipeline pressures not recovered, Con Edison could have faced an unprecedented loss of its entire system that, in this worst-case scenario, would have taken months to restore, even with mutual assistance."[35]

FINDING 1-5: Lack of adequate natural gas pipeline and storage infrastructure is causing reliability and energy security concerns, not just for power generators, but for all shippers.

C. Impacts on Project Developers and Future Investment

Permitting delays and canceled projects also translate into direct financial costs for the companies and developers responsible for building new energy infrastructure and the customers that hold capacity on those projects. The most apparent consequence is the significant cost escalation that accompanies protracted timelines. Upstream and midstream oil and gas capital projects from 2015 to 2019 suffered an average delay of 2.5 years and a corresponding cost overrun of 17%.[36] The unpredictability of multi-year timelines makes project financing more expensive and difficult to secure, as investors demand higher returns to offset risks. Increases in construction costs have been estimated up to 30% over project timelines, largely due to material and labor inflation, further eroding project viability and profitability.[37] Unfortunately, this industrywide trend is a consistent feature of large-scale capital projects in the energy sector.

Two major pipeline projects serve as powerful case studies of these financial consequences. The Atlantic Coast Pipeline was initially estimated to cost $5.1 billion, with a target completion date of late 2019. However, legal proceedings and delays caused the project's costs to balloon to nearly $8 billion before the project was ultimately canceled in July 2020 due to legal uncertainty and delays.[38] At the time of cancellation, the developers had already secured 98% of the route's easements and installed 31.4 miles of pipe.[39] Similarly, the Mountain Valley Pipeline, which was originally projected to cost $3 billion with a 2018 completion date, saw its costs more than triple to nearly $10 billion due to years of legal challenges and regulatory delays.[40] These cases underscore a critical risk: Permitting and litigation delays can lead to substantial cost overruns or outright project cancellation and a total loss of invested capital.

33 Williams Company. "Winter Storm Elliott White Paper." 2023. https://www.williams.com/winter-storm-elliott/.

34 FERC, NERC. "Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott." Nov. 7, 2023. https://www.ferc.gov/news-events/news/ferc-nerc-release-final-report-lessons-winter-storm-elliott.

35 FERC, NERC. "Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott." Nov. 7, 2023.

36 Bain & Company. "Energy Transition: Delivering Capital Projects On Time and On Budget." 2023. https://www.bain.com/insights/energy-transition-delivering-capital-projects-on-time-and-on-budget.

37 Common Good. "Two Years, Not Ten Years: Redesigning Infrastructure Approvals." 2015. https://www.commongood.org/articles-reports-and-media-appearances/two-years-not-ten-years-redesigning-infrastructure-approvals-1.

38 Duke Energy. "Dominion Energy and Duke Energy Cancel the Atlantic Coast Pipeline." 2020. https://news.duke-energy.com/releases/dominion-energy-and-duke-energy-cancel-the-atlantic-coast-pipeline.

39 Atlantic Coast Pipeline, LLC et al. "Order Approving Restoration Plans and Dismissing Requests for Rehearing" at pp. 3, 32, 48. Docket No. CP15-554 et al. March 24, 2022. https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20220324-3115&optimized=false&sid=7f379f48-1520-473d-b6c8-ddea847b8a34.

40 Vasquez, David. "The Economic Benefits of Natural Gas: The Mountain Valley Pipeline and the Need for Further Pipeline Expansion." June 9, 2023. America First Policy Institute. https://www.americafirstpolicy.com/issues/fact-sheet-the-economic-benefits-of-natural-gas-the-mountain-valley-pipeline-and-the-need-for-further-pipeline-expansion.

This stalled investment also has a direct impact on employment and wages. The cancellation of the Keystone XL Pipeline resulted in the loss of an estimated 20,000 potential construction jobs per year over a two-year period, accompanied by an estimated loss of $2.05 billion in potential wages. At a macro level, the cancellation of the Keystone XL Pipeline resulted in a direct loss of $3.4 billion in U.S. gross domestic product (GDP).[41] The canceled Jordan Cove LNG Terminal in Oregon, stalled by a cumbersome permitting process, would have created at least 6,000 jobs and generated nearly $100 million in annual state and local tax revenue.[42]

These types of economics losses are also experienced by Native American reservations, which hold approximately 20% of known oil and gas resources and are not immune to the delays and obstacles that impact other energy projects. Many Tribes rely on the development of these resources to sustain their economies and fund critical services for Tribal members.[43] Importantly, because Tribal lands are held in trust by the federal government, energy projects on Tribal lands are subject to federal environmental laws, like NEPA, that do not apply to private lands. While these laws may help protect Tribal resources, they are also the source of delays and obstacles that hinder Tribal energy development and economic growth. Energy-producing Tribes have advocated for additional opportunities to make permitting processes on Tribal lands more efficient, including by shifting decision-making and control over permitting from federal agencies, such as the Bureau of Indian Affairs, to Tribes themselves. Progress has been made in the Helping Expedite and Advance Responsible Tribal Homeownership Act of 2012 (HEARTH Act), 25 USC 415, and the creation of Tribal Energy Resources Agreements in the Energy Policy Act of 2005, 24 USC 3504. However, more can be done to improve permitting processes and advance Tribal self-determination for energy development projects on Tribal lands.[44]

FINDING 1-6: Permitting delays have imposed significant financial burdens on companies, developers, and Tribes, and undermined confidence in future investments needed to expand energy infrastructure.

D. Supply Chain Impacts of Permitting Delays

Permitting delays are more than administrative hurdles; they directly amplify procurement risks. When approvals are postponed, developers risk losing hard-won manufacturing slots to competing projects, triggering costly rescheduling and threatening overall project viability. As constraints on critical components such as gas turbines and large-diameter linepipe persist, pricing volatility will linger. Regulatory uncertainty and other nonmarket barriers further compound these risks, making investment decisions across the oil and gas sector increasingly precarious. The ripple effects extend beyond individual projects, disrupting long-term supply chain planning, and hindering efficient deployment of labor and equipment.

In this constrained environment, developers must compete for limited manufacturing capacity early in a project's lifecycle, often incurring additional costs to secure production slots before permits are finalized. If approvals stall, developers risk losing their place in the queue—an untenable scenario that undermines project execution and financial planning.

Manufacturers face parallel challenges. Without assurance that projects will proceed, they must juggle commitments across industries, leading to inefficiencies and a reluctance to expand production. This uncertainty elevates costs across the value chain and erodes competitiveness. Ultimately, the lack of timely permitting jeopardizes the delivery of cost-effective infrastructure, slowing progress and

41 Canadian Energy Centre. "Cancelling Keystone XL Cost Thousands of Jobs and Billions in GDP: U.S. Government Report." 2023. https://www.canadianenergycentre.ca/cancelling-keystone-xl-cost-thousands-of-jobs-and-billions-in-gdp-u-s-government-report/.

42 Morrone, James. "Permitting Reform Offers Promising Path Towards Sustained Economic Growth." Sept. 9, 2025. Americans for Prosperity. https://americansforprosperity.org/policy-corner/permitting-reform-offers-promising-path-towards-sustained-economic-growth/.

43 PERC. "Unlocking the Wealth of Indian Nations: Overcoming Obstacles to Tribal Energy Development." 2014. https://www.perc.org/2014/02/18/unlocking-the-wealth-of-indian-nations-overcoming-obstacles-to-tribal-energy-development/#:~:text=5-,Poverty%20persists%20even%20though%20many%20reservations%20contain%20valuable%20natural%20resources,known%20oil%20and%20gas%20reserves.

44 PERC. "Unlocking the Wealth of Indian Nations: Overcoming Obstacles to Tribal Energy Development." 2014.

diminishing the sector's ability to respond to growing energy demands.

1. Turbines: Schedule First, Price Second

Large gas turbines, like those used in natural gas pipeline compressor stations, have emerged as one of the most prominent chokepoints for oil and gas infrastructure growth. With original equipment manufacturer (OEM) delivery slots now quoted anywhere from one to seven years (varying by class and frame), some developers are pivoting from a "price-first" to "schedule-first" approach, securing slot-reservation agreements well before commercial terms are finalized. This scarcity translates into pricing volatility not only for simple-cycle turbines but also for combined-cycle facilities, which pair gas turbines with a heat recovery steam generator. For example, a new GE H-class combined-cycle facility now costs $2,400 per kilowatt (kW), up 2.5 times from just a few years ago.[45]

The gas turbine market became constrained when supply-side disruptions collided with surging demand and policy uncertainty stemming from efforts to bolster domestic manufacturing. On the supply side, a limited pool of specialized manufacturers produces critical turbine components, such as rotors, blades, nozzles, and electronics. Consequently, many turbine manufacturers are captive to the same supply chains leveraged by the aerospace and semiconductor industries, creating bottlenecks and cross-sector competition. The gas turbines themselves are also used globally across multiple industries (e.g., aviation and power). These factors, combined with new policies designed to spur domestic manufacturing, have led to upward inflationary pressure that is challenging the competitiveness of U.S. oil and gas infrastructure.

Despite the pressing need for this critical equipment, some manufacturers remain reluctant to expand production facilities after facing the consequences of two separate market crashes, in 2010 and 2017, which led to massive layoffs and restructuring. As a result, some major OEMs are prioritizing existing contracts rather than capacity expansion.[46] Despite their efforts, the order backlog continues to grow. One OEM has reported that its gas turbine inventory is effectively sold out through 2028, with 50 gigawatts (GW) of orders and reservations on the books. Of that total, 60% of sales originate in the United States, with a third directly associated to data center builds.[47]

2. Linepipe and Steel Products: Tightening Capacity

In February and June 2025, the Trump Administration introduced measures aimed at onshoring steel manufacturing. While intended to bolster domestic production, these actions have coincided with a period of strong demand at U.S. plate and pipe mills, contributing to a tighter domestic linepipe market and upward pressure on costs for oil and gas projects. For reference, the Argus linepipe index rose from $2,290/short[48] ton in July 2024 to approximately $2,552/short ton in July 2025.[49]

Correspondingly, mill capacity for certain pipe specifications is fully booked well into the future.[50] While U.S. steel producers are investing in capacity expansions, these additions will take years to materialize into shorter lead times.

Beyond mill availability, the oil and gas sector faces a deeper vulnerability: A significant reliance on galvanized and high-specification reinforced steel, much of which is sourced from Canada, Brazil, and Mexico. This domestic scarcity could contribute to year-over-year cost increases of approximately 8%

45 Anderson, Jared. "US Gas-Fired Turbine Wait Times as Much as Seven Years; Costs Up Sharply." S&P Global Commodity Insights, May 20, 2025. https://www.spglobal.com/commodity-insights/en/news-research/latest-news/electric-power/052025-us-gas-fired-turbine-wait-times-as-much-as-seven-years-costs-up-sharply.

46 Shidler, Lisa. "I Will Wait – Expected Surge in Turbine Manufacturing Complicated by Rising Costs, Uncertain Demand." RBN Energy. May 29, 2025. https://rbnenergy.com/daily-posts/blog/expected-surge-turbine-manufacturing-complicated-rising-costs-uncertain-demand.

47 WV News. "Gas-Fired Turbine Manufacturers Booked Solid Through 2028 as AI, Data Centers Soar." May 2, 2025. https://www.wvnews.com/news/wvnews/gas-fired-turbine-manufacturers-booked-solid-through-2028-as-ai-data-centers-soar/article_28a87b20-962c-40c6-9051-bcb8565cfeae.html.

48 Argus Media. "Pipe Logix Line Pipe Index – July 2024." July 2024. https://pipexch.com/argus-pipe-logix-line-pipe-report-july-2024/.

49 Argus Media. "US Line Pipe: Prices Flat, Market Seeks Direction." Argus Metals. September 2, 2025. https://www.argusmedia.com/metals-platform/newsandanalysis/article/2727419-US-line-pipe--Prices-flat--market-seeks-direction.

50 Bloomberg: Watch Williams CEO on Tariffs & Rising Pipeline Costs. March 11, 2025. https://www.bloomberg.com/news/videos/2025-03-11/williams-ceo-on-tariffs-rising-pipeline-costs.

for offshore oil and gas projects and 12% for onshore developments.[51]

FINDING 1-7: Oil and gas development is restricted by critical equipment shortages (e.g., turbines, large-diameter pipe, etc.). Regulatory uncertainty amplifies this procurement risk and deters investment.

IV. MAJOR ECONOMIC AND GEOPOLITICAL EVENTS SINCE THE 2019 NPC REPORT EXACERBATE RISKS OF INSUFFICIENT INFRASTRUCTURE

A. Summary

Since the publication of the 2019 NPC report, a series of economic and geopolitical shifts have fundamentally redefined the U.S. energy landscape. This section provides a retrospective analysis of these developments, highlighting how they have reshaped energy markets and amplified the urgency for comprehensive permitting reform. The most consequential trends include:

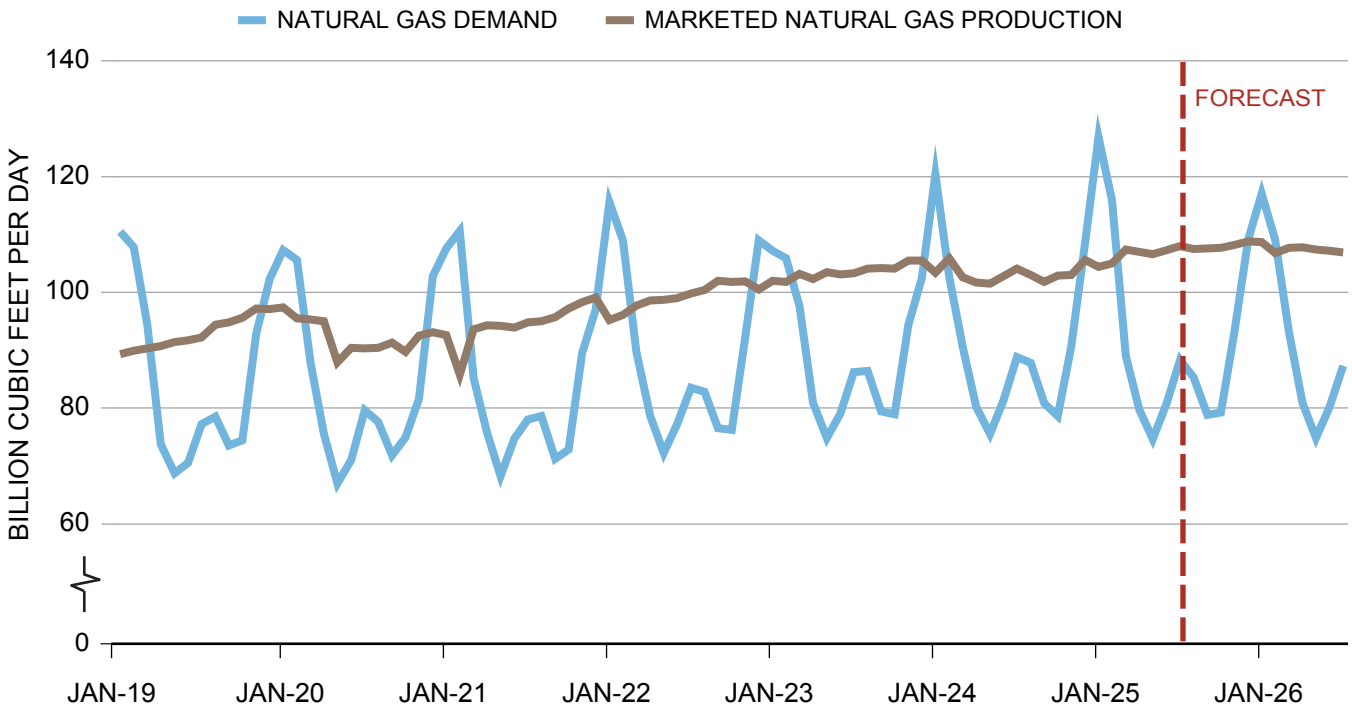
- **Surging Electricity Demand:** The rapid proliferation of data centers, accelerated adoption of electric vehicles, and a resurgence in domestic manufacturing have reversed a decade of stagnant electricity consumption. Building and industrial electrification, propelled by federal initiatives such as the Inflation Reduction Act (IRA)[52] and complementary executive orders, has driven power demand sharply upward, straining generation resources and grid capacity in critical regions.
- **Expansion of U.S. Energy Exports:** The United States has cemented its role as a global energy leader, emerging as the world's largest LNG supplier and a major crude oil exporter. This surge in exports has strengthened the U.S. economy, improved the trade balance, and enhanced geopolitical leverage, particularly in supporting allies during supply disruptions.
- **Demand shifts for oil and refined products:** Demand for petroleum liquids is being reshaped by industrial, power, and export needs. Crude oil consumption is increasingly driven by petrochemical feedstock requirements, rising use of refined fuels (jet fuel, gasoline, diesel), and robust global demand for U.S. exports. Simultaneously, the refining sector is undergoing structural changes, with closures and product shifts altering infrastructure needs.
- **Intensifying egress constraints:** Since 2019, U.S. oil and gas production growth has been concentrated in regions such as the Permian and Appalachia regions. While output has surged, infrastructure development has lagged, creating localized bottlenecks and price disparities. This disconnect between production centers and takeaway capacity underscores the need for targeted infrastructure investment.

The combined impact of these developments has driven an unprecedented growth in energy demand. Among the starkest examples has been the surge in natural gas demand. Natural gas demand, including exports, rose from an average of 98.0 Bcf/d in 2020 to 111.5 Bcf/d in 2024, with projections reaching 115.8 Bcf/d in 2025, up ~4% from 2024. Marketed natural gas production is rising in parallel, expected to average 117.7 Bcf/d in 2025, up from 113.2 Bcf/d in 2024. In addition, Figure 1-9 shows that although on an average basis, production is keeping pace with demand, in winter months demand exceeds production, which signals the need for natural gas withdrawals from storage and expanded storage infrastructure.

Meeting this growing demand will require not only new gas infrastructure to provide the fuel to meet electricity demand, but also new generation capacity and significant investment in transmission infrastructure to deliver power where it is needed most. The United States faces a significant challenge with insufficient electricity grid infrastructure and the slow pace of building new transmission and generation capacity. The continued development of energy infrastructure, like pipelines, transmission lines, and power generation facilities, all require timely, predictable, and efficient permitting processes to meet future power needs.

51 Bud's Offshore Energy (BOE). "Energy Production Safety, Pollution Prevention, and More," July 10, 2025. https://budsoffshoreenergy.com/tag/rystad/.

52 Inflation Reduction Act of 2022, Pub. L. No. 117-169, 136 Stat. 1818 (2022). https://www.congress.gov/bill/117th-congress/house-bill/5376/text.



Note: Demand=domestic consumption + exports (as LNG and by pipeline).
Source: Data from EIA. 2025.

***Figure 1-9.** U.S. Monthly Marketed Natural Gas Production and Demand (2019–2026)*

At the same time, natural gas demand is increasingly shaped by global dynamics, as expanding LNG exports link U.S. supply to international markets. Geopolitical developments and structural shifts in global energy demand are introducing new complexities for domestic supply planning and market operations. Together, these trends underscore the urgent need for modern, flexible infrastructure capable of supporting the evolving energy demands.

B. Energy Demand from Data Center Growth, Greater Electrification of Transportation and Heating, and Onshoring Manufacturing

After nearly two decades of relatively flat electricity consumption, the United States is experiencing a significant increase in power demand, similar to the growth seen in the 1990s and early 2000s, as shown in Figure 1-10.[53] Some reports are estimating 3.5% annual growth through 2040.[54] Texas and parts of the Mid-Atlantic—served by the Electric Reliability Council of Texas (ERCOT) and the PJM Interconnection (PJM), respectively—are expected to see the fastest growth in electricity demand. Current projections indicate that ERCOT will experience an average annual growth of 11% in 2025 and 2026, while PJM is expected to see a 4% increase.[55]

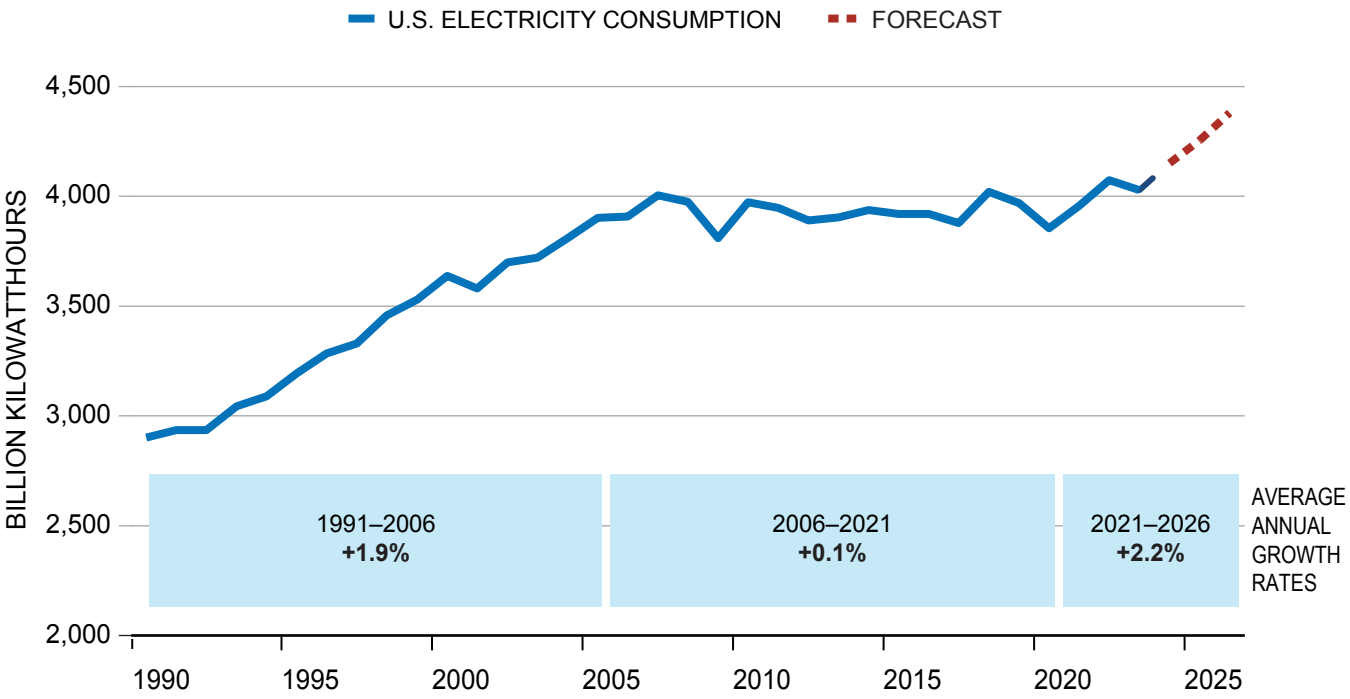
This resurgence in consumption is driven by several converging trends: rapid growth of data centers, electrification of transportation and heating, and onshoring of manufacturing. Together, these trends are reshaping how utilities, policymakers, and industry leaders plan for the future.

Federal legislation across both the Trump and Biden administrations has accelerated this change in different ways—by expanding incentives and funding for clean energy infrastructure and by

53 EIA. "After More Than a Decade of Little Change, U.S. Electricity Consumption Is Rising Again." May 13, 2025. https://www.eia.gov/todayinenergy/detail.php?id=65264.

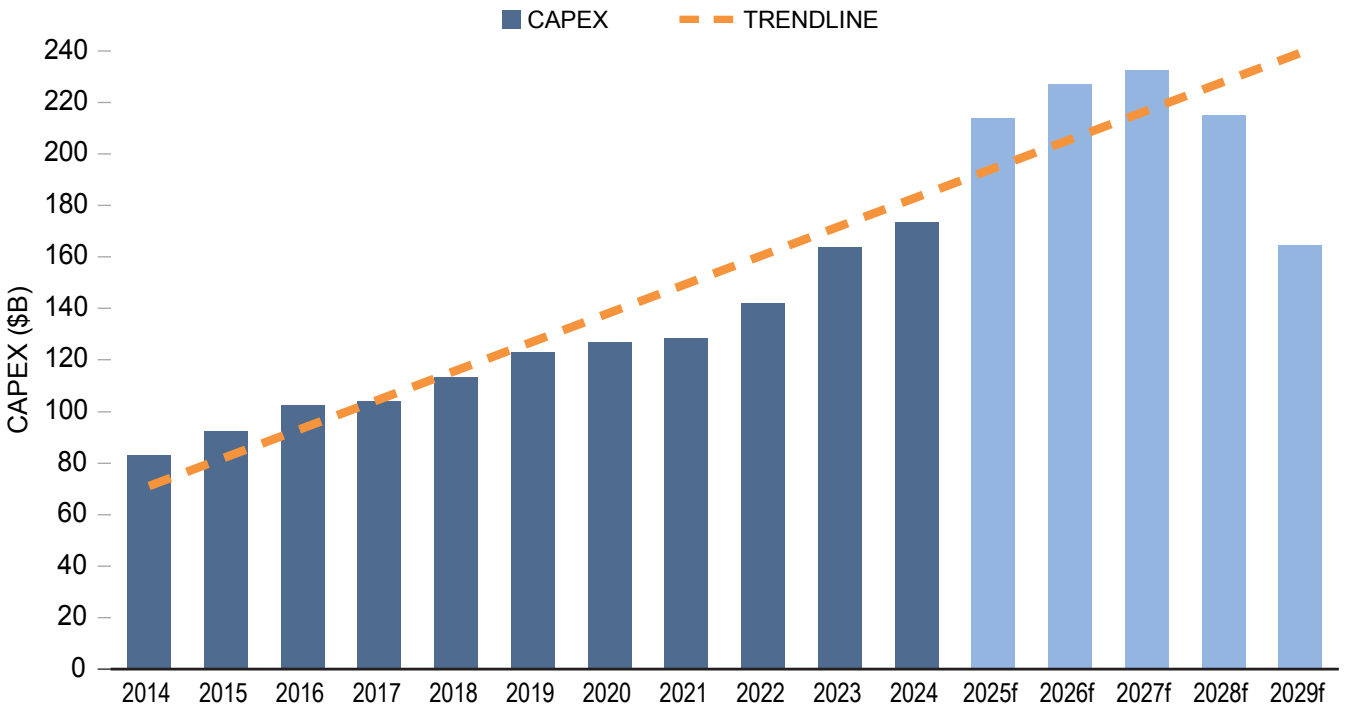
54 McKinsey. "Powering a New Era of US Energy Demand." April 29, 2025. https://www.mckinsey.com/industries/public-sector/our-insights/powering-a-new-era-of-us-energy-demand.

55 EIA. "We Expect Rapid Electricity Demand Growth in Texas and the Mid-Atlantic." July 31, 2025. https://www.eia.gov/todayinenergy/detail.php?id=65844.



Source: Data from EIA. 2025.

Figure 1-10. *U.S. Electricity Consumption from 1990–2026*



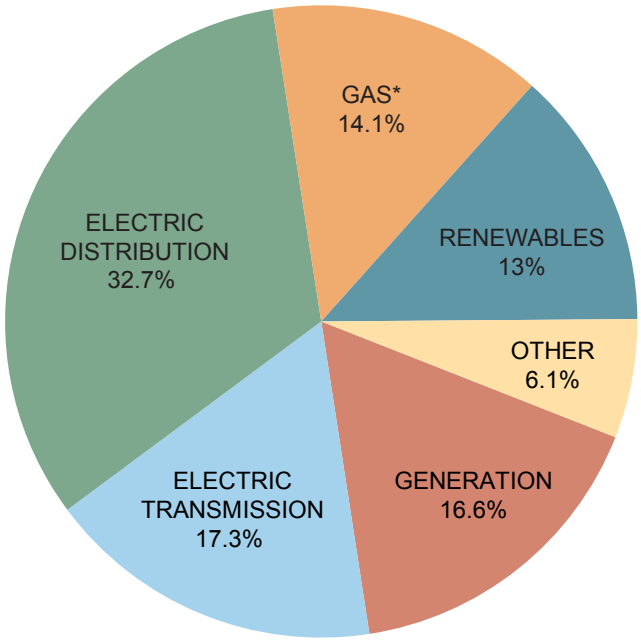
Note: f=forecast.
Source: Regulatory Research Associates, a group within S&P Global Commodity Insights. 2025.

Figure 1-11. *Energy Utility Actual and Estimated Capital Expenditures*

encouraging domestic manufacturing and industrial activity. State policies, meanwhile, have shaped how and where demand is growing most rapidly.

To meet increasing demand, utilities nationwide are accelerating investments in grid modernization, transmission upgrades, and renewable energy integration, as shown in Figure 1-11. Aggregate utility investments are projected to reach $228 billion in 2026, $233 billion in 2027, and $215 billion in 2028.[56] Investment levels in the later part of the forecast are expected to increase substantially as utility companies continue to plan future projects.

Notably, half of the capital expenditures currently projected through 2028 are anticipated to be allocated to electric transmission and distribution as shown in Figure 1-12.



Note: *Gas includes pipeline, storage, distribution, and other gas infrastructure.
Source: Regulatory Research Associates, a group within S&P Global Commodity Insights. 2025.

***Figure 1-12.** Forecasted Capital Expenditures by Business Category, 2025–2028*

56 Regulatory Research Associates, S&P Global Commodity Insights. "US Utility Capex Forecast Nudges Higher on Increased Generation Spending Plans." September 23, 2025. https://www.spglobal.com/market-intelligence/en/news-insights/research/2025/10/us-utility-capex-forecast-nudges-higher-on-increased-generation-spending-plans.

1. Increased Demand from Data Center Expansion

There is unprecedented demand for the digital services that have become central to our daily lives and modern economy—everything from work and education to purchasing groceries, banking, and even medical care now occurs online. The digital and cloud-based services we depend on are powered by physical infrastructure. Specifically, data centers located across the United States. With an average of 21 connected devices per household in the United States[57] and 5.5 billion people currently online globally,[58] the role of data centers is expected to grow as consumers and businesses generate twice as much data in the next five years as they did in the past decade. This growth is driven not only by the widespread adoption of cloud services and the proliferation of connected devices, but also by the rapid scaling of advanced technologies like generative AI. AI currently accounts for an estimated 10% to 20% of energy use in data centers, and its share is expected to rise significantly as models become more advanced.[59] AI alone could create up to $4.4 trillion in economic value globally by 2030.[60]

Figure 1-13 shows a BCG chart from NERC's 2024 Long-Term Reliability Assessment estimating data center growth in different regions of the United States.[61]

Currently, based on operational IT load, Northern Virginia is the largest data center hub in the

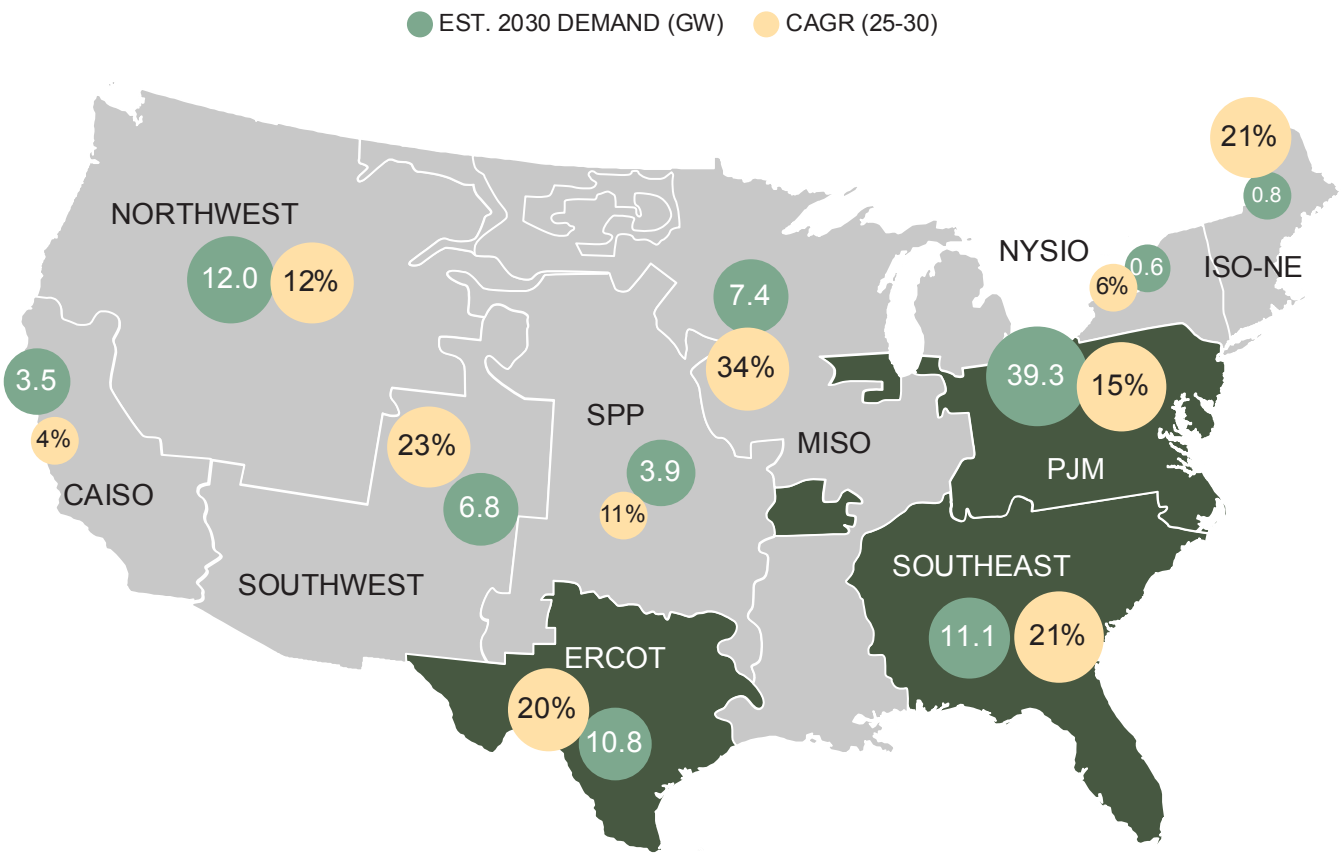
57 International Telecommunication Union. "Facts and Figures 2024 - Internet use." 2024. https://www.itu.int/itu-d/reports/statistics/2024/11/10/ff24-internet-use/.

58 International Telecommunication Union. "Statistics." 2024. https://www.itu.int/en/ITU-D/Statistics/pages/stat/default.aspx.

59 EPRI. ("AI applications are estimated to comprise about 10-20% of U.S. DC electricity consumption today (EPRI, 2024a) and 0.1% of total global electricity demand (de Vries, 2023), and projected rapid growth in AI model development, training, and inference will come on top of demand growth from other commercial DC services and cryptocurrency mining.") "Powering Data Centers: U.S. Energy System and Emissions Impacts of Growing Loads." White Paper. Oct. 30, 2024. https://www.epri.com/research/products/000000003002031198.

60 McKinsey. "The Economic Potential of Generative AI: The Next Productivity Frontier." June 14, 2023. https://www.mckinsey.com/capabilities/tech-and-ai/our-insights/the-economic-potential-of-generative-ai-the-next-productivity-frontier.

61 NERC. "2024 Long-Term Reliability Assessment." December 2024, updated July 15, 2025. https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf.



REGIONS/ ISO	CAPACITY 2025 (GW)	CAPACITY 2030 (GW)	SHARE OF TOTAL 2030 CAPACITY	TOP STATES (2030)
PJM	19.7	39.3	40%	VIRGINIA, OHIO
SOUTHEAST	4.3	11.1	11%	GEORGIA
ERCOT	4.4	10.8	11%	TEXAS
NORTHWEST	6.8	12.0	12%	OREGON
MISO	1.7	7.4	8%	ILLINOIS, IOWA
CAISO	2.8	3.5	4%	CALIFORNIA
SOUTHWEST	2.4	6.8	7%	ARIZONA
SPP	2.3	3.9	4%	NEBRASKA, WYOMING
ISO-NE	0.3	0.8	1%	CONNECTICUT
NYISO	0.4	0.6	1%	NEW YORK
OTHER	0.6	2.4	2%	

Note: Probabilistic facility-based forecast assumes 65% of planned hyperscaler and 50% of planned colocation provider load are completed. All operating and under-construction loads are assumed to be realized as announced; values rounded.
Source: BCG analysis. 2025.

Figure 1-13. Projected Growth in Data Centers in the United States

world.[62] Figure 1-14 lists other established U.S. markets, including Georgia, Illinois, Arizona, Texas, and California. There is significant growth in emerging markets like Oregon, Washington, and Ohio, and in new areas, including Indiana, Louisiana, Minnesota, Mississippi, and Missouri.[63]

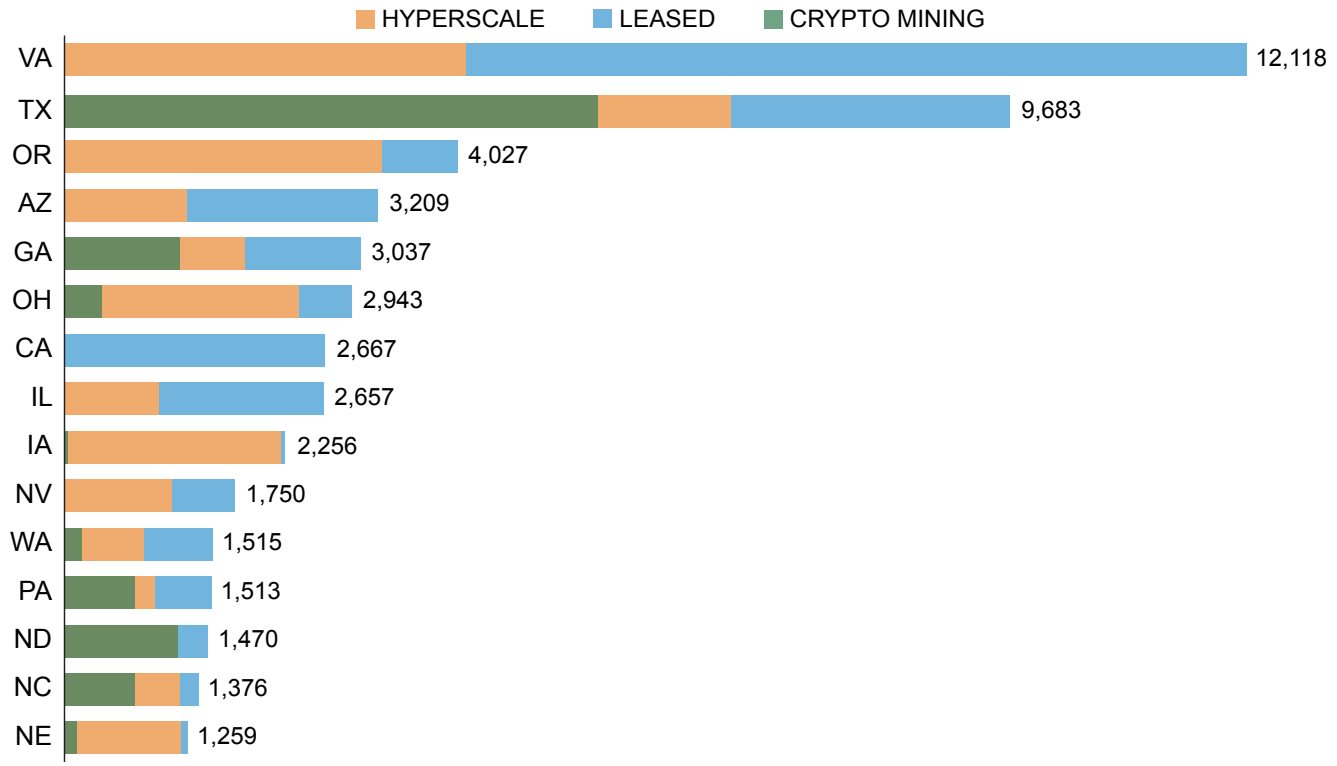
The United States requires rapid deployment of more data centers to provide the computing power needed to support critical and emerging technologies, including AI, that deliver broad public and economic benefits. As demand for data center services continues to rise, timely access to affordable and reliable power is the pacing challenge for the industry. In the U.S. market alone, power demand (measured by power consumption) is forecast to be 80 GW more in 2030, up from 50 GW in 2024 (Figure 1-15). The commercial viability of these projects depends on timely and robust electric transmission buildout as well as reasonable interconnection timelines.

To meet this need, the United States will require a diverse set of energy resources and technologies to maintain its edge amid intensifying global AI competition with far reaching implications for national security and sustained economic prosperity.

The data center industry is accelerating commercialization of new technologies like advanced nuclear and enhanced geothermal and investing in the expansion of existing generation resources. However, data centers generally require "five-nines" uptime requirements, meaning they must be operational 99.999% of the time. As a result, a reliable energy supply is essential. While many technology companies are investing in low-carbon electricity sources like renewables and nuclear to support their new data centers, they continue to rely heavily on natural gas for consistent power.

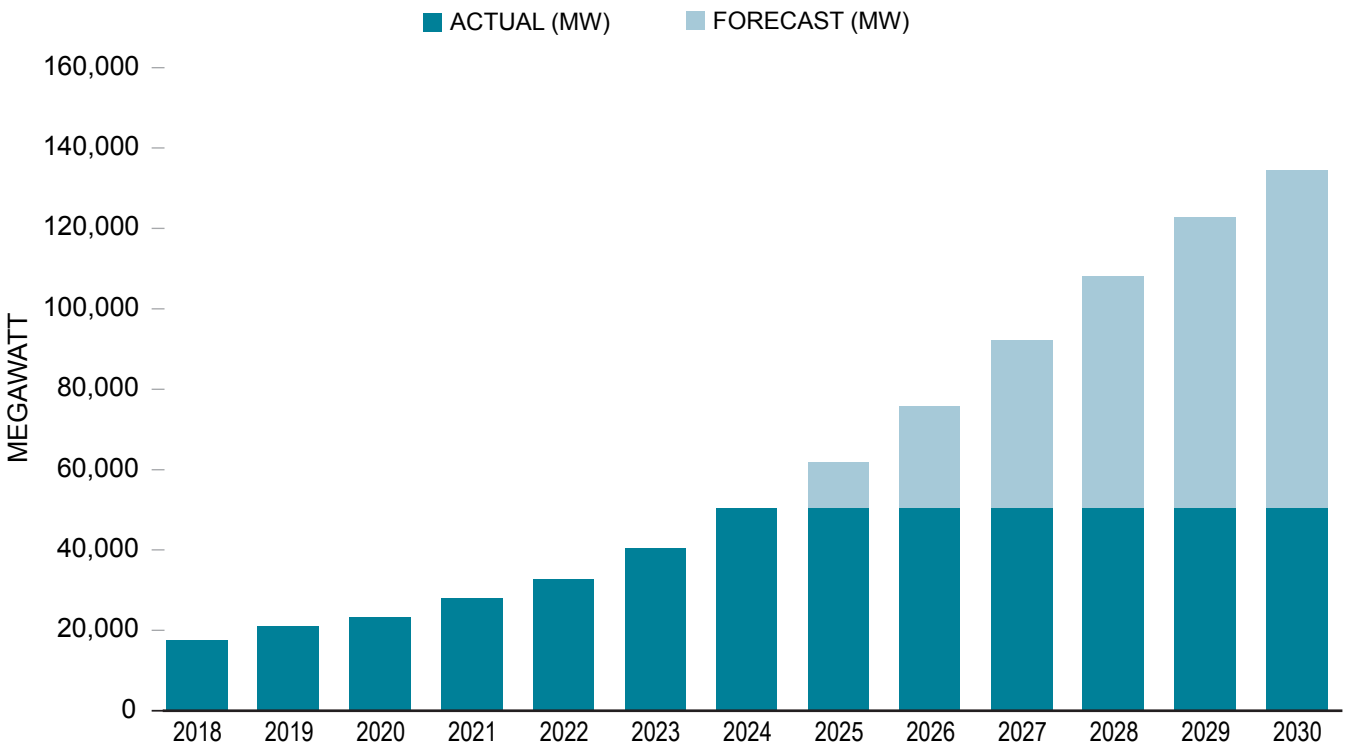
62 Cushman & Wakefield. "Global Data Center Market Comparison." 2025. https://www.cushmanwakefield.com/en/insights/global-data-center-market-comparison#toptenmarkets.

63 CBRE. "North America Data Center Trends H2 2024." February 26, 2025. https://www.cbre.com/insights/reports/north-america-data-center-trends-h2-2024.



Note: Excludes enterprise-owned data centers. Utility power represents actual and forecasted total electricity supplied to data centers from the power grid, including IT equipment, cooling, lighting, offices, and security systems as of the market monitor release date.
Source: S&P Global Market Intelligence. 2025.

Figure 1-14. *Largest Data Center Utility Demand Regions in 2025*



Note: Excludes enterprise-owned data centers. Utility power represents actual and forecasted total electricity supplied to data centers from the power grid, including IT equipment, cooling, lighting, offices, and security systems as of the market monitor release date.
Source: S&P Global Market Intelligence; data compiled September 30, 2025.

Figure 1-15. *U.S. Utility Power Demand from Data Centers Expected to More Than Double*

The International Energy Agency (IEA) released a report in April 2025 entitled "Energy and AI,"[64] that explored, among other issues, the implications of the rise of AI on energy investment. The IEA report plotted electricity generation for data centers by fuel in the United States between 2020 and 2035.[65] IEA updated its supply analysis for the United States in its World Energy Outlook 2025 based on recent policy changes. Figure 1-16 indicates natural gas currently has a 40% share and is the biggest source of electricity for data centers in the United States; this percentage is expected to grow through 2035.[66]

According to Goldman Sachs, 60% of the energy demand growth will be met by natural gas, which is predicted to grow ~3.3 Bcf/d by 2030.[67] They cite utility-integrated resource plans as evidence of the expected growth and state:

> *We believe supporting data center-driven load growth will require investment by utilities of $50 billion in new power generation capacity. We assume a 60/40 split between gas and renewables, which we expect to drive ~3.3 Bcf/d incremental natural gas demand by 2030.*[68]

Consistent policy frameworks will be necessary to support these large-scale investments in power solutions at the speed required to meet surging power needs. For example, existing federal and state laws create a complex jurisdictional landscape

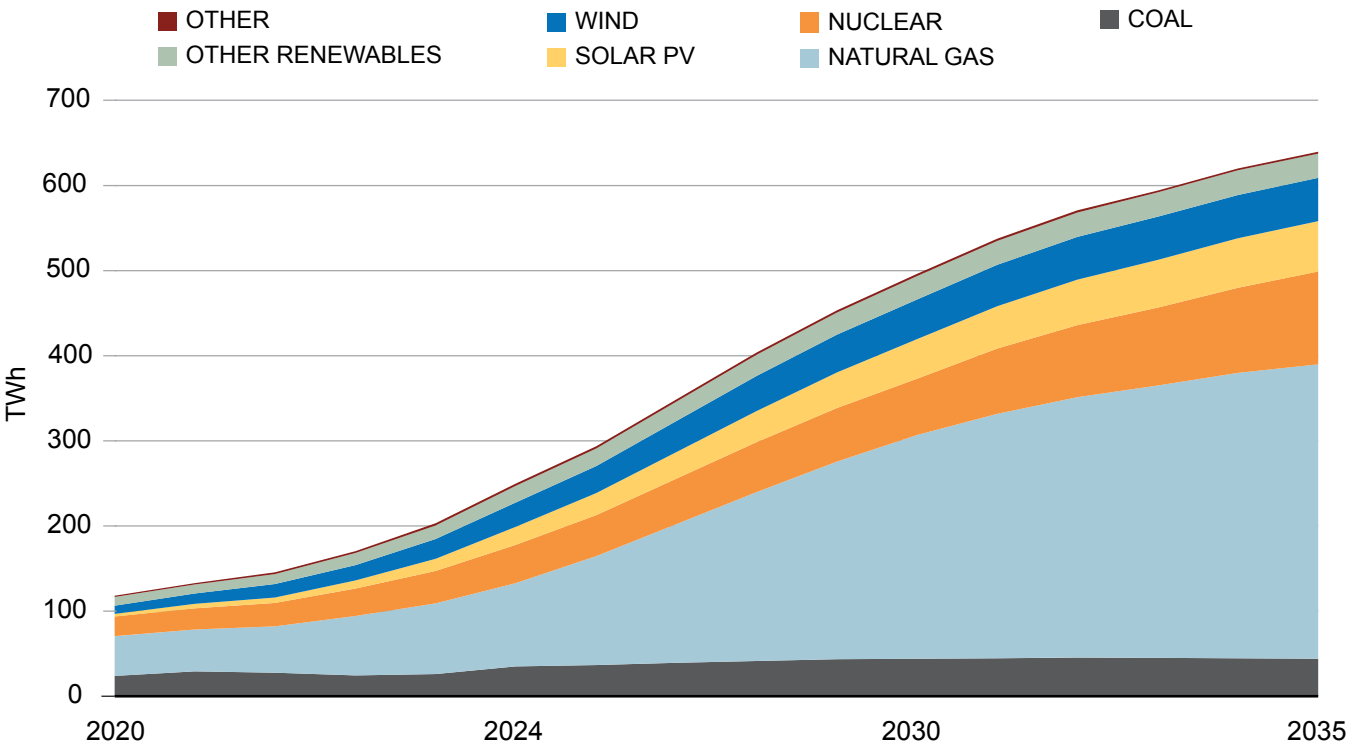
64 International Energy Agency. "Energy and AI." 2025. https://www.iea.org/reports/energy-and-ai.

65 International Energy Agency. "Energy and AI." 2025. https://www.iea.org/reports/energy-and-ai.

66 International Energy Agency. "World Energy Outlook." 2025. https://iea.blob.core.windows.net/assets/0a7a40a4-5dcb-4d6e-a7ad-76a1c90ec8eb/WorldEnergyOutlook2025.pdf.

67 Davenport, C., Singer, B., Mehta, N., Lee, B., and Mackay, J. "AI, Data Centers and the Coming US Power Demand Surge." Goldman Sachs. April 28, 2024. https://www.goldmansachs.com/pdfs/insights/pages/generational-growth-ai-data-centers-and-the-coming-us-power-surge/report.pdf.

68 Davenport, C., Singer, B., Mehta, N., Lee, B., and Mackay, J. "AI, Data Centers and the Coming US Power Demand Surge." Goldman Sachs. April 28, 2024. https://www.goldmansachs.com/pdfs/insights/pages/generational-growth-ai-data-centers-and-the-coming-us-power-surge/report.pdf.



Source: IEA, World Energy Outlook 2025, Current Policies Scenario. 2025.

Figure 1-16. *Electricity Generation for Data Centers by Fuel in the United States, 2020–2035*

for behind-the-meter generation arrangements, like co-location. While FERC regulates interstate wholesale power sales and transmission, states retain authority over retail electricity sales to end users. Recognizing this policy issue, FERC has initiated a new proceeding to evaluate issues around co-location of large loads, namely to serve data centers, in the provisions of the PJM Interconnection, L.L.C. (PJM) Tariff.[69] FERC also convened a November 1, 2024, Technical Conference in Docket No. AD24-11-000 to discuss large loads co-located at generating facilities.

Another policy concern has been ensuring that large loads, including AI data centers, are able to connect to the transmission system in a timely, orderly, and nondiscriminatory manner. On October 23, 2025, pursuant to the Secretary's authority under Section 403 of the Department of Energy Organization Act, Secretary of Energy Wright directed FERC to exert jurisdiction over large-load interconnections and initiate rulemaking procedures, with a final action due by April 30, 2026. Secretary Wright outlined various legal authority and 14 principles for reform regarding the interconnection of large loads.[70] On Oct. 28, 2025, FERC established a new docket to consider DOE's directive (Docket No. RM26-4-000) and issued a "Notice Inviting Comments" setting an initial comment date of Nov. 14 and a reply comment deadline of Nov. 28.[71]

FINDING 1-8: Global data center power demand is poised to more than double by 2030, and that growth is expected to be met in large part with natural gas. This energy demand growth will be concentrated in certain regions of the United States where it will be essential to add infrastructure.

69 90 FERC ¶ 61,115. February 20, 2025. https://www.govinfo.gov/content/pkg/FR-2025-02-27/pdf/2025-03184.pdf.

70 Secretary of Energy's Direction that the FERC Initiate Rulemaking Procedures and Proposal Regarding the Interconnection of Large Loads Pursuant to the Secretary's Authority Under Section 403 of the Department of Energy Organization Act. Oct. 23, 2025. https://www.energy.gov/sites/default/files/2025-10/403%20Large%20Loads%20Letter.pdf.

71 FERC. "Notice Inviting Comments: Interconnection of Large Loads to the Interstate Transmission System." Docket No. RM26-4-000. October 27, 2025. Available at: https://media.mcguirewoods.com/publications/2025/RM26-4-000-DOE-Large-Loads-ANOPR-Notice.pdf.

2. Increased Demand from Electrification

A major driver of increasing electricity demand is electrification, which includes the shift toward electric transportation and heating, as well as the growth of generation by renewables. Policy measures at both the federal and state levels have significantly influenced the pace of electrification and its impact on electricity demand.

At the federal level, the Bipartisan Infrastructure Law and the IRA were the most substantial energy-related policy initiatives in decades. Together, they directed an estimated $430 billion in support for low-emissions energy and climate-related initiatives between 2022 and 2031, according to the Congressional Budget Office.[72] Incentives include tax credits, grants, and subsidies for renewable generation, hydrogen, carbon management, and end-use electrification; the legislation also stimulated new industries and electrified processes, contributing to rising electricity demand.[73]

The policy environment shifted in 2025 with the passage of the One Big Beautiful Bill Act (OBBBA). The law accelerates the phaseout of many of the IRA's clean energy tax credits by 2026–2027 and introduces restrictions on eligibility for projects tied to foreign entities of concern, while preserving credits for advanced manufacturing, carbon capture, biofuels, and nuclear power. These changes could slow clean renewable energy deployment in the coming decade.[74] However, because OBBBA is still newly enacted, its long-term effects on energy demand and clean energy deployment remain uncertain. The legislation's emphasis on grid reliability and affordability could reinforce the role of natural gas as a stabilizing resource during the transition.

Despite evolving federal policies, state-level actions continue to influence broader shifts toward electrification. For example, California[75] and New York[76] have set rigorous targets for zero-emission vehicles and building decarbonization, accelerating electrification in transportation and heating. Texas has enabled one of the largest renewable energy buildouts in the country through competitive electricity markets and transmission expansion,[77] while other states have passed clean energy standards that influence regional grid planning. Permitting and siting policies, often controlled at the state level, are also decisive in determining how quickly new renewable and transmission projects move from planning to operation.

The impact of end-use electrification on U.S. energy demand is now measurable, with electric vehicles (EVs) serving as the most visible cause.[78] Supported by IRA subsidies and reinforced by state mandates, EV sales reached record levels in 2024, with more than 10% of U.S. car sales being electric.[79] Investments in EVs also surpassed renewable energy investment that year, totaling more than $634 billion.[80] These trends have continued into 2025, with light-duty EV electricity consumption growing by more than 60% in the first two months of 2025 compared with the same period in 2024.[81]

Other forms of electrification are contributing to structural demand growth as well. IRA incentives support residential investments in heat pumps, efficient appliances, and clean energy technologies, while state-level building codes and rebate

72 NREL. "Evaluating Impacts of the Inflation Reduction Act and Bipartisan Infrastructure Law on the U.S. Power System." 2023. https://docs.nrel.gov/docs/fy23osti/85242.pdf.

73 Renewable Energy World. "The Biden Administration Has Spurred $1 Trillion in Clean Energy Investments." November 27, 2024. https://www.renewableenergyworld.com/energy-business/energy-finance/the-biden-administration-has-spurred-1-trillion-in-clean-energy-investments/.

74 King, B., Kolus, H., Gaffney, M., Pastorek, N., and van Brummen, A. "What Passage of the 'One Big Beautiful Bill' Means for US Energy and the Economy." Rhodium Group. July 11, 2025. https://rhg.com/research/assessing-the-impacts-of-the-final-one-big-beautiful-bill.

75 California Air Resources Board. "Zero-Emission Vehicle Regulation." n.d. https://ww2.arb.ca.gov/our-work/programs/zero-emission-vehicle-program.

76 DOE Office of Energy Efficiency and Renewable Energy. "New York Laws and Incentives." n.d. https://afdc.energy.gov/fuels/laws/ELEC?state=NY.

77 Willson, Miranda and Jason Plautz. "Could Texas Lawmakers End the State's Renewable Boom?" E&E News. April 24, 2023. https://www.eenews.net/articles/could-texas-lawmakers-end-the-states-renewable-boom/.

78 Mathrani, Amit. "The Rise of Electric Vehicles in the US: Impact on the Electricity Grid." November 18, 2024. Rabobank. https://www.rabobank.com/knowledge/d011456343-the-rise-of-electric-vehicles-in-the-us-impact-on-the-electricity-grid.

79 NREL. "Projecting Electric Vehicle Electricity Demands and Charging Loads." April 2024. https://docs.nrel.gov/docs/fy24osti/89775.pdf.

80 NREL. "Projecting Electric Vehicle Electricity Demands and Charging Loads." April 2024.

81 EIA. Electric Power Monthly, Table D.1. "U.S. Estimated Consumption of Electricity by Light-Duty Electric Vehicles Types, 2018-February 2025." 2025. https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=table_d_1.

programs encourage adoption of similar measures.[82] Industrial electrification has accelerated new capital investment, with companies announcing $133 billion in clean energy technology projects between 2021 and 2024.[83] Actual manufacturing investment reached $89 billion, an increase of more than 300% relative to the two years prior to the IRA, according to MIT and Rhodium Group.[84] Oil and natural gas operations are also increasingly electrifying, from drilling to transport, and as production expands, so does the forecasted demand for power.[85] Expanding and modernizing existing power infrastructure, including electric transmission buildout with reasonable interconnection timelines, will be essential to ensure reliability, particularly during critical operational periods.

Meeting this new demand for electricity presents challenges. A backlog of renewable and energy storage projects totaling nearly 2,600 GW of potential capacity remains stalled in interconnection queues.[86] New transmission infrastructure is also needed, requiring significant investment to connect new power projects to the grid.[87] At the same time, system planners face the need to balance rapid load growth with resource availability and reliability requirements. According to American Clean Power's 2025 *U.S. National Power Demand Outlook*, all major pathways to 2040 require a mix of renewables and firm power,[88] including natural gas-fired generation, which is projected to increase by between 60 and 100 GW by 2040.[89] Natural gas is expected to play a critical role for the foreseeable future, to bridge capacity gaps caused by rising electricity demand which cannot currently be fully addressed by renewables alone, due to issues with intermittency and inadequate energy storage capacity. This rising demand will further strain an already overburdened natural gas infrastructure.

FINDING 1-9: Meeting new energy demand for electricity from electrification, including significant expected growth in natural gas-fired generation, will add to infrastructure requirements.

3. Increased Demand from Industrial Reshoring and Manufacturing Growth

Given the increases in domestic electrification and global energy market integration, industrial reshoring and general manufacturing have become key drivers of U.S. energy demand (Figure 1-17). Federal and state incentives, combined with supply chain security concerns, have improved the economics of producing a wide range of manufactured goods domestically, bringing factories for automotive components, semiconductors, batteries, electronics, and general industrial equipment back onshore. Tariffs, trade deals, and trade-related policies have played a significant role in supporting the reshoring of manufacturing to the United States. For example, OBBBA includes tax code changes designed to encourage investment in U.S. manufacturing, including accelerated deductions for production facilities to incentivize domestic manufacturing investment.[90] Also, the CHIPS and Science

82 IRS. "Department of Treasury and IRS Release Inflation Reduction Act Clean Energy Statistics." August 7, 2024. https://www.irs.gov/newsroom/department-of-treasury-and-irs-release-inflation-reduction-act-clean-energy-statistics.

83 Kimball, Spencer and Gabriel Cortés. "How the Inflation Reduction Act Sparked a Manufacturing and Clean Energy Boom." CNBC.com, August 20, 2024. https://www.cnbc.com/2024/08/20/inflation-reduction-act-sparked-a-manufacturing-clean-energy--boom.html.

84 Kimball, Spencer and Gabriel Cortés. How the Inflation Reduction Act Sparked a Manufacturing and Clean Energy Boom." 2024. https://www.cnbc.com/2024/08/20/inflation-reduction-act-sparked-a-manufacturing-clean-energy-boom.html.

85 "Electrifying the Permian." Permian Basin Oil & Gas Magazine. May 19, 2025. https://pboilandgasmagazine.com/electrifying-the-permian-infrastructure/.

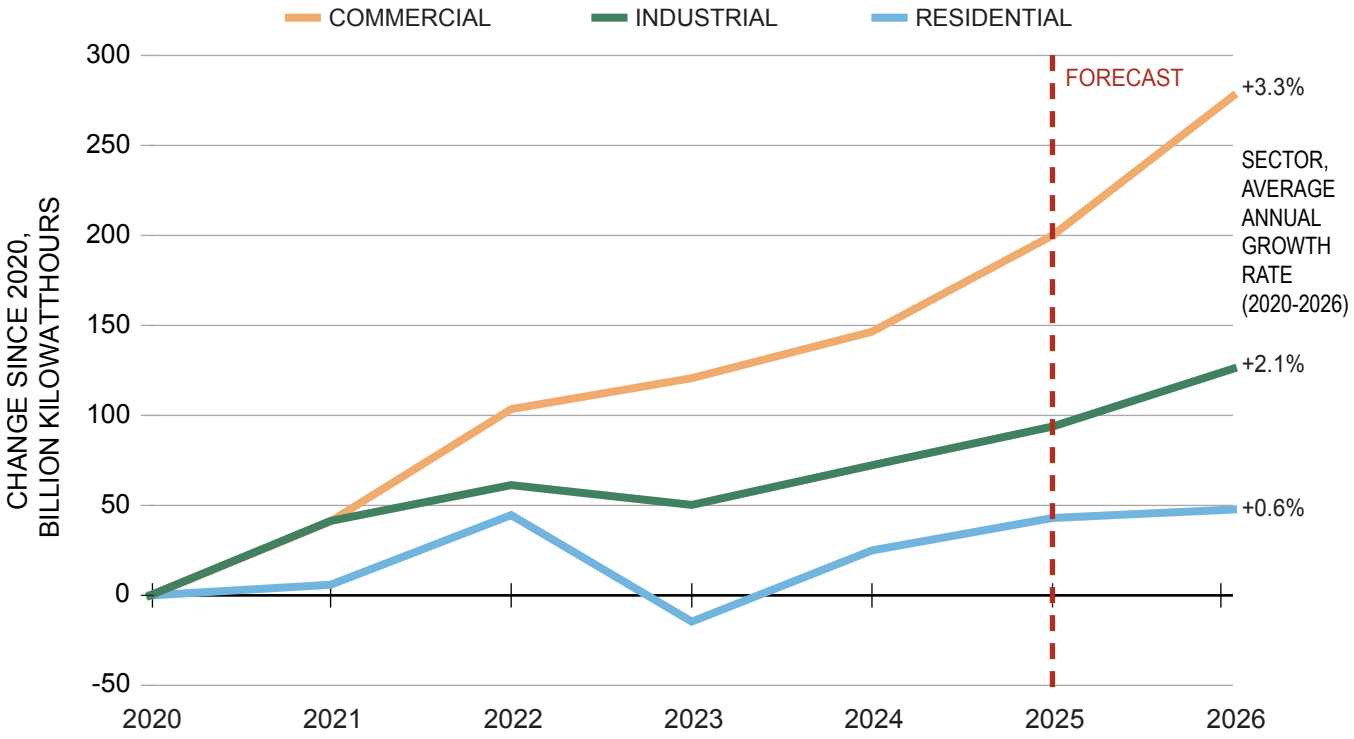
86 Lawrence Berkeley National Laboratory. "Queued Up: 2024 Edition—Characteristics of Power Plants Seeking Transmission Interconnection as of the End of 2023." April 2024. https://emp.lbl.gov/sites/default/files/2024-04/Queued%20Up%202024%20Edition_1.pdf.

87 DOE. "Queued Up... But in Need of Transmission." 2022. https://www.energy.gov/policy/queued-need-transmission.

88 American Clean Power. p. 33, stating "Natural gas capacity reaches 553 GW, and up to 594 GW under higher load and constrained renewables… Natural gas-fired capacity sees a net increase of 62 GW from 2024 to 2040…While in the Power Crunch Case there is an additional need for 41 GW, due to higher load and constrained onshore renewables." "U.S. National Power Demand Study." March 2025. https://cleanpower.org/wp-content/uploads/gateway/2025/03/US_National_Power_Demand_Study_2025_FINAL.pdf.

89 American Clean Power. "U.S. National Power Demand Study." March 2025. https://cleanpower.org/wp-content/uploads/gateway/2025/03/US_National_Power_Demand_Study_2025_FINAL.pdf.

90 H.R. 1, the One Big Beautiful Bill Act, 119th Congress. 2025. https://www.congress.gov/bill/119th-congress/house-bill/1.



Source: Data from EIA. 2025.

Figure 1-17. *Change in U.S. Electricity Sales to Ultimate Customers from 2020–2026*

Act supports multistate semiconductor expansions, including $8.5 billion in Intel commercial projects and $6.4 billion in Samsung investments,[91, 92, 93] while IRA investment credits catalyze sustained growth in both energy and manufacturing. Overall, U.S. investments in manufacturing have increased by tens of billions of dollars over the past five years, led by diverse industrial sectors, including automotive, semiconductor, and general fabrication.[94] As a result, U.S. industrial power consumption is expected to grow as much as 3% annually through 2035.[95]

This expansion has produced meaningful industrial clustering, including an advanced manufacturing corridor spanning the Midwest and Southeast and a semiconductor and electronics corridor in the Southwest.[96] Alongside federal measures, state governments have actively competed to attract investment, offering tax incentives, land packages,

91 Intel. "Intel and Biden Admin Announce up to $8.5 Billion in Direct Funding Under the CHIPS Act." March 20, 2024. https://newsroom.intel.com/corporate/intel-and-biden-admin-announce-up-to-8-5-billion-in-direct-funding-under-the-chips-act. U.S. Department of Commerce.

92 U.S. Department of Commerce. "Biden-Harris Administration Announces Preliminary Terms with Samsung Electronics to Establish Leading-Edge Semiconductor Ecosystem in Central Texas." April 15, 2024. https://www.commerce.gov/news/press-releases/2024/04/biden-harris-administration-announces-preliminary-terms-samsung.

93 Dou, Eva and Gerrit De Vynck. "Trump Makes Deal Giving U.S. Government a 10% Share of Intel." The Washington Post. August 22, 2025. https://www.washingtonpost.com/technology/2025/08/22/trump-says-intel-ceo-agreed-give-us-government-10-billion/.

94 Armstrong, Ben. "Billion Dollar Factories: Foreign Direct Investment and U.S. Manufacturing Competitiveness." August 2024. MIT Industrial Performance Center. August 2024. https://ipc.mit.edu/wp-content/uploads/2024/08/Billion-Dollar-Factories-Aug-2024.pdf.

95 Chintalapati, Varun, and Eli Horton. "America's Thirst for Power: More Than Just Data Centers." July 2025. https://www.tcw.com/Insights/2025/2025-07-14-Americas-Thirst-for-Power.

96 Urchell, Chris, and John Golliday. "Plugged-in: EV Revolution Fuels 'Battery Belt' Emergence from the Midwest to the South." July 27, 2023. Baker Tilly. https://www.bakertilly.com/insights/ev-revolution-fuels-battery-belt-emergence-midwest-south.

and workforce training programs.[97, 98, 99, 100] States such as Georgia, North Carolina, Michigan, and Ohio have accelerated new project announcements, concentrating demand growth in specific utility service territories. Arizona Public Service expects approximately 40% peak-demand growth over the next 15 years. While the majority of this demand will originate from data centers, semiconductor fabs and battery plants are anticipated to make up more than one-third of offtake by 2031.[101] Similarly, Georgia Power anticipates nearly 8,200 MW of new demand by 2031, supported by 22,800 MW in large-load customers, much of it tied to broader industrial growth, including from clean energy manufacturing.[102, 103]

These new facilities create concentrated, round-the-clock point loads that significantly reshape local electricity demand as seen in Figure 1-18.[104]

97 Amy, Jeff, and Bynum, Russ. "Higher Investment Means Hyundai Could Get $2.1 Billion in Aid to Make Electric Cars in Georgia." AP News. September 12, 2023. https://apnews.com/article/hyundai-georgia-electric-vehicles-incentives-tax-breaks-b071c820f55a7946912af11acf2eea63?.

98 Eggert, David. "Michigan Approves $1 Billion in Incentives for Ford EV Battery Plant." MichAuto, February 13, 2023. https://michauto.org/michigan-approves-1-billion-in-incentives-for-ford-ev-battery-plant/.

99 JobsOhio. "JobsOhio Supports Honda and LG Energy Solution Venture." February 8, 2023. https://www.jobsohio.com/news-press/statement-on-jobsohio-support-for-honda-and-lg-energy-solution.

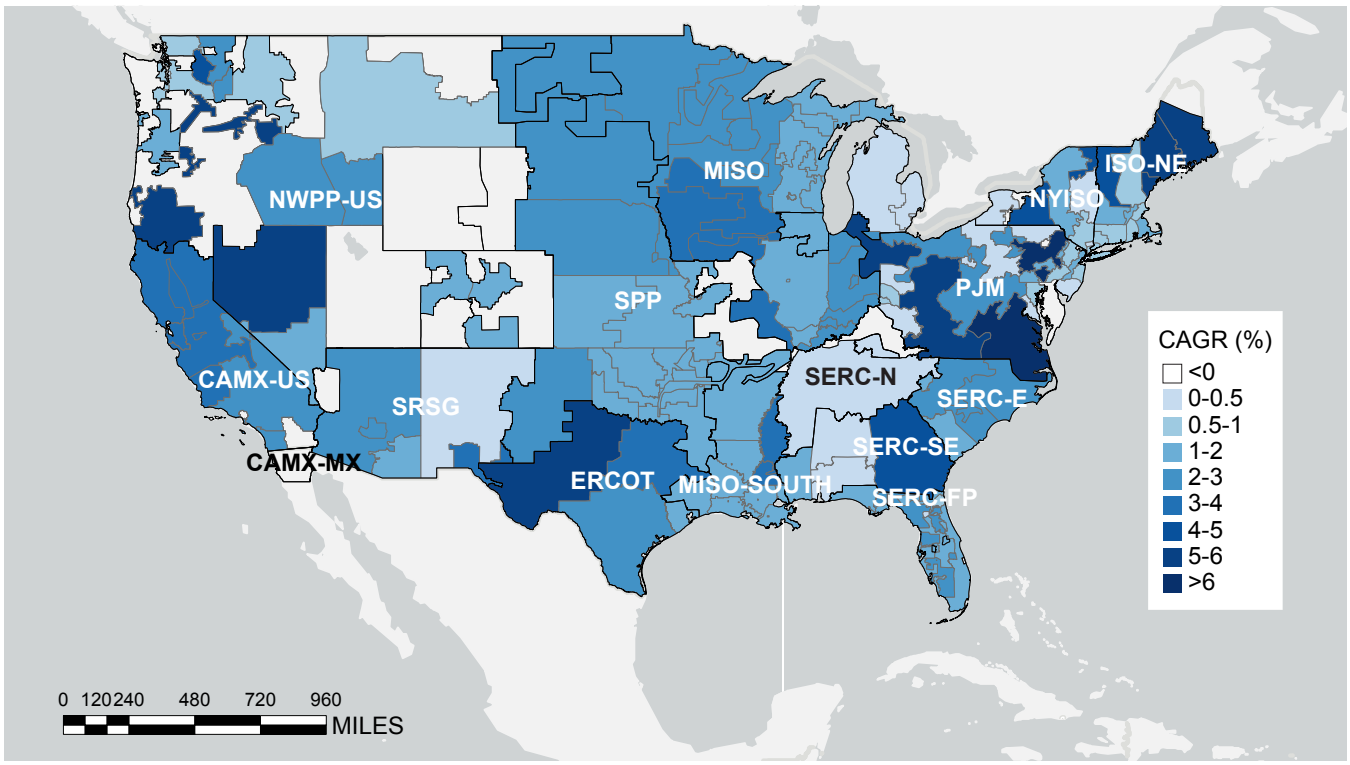
100 Bynum, Russ. "Hyundai Has Begun Producing Electric SUVs at Its $7.6 Billion Plant in Georgia." AP News. October 7, 2024. https://apnews.com/article/hyundai-ev-georgia-production-begins-ioniq-424cf322822f707e7070260a789ffb59.

101 Culp, Amanda. "Integrated Resource Planning Workshop Highlights: How Arizona Regulated Utilities Plan to Power Arizona's Future." August 1, 2024. Arizona Corporation Commission. https://azcc.gov/news/home/2024/08/01/integrated-resource-planning-workshop-highlights---how-arizona-regulated-utilities-plan-to-power-arizona-s-future.

102 Patel, Sonal. "Georgia Power to Keep Coal, Gas Power Plants Running Longer as Demand Climbs." Power Magazine. February 5, 2025. https://www.powermag.com/georgia-power-to-keep-coal-gas-power-plants-running-longer-as-demand-climbs-2/.

103 Jones, Emily. "Georgia Power Is Planning for a Huge Spike in Energy Demand. Critics Say It's Overestimating." The Current. May 30, 2025. https://thecurrentga.org/2025/05/30/georgia-power-is-planning-for-a-huge-spike-in-energy-demand-critics-say-its-overestimating/.

104 ICF International. "Rising Current: America's Growing Electricity Demand." March 2025. https://www.icf.com/insights/energy/impact-rapid-demand-growth-us.



Source: ICF. 2025.

Figure 1-18. *Peak Electricity Demand Growth (2025–2035)*

The reshoring trend will result in new and expanded industrial projects by 2030, which will support natural gas demand (Figure 1-19), as many industrial facilities rely on gas for high-temperature processes, and utilities are increasingly turning to gas-fired generation to maintain grid stability alongside growing industrial electricity loads.

With the industrial sector accounting for nearly one-third of U.S. natural gas consumption, reshoring further strengthens the link between broad manufacturing growth and energy demand.[105] Moreover, because each new facility requires power plants, substations, and transmission capacity, the speed of permitting and infrastructure development has become as critical as manufacturing incentives themselves. The pace of these developments will determine how efficiently the United States' new factories integrate into the energy system.

FINDING 1-10: Industrial reshoring and general manufacturing have become key drivers of growth in U.S. energy demand, which will necessitate expanded infrastructure.

4. Growing Demand for Certain Refined Products

Oil refining involves the transformation of crude oil into more useful products like diesel, gasoline, jet fuel, chemical feedstock, and biofuels. The U.S. refining landscape is undergoing a transformation in which changes to oil refineries and demand for refined products are impacting infrastructure needs. As illustrated in Figure 1-20, while refining capacity increased in 2023–2024 with expansions of existing facilities,[106] refinery capacity was essentially flat in 2024.[107]

The decline in 2025 is attributable to LyondellBasell's Q1 2025 closure of its Houston refinery (PAD District 3) which produced 268,000 barrels per day (b/d); Phillips 66's announced closure of its 165,000-b/d refinery in Los Angeles (PAD District 5) in Q4 2025; and Valero's announcement that it will be closing its 170,000-b/d refinery in Benicia, California (PAD District 5) in 2026. With the three retirements, the industry will lose 603,000 b/d, reducing refinery capacity from 18.4 million b/d (MMb/d) (as of January 2025) to 17.9 MMb/d by year end 2026. At the same time, certain refineries are converting operations to produce renewable fuels. In 2024, Philipps 66 converted its 80,000-b/d San Francisco Rodeo refinery to renewable diesel and renewable jet fuel, a key component of sustainable aviation fuel production.[108] These closures will likely constrain production of refined products like diesel, gasoline, and jet fuel at a time when foreign and domestic demand for certain refined products is growing.

Domestically, demand is stable to rising. According to the EIA's October 2025 Short-Term Energy Outlook, jet fuel consumption increased by 2% in 2024 from 2023 and is forecast to grow another 2% in 2025.[109] The EIA's October 2025 outlook also anticipates stable gasoline demand and a rebound in biofuels consumption. Although biofuels demand is forecast to decline from 1.31 MMb/d to 1.21 MMb/d between 2024 and 2025, it is expected to increase to 1.28 MMb/d in 2026.[110] As demand for refined products grows, sufficient infrastructure is critical to move supply to demand centers around the country.

To meet the shifts in refining capacity and growing U.S. demand for certain refined products, as well as growing international demand (discussed in Section IV.C), the United States is modifying and expanding current infrastructure. In 2024, three infrastructure projects were completed to move refined products, and four others are planned for the coming years:

105 EIA. "Natural Gas Explained." https://www.eia.gov/energyexplained/natural-gas/use-of-natural-gas.php.

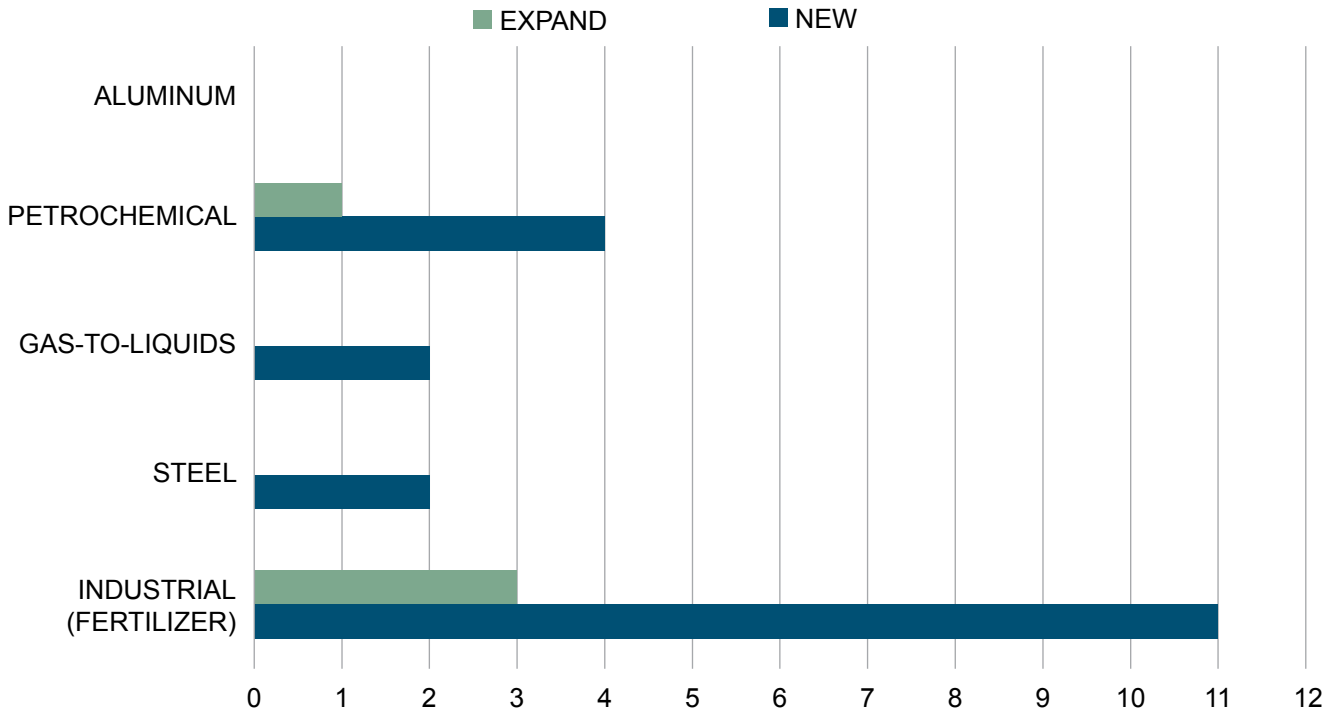
106 EIA. "U.S. Refining Capacity Increased in 2023 with Expansions at Existing Facilities." July 30, 2024. https://www.eia.gov/todayinenergy/detail.php?id=62624.

107 EIA. "U.S. Refining Capacity Largely Unchanged as of January 2025." June 30, 2025. https://www.eia.gov/todayinenergy/detail.php?id=65624. According to EIA's January 1, 2025, annual Refinery Capacity Report, "U.S. operable atmospheric distillation capacity, the primary measure of refinery capacity, totaled 18.4 million barrels per calendar day (b/cd) on January 1, 2025."

108 Phillips 66. "Rodeo Milestone Marks High Point in Four-Year Journey." "Instead of fossil fuels, the plant produces fuels from mostly renewable feedstocks such as used cooking oil, fats, greases and vegetable oil." April 15, 2024. https://www.phillips66.com/newsroom/rodeo-renewed-milestone/.

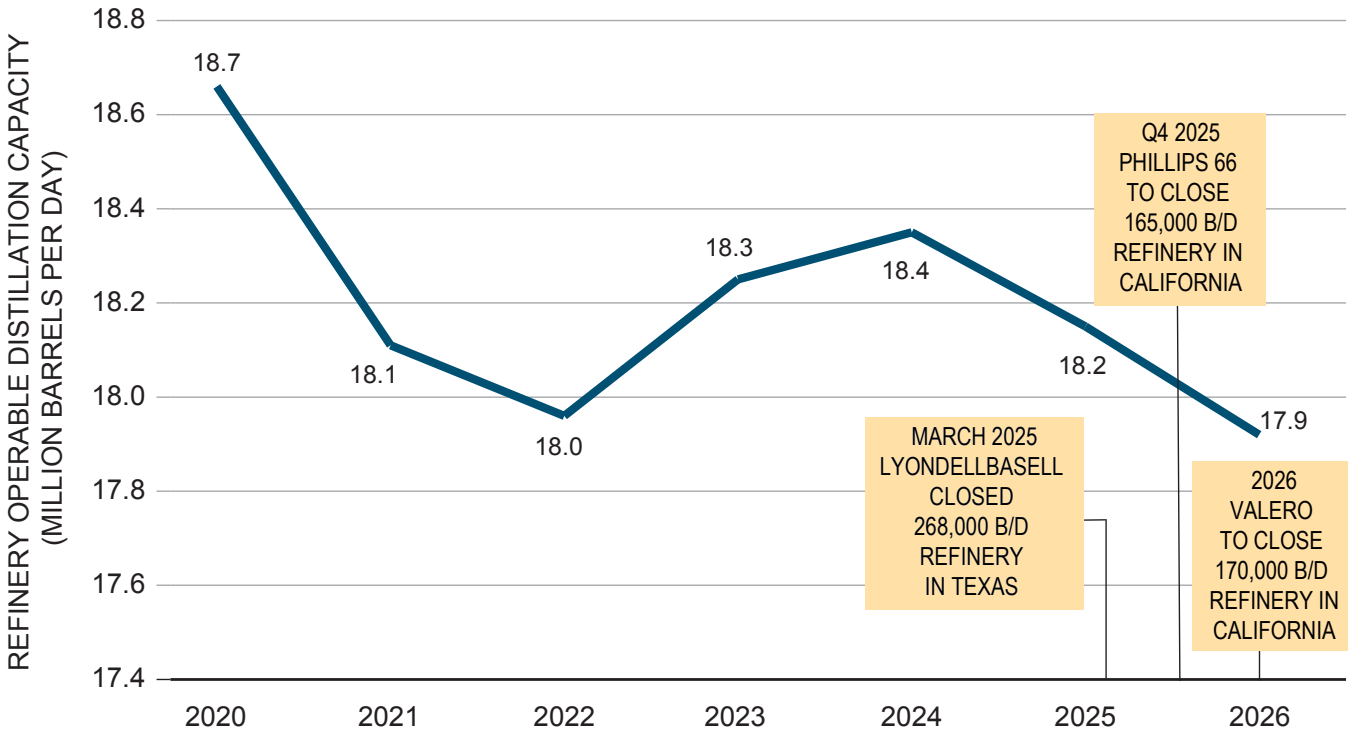
109 EIA. "Short-Term Energy Outlook." October 2025. https://www.eia.gov/outlooks/steo/archives/Oct25.pdf.

110 EIA. "Short-Term Energy Outlook." October 2025. https://www.eia.gov/outlooks/steo/archives/Oct25.pdf.



Source: Natural Gas Supply Association, Winter Outlook 2025-2026, September 2025.

Figure 1-19. *Projected U.S. Natural Gas Industrial Demand by 2030*



Source: Data from EIA. 2025.

Figure 1-20. *Annual U.S. Refining Capacity*

- In 4Q 2024, Enterprise Products Partners completed the Texas Western Products system.[111] Refined products are shipped by pipeline from the Texas Gulf Coast refineries to four refined products truck terminals located in (1) Grand County, Utah; (2) Gaines County, Texas; (3) Jal, New Mexico; and (4) Albuquerque, New Mexico. Combined, the four terminals offer 1.5 million barrels of refined products storage capacity and can load up to 63,000 b/d for markets in the Mid-Continent and Rocky Mountain regions.
- In 1Q 2024, ONEOK completed a 30,000 b/d expansion of the Houston-to-El Paso refined petroleum products pipeline system along its existing route between Odessa and Crane, Texas. The new 30-mile, 16-inch pipeline increases the total capacity to approximately 100,000 b/d to transport refined products (gasoline and diesel) from Gulf Coast and Mid-Continent refineries to El Paso, Texas.
- In 4Q 2024, TransMontaigne completed a conversion of the Diamondback Pipeline to add capability to move 30,000 b/d of refined products (gasoline and diesel) from Brownsville, Texas, to Matamoros, Mexico.
- In mid-2026, ONEOK plans to complete a new 230-mile refined products pipeline from Scott City, Kansas, to the Denver International Airport in Colorado to meet growing demand in the Denver area. The total system capacity will increase by 35,000 b/d, with additional expansion capabilities later.
- In the first half of 2028, a 50-50 joint venture between MPLX and ONEOK plans to complete a 400,000 b/d liquefied petroleum gas (LPG) export terminal in Texas City, Texas.
- In mid-2029, ONEOK plans to complete the Sun Belt Connector Pipeline, which would expand PADD 2 (Midwest/Great Plains) and PADD 3 (Gulf Coast/New Mexico) refiners' access to more lucrative Western markets. It is designed to meet increasing demand for refined products (especially jet fuel) in Arizona and to provide an alternative to declining refinery output from Southern California. The pipeline will run from El Paso, Texas, to the Phoenix, Arizona, area and be connected to ONEOK's existing refined products pipeline system across Texas and Oklahoma. The new pipe will have an initial capacity of 200,000 b/d.
- In 2029, Phillips 66 and Kinder Morgan plan to complete a 1,300-mile Western Gateway Pipeline project to move more refined products west from PADDs 2 and 3 to PADD 5 (Arizona/California). It would involve construction of a greenfield pipeline from Borger, Texas, to Phoenix and the reversal of part of Kinder Morgan's existing SFPP pipeline system to move product west from Phoenix to Colton, California. The new pipe would have an initial capacity of 200,000 b/d into Arizona, replacing the approximately 125,000 b/d that Phoenix currently receives via Kinder Morgan's SFPP/West Line from California. This shift allows those volumes to remain in California, increasing supply availability for in-state markets.[112]

FINDING 1-11: To meet the shifts in refining capacity and growing U.S. demand for certain refined products, as well as growing international demand, the United States is modifying and expanding current infrastructure.

C. Energy Demand from Global Markets

The United States has emerged as a dominant force in global energy markets, transitioning from a net energy importer to a net exporter since 2019, a milestone not achieved since the 1950s.[113] This transformation, driven by the shale revolution and the lifting of crude oil export restrictions, has elevated U.S. energy exports, particularly crude oil and LNG, to a position of critical economic and geopolitical importance. The strategic significance of U.S. energy exports has grown, intensified by international conflicts like the Russia-Ukraine war, which has underscored the need for reliable energy supplies to support allies and counter adversarial

111 Enterprise Products Partners L.P. "Enterprise Completes Phase 2 of TW Products System." October 29, 2024. https://ir.enterpriseproducts.com/news-releases/news-release-details/enterprise-completes-phase-2-tw-products-system.

112 RBN Energy LLC. "Going to California – Phillips 66, Kinder Morgan Plan New 'Gateway' to Move Refined Products West." October 22, 2025. https://rbnenergy.com/daily-posts/blog/phillips-66-kinder-morgan-plan-new-gateway-move-refined-products-west.

113 EIA. "Annual Energy Outlook 2023." March 2023. https://www.eia.gov/outlooks/aeo/IIF_IRA/.

influence.[114] Energy exports serve as a tool for economic growth, job creation, and enhancing energy security for U.S. allies, while also strengthening the United States' geopolitical leverage. In 2024, energy exports contributed substantially to the trade balance, with LNG exports to the European Union (EU) alone valued at $13 billion.[115] These exports support jobs in production, shipping, and infrastructure, with ripple effects across local economies. Strategically, exports enhance U.S. influence by securing energy supplies for allies, reducing global reliance on adversarial producers, and fostering economic stability through trade-surplus contributions.

FINDING 1-12: Energy exports enhance U.S. influence by securing energy supplies for allies, reducing global reliance on adversarial producers, and fostering economic stability through trade-surplus contributions.

Sustaining the U.S.'s role as a dominant global energy player requires significant investment in infrastructure, including pipelines, LNG terminals, ports, and shipping capacity. The following section examines U.S. energy export trends, their geopolitical implications, regulatory changes, trade deals, economic benefits and challenges, and an outlook for 2025–2026.

1. Growth in U.S. Oil Exports

The lifting of the crude oil export ban in 2015 unleashed a surge in U.S. oil exports, driven by advancements in shale production, particularly from the Permian Basin. In 2024, U.S. crude oil exports reached an average of 4.1 MMb/d, a record high.[116] In 2025, exports started off strong, but fell to their lowest levels since 2023 in July (3.2 MMb/d).[117] However, they quickly regained momentum, surging to 3.9 MMb/d in August and topping 4.1 MMb/d in September.[118] Figure 1-21 shows key destinations for U.S. crude exports include Europe and Asia (including China, South Korea, and India).[119]

2. Expansion of U.S. LNG Exports

The United States has solidified its position as the world's largest LNG exporter since 2023, driven by abundant shale gas and the development of new export terminals. Growth in LNG exports is expected to continue with 2025 export volumes averaging 14.7 Bcf/d, up from 11.9 Bcf/d in 2024.[120] Europe is a primary destination (see Figure 1-22), with U.S. LNG imports into the EU up significantly from pre-2022 levels due to reduced Russian gas supplies following the Russia-Ukraine war.

The current growth is supported by eight large-scale LNG facilities currently in operation, with additional facilities under construction, such as the Plaquemines LNG and Corpus Christi Stage 3 projects, which are expected to boost export capacity by 17% in 2025.[121] EIA projects total North American LNG export capacity (Figure 1-23) will more than double between 2024 and 2029, led by additions in the United States.

As Figure 1-24 depicts, these capacity additions are geographically concentrated along the Gulf Coast.

3. Growth in U.S. Refined Products Exports

International markets are demanding more U.S. refined products, and EIA's Outlook on Global Refining to 2028 forecasts that many refineries will likely pivot toward supplying growing Atlantic Basin export markets like Africa and Europe.[122] For example, the EIA's October 2025 Short-Term

114 See, for example, CSIS, "Geopolitical Significance of U.S. LNG." February 7, 2024. https://www.csis.org/analysis/geopolitical-significance-us-lng.

115 Corbeau, Anne-Sophie. "Bridging the US-EU Trade Gap with US LNG Is More Complex than It Sounds." February 20, 2025. Center on Global Energy Policy. https://www.energypolicy.columbia.edu/bridging-the-us-eu-trade-gap-with-us-lng-is-more-complex-than-it-sounds.

116 EIA. "U.S. Crude Oil Exports Reached a New Record in 2024." April 10, 2025. https://www.eia.gov/todayinenergy/detail.php?id=64964.

117 RBN Energy LLC. "Things Have Changed - Rebound in U.S. Crude Exports Driven By Shifts in Production, Imports, Refinery Runs." October 1, 2025. https://rbnenergy.com/daily-posts/blog/rebound-us-crude-exports-driven-shifts-production-imports-refinery-runs.

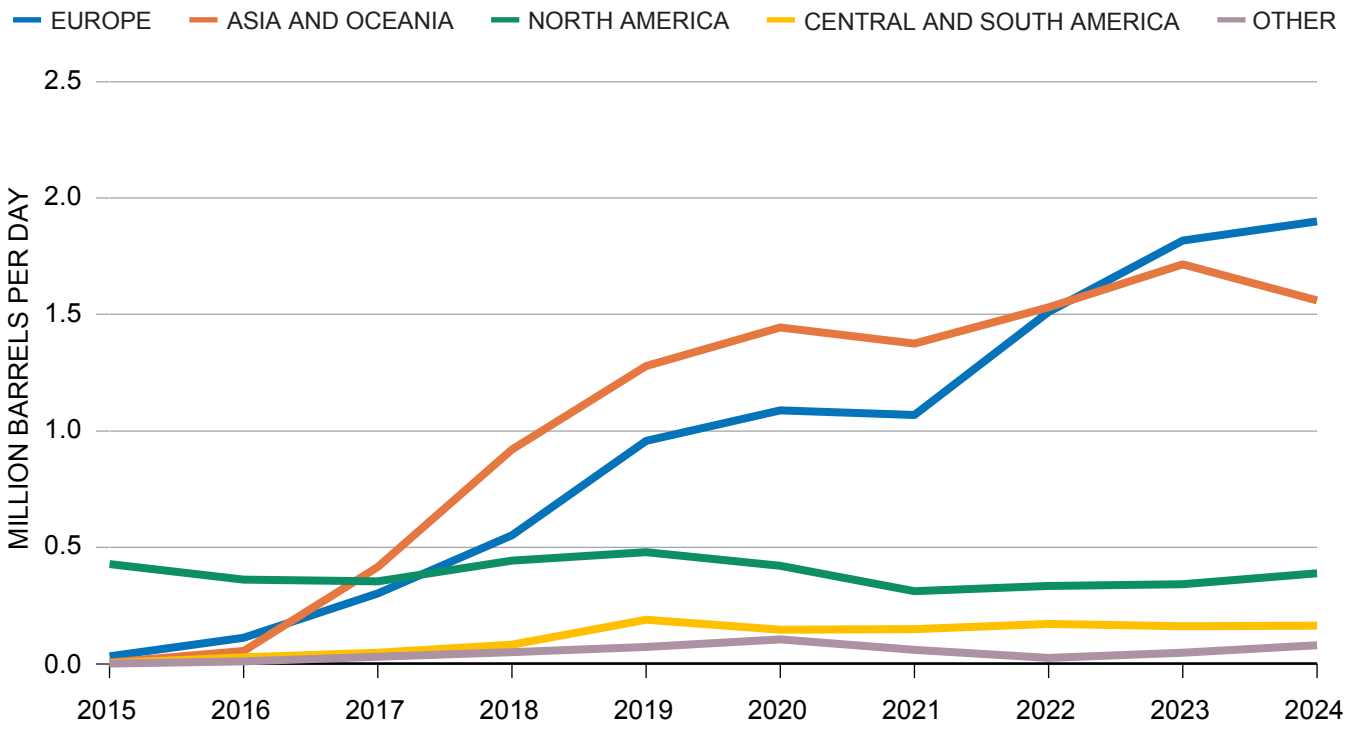
118 RBN Energy LLC. "Things Have Changed - Rebound in U.S. Crude Exports Driven By Shifts in Production, Imports, Refinery Runs." October 1, 2025. https://rbnenergy.com/daily-posts/blog/rebound-us-crude-exports-driven-shifts-production-imports-refinery-runs.

119 EIA. "Petroleum Supply Annual." August 29, 2025. https://www.eia.gov/petroleum/supply/annual/volume1.

120 EIA. "North America's LNG Export Capacity Could More Than Double by 2029." October 16, 2025. https://www.eia.gov/todayinenergy/detail.php?id=66384.

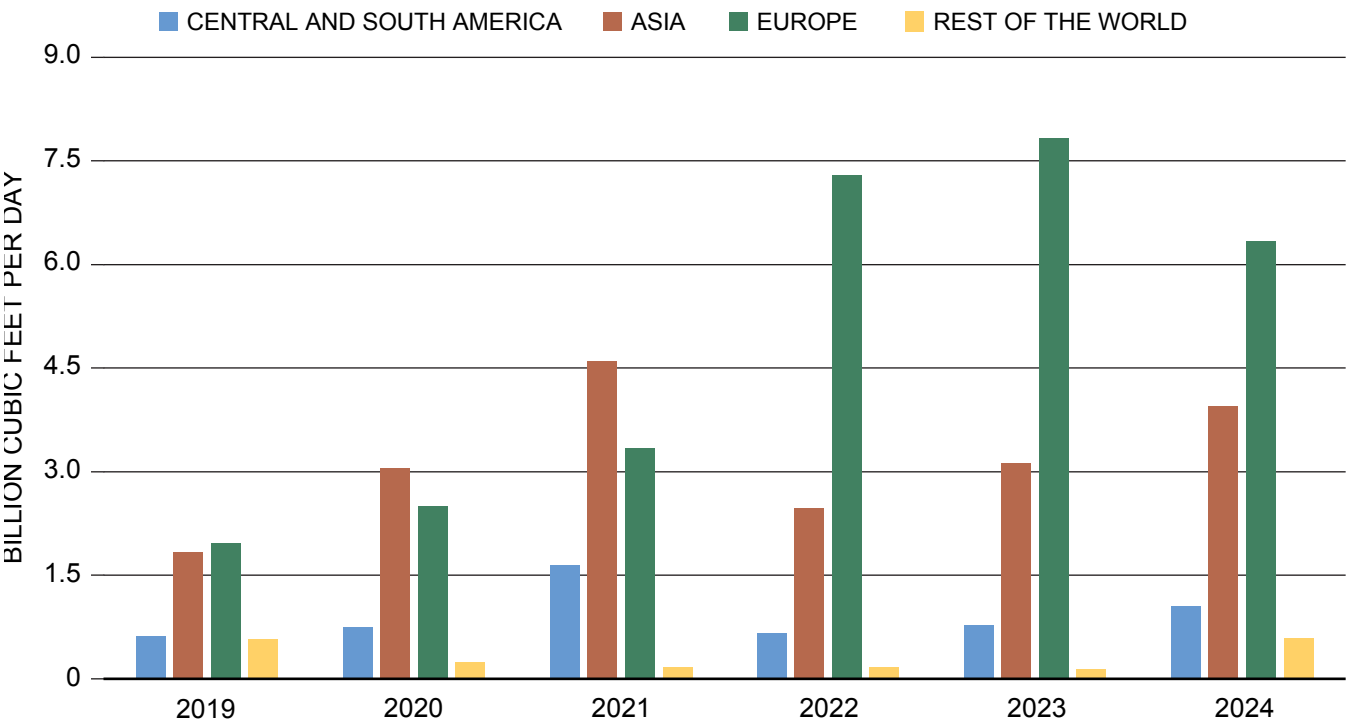
121 EIA. Liquefaction Capacity File. https://www.eia.gov/naturalgas/data.php#imports.

122 EIA. "Outlook on Global Refining to 2028." August 2024. https://www.eia.gov/analysis/globalrefining/outlookglobalrefining.pdf.



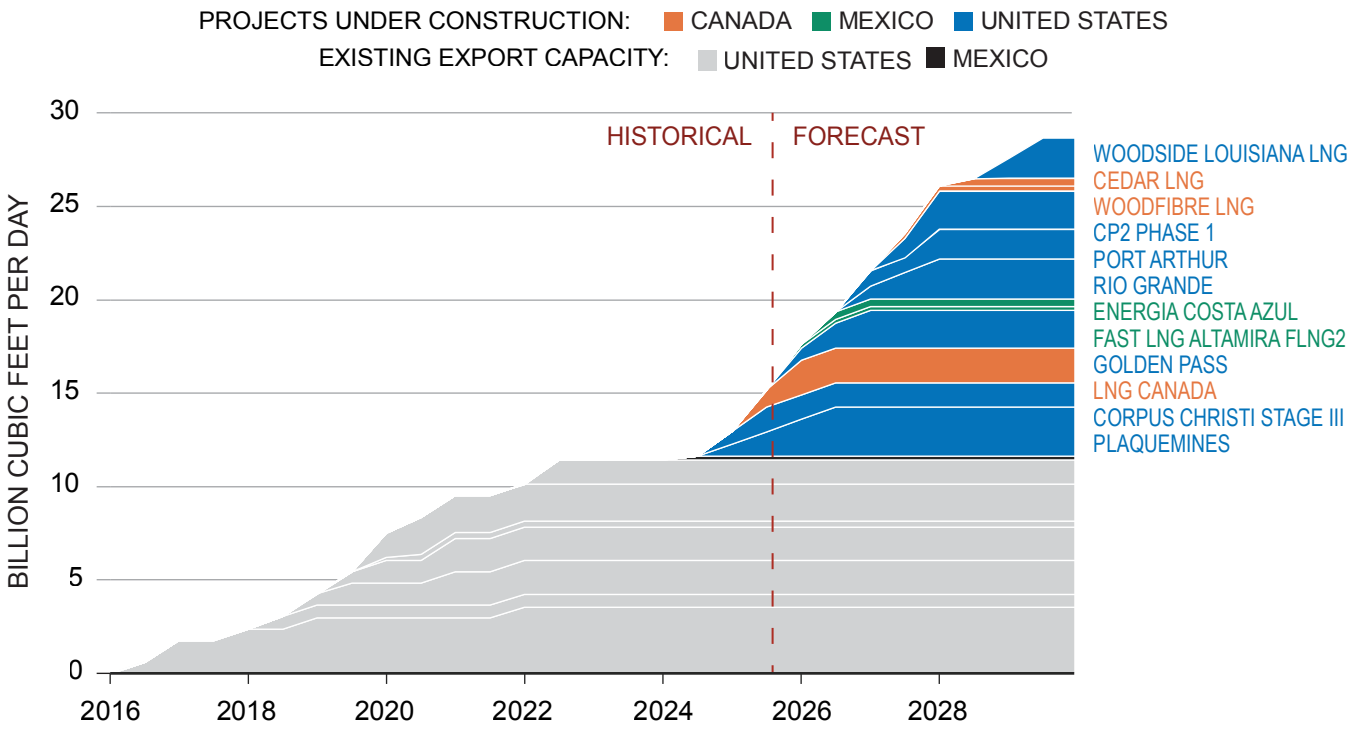
Source: Data from EIA. 2025.

Figure 1-21. *Crude Oil Exports (annual averages)*



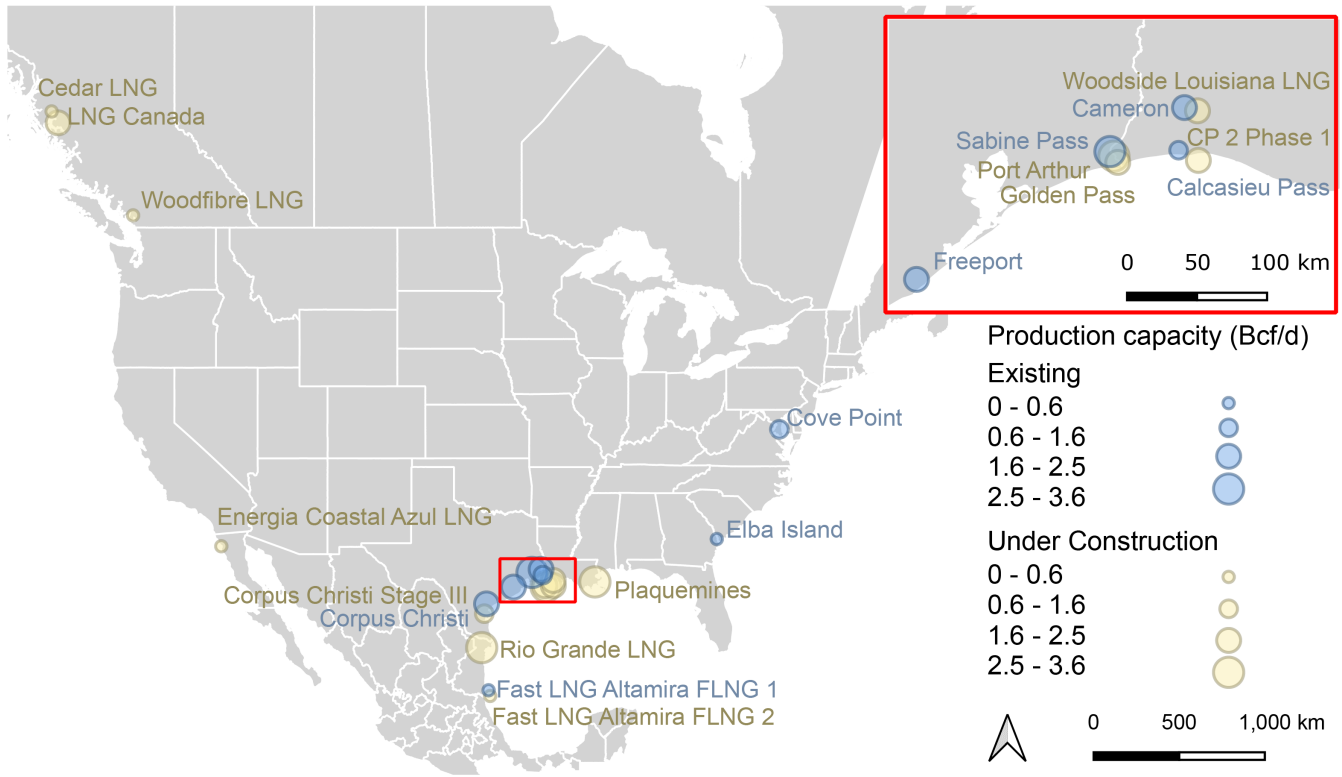
Source: Data from EIA. 2025.

Figure 1-22. *Annual U.S. LNG Exports by Destination Region (2019-2024)*



Source: EIA. 2025.

Figure 1-23. *North American LNG Export Capacity by Project (2016-2029)*



Note: Bcf/d=billion cubic feet per day; LNG=liquefied natural gas; FLNG=floating liquefied natural gas.
Source: Data from EIA. 2025.

Figure 1-24. *North America LNG Export Facilities Locations*

Energy Outlook includes a projection for domestic U.S. distillate stocks (a category that includes diesel and jet fuel) to fall ~8% in 2025, driven by a pivot toward meeting strong export demand.[123] However, bp's 2025 Energy Outlook forecasts "rising consumption of jet fuel as increasing global economic activity and growing prosperity in developing economies spur greater demand for air travel," and "[o]il use in aviation also increases over the rest of this decade."[124]

4. Energy Demand from Emerging Markets

New markets for U.S. energy exports are emerging, particularly in India and Southeast Asia. Rising energy needs in Asia, particularly in Japan, South Korea, and emerging economies in Southeast Asia, have driven long-term LNG contracts and spot market purchases. Structural factors, such as population growth, industrialization, and a shift away from coal in several Asian countries are underpinning sustained LNG import growth. India's growing demand for LNG and crude oil, driven by industrial expansion, positions it as a key market, alongside Southeast Asian nations seeking cleaner energy alternatives.[125] U.S. policy support for infrastructure investments, such as LNG terminals targeting Asian markets, are critical to sustaining this growth.

5. North American Demand

Trends in cross-border natural gas trade between the United States and Canada have seen a shift from 2019 to 2025, largely influenced by the growth of U.S. shale gas production and evolving market conditions. While U.S. natural gas imports from Canada have consistently outpaced exports, U.S. exports to Canada have held steady in recent years. Canada remains a net exporter, but U.S. flows northward, driven by infrastructure advantages, economic recovery, and demand in eastern Canada, continue to play a key role in bilateral trade, even as volumes have stayed around 2.5 Bcf/d–2.7 Bcf/d since 2019.[126, 127, 128] Additionally, Mexico has become a significant importer following the development of cross-border pipelines and trade agreements like the United States-Mexico-Canada Agreement (USMCA), with U.S. natural gas exports reaching approximately 6.4 Bcf/d in 2024, a 17% increase from 2020 levels.[129]

6. Geopolitical Factors Influencing Demand: European Natural Gas Imports and the Russia-Ukraine War

The Russia-Ukraine war highlights the strategic importance of U.S. energy exports in supporting America's allies. In 2021, Europe received 40% of its natural gas from Russia. By 2024, that number had dropped to 18%.[130] In 2021, the U.S took over as the largest supplier of LNG to the EU and has held that position since (Figure 1-25). Since the war began, two-thirds of U.S. LNG exports, totaling more than 11.6 Bcf/d in 2023, have been directed to European markets, representing a 7% increase from 2022 to 2023.[131] By 2024, the United States's LNG imports accounted for approximately 45% of total European LNG imports.[132] Similarly, EU oil imports from the United States helped offset reduced Russian oil supplies, contributing to market stability. This shift has strengthened U.S. alliances, particularly with Europe, by providing a reliable alternative to Russian energy, thereby enhancing energy security and geopolitical stability.[133]

123 EIA. "Short-Term Energy Outlook." October 2025. https://www.eia.gov/outlooks/steo/images/Fig18.png.

124 bp. "Energy Outlook." September 25, 2025. https://www.bp.com/en/global/corporate/energy-economics/energy-outlook.html.

125 IEA. "India Energy Outlook 2024." https://www.iea.org/countries/india.

126 Jaremko, Gordon. "U.S. Natural Gas Exports Grew 13% in 2020 Despite Pandemic, Says DOE." *Natural Gas Intelligence*, May 21, 2021. https://naturalgasintel.com/news/us-natural-gas-exports-grew-13-in-2020-despite-pandemic-says-doe/.

127 Erkalan, Basak. "US Energy Trade with Canada Hits Record High Value Due to High Energy Prices." August 15, 2023. Anadolu Agency. https://www.aa.com.tr/en/energy/general/us-energy-trade-with-canada-hits-record-high-value-due-to-high-energy-prices/38718.

128 EIA. "Last Year's U.S.-Canada Energy Trade Was Valued Around $150 Billion." July 30, 2025. https://www.eia.gov/todayinenergy/detail.php?id=65825.

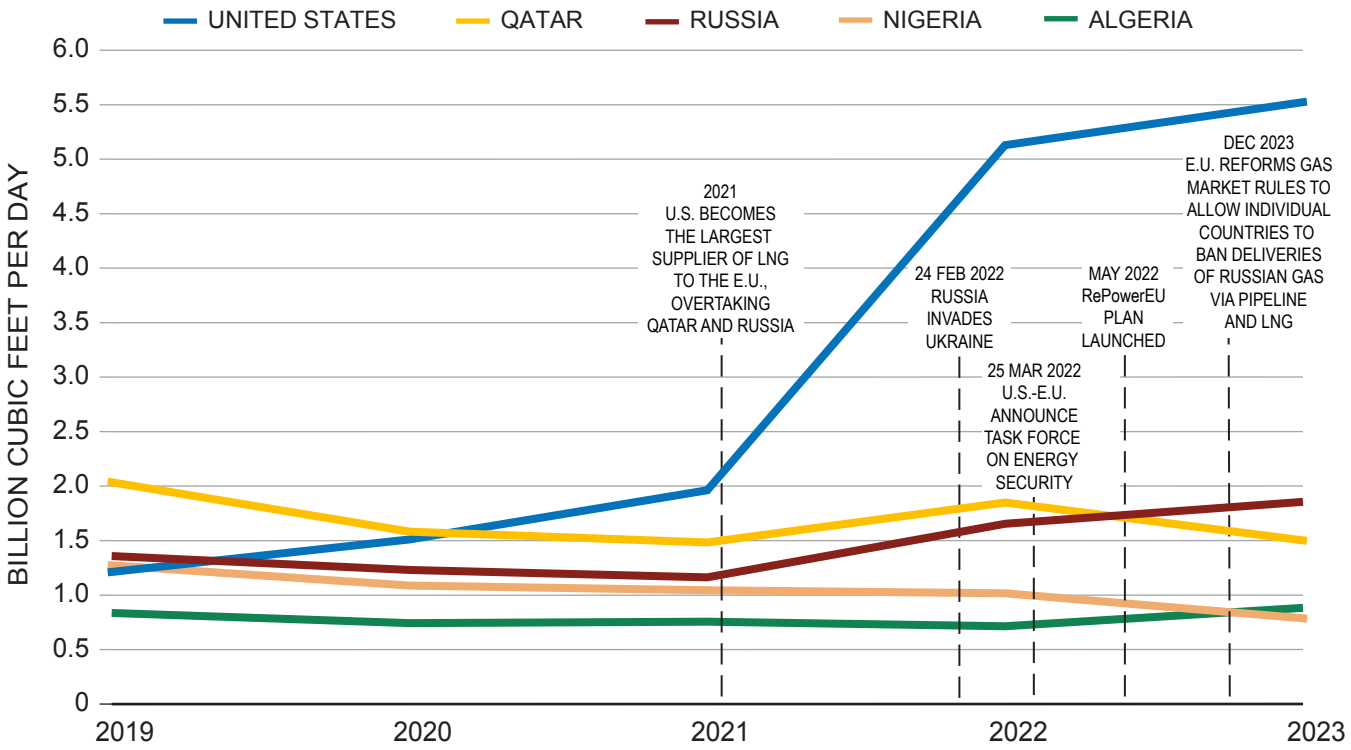
129 EIA. "Natural Gas Exports to Mexico." September 30, 2025. https://www.eia.gov/dnav/ng/ng_move_poe2_dcu_nus-nmx_a.htm.

130 Bruegel. "European Natural Gas Imports." October 15, 2025. https://www.bruegel.org/dataset/european-natural-gas-imports.

131 EIA. "The United States Remained the World's Largest Liquefied Natural Gas Exporter in 2024." March 27, 2025. https://www.eia.gov/todayinenergy/detail.php?id=64844.

132 European Council. "Where Does the EU's Gas Come From?" https://www.consilium.europa.eu/en/infographics/where-does-the-eu-s-gas-come-from/.

133 CSIS. "Geopolitical Significance of U.S. LNG." February 7, 2024. https://www.csis.org/analysis/geopolitical-significance-us-lng.



Source: Eurostat; Data from EIA. 2025.

Figure 1-25. *EU LNG Imports by Exporting Country Over Time Overlaid with Significant Events, 2019–2023*

The reorientation of Europe's energy supply became more pronounced in January 2025, when Ukraine announced it would not renew the five-year transit agreement for the Urengoy-Pomary-Uzhgorod Pipeline, effectively ending Russian gas flows to Europe except those transiting through Turkey.[134] As of the first quarter of 2025, EU imports of Russian LNG had declined by 70% compared with prewar levels.[135] Oil imports from Russia dropped from 27% in 2022 to 3% in 2025, and gas imports fell from 45% in 2021 to 19% in 2024.[136]

Russia's invasion of Ukraine resulted in a global response that saw U.S. natural gas exports grow to support global markets, signaling a new era for U.S. LNG.[137] The full implications of this reorientation are still unfolding, but Europe's diversification away from Russian energy has fundamentally altered global trade flows and created a lasting strategic role for U.S. LNG in the international energy landscape.

Continued certainty for European natural gas supply requires that the U.S. expand its role as Europe's primary LNG supplier. However, growth is constrained by Gulf Coast port capacity, pipeline bottlenecks, and insufficient LNG terminal capacity. Projects like Plaquemines LNG (first cargo December 2024) and Corpus Christi Stage 3 (first cargo February 2025) are expected to increase LNG export capacity by 17% in 2025, but further investments in upstream pipeline capacity, harbor infrastructure, and shipping are needed to sustain growth. For example, expanded port facilities and deeper harbors are critical to accommodate larger tankers, while pipeline expansions are necessary to transport natural gas from production sites to export terminals.

134 Meredith, Sam. "Ukraine just stopped Russian gas flows to Europe. Here's who's most at risk." January 2, 2025. CNBC. https://www.cnbc.com/2025/01/02/ukraine-stopped-russian-gas-reaching-europe-heres-whos-most-at-risk.html.

135 Levi, Isaac. Presentation: Russian LNG exports to the EU: Implications for the US LNG market. April 24, 2025. https://energyandcleanair.org/presentation-russian-lng-exports-to-the-eu-implications-for-the-us-lng-market/.

136 European Commission. REPowerEU Affordable, secure and sustainable energy for Europe. https://commission.europa.eu/topics/energy/repowereu_en.

137 EIA. "Liquefied Natural Gas Exports." September 30, 2025. https://www.eia.gov/dnav/ng/hist/n9133us2m.htm.

FINDING 1-13: The Russia-Ukraine war highlights the energy security benefits export infrastructure provides to the United States and its allies.

7. Fulfilling Trade Obligations

In addition to serving as a tool for geopolitical leverage against adversarial regimes and mitigating international conflicts, energy exports have become a cornerstone of U.S. trade policy. Commitments to purchase U.S. energy products, particularly crude oil, LPG, and LNG, have featured prominently in several bilateral trade agreements, underscoring the strategic importance of U.S. energy infrastructure.

a. U.S.-EU Energy Partnership

The EU's commitment to purchase $750 billion in U.S. energy products between 2025 and 2028 underscores the growing importance of U.S. energy exports. The deal requires tripling 2024's annual imports of $83 billion, and is challenged by Europe's transition to renewables and potential retaliatory tariffs, which could hinder the competitiveness of the U.S. LNG industry.[138] Successful implementation of this deal could increase U.S.-EU energy ties and enhance geopolitical influence.

b. Asia-Pacific Energy Partnerships

Several nations in the Asia-Pacific region have also agreed to purchase U.S. energy products in their bilateral trade deals with the United States, further underscoring the need for adequate U.S. energy infrastructure. Indonesia has committed to purchase $15 billion in U.S. LPG, crude oil, and gasoline.[139] Additionally, Japan has agreed to explore an offtake agreement for Alaskan LNG and expand its import of U.S. energy goods.[140] South Korea has also agreed to purchase $100 billion in U.S. LNG.[141] In addition to fulfilling commitments made to European partners, domestic infrastructure must be equipped to fulfill energy deals made with the United States' Asia-Pacific partners.

c. USMCA and Open Energy Trade with Canada and Mexico

The USMCA facilitates open energy trade with Canada and Mexico, with tariff exemptions for compliant U.S. goods enabling $1.8 trillion in North American trade in 2022.[142] The value of energy trade between the United States and Mexico totaled $66.5 billion in 2023, while the value of energy trade between the United States and Canada totaled $152 billion. The value of energy trade between both countries decreased in 2023 from 2022 because of lower fuel costs.[143] With USMCA renegotiations scheduled for 2026, maintaining open trade is critical to avoid disruptions, particularly given Mexico's growing reliance on U.S. gas and Canada's role in U.S. oil imports.

8. Supplying Responsibly Produced Energy to the World

In April 2024, in response to an April 22, 2022 request from then Energy Secretary Granholm, the NPC conducted a comprehensive study of options to reduce greenhouse gas (GHG) emissions along the U.S. natural gas supply chain entitled, *Charting the Course—Reducing Greenhouse Gas Emissions from the Natural Gas Supply Chain.*[144] The report followed and built upon an earlier 2011 NPC report titled *Prudent Development: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources.*[145] *Charting the Course* evidenced that use of U.S. produced natural gas "has had a significant role in reducing U.S. carbon emissions over the last twenty years and provides reliable electric power generation

138 See, for example, "What China's Retaliatory Tariff Means for US-China LNG Trade." February 7, 2025. Center on Global Energy Policy. https://www.energypolicy.columbia.edu/what-chinas-retaliatory-tariff-means-for-us-china-lng-trade/.

139 The White House. "Joint Statement on Framework for United States-Indonesia Agreement on Reciprocal Trade." July 22, 2025. https://www.whitehouse.gov/briefings-statements/2025/07/joint-statement-on-framework-for-united-states-indonesia-agreement-on-reciprocal-trade/.

140 The White House. "Fact Sheet: President Donald J. Trump Secures Unprecedented U.S.-Japan Strategic Trade and Investment Agreement." July 23, 2025. https://www.whitehouse.gov/fact-sheets/2025/07/fact-sheet-president-donald-j-trump-secures-unprecedented-u-s-japan-strategic-trade-and-investment-agreement.

141 CSIS. "South Korea Gets Its Trade Deal with the United States." July 31, 2025. https://www.csis.org/analysis/south-korea-gets-its-trade-deal-united-states.

142 Office of the United States Trade Representative. "United States-Mexico-Canada Agreement." n.d. https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement.

143 Office of the United States Trade Representative. "United States-Mexico-Canada Agreement." https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement.

144 NPC. "Charting the Course: Reducing GHG Emissions from the U.S. Natural Gas Supply Chain." 2024. https://chartingthecourse.npc.org/.

145 NPC. "Prudent Development: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources." September 2011. https://www.npc.org/reports/rd.html.

to support renewable energy sources, aiding in further overall reduction of GHG emissions."[146]

U.S. oil and natural gas production has undergone a transformative evolution over the past two decades, driven by advancements such as horizontal drilling and hydraulic fracturing. These innovations have not only made oil and natural gas more abundant and affordable but have also contributed significantly to reducing U.S. carbon emissions by displacing more carbon-intensive fuels like coal. For example, from 2005 to 2021, U.S. natural gas production more than doubled, while methane emissions decreased by 7% and overall carbon intensity dropped by over 33%.[147] *Charting the Course* detailed pathways for further GHG emissions reductions for the oil and natural gas sectors, many of which have already been adopted through a combination of policy, regulation, technology, and voluntary company operational efforts to reduce GHG emissions.[148]

146 NPC. "Charting the Course." 2024. Transmittal letter at p. 1.

147 NPC. "Charting the Course." 2024. At p. 24, stating, "Despite the production increase, absolute methane emissions were reduced by 7%, as operators improved performance across the supply chain."

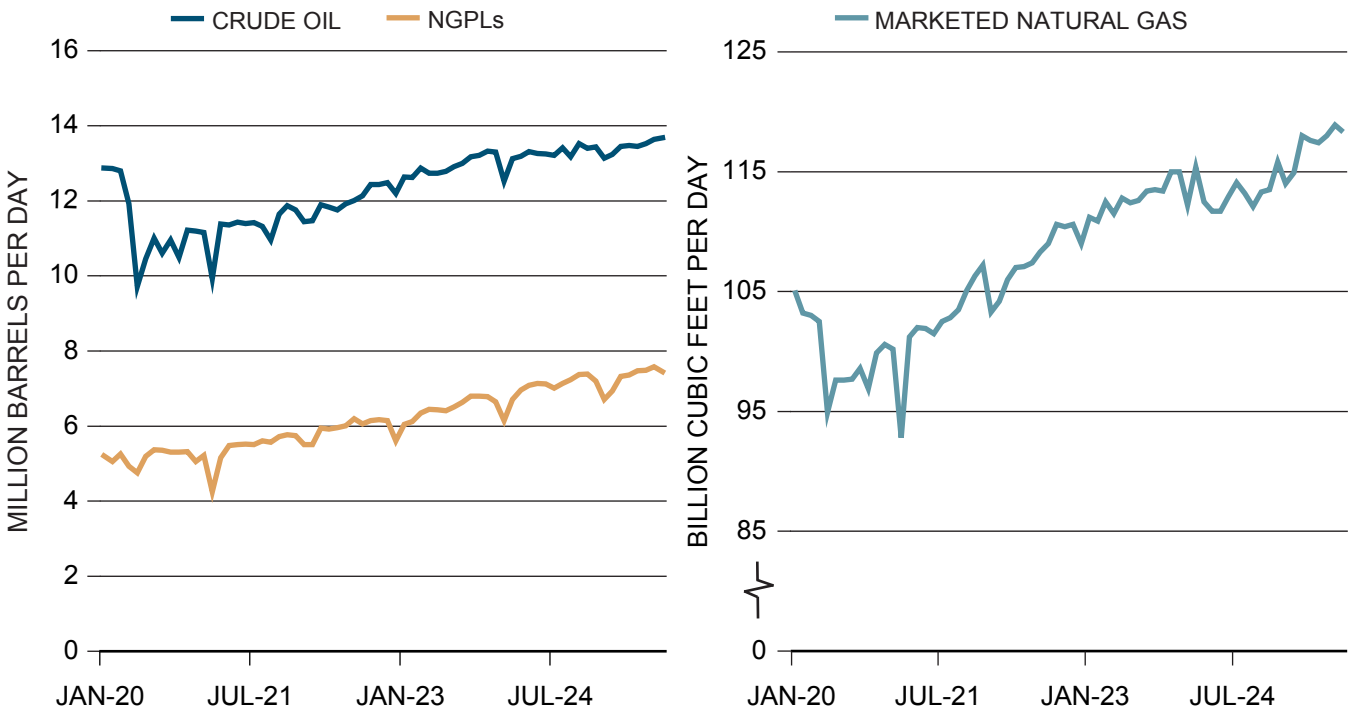
148 NPC. "Charting the Course." 2024. At p. 27-28.

U.S. oil and natural gas is increasingly recognized as a reliable and lower-emissions supply source in international markets. For consuming countries, importing U.S. energy means access to a fuel source that is not only cost-competitive and geopolitically stable but also produced with a lower GHG footprint. North American energy, produced under a framework of rigorous environmental regulation, technological innovation, and corporate responsibility, offers a strategic and sustainable solution for countries seeking to balance energy security, affordability, and climate commitments.

D. Production Growth and Growth Factors Since the 2019 Dynamic Delivery Report

The NPC's 2019 *Dynamic Delivery* report highlighted the growth of crude oil, NGLs, and natural gas production that made the United States the world's largest producer. Since the 2019 NPC report, Figure 1-26 shows that U.S. production of oil, NGLs, and natural gas has continued to grow in response to rising demand.

Total U.S. crude oil production is expected to be ~13.5 MMb/d in 2025, compared with 12.3



Note: NGPLs=natural gas plant liquids (ethane, propane, butane, isobutane, and natural gasoline).
Source: Data from EIA. 2025.

Figure 1-26. *Monthly Crude Oil, NGPLs, and Marketed Natural Gas Production (January 2020–August 2025)*

MMb/d in Q4 2019.[149] Total NGL production is expected to be ~7.3 MMb/d in 2025, compared with 4.8 MMb/d in 2019.[150] Total marketed natural gas production is forecast to grow to 117.7 Bcf/d in 2025, compared with 99.9 Bcf/d in 2019.[151] Despite growing total production across the United States, insufficient infrastructure—particularly pipelines and storage capacity—has limited the ability to transport the added supplies efficiently to certain regions of the country, resulting in seasonal price impacts.

FINDING 1-14: U.S. production volumes of crude oil, NGLs, and natural gas have continued to grow since the 2019 NPC report.

149 EIA. "Short-Term Energy Outlook." August 2025. https://www.eia.gov/outlooks/steo/archives/Aug25.pdf.

150 EIA. "Short-Term Energy Outlook." August 2025. https://www.eia.gov/outlooks/steo/archives/Aug25.pdf.

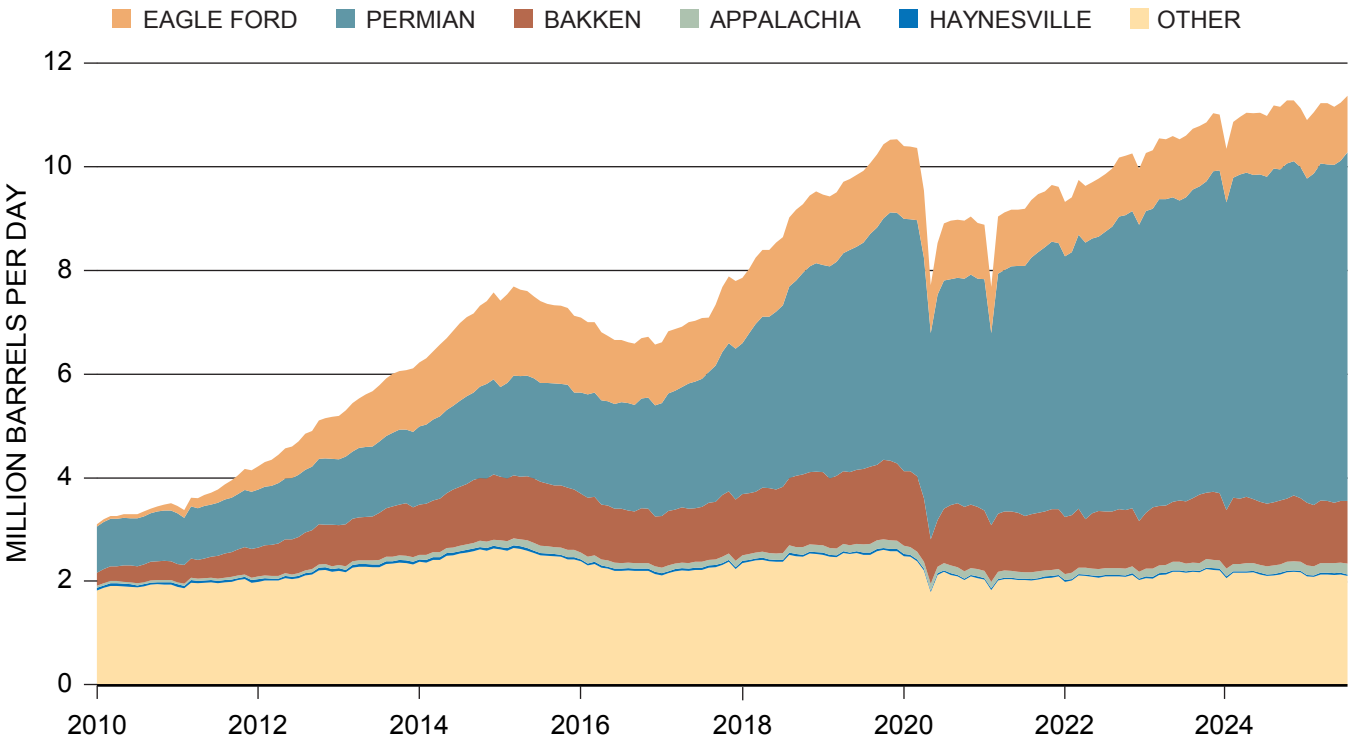
151 EIA. "Short-Term Energy Outlook." August 2025. https://www.eia.gov/outlooks/steo/archives/Aug25.pdf.

E. Geographic Shifts in U.S. Crude Oil, Natural Gas Liquids, and Natural Gas Production

As 2019's *Dynamic Delivery* illustrated, the U.S. oil, NGL, and natural gas supply story is not just about overall volume growth. The rapid and dramatic shifts in production volumes for different geographic locations have driven investment in infrastructure expansions and created the need for new infrastructure. Figures 1-27 through 1-30 illustrate growth in U.S. oil production since 2019, which is concentrated in the Permian Basin, with some additional growth in the Bakken and Eagle Ford regions.

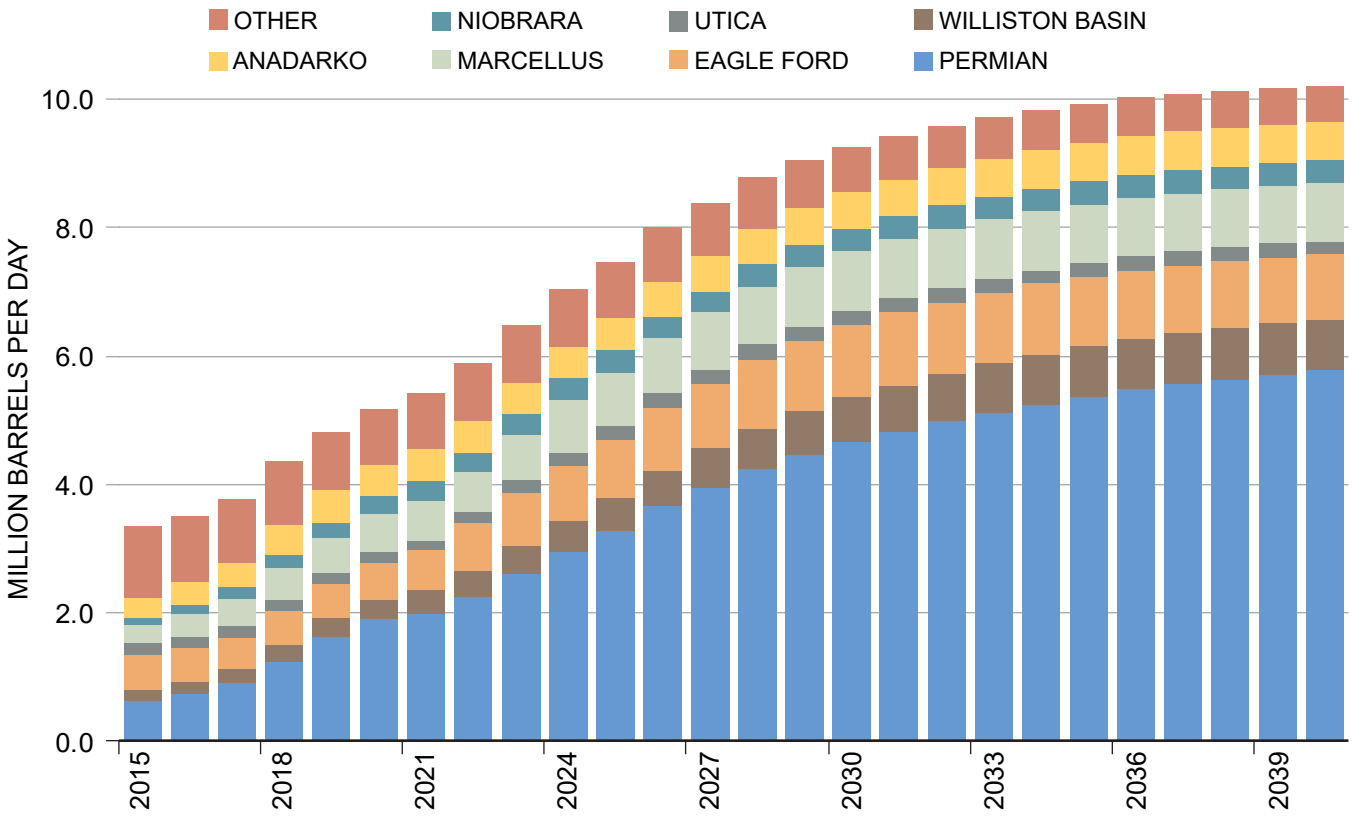
NGL production is expected to grow through 2041, especially in the Permian Region (Figure 1-28).[152]

152 "NGL production from gas processing is up from about 2.2 MMb/d in 2011 to 6.7 MMb/d in 2024. During that 13-year period, production of propane, butanes and natural gasoline (C3+) increased from 1.3 MMb/d to 4 MMb/d (about 3X), while recovered ethane production tripled from 0.9 MMb/d to 2.7 MMb/d. expected NGL production growth from 6.7 MMb/d in 2024 to 8.2 MMb/d in 2040 (CAGR 1.3%)."" Where You Gonna Go? - Navigating the Surplus in U.S. LPG and Ethane Production." RBN Blog. September 10, 2024. https://rbnenergy.com/where-you-gonna-go-navigating-the-surplus-in-us-lpg-and-ethane-production.



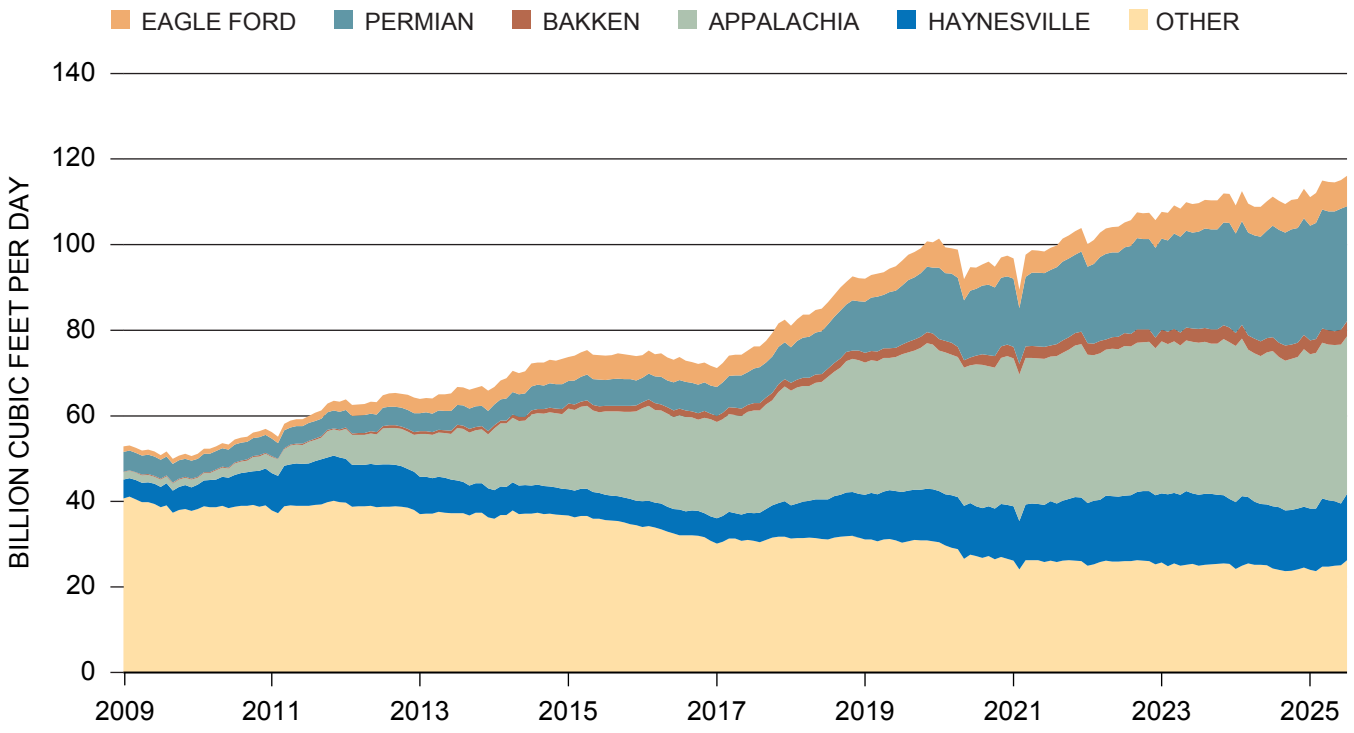
Source: Data from EIA. 2025.

Figure 1-27. Monthly Lower 48 Crude Oil Production by Region



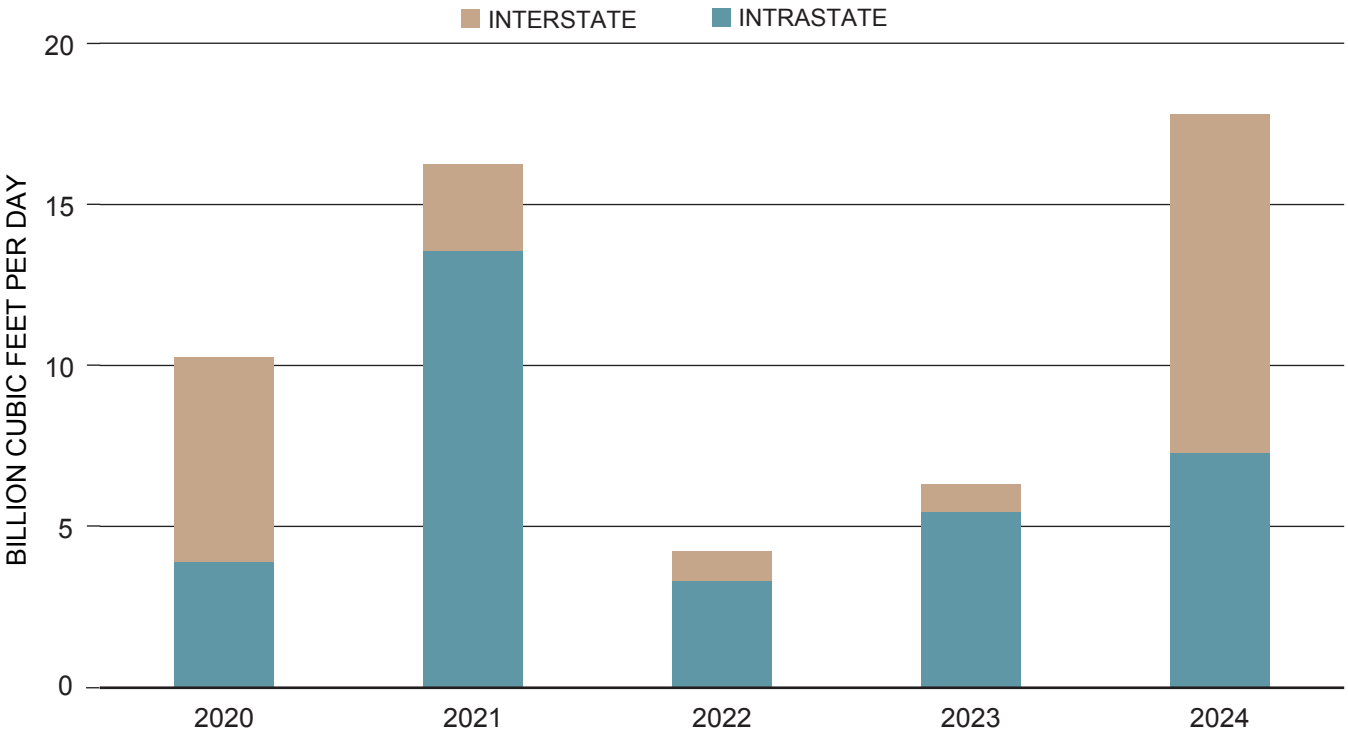
Source: RBN Energy. 2025.

Figure 1-28. Actual (through 2024) and Estimated NGL Production in Different Formations from 2015 to 2041



Source: Data from EIA. 2025.

Figure 1-29. Monthly U.S. Marketed Natural Gas Production by Region



Source: Data from EIA. 2025.

Figure 1-30. *Annual U.S. Natural Gas Pipeline Capacity Additions by Type (2020-2024)*

U.S. natural gas production has seen growth across several regions, primarily the Permian, Haynesville, and Appalachia regions, as shown in Figure 1-29.

FINDING 1-15: Much of the production growth has been regional, concentrated primarily in the Permian and Appalachia producing regions, which increases the need for egress pipeline capacity.

This section focuses on the Permian and Appalachia producing regions, which have experienced growth since 2019's *Dynamic Delivery*, and illustrates how they have experienced different outcomes based on a variety of infrastructure hurdles over the last several years.

According to the EIA, approximately 57 Bcf/d of natural gas pipeline capacity has been added in the United States between 2020 and 2025 (Figure 1-30).[153]

153 EIA. "Natural Gas Pipeline Project Completions Increase Takeaway Capacity in Producing Regions." March 17, 2025. https://www.eia.gov/todayinenergy/detail.php?id=64744.

Due in part to permitting challenges, more intrastate capacity is being built than interstate capacity, and many of the interstate pipeline expansions have come from flow reversals and added compression rather than new greenfield pipelines. This capacity has not necessarily been added to support production growth, with nearly half of the capacity expansions driven by demand pull from the growing Gulf Coast LNG exports. Instead of moving gas primarily from the Gulf producing region to markets in the Mid-Atlantic and Northeast, flows increasingly shifted toward the Gulf to meet LNG demand for exports. At the same time, production growth in shale formations such as the Permian (West Texas and Southeast New Mexico), Haynesville (Northwest Louisiana and Eastern Texas), and Marcellus (Appalachia) positioned these regions as key suppliers for LNG exports.

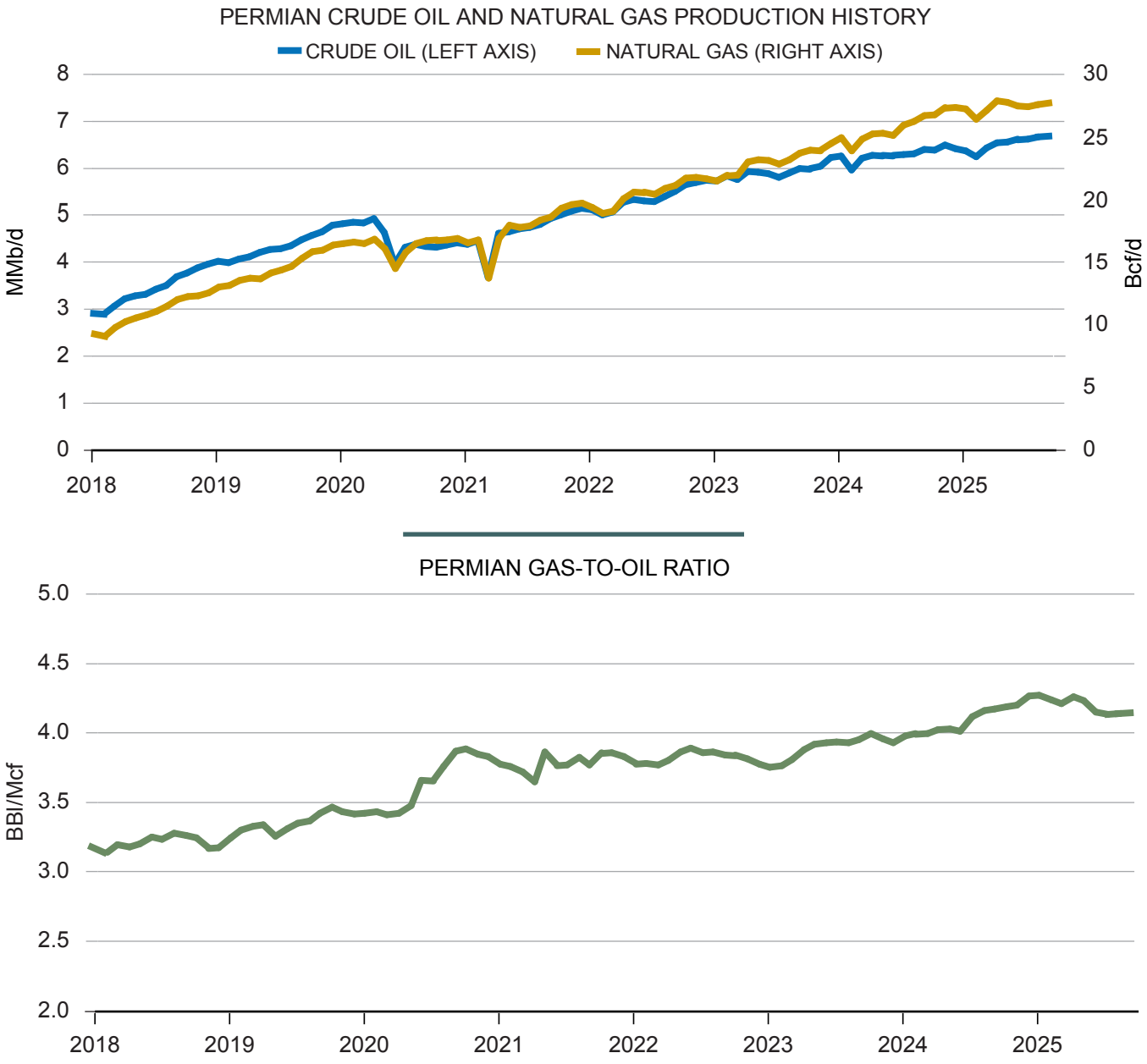
1. Permian Basin

The Permian is an oil-focused production basin with associated gas produced as a byproduct, and NGLs extracted from the natural gas stream. Crude production growth can only occur if sufficient pipeline capacity exists to move not only the extracted

oil, but also the associated gas and NGLs that come with it. The Permian has very little local demand for oil and gas, so nearly all the production must be piped elsewhere. Despite its primary focus on oil, Permian Basin natural gas production has increased rapidly in recent years, rising to ~27.2 Bcf/d in the second quarter of 2025 (growing by 11.5 Bcf/d since the beginning of 2019).[154] This increase is largely due to the addition of substantial takeaway capacity for associated gas, which has enabled a rise in crude oil production to 6.53 MMb/d in Q2 2025.

Figure 1-31 illustrates the rapid growth of natural gas production in the Permian Basin as crude oil production has increased. This rapid growth pushed existing infrastructure to its limits. As the EIA observed, "[f]rom 2018 through early 2020, natural gas production in the Permian Basin grew faster than pipeline takeaway capacity. Given limited

154 EIA. Table 5a. in "Short-Term Energy Outlook." October 2025. https://www.eia.gov/outlooks/steo/tables/pdf/5atab.pdf.



Source: RBN Energy. 2025.

Figure 1-31. Permian Crude Oil and Gross Gas Production and Gas-to-Oil Ratio

transportation capacity to transport natural gas to consuming centers, producers sold their natural gas at discounted prices. As a result, in 2019, the Waha Hub price averaged $1.66/MMBtu lower than the Henry Hub price."[155]

The persistent takeaway constraints resulted in a significant increase in planned infrastructure. Figure 1-32 lists all of the completed and potential upcoming Permian Basin crude oil pipeline projects since 2019.

Figure 1-33 lists the recently completed and potential upcoming Permian Basin NGL pipeline projects since 2019.

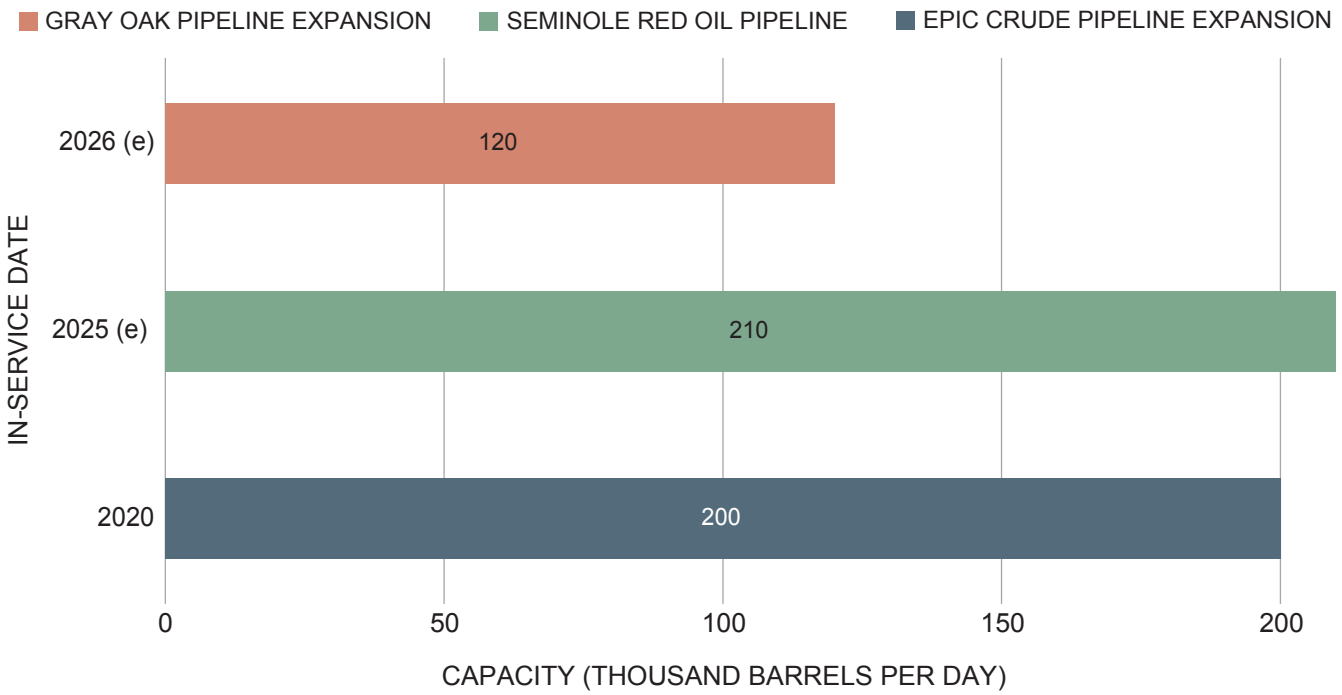
Figure 1-34 lists the recently completed and potential upcoming Permian Basin natural gas pipeline projects since 2019, some of which are shown in Figure 1-35.

An examination of natural gas prices demonstrates the value of additional pipeline takeaway capacity in the Permian Basin. The EIA reported that in the 2018–2020 timeframe, prices at the Waha Hub (Permian Basin) were significantly lower than at Henry Hub (in the Gulf Coast demand center) despite their geographic proximity, because takeaway pipeline capacity had not kept pace with production in the Permian Basin. When additional pipeline infrastructure was added in 2021, it facilitated access to higher-value markets and "narrow[ed]" the price differential between the Waha and Henry Hubs (Figure 1-36).

Despite these gains, production continues to outpace available takeaway capacity in the Permian, causing prices at Waha Hub to fall below zero for 42% of the trading days in 2024. The Matterhorn Express Pipeline "entered service in October 2024 and helped clear some of the regional production bottleneck."[156] However, prices at Waha Hub still are significantly lower than prices in nearby demand centers, suggesting the need for additional takeaway capacity from the Permian Basin.

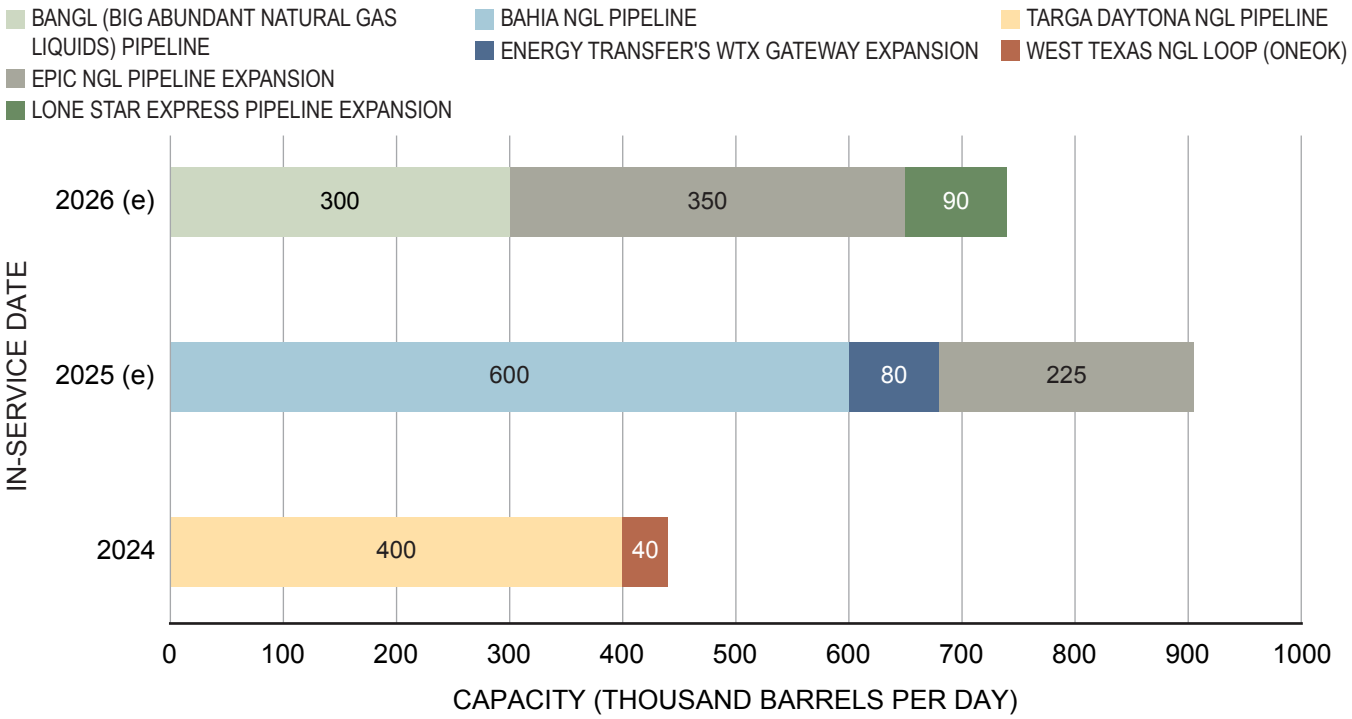
155 EIA. "The Waha Hub Natural Gas Price Continues to Fall Below the Henry Hub Price." September 20, 2022. https://www.eia.gov/todayinenergy/detail.php?id=53919.

156 EIA. "Natural gas spot prices fell across key regional trading hubs in 2024." February 3, 2025. https://www.eia.gov/todayinenergy/detail.php?id=64445.



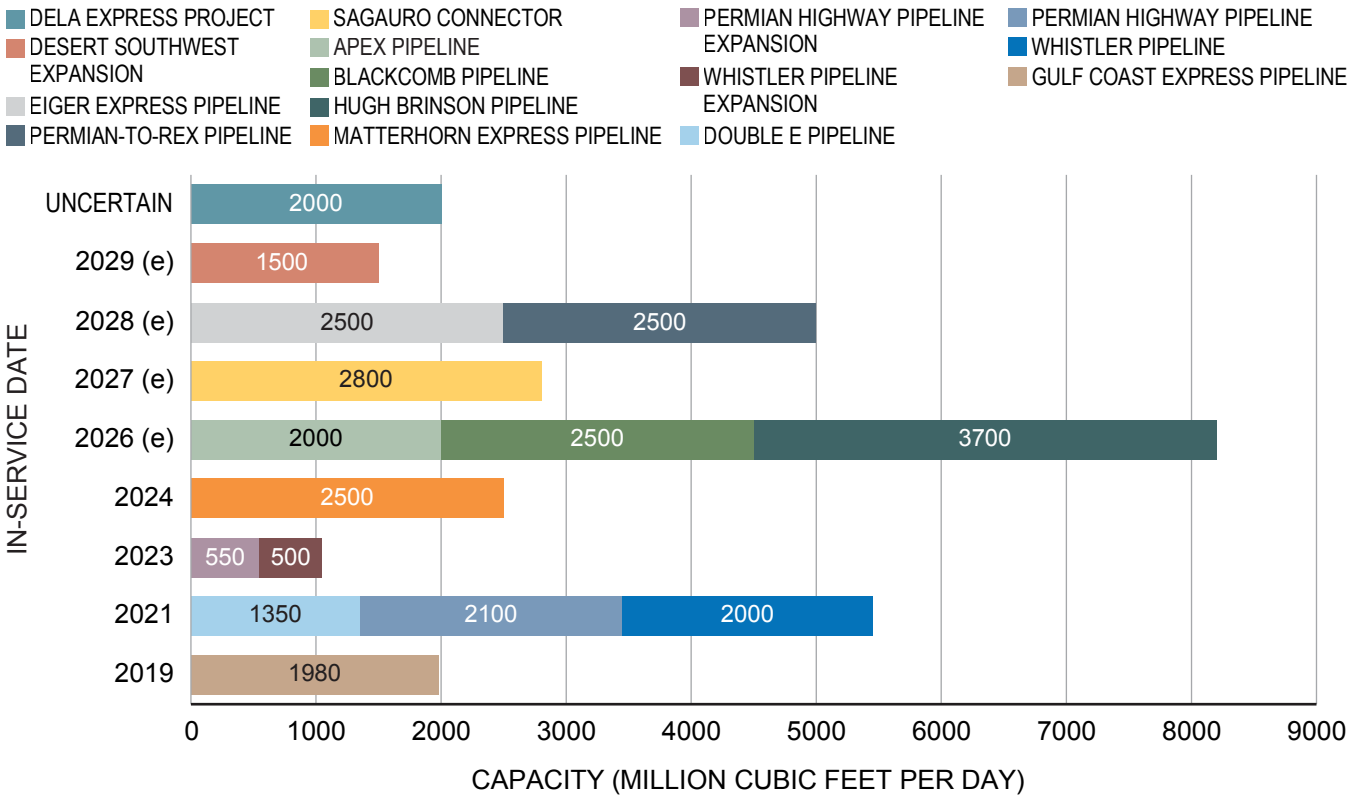
Note: e=expected.
Source: Data from regulatory filings, press releases, and trade press. 2025.

Figure 1-32. *Permian Crude Oil Pipeline Expansions since 2019*



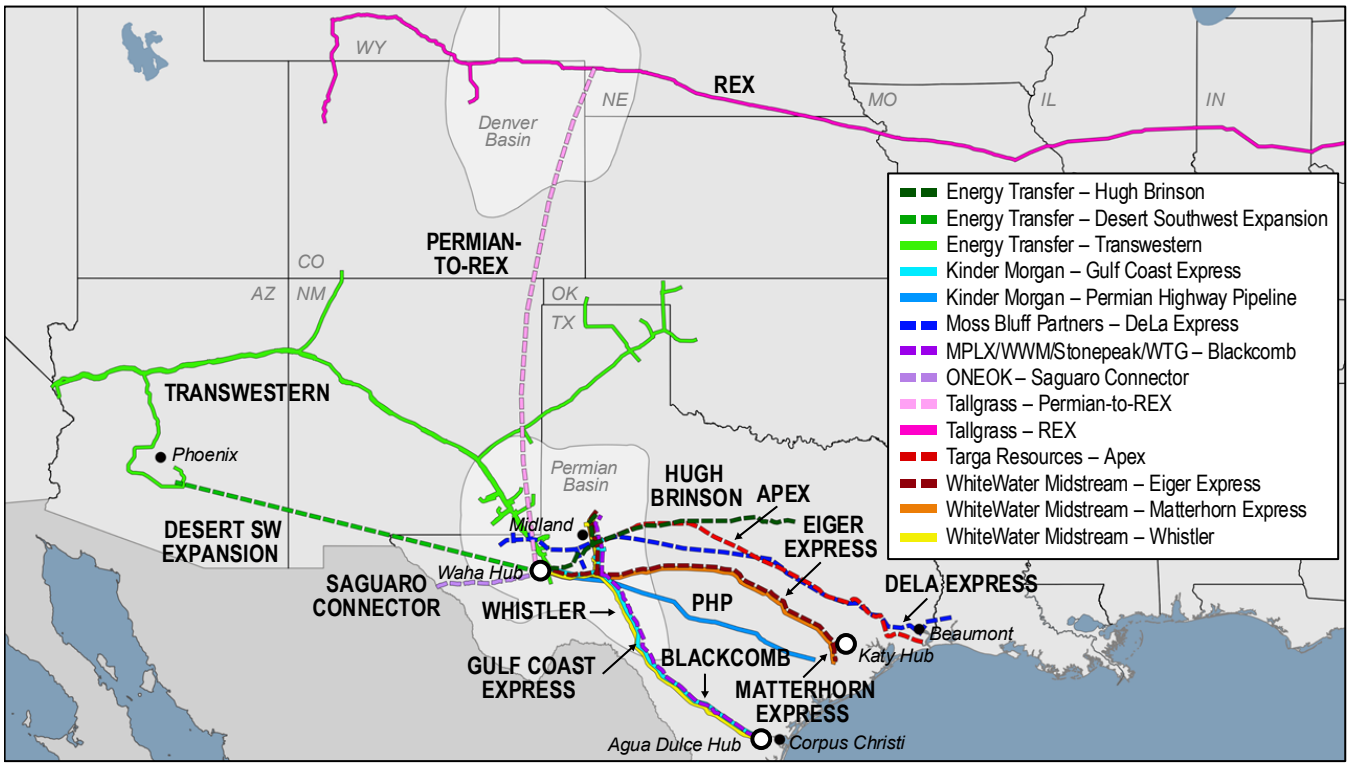
Note: e=expected.
Source: Data from regulatory filings, press releases, and trade press. 2025.

Figure 1-33. *Permian NGL Pipeline Expansions Since 2019*



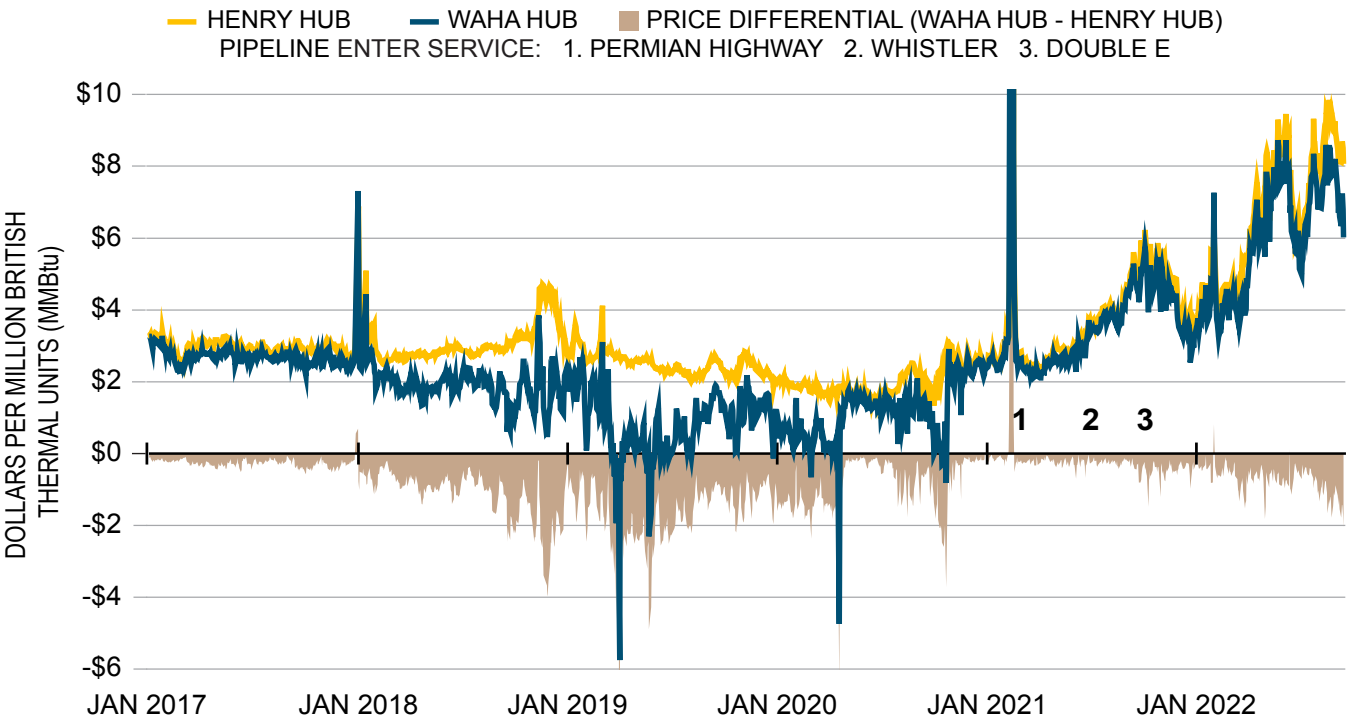
Note: e=expected.
Source: Data from regulatory filings, press releases, and trade press. 2025.

Figure 1-34. *Permian Natural Gas Pipeline Expansions Since 2019*



Source: RBN Energy. 2025.

Figure 1-35. Select Existing and Announced Natural Gas Pipelines from the Permian Basin as of October 2025



Note: Price differential is between the local market price (Waha Hub) and the national benchmark price (Henry Hub).
Source: EIA. 2022. Pricing data from Natural Gas Intelligence.

Figure 1-36. Natural Gas Spot Prices and Price Differential Between the Henry Hub and Waha Hub

FINDING 1-16: Development of infrastructure within the Permian Basin has been eased through use of the intrastate permitting process within the state of Texas (Figure 1-35), which has facilitated the rapid growth of crude oil and natural gas production in the Permian Basin, but more takeaway capacity is needed.

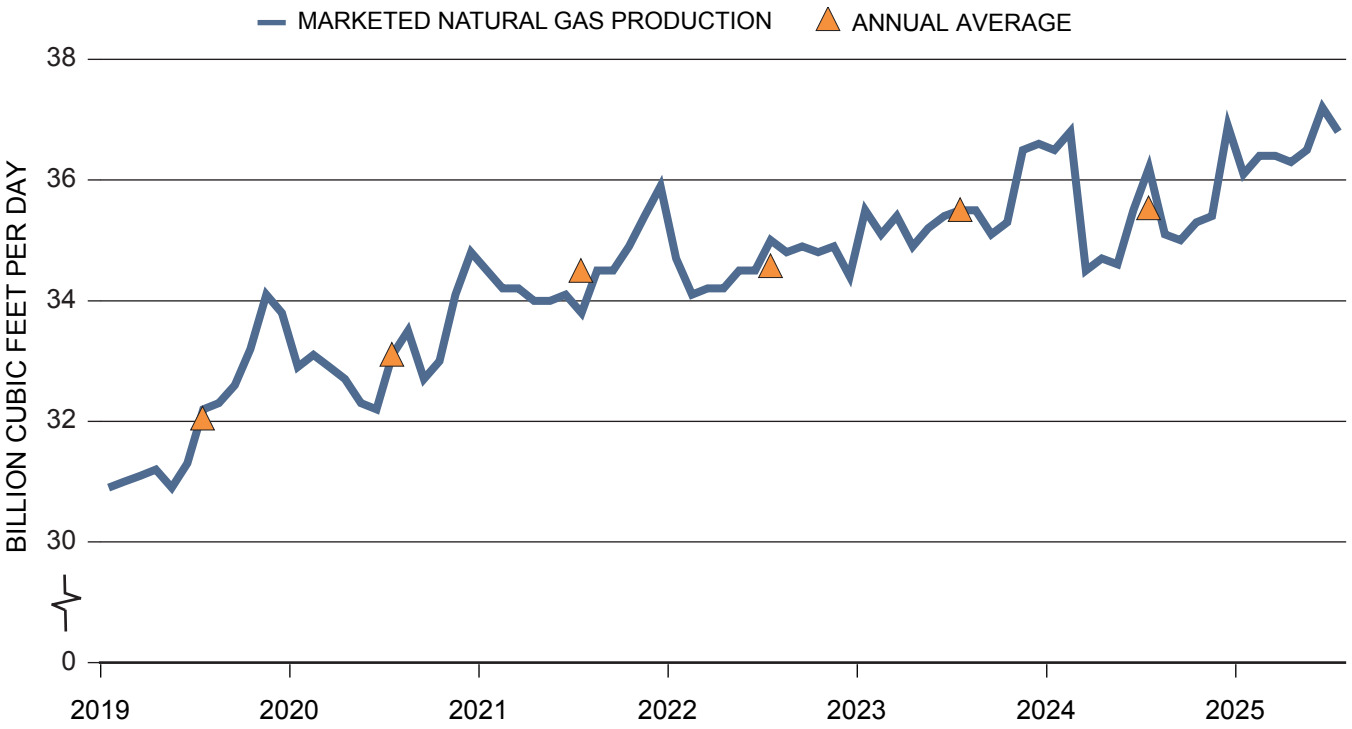
2. Marcellus and Utica Formations (Appalachia Region - PA/WV/OH)

The shale plays in Pennsylvania, West Virginia and Ohio are among the most productive in the world. Production growth in the Marcellus/Utica plays has been helped by the high NGL content in Southwestern Pennsylvania, Northern West Virginia, and Eastern Ohio, which brings high returns. With the advent and increasing use of horizontal drilling and hydraulic fracturing, natural gas production in the Appalachia Region has increased from 2 Bcf/d in 2008 to 36.5 Bcf/d in the second quarter of 2025, although production growth slowed in recent years due to delays in getting infrastructure permitted and built. Figure 1-37 shows production growth between January 2019 and July 2025 (~6 Bcf/d) as being relatively flat, compared with the sizable growth that happened between 2008 and 2019 (~28.5 Bcf/d).

During periods of lower gas prices, producers can slow drilling activity, delay completions, and throttle back producing wells to manage their inventory, as they did in 2024. They can use the same approach when constrained by lack of takeaway pipeline capacity and inability to access markets.[157] "In recent years, the basin's output has been rangebound between 34 Bcf/d and 36 Bcf/d and Appalachian producers see only modest gains in 2025"[158] due to lack of infrastructure buildout, leading to slower production growth, which became

157 RBN Energy LLC. "I Walk the Line - The New Appalachian Gas Producer Playbook in a Pipeline-Constrained World." June 29, 2023. https://rbnenergy.com/daily-posts/blog/new-appalachian-gas-producer-playbook-pipeline-constrained-world.

158 RBN Energy LLC. "Don't Stop Believin' - Appalachia Gas Production Growth Tied to Takeaway Adds, In-Basin Power Needs." July 7, 2025. https://rbnenergy.com/daily-posts/blog/appalachia-gas-production-growth-tied-takeaway-adds-basin-power-needs.



Source: Data from EIA. 2005.

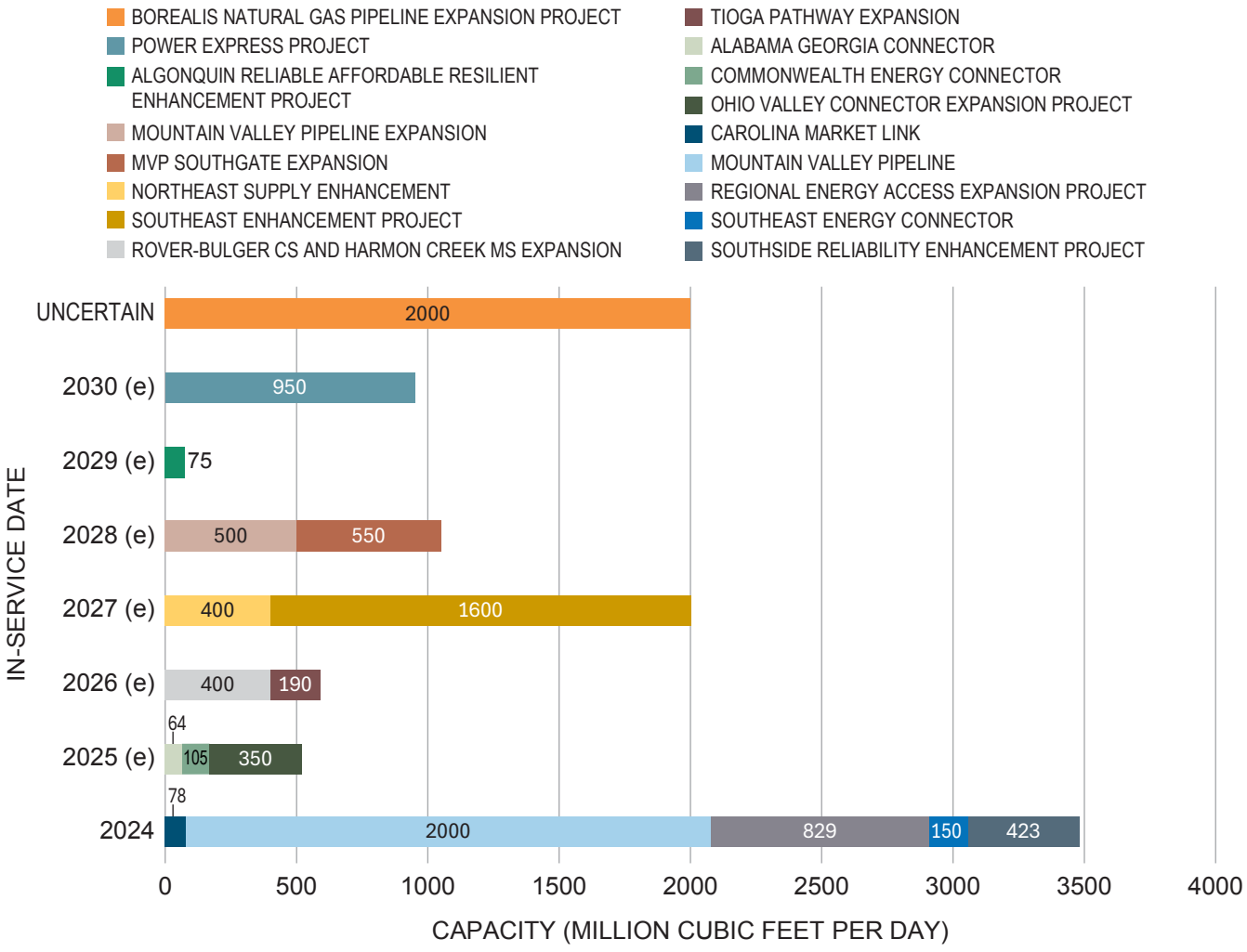
Figure 1-37. Marketed Natural Gas Production: Appalachian Basin (Monthly)

particularly bad after 2019.[159] The pandemic and the resulting lockdowns further contributed to lagging production, but lack of takeaway infrastructure has been a large contributing factor to Appalachian gas producers retreating into relatively flat production since 2019.[160]

Figure 1-38 lists recently completed and potential upcoming projects that are planned to serve the Appalachia Region.

159 "The shale play's gas production soared from less than 2 Bcf/d to more than 33 Bcf/d over that decade, but its output through the first half of the 2020s has stayed close to flat, averaging about 35 Bcf/d over that period — ~24 Bcf/d from the NGL-rich "wet Marcellus/Utica" in southwestern Pennsylvania, northern West Virginia and eastern Ohio and ~11 Bcf/d from the "dry Marcellus" in northeastern Pennsylvania." RBN Energy LLC. "Don't Stop Believin' - Data Centers, LNG Exports and Southeast Demand Key to Marcellus/Utica Growth." June 10, 2025. https://rbnenergy.com/daily-posts/blog/data-centers-lng-exports-and-southeast-demand-key-marcellusutica-growth.

160 RBN Energy LLC. "Don't Stop Believin' - Data Centers, LNG Exports and Southeast Demand Key to Marcellus/Utica Growth." June 10, 2025. https://rbnenergy.com/daily-posts/blog/data-centers-lng-exports-and-southeast-demand-key-marcellusutica-growth.



Note: e=expected.
Source: Data from regulatory filings, press releases, and trade press. 2025.

Figure 1-38. Recently Completed and Upcoming Projects that Are Planned to Serve the Appalachian Region

The disparity in natural gas prices between the supply regions and market centers signals the need for more infrastructure, but opposition in the permitting process has prevented market-supported infrastructure projects from moving forward. The average natural gas spot price in 2024 at the Eastern Gas South Hub near production in the Appalachian Basin was $1.67/MMBtu. Average prices at Transco Zone 6 N.Y., which serves New York City, and at Algonquin Citygate, a Boston-area hub, were $2.20/MMBtu and $3.03/MMBtu, respectively. Similar price disparities occurred in 2023 despite the proximity of the Appalachian Basin to the demand centers in New York and Boston; seasonal price differentials to Henry Hub even reached $5-$20/MMBtu in these markets.

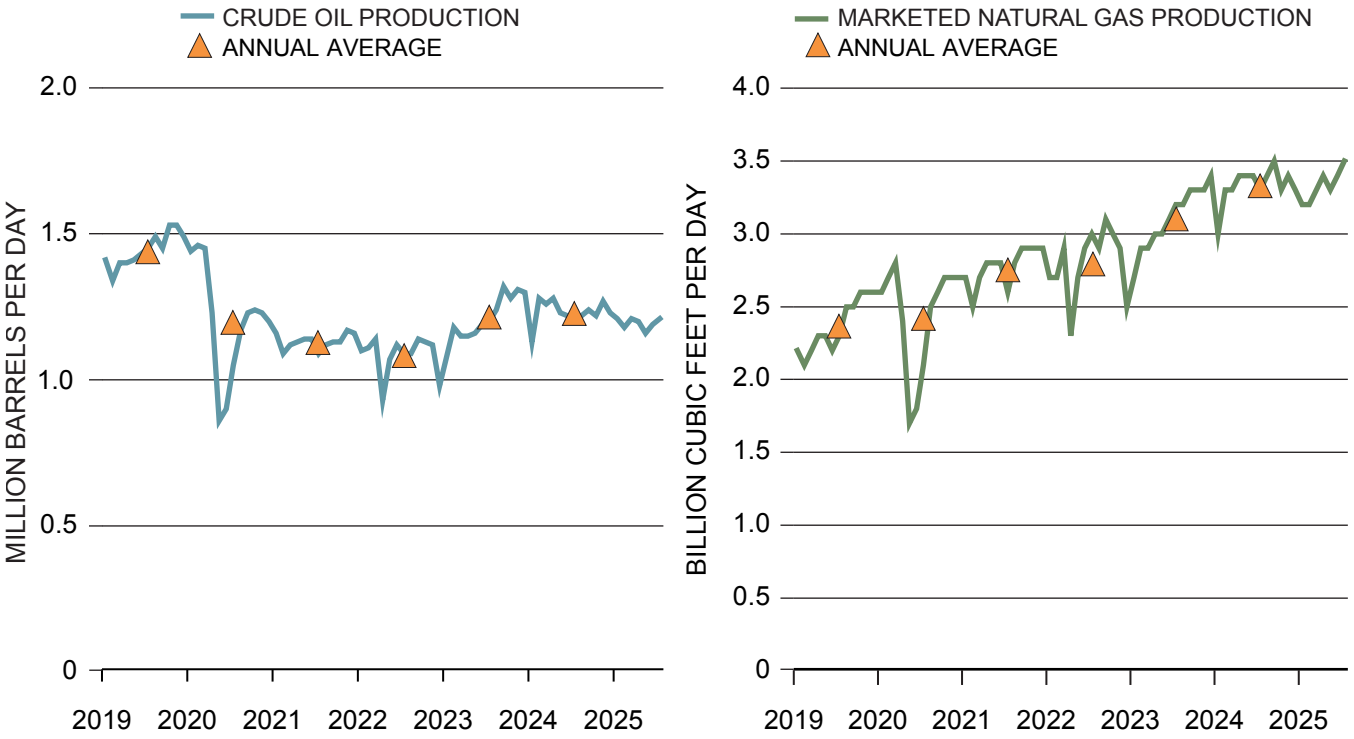
FINDING 1-17: Lack of takeaway pipeline capacity and inability to access markets has resulted in negative price pressures within the Marcellus/Utica Formations and slowed the pace of production growth.

3. Other Production Dynamics – Bakken and Haynesville Production

a. Bakken Producing Region

The Bakken primarily produces crude oil but also produces associated natural gas and NGLs (Figure 1-39). Like the Appalachia Region, the Bakken has takeaway constraints for natural gas, crude oil, and NGLs.[161] While the Bakken has the potential to grow its crude oil production, capitalizing on that crude oil is only possible if available capacity exists to transport the crude oil and the increasing associated rich gas production. There is an ongoing need to build more of every type of midstream infrastructure to serve Bakken production: crude oil gathering systems and takeaway pipelines, crude-by-rail terminals, gas gathering systems and gas processing plants, and natural gas and NGL

161 RBN Energy LLC. "Double (H) or Nothing - Could More NGL Pipeline Capacity Help Break the Bakken's Production-Growth Logjam?" July 30, 2024. https://rbnenergy.com/daily-posts/blog/could-more-ngl-pipeline-capacity-help-break-bakkens-production-growth-logjam.



Source: Data from EIA. 2025.

Figure 1-39. Bakken Region Crude Oil and Marketed Natural Gas Production (Monthly)

pipelines. The lack of infrastructure resulted in Bakken producers flaring record volumes of natural gas in the fourth quarter of 2018 (about 20% of total production).[162]

In 2024, RBN Energy explained:

> *[F]rom 2009 to 2019, crude oil production there increased more than 10-fold, topping out at about 1.5 MMb/d before the pandemic hit and the play's output cratered to 900,000 b/d. Production has rebounded somewhat, but remains rangebound near 1.2 MMb/d, well short of its potential. A major reason for the flat-line crude output is that old stumbling block—pipeline takeaway capacity—not so much for crude oil (though that is a lingering concern) but for natural gas and NGLs because, as it turns out, the most prolific oil-focused wells in the Bakken also produce large volumes of liquids-rich associated gas.*[163]

RBN Energy further explained that the ratio of gas to crude oil produced (the gas-to-oil ratio) in the Bakken Region has increased, so increasing natural gas and NGL takeaway capacity has become even more critical to manage the growing associated liquids-rich natural gas.

FINDING 1-18: Lack of midstream infrastructure to serve Bakken production—crude oil gathering systems and takeaway pipelines, crude-by-rail terminals, gas gathering systems and gas processing plants, and natural gas and NGL pipelines—has slowed production growth.

Figure 1-40 lists the recently completed and potential upcoming projects to serve the Bakken Region.

Takeaway pipeline capacity for Bakken crude oil is also a constraint. East Daley Analytics published a chart (Figure 1-41) that shows production levels bumping up against effective egress capacity, as depicted by the dotted line.

b. Haynesville Region

Unlike the Permian Region, the Haynesville Region is gas-focused and does not receive significant revenue from producing higher-value liquids volumes. While a significant amount of infrastructure tied to production basins is built to accommodate a supply push (producers trying to move their gas to market), the Haynesville Region is experiencing a demand pull, with LNG exporters supporting several infrastructure projects. Because of its proximity to the LNG export terminals, Haynesville production is an essential source of LNG feedgas. The pullback in Haynesville production in 2024 was due to lower demand caused, in part, by delays in the Golden Pass LNG terminal.[164] In recent months, Haynesville has started to see stronger production and growth is expected after more takeaway capacity has been added. In August 2025, Haynesville production averaged 14.6 Bcf/d; roughly 0.64 Bcf/d above August 2024 levels (Figure 1-42).[165]

FINDING 1-19: The Haynesville Region is predominantly a natural gas play and has been able to sustain natural gas production growth primarily based on added intrastate infrastructure supported by LNG exporters.

Figure 1-43 lists the recently completed and potential upcoming natural gas pipeline projects to serve the Haynesville Region.

V. CONCLUSION

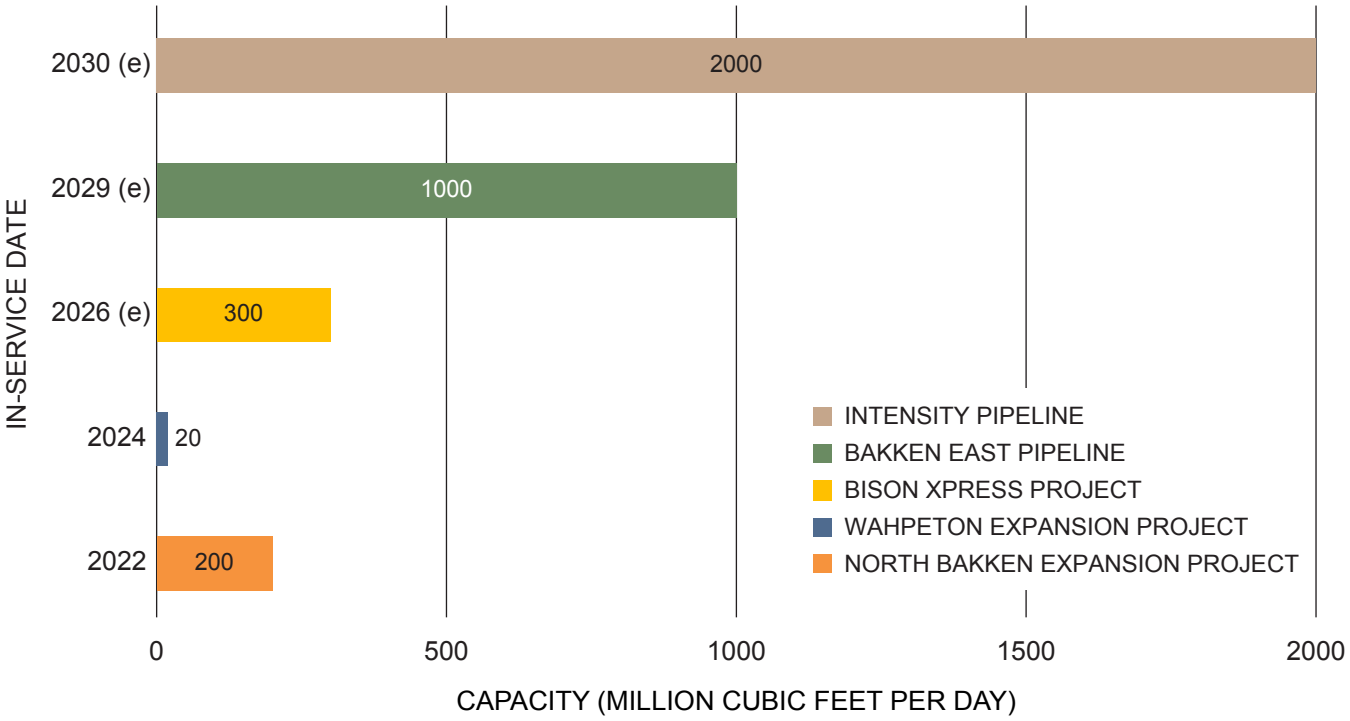
Infrastructure additions have not kept pace with growing domestic and export demand for oil, NGLs, natural gas, and refined products. The United States set record lows for interstate natural

162 RBN Energy LLC. "Hard to Handle - Can Bakken Producers Finally Put a Lid on Gas Flaring? March 13, 2019. https://rbnenergy.com/daily-posts/blog/can-bakken-producers-finally-put-lid-gas-flaring.

163 RBN Energy LLC. "Double (H) or Nothing - Could More NGL Pipeline Capacity Help Break the Bakken's Production-Growth Logjam?" July 30, 2024. https://rbnenergy.com/daily-posts/blog/could-more-ngl-pipeline-capacity-help-break-bakkens-production-growth-logjam.

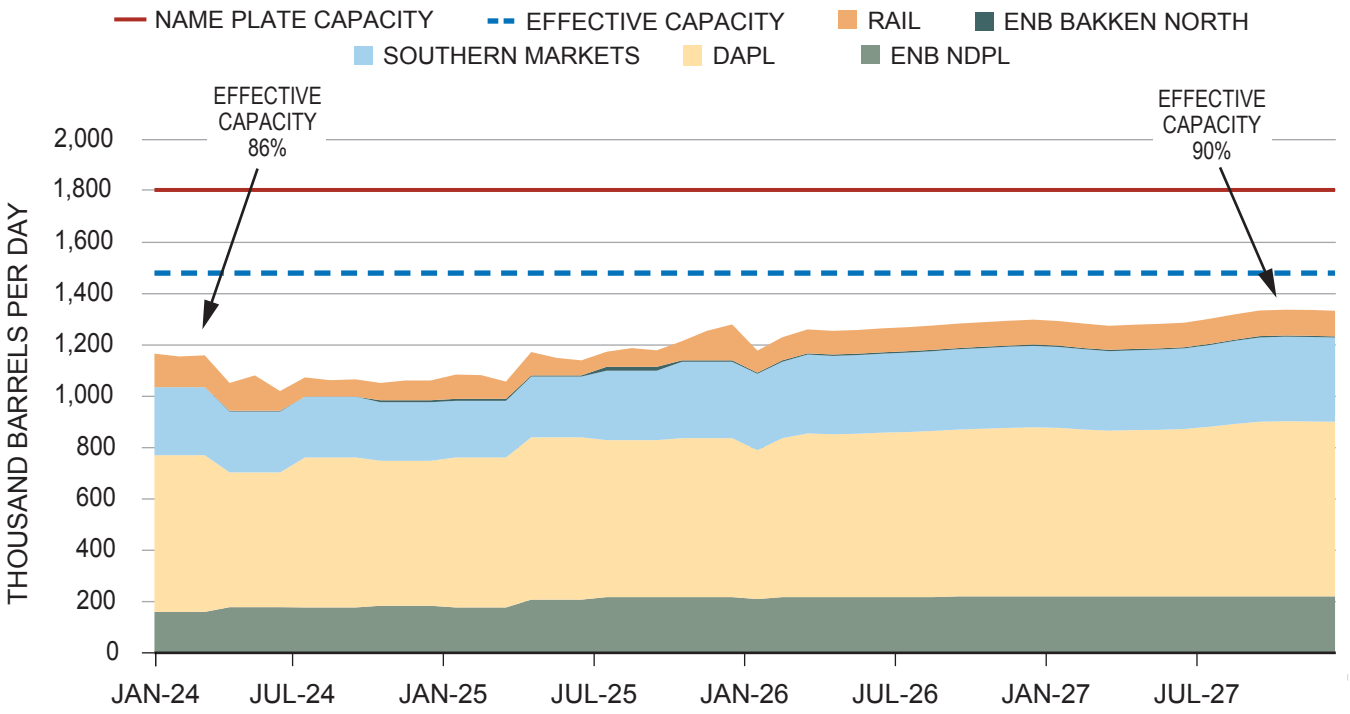
164 RBN Energy LLC. "Sitting, Waiting, Wishing - Haynesville Gas Producers Hold Steady Ahead of Expected LNG Export Surge." February 10, 2025. https://rbnenergy.com/daily-posts/blog/haynesville-gas-producers-hold-steady-ahead-expected-lng-export-surge.

165 EIA. "Natural Gas Monthly." October 31, 2025. https://www.eia.gov/naturalgas/monthly/.



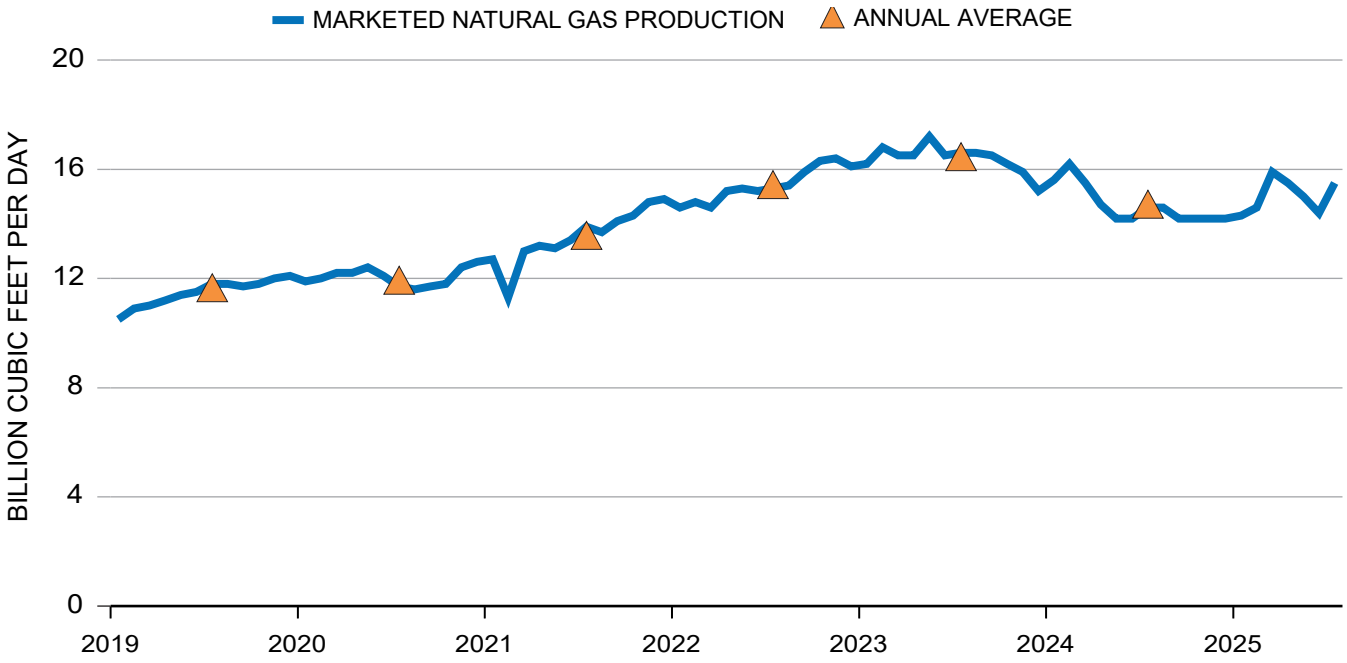
Note: e=expected.
Source: Data from regulatory filings, press releases, and trade press. 2025.

Figure 1-40. Bakken Natural Gas Pipeline Expansions



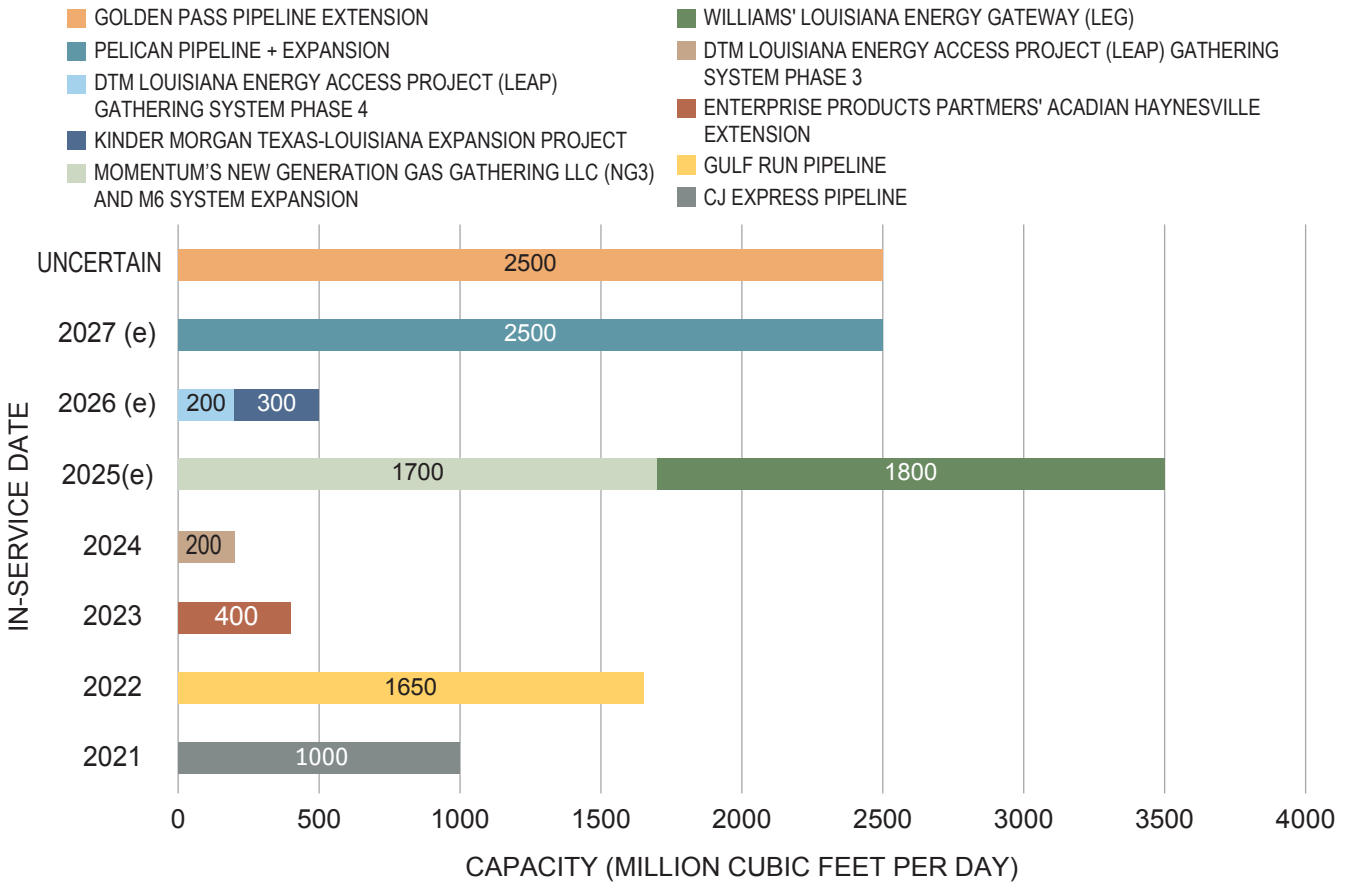
Source: East Daley Analytics. 2024.

***Figure 1-41.** Existing and Planned Crude Oil Capacity Egress in the Bakken Region*



Source: Data from EIA. 2025.

Figure 1-42. *Haynesville Region Marketed Natural Gas Production (Monthly)*



Note: e=expected.
Source: Data from regulatory filings, press releases, and trade press. 2025.

Figure 1-43. *Haynesville Natural Gas Pipeline Extensions*

gas pipeline capacity additions in 2022.[166] Intrastate pipelines accounted for 85% of the additions in 2023, and nearly all the intrastate additions were located in Texas and Louisiana to serve natural gas demand in the U.S. Gulf Coast markets, including LNG export demand, according to the EIA.[167]

Regulatory certainty is essential to attract the long-term capital investment needed to build and maintain oil, NGL, natural gas, and refined products infrastructure. Investors and developers require clear, predictable permitting timelines and consistent regulatory frameworks to justify the significant financial and operational commitments these projects demand. However, current permitting processes are often mired in delays, duplicative reviews, and legal uncertainty, which can stall or derail critical infrastructure development. These hurdles not only increase costs and risk but also hinder the ability to respond to growing energy demand and evolving market dynamics. Streamlining and clarifying the permitting process would provide the confidence necessary to unlock investment, accelerate project delivery, and strengthen the nation's energy infrastructure.

To meet the growing demand for oil, NGLs, natural gas, and refined products—driven by rising electricity generation, industrial activity, manufacturing expansion, and increasing global exports—permitting reform is urgently needed to accelerate and streamline infrastructure development. As refined product demand shifts and supply chains evolve, timely approval of infrastructure projects becomes critical to ensuring energy reliability and competitiveness. Moreover, expanding infrastructure out of production regions is essential to unlocking new supply, reducing bottlenecks, and supporting long-term growth. A modernized permitting framework will not only enhance energy security but also enable the United States to maintain its leadership in global energy markets while supporting domestic economic development.

166 EIA. "The Least U.S. Interstate Natural Gas Pipeline Capacity on Record Was Added in 2022." March 2, 2023. https://www.eia.gov/todayinenergy/detail.php?id=55699.

167 EIA. "Natural Gas Intrastate Pipeline Capacity Additions Outpaced Interstate Additions in 2023." March 20, 2024. https://www.eia.gov/todayinenergy/detail.php?id=61623.

Chapter 2

REVIEW OF 2019 *DYNAMIC DELIVERY* REPORT RECOMMENDATIONS

I. INTRODUCTION

The 2019 NPC *Dynamic Delivery* report[168] included 25 recommendations that Congress, federal agencies, and other stakeholders could follow to help address many of the permitting challenges facing energy infrastructure developers. While some of the 2019 recommendations have been acted upon, many have not, and significant gaps remain toward the goal of creating a functional permitting system that moves at the speed required to address U.S. ongoing energy needs. Given the major economic and geopolitical events of the last six years, the need to address these issues is more pressing than ever.

A comprehensive review of the progress, or lack thereof, that has been made on the 2019 recommendations makes clear that four focus areas remain. While recommendations around stakeholder engagement saw positive developments, much remains to be done on National Environmental Policy Act (NEPA) reform, consistent and clear agency processes, and interagency cooperation. Key insights and themes from the stalled progress on those four focus areas—which are laid out within this chapter—helped guide the creation of *Bottleneck to Breakthrough*'s recommendations (contained in Chapter 4).

168 NPC. "Dynamic Delivery: America's Evolving Oil and Natural Gas Transportation Infrastructure." 2019. https://dynamicdelivery.npc.org/.

II. POLICY RESPONSE TO NPC 2019 RECOMMENDATIONS

In the 2019 NPC report, Chapter 3[169] described a system of regulations that is "both extensive and complex." As the report added, "The challenge is to meet these multiple and often conflicting interests in a way that does not sacrifice public safety, the economy, reliable and affordable energy supplies, environmental protection, and other social priorities." At the time, and still today, the system often fails to manage these conflicting interests—in part, directly due to the extensive and complicated permitting process.

Altogether, of the 25 recommendations in *Dynamic Delivery*, only five (Table 2-1) can be considered to have substantive action completed, with 20 still in progress to varying degrees.

A. What Worked

Of the five recommendations that can be considered completed in some way, more than half were addressed by industry-led efforts, notably the American Petroleum Institute's (API) Recommended Practice development and the industry's

169 NPC. "Dynamic Delivery. Chapter Three: Permitting, Siting, and Community Engagement for Infrastructure Development." 2019. https://dynamicdelivery.npc.org/files/Dynamic_Delivery-Chap_3.pdf.

Recommendation	Progress Made
Permitting processes at the federal and state level should be harmonized. Congress should provide sufficient staffing to ensure the lead federal agency on NEPA analyses fully encompasses and supports permit decisions of other agencies.	The Fiscal Responsibility Act (FRA) clarifies the roles of lead and cooperating agencies and how they are designated.
Industry should adopt community engagement best practices.	In March 2024, API published the first edition of RP 1185, which provides guidelines, core principles, and leading practices for pipeline operators.
Infrastructure companies should continue to adopt technologies and practices that minimize air emissions, including methane.	Over the last decade, the oil and gas industry has reduced its emissions footprint by more than 42% based on reported data to the EPA's GHG Reporting Program.
Infrastructure companies should consistently: • Follow best practices for engagement with governments, communities, private citizens, public interest groups, and American Indians and Alaska Natives. Industry should incorporate input into proposed action wherever practicable, or convey when an interest is difficult to accommodate. • Engage in educational and awareness efforts on the need for infrastructure, steps to be taken to construct and operate it safely, and how they will be engaged throughout the siting and development process. • Work collectively toward more effective engagement practices that encourage responsible energy development and transport.	In spring 2024 API published RP 1185, laying out industry best practices for stakeholder engagement. RP 1185 has a strong focus on early engagement with stakeholders of all kinds.
Congress should reauthorize FAST-41, eliminate the sunset provisions, and include the following improvements: • Expand FAST-41 to include eligibility for all federal energy infrastructure projects and continuing staffing of the Federal Permitting Improvement Steering Council (FPISC). • States should be incentivized to comply with FAST-41 and One Federal Decision and make decisions in conjunction with federal NEPA process timeline. • FPISC should be leveraged to drive concurrent review by states during federal permitting processes.	• The 2021 Infrastructure Investment and Jobs Act made FAST-41 permanent and introduced key reforms to accelerate federal environmental reviews and permitting. • The 2022 CHIPS Act expanded the categories of projects eligible for FAST-41 status. • The 2023 FRA, further expanded FAST-41 eligibility, streamlined reviews, and allowed Tribal-led projects to access FAST-41's processes. • In January 2025, OMB-CEQ issued new guidance (M-25-09) to incorporate all statutory changes since 2019. • In May and June 2025, the Trump Administration listed 13 critical mineral projects under FAST-41 transparency status. • On July 23, 2025, President Trump issued an Executive Order (Accelerating Federal Permitting Of Data Center Infrastructure) that directs agencies to expedite permitting and environmental review for data center projects by designating them under FAST-41.

Table 2-1. *Recommendations (Summary Language) with Substantive Action Completed*

continued progress on emissions reductions (see Table 2-1). Additionally, almost all of the recommendations on stakeholder engagement were completed or, at a minimum, have seen major progress. This presents a key takeaway: Progress on the recommendations was likeliest when left with the stakeholders most invested in the topic and who sat closest to the issue itself.

Outside of industry efforts, progress has been more inconsistent. For example, through the Fiscal Responsibility Act of 2023 (FRA), Congress made progress on several NEPA-related recommendations—including page and time limits for environmental assessments (EAs) and environmental impact statements (EISs)—but there remains no statute of limitations for claims against federal agency actions under NEPA. In the CHIPS Act of 2022, Congress made partial progress on the NPC recommendation to make all federal energy infrastructure projects eligible for FAST-41.

Looking more deeply at the legislative progress that was made, there is a second takeaway: There is clear bipartisan recognition that reforms to the permitting process are needed, despite the fact that not every desired reform recommendation has been acted upon in full. Both the FRA and the CHIPS Act passed the House and Senate with the support of both parties. This is a welcomed dynamic as the most durable and effective reforms to the permitting process will likely be those enacted by Congress.

Finally, on the executive side, efforts by DOE and the Environmental Protection Agency (EPA) attempted to address several of the 2019 recommendations, such as potential "energy crossing corridors," or revised standards for Clean Water Act (CWA) Section 401 certifications, but those efforts remain incomplete or are still underway. And while the federal Permitting Council continues to advance the concepts identified in the 2019 NPC report, the results have varied across projects.

Reviewing the above, there is a third, and final takeaway of what worked since 2019: Agencies with the clearest mission statement in support of the need for and importance of American energy are the likeliest to make progress advancing priorities for the energy industry. In other words, recommendations should either be left with the federal agencies whose missions are most aligned with their completion, or the missions of federal agencies themselves should be updated to reflect the importance of America's energy industry.

B. What Did Not Work

There are five main reasons why progress on recommendations stalled since 2019: inaction from relevant federal agencies, a lack of coordination between federal agencies and states, changes in administration, judicial rulings, and congressional inaction.

While it is not possible to distill agency inaction down to a single, concise explanation, one thread that is visible throughout those recommendations that are still in progress is inconsistent action on the part of decision-making agencies across administrations. For example, the EPA acted upon the NPC recommendation in 2019 to finalize CWA Section 401 regulations, but then changed what it had done in 2023.

Concurrent with inconsistent action by federal agencies, state agencies also failed to undertake an important reform recommendation issued in 2019: the development of a model master structure for state permitting and coordination of approvals for infrastructure. This would have addressed recommendations for states to focus their review on strictly satisfying state law and the need for a coordinated state permitting process throughout the country. While this recommendation is not retained in this updated report, action in this area would likely promote better collaboration among states, the federal government, and infrastructure developers.

Finally, Congress left several recommendations either incomplete or stalled. The best examples are the several permitting reform proposals that, since 2019, have been proposed but not enacted. As with federal agencies, it is not possible to attribute this inaction to any single factor.

In summary, the recommendations contained later in this report were drafted with the following lessons learned:

- Solutions tend to be developed more quickly by motivated stakeholders.
- Government agencies require clear mission statements aligned with action, and a proper appreciation of the urgency.
- Government agencies should be flexible, rather than territorial, about where solutions originate.
- The most durable solutions involve congressional efforts to amend permitting statutes and bipartisan recognition that permitting reforms are needed.

III. SPECIFIC ACTIONS TAKEN SINCE 2019

The following section of this chapter lays out what specific actions have been taken, and what specific actions still need to be taken.

A. Summary of Progress Made on All 2019 Recommendations

1. National Environmental Policy Act (NEPA)

The FRA took several important steps to address the recommendations made in the 2019 study. NEPA Section 107 on "Timely and Unified Federal Reviews" established page and time limits for EAs and EISs, which have since been incorporated into agencies' NEPA procedures and reiterated in Council on Environmental Quality's (CEQ) recently updated NEPA implementation guidance from Sept. 29, 2025. The FRA also introduced roles and responsibilities for lead and cooperating agencies, provided an approximate three-month timeframe to determine which agency will serve as the lead in the event of a dispute, and called for a "one document" approach that requires proposals to be evaluated in one single environmental document. In addition, the One Big Beautiful Bill Act (OBBBA) from 2025 established a voluntary "opt-in" fee that can further accelerate EA and EIS reviews to six months and one year, respectively. These are positive developments that aim to increase interagency cooperation and streamline the NEPA process in line with the 2019 study recommendations.

However, several important recommendations from *Dynamic Delivery* remain unaddressed. Neither the FRA nor the OBBBA introduced a statute of limitations for claims against federal agency actions under NEPA or issued a requirement that claimants must have submitted sufficiently detailed comments during public consultation to notify the agency of the issue before seeking it to be reviewed in court. This effectively leaves the six-year statute of limitations in place that applies under the Administrative Procedures Act and provides a pathway for challenging an agency decision independent of whether an issue has first been raised to the agency's attention or not. Other urgent judicial reforms include a heightened standard of review for agency approvals, and limitations on judicial remedies to avoid injunctions and vacatur decisions that put projects in limbo, or worse, force them to restart from the beginning of the agency review process.

Additionally, the 2019 study recommended that greenhouse gas assessments under NEPA should be confined to those that are proximately caused by federal action and are reasonably foreseeable.[170] Though the September 2025 CEQ guidance has aligned with recent court decisions by emphasizing that effects should generally not be considered if they are remote in time or geography, the product of a lengthy causal chain, outside of an agency's regulatory authority, or would need to be initiated by a third party, no amendment has been made to NEPA to provide statutory durability to this clarification.

Dynamic Delivery also highlighted that concurrent State Environmental Policy Act (SEPA) (state) and NEPA (national) reviews can lead to redundancy and add time to project timelines. While SEPA reviews are intended to focus on state environmental policies and regulations, there is potential for overlap with NEPA especially where the implementation of federal laws is delegated to the states. NPC recommended in 2019 that SEPA reviews should focus on state laws or delegated federal decisions not required by federal law, a desired outcome that still varies considerably by state. Additional work is needed to more clearly delineate the responsibilities of NEPA versus SEPA and avoid redundancies in the environmental review process.

2. Consistent and Clear Permitting Processes

The *Dynamic Delivery* recommendations proposed changes to existing agency processes to drive regulatory certainty and consistent decision-making. While again, some of these recommendations have been acted upon, not all actions have progressed to the point where tangible outcomes have materialized.

For example, NPC recommended that EPA provide clarity to the scope of federal and state water standards considered in CWA 401 certifications. EPA published a final rule in September 2023 that expanded the 401 certification scope to include "temperature, flow, riparian buffer conditions and

170 541 U.S. 752 (2004). *Department of Transportation et al. v. Public Citizen et al.*, No. 03-358, Supreme Court of the United States. Argued April 21, 2004. Decided June 7, 2004. Certiorari to the United States Court of Appeals for the Ninth Circuit.

species impacts."[171] Due to its broad nature, this rulemaking brought uncertainty rather than clarity. Since then, EPA released a memorandum in May 2025 entitled "Clarification regarding the Application of Clean Water Act Section 401 Certification"[172] to explain that a certifying authority's evaluation is limited to considering adverse impacts to water quality, and only insofar as these impacts prevent compliance with applicable water quality requirements. EPA solicited public input on July 7, 2025, to determine whether additional guidance or rulemaking are necessary to create regulatory certainty. In line with NPC's 2019 recommendations, this rulemaking could potentially be a useful step to drive consistent and clear outcomes.

Dynamic Delivery also recommended that the U.S. Army Corps of Engineers (USACE) improve procedural consistency among Nationwide Permit (NWP) programs, particularly regarding preapplication meetings to identify lead districts and points of contact, and adopt consistent approaches to permit interpretation by its field offices. While positive steps have been taken to clarify and reduce the number of required preconstruction notifications for NWPs, there still are inconsistencies with respect to conducting preapplication meetings and interpreting NWP requirements. Further efforts are needed to reduce variability across USACE offices.

Proceedings are currently underway to update Pipeline and Hazardous Materials Safety Administration (PHMSA) and Federal Energy Regulatory Commission (FERC) regulations, with promising developments. PHMSA solicited stakeholder comments on its regulations governing the permitting, construction, and operation of LNG facilities in May 2025,[173] which provides an opportunity to update outdated processes and standards. As an example, NPC recommended in 2019 to adopt API standards 576 and 510 to conduct safe and reliable pressure relief testing under 43 CFR 193. NPC's 2019 recommendations further called for better coordination between FERC, PHMSA, and U.S. Coast Guard inspections, with clearly defined jurisdictions for each agency. The ongoing regulatory reform provides an opening to bring much-needed clarity and avoid conflicting agency findings leading to inefficiencies and confusion.

Lastly, the 2019 report recognized the bipartisan effort to expedite infrastructure permitting through FAST-41.[174] However, the NPC also recognized that utilization of FAST-41 had not been fully optimized, and that more needed to be done to leverage its potential. NPC expressed that FAST-41 should be used to drive concurrent state and federal reviews and incentivize agencies to adhere to target permitting schedules, especially for state-delegated federal permits. This recommendation holds true today. However, the efficiencies associated with FAST-41 are unlikely to be fully realized until additional permitting reforms are implemented for reviewing agencies by Congress.

3. Stakeholder Engagement

Actions on recommendations concerning stakeholder engagement include the publication of API Recommended Practice (RP) 1185 in spring 2024 setting forth best practices for stakeholder engagement.[175] Additionally, in 2020, FERC established an Office of Public Participation at the direction of Congress that is intended to further advance public awareness and participation in FERC's infrastructure approval process. These developments help support public engagement, if appropriately leveraged and maintained.

4. Interstate Natural Gas Infrastructure Approvals

There have been a number of important recent developments related to the permitting of interstate

171 Environmental Protection Agency. "Clean Water Act Section 401 Water Quality Certification Improvement Rule." *Federal Register* 88, no. 186 (September 27, 2023): 66558–66666. https://www.federalregister.gov/documents/2023/09/27/2023-20219/clean-water-act-section-401-water-quality-certification-improvement-rule.

172 EPA. "Clarification Regarding the Application of Clean Water Act Section 401 Certification," memorandum from Peggy S. Browne, Acting Assistant Administrator. May 21, 2025. https://www.epa.gov/system/files/documents/2025-05/clarification-re-application-of-cwa-401-certification_may-2025.pdf.

173 PHMSA. "Pipeline Safety: Amendments to Liquefied Natural Gas Facilities." *Federal Register* 90, no. 86 (May 5, 2025): 25583-25595. https://www.federalregister.gov/documents/2025/05/05/2025-07606/pipeline-safety-amendments-to-liquefied-natural-gas-facilities.

174 Federal Infrastructure Projects Permitting Dashboard. Fast-41 Covered Projects. n.d. https://www.permits.performance.gov/projects/fast-41-covered.

175 API. "API Recommended Practice 1185, 1st Edition, Pipeline Public Engagement." 2024. https://www.api.org/products-and-services/standards/important-standards-announcements/rp1185.

natural gas pipelines under the Natural Gas Act (NGA).

First, in June 2020, FERC issued Order 871, which prohibited FERC from granting construction authorization for NGA §3 or §7 projects when rehearing procedures remain active.[176] The October 2025 final rule from FERC eliminated Order 871 through a direct rescission, which allowed construction to start on needed natural gas infrastructure projects during rehearing periods.[177] The rescission of Order 871 allows developers who have FERC certificates or authorizations to obtain Notice to Proceed documents for construction while rehearing remains pending provided they fulfill all necessary permit requirements and environmental conditions.

Second, FERC published two significant draft policy statements in February 2022 that included an Updated Certificate Policy Statement for NGA project evaluation and an Interim GHG Policy Statement for certificate review greenhouse gas assessment.[178] The draft policy established a default assumption that facilities producing more than 100,000 metric tons of carbon dioxide equivalents annually would create substantial environmental impacts while encouraging developers to present mitigation strategies. FERC later reclassified both policy statements as "drafts" partly in response to congressional oversight.[179] In January 2025, FERC eliminated the GHG Policy Statement entirely, preferring instead to address greenhouse gas assessments through individual project evaluations.[180] The DOE issued a directive to FERC in September 2025 to consider rescinding the 2022 Draft Updated Certificate Policy Statement because it exceeded FERC's legal authority.[181] FERC terminated the proceeding on September 12, 2025, stating that it believes the 1999 Certificate Policy Statement continues to provide the appropriate framework for reviewing proposed natural gas projects in a legally durable manner.[182]

Finally, the Supreme Court issued its decision in *Seven County Infrastructure Coalition v. Eagle County* (2025) to clarify the scope of NEPA review and reaffirm agency authority to determine which environmental impacts need assessment.[183] The Supreme Court clarified the scope of NEPA review and emphasized substantial judicial deference to an agency's decisions about what environmental effects to consider. This ruling brought needed clarity to the NEPA process, as FERC's implementation of NEPA had been routinely litigated at the D.C. Circuit Court of Appeals.

176 FERC. "Limiting Authorizations to Proceed with Construction Activities Pending Rehearing." *Federal Register* 85. 40113 (July 6, 2020) (Order No. 871). https://www.federalregister.gov/documents/2020/07/06/2020-13015/limiting-authorizations-to-proceed-with-construction-activities-pending-rehearing.

177 FERC. "Removal of Regulations Limiting Authorizations to Proceed With Construction Activities Pending Rehearing." *Federal Register* 90. 48 221 (Oct. 10, 2025) (final rule). https://www.federalregister.gov/documents/2025/10/10/2025-19533/removal-of-regulations-limiting-authorizations-to-proceed-with-construction-activities-pending.

178 FERC. "Certification of New Interstate Natural Gas Facilities." *Federal Register* 87. 11 974 (March 1, 2022). https://www.federalregister.gov/documents/2022/03/01/2022-04148/certification-of-new-interstate-natural-gas-facilities; FERC. "Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews." *Federal Register* 87. 14 832 (March 11, 2022). https://www.federalregister.gov/documents/2022/03/11/2022-04536/consideration-of-greenhouse-gas-emissions-in-natural-gas-infrastructure-project-reviews.

179 FERC. "FERC Seeks Comment on Draft Policy Statements on Pipeline Certification, GHG Emissions." March 24, 2022. https://www.ferc.gov/news-events/news/ferc-seeks-comment-draft-policy-statements-pipeline-certification-ghg-emissions.

180 FERC. "Order Terminating Proceeding re Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews under PL21-3." January 24, 2025. https://elibrary.ferc.gov/eLibrary/docinfo?accession_number=20250124-3085.

181 DOE. "Certification of New Interstate Natural Gas Facilities; Notice of Secretary of Energy Proposal to Rescind the Draft Updated Certificate Policy Statement and Soliciting Comments." *Federal Register* 90. 42963 (Sep. 5, 2025). https://www.federalregister.gov/documents/2025/09/05/2025-17044/certification-of-new-interstate-natural-gas-facilities-notice-of-secretary-of-energy-proposal-to.

182 FERC. "Order Terminating Proceeding, Certification of New Interstate Natural Gas Facilities, Docket Nos. PL18-1-000 and PL18-1-001." Issued September 12, 2025. https://www.energy.gov/sites/default/files/2025-10/20250912-3063_PL18-1-000%5B91%5D%20Letter.pdf.

183 *Seven County Infrastructure Coalition v. Eagle County*, No. 23-975 (U.S. May 29, 2025). https://www.supremecourt.gov/opinions/24pdf/23-975_m648.pdf.

Chapter 3

PERMITTING AT A CROSSROADS: ADDRESSING LEGAL BARRIERS TO BUILD A DURABLE PERMITTING SYSTEM THAT WORKS

As the United States confronts rising energy demand and ambitious climate goals, the permitting process for infrastructure projects has emerged as a critical bottleneck. As stated in the Secretary's study request letter, "[s]treamlining and expediting permitting is essential for all parts of the energy value chain and for building infrastructure to meet future energy needs." A critical underpinning of the effort to reform the permitting process for energy infrastructure is a need for a permitting process that is effective and durable. The implementation of a durable policy can incentivize investment into the American economy, build public trust, and provide a stable environment for individuals and businesses to plan with confidence.

A durable policy and permitting process is one that withstands the test of time, exhibits resilience, and remains relevant, effective, and adaptable in the face of changing political climates, economic fluctuations, and societal shifts.[184]

Characteristics of a durable policy framework include:

- **Balanced Objectives:** Balancing short-term goals with long-term vision and responsibility, recognizing potential consequences and benefits in the future of energy infrastructure.
- **Relevance and Flexibility:** A permitting process that is guided by real-world data and operational experience, adaptable to changing conditions, and subject to periodic review and adjustment to ensure ongoing suitability and effectiveness.
- **Economic Considerations:** A permitting process that provides predictability in the process can stabilize capital investment for needed infrastructure while also anticipating relevant costs and benefits to the ultimate permitting decision.
- **Stakeholder Engagement:** A process that is transparent to the public and provides opportunity for input from state and federal agencies, an array of stakeholders, and the public can allow policymakers to address concerns and instill trust.

The United States is at an infrastructure crossroads. Without an effective, durable permitting process, the nation undercuts its energy security, stifles economic growth, and risks falling behind in the global race for energy innovation and resilient infrastructure.

I. TRIPLE MANDATE – ECONOMY, ENVIRONMENT, ENGAGEMENT

Congress has long recognized the need to balance competing priorities in infrastructure development

184 The NPC previously identified characteristics of a durable policy in its 2024 study, "Charting the Course: Reducing GHG Emissions from the U.S. Natural Gas Supply Chain," when outlining what a durable energy transition policy should entail. NPC. "Charting the Course: Reducing GHG Emissions from the U.S. Natural Gas Supply Chain." 2024. https://chartingthecourse.npc.org/files/GHG-V2_Chapter_5-FINAL.pdf.

while ensuring that progress respects resources held for the public good. This balance is reflected in a "triple mandate" that underpins federal permitting policy: Build, Protect, and Engage. These imperatives—economic development, environmental protection, and public engagement—are not merely aspirational. They are codified in law and serve as the foundation for how infrastructure projects are evaluated, approved, and implemented.

1. Build – Economic Development

Building infrastructure is a priority and a necessity for the nation's security, growth of the economy, and prosperity of the American people. Congress has consistently prioritized infrastructure development as a driver of national security, economic growth, and public benefit. From as early as the Natural Gas Act (NGA) to as recent as the Infrastructure Investment and Jobs Act, federal lawmakers have embedded infrastructure development into the core of U.S. policy. Building infrastructure supports U.S. competitiveness and global stability. Infrastructure is not just about roads and pipelines—it is about securing the nation's future, enabling innovation, and laying the foundation for prosperity that touches lives from coast to coast.

2. Protect – Environmental Stewardship

In today's era of rapid infrastructure expansion and complex environmental and public safety landscape, the United States continues to rely on its long-standing environmental statutes—originally enacted in response to earlier periods of rapid infrastructure development and economic growth—to guide responsible growth and protect natural resources, local communities, and public health. Congress enacted foundational laws, including the National Environmental Policy Act (NEPA), Clean Air Act (CAA), Clean Water Act (CWA), Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA), to mitigate and protect against adverse impacts to ecosystems, air, water, fish and wildlife, ecological and cultural resources, and human health. Importantly, these statutes also address public safety by requiring assessments of potential risks to surrounding communities, including exposure to pollutants, degradation of ecosystems, and threats to culturally significant sites. Incorporating environmental stewardship and public safety into statutory frameworks for infrastructure siting and development demonstrates a national commitment to advancing progress while safeguarding both individuals and the environment. Though these statutes have delivered measurable environmental benefits, they also introduce procedural burdens that must be balanced against today's urgent need for infrastructure growth and modernization.

3. Engage – Public Participation

The public has a critical role to play in the environmental review and permitting processes set forth under environmental and energy development laws. Public engagement is often framed as a regulatory requirement, but that perspective overlooks its broader value. At its core, public engagement promotes transparency, allows for the exchange of information, and enables the identification and mitigation of risks. Public participation takes many forms, including attending meetings, providing written comments, engaging in government-to-government consultation, and seeking judicial review of agency decisions. Members of the public, state and federal agencies, and project stakeholders have rightfully come to expect and rely on these opportunities for public participation. Over time, public engagement in the permitting process has evolved from procedural formality to substantive expectation. Importantly, these participatory mechanisms are not merely policy preferences; they reflect core principles of democratic governance and procedural due process. By requiring agencies to disclose information, solicit input, and respond to concerns, these statutes uphold the citizenry's right to participate meaningfully in the decision-making process that affects their environment, health, safety, and communities. In this way, public participation serves as both a safeguard against arbitrary decision-making and a vehicle for transparency, accountability, and trust in the permitting system.

The permitting process has evolved from a procedural safeguard into a major bottleneck for infrastructure development. In many cases, permitting requirements impose a surfeit of procedures that consume private and public resources without translating into meaningful additional environmental protection. While the system's protective function has been critical in mitigating harm over time, its growing inefficiency now impedes the realization of infrastructure vital for national goals. At

the same time, the participatory elements of permitting—rooted in due process and democratic engagement—remain essential to maintaining public trust and accountability. A modern permitting framework must reconcile these three imperatives: to **protect** environmental and public safety interests, to **engage** the public in decisions that affect their communities, and to **build** infrastructure that meets urgent national needs. This is not a tradeoff, but a mandate to modernize permitting in a way that fulfills statutory intent while enabling responsible and timely progress.

FINDING 3-1: The triple mandate—to build infrastructure efficiently, protect environmental resources meaningfully, and engage the public transparently—creates inherent tensions that demand a permitting system capable of balancing these competing priorities.

II. RELEVANT STATUTORY LANDSCAPE

A. Framework for Infrastructure Permitting

Federal, state, local, and Tribal governments have all enacted laws governing the siting, permitting, operations and maintenance, and decommissioning of energy infrastructure over the past two centuries. A brief look at the statutory framework that governs any infrastructure development serves as a reminder of the requirements that govern the construction and operation of energy infrastructure.

The Rivers and Harbors Act of 1899 is considered the nation's first environmental law, and, with amendments over the last 120 years, sets conditions for how oil and natural gas infrastructure can alter civil works along waterways built or maintained by the U.S. government. Congress passed the NGA in 1938 to regulate the natural gas industry for the first time; now the Federal Energy Regulatory Commission (FERC) uses authorities in the NGA to oversee permitting, construction, operation, and rates for natural gas pipelines[185] and liquefied natural gas (LNG) terminals. The current environmental regulatory framework for oil and natural gas transportation infrastructure has its roots in the enactment of a series of laws in the 1970s, including NEPA and CAA in 1970, CWA in 1972, and the ESA in 1973.

These federal laws, along with at least 15 others (see Table 3-1), created processes for conducting preconstruction reviews of energy infrastructure projects and federal standards for the potential impacts of energy infrastructure development, such as limits on emissions of pollutants to air and water resources. These laws set pollution controls, define allowable uses, and establish criteria to protect sensitive resources and limit environmental impacts, which the agency relies upon to determine whether an activity may proceed. A subset of substantive laws go so far as to require that the regulatory agency consider whether the proposal is in the public interest.

B. A Shared Responsibility: Cooperative Federalism

While Congress establishes the laws of the United States that are the supreme law of the land, states can act in the absence of a federal law to establish their own policies. In instances where Congress does decide to legislate, states may also enact laws that are more stringent than federal law. States also may be authorized to implement and enforce federal programs. This shared responsibility for implementing environmental protections between federal, state, and local governments falls under the tenet of cooperative federalism:[186]

> *"[T]he U.S. Congress establishes the law; the federal government implements the law through national minimal standards...and states can seek authorization or delegation to implement the programs needed to achieve these standards. Generally, states may develop programs to go beyond these standards if a state chooses to do so."*

Cooperative federalism is intended to provide flexibility and allow for local adaptation of laws, but it can also blur jurisdictional lines and complicate

185 While FERC oversees natural gas pipelines from both an economic and environmental and permitting oversight function, federal regulatory oversight over oil and liquids pipelines only covers economic and rate regulation under the Interstate Commerce Act. There is no federal law or agency that oversees siting, construction, or licensing of oil and liquid pipelines.

186 Environmental Council of the States. "Cooperative Federalism 2.0: Achieving and Maintaining a Clean Environment and Protecting Public Health." 2017. https://www.ecos.org/wp-content/uploads/2017/06/ECOS-Cooperative-Federalism-2.0-June-17-FINAL.pdf.

Statute	Primary Agency or Agencies Administering Statute
Administrative Procedures Act	All federal agencies
Archeological and Historic Preservation Act	All federal agencies (reporting through the Secretary of the Interior)
Archeological Resources Protection Act	National Park Service (NPS)
Clean Air Act	Environmental Protection Agency (EPA)
Clean Water Act	EPA, U.S. Army Corps of Engineers (USACE)
Coastal Zone Management Act	National Oceanic and Atmospheric Administration (NOAA)
Endangered Species Act	U.S. Fish and Wildlife Service (USFWS), NOAA
Energy Policy Act of 2005	Multiple agencies
Fixing America's Surface Transportation Act	Multiple agencies
Interstate Commerce Act	Federal Energy Regulatory Commission (FERC)
Interstate Commerce Commission Termination Act	Surface Transportation Board
Migratory Bird Treaty Act	USFWS
National Environmental Policy Act	All federal agencies, states, and Tribes (overseen by Council on Environmental Quality)
National Historic Preservation Act	Advisory Council on Historic Preservation
Native American Graves and Repatriation Act	NPS, USACE, FERC
Natural Gas Act	Department of Energy, FERC
Outer Continental Shelf Lands Act	Bureau of Ocean Energy Management, Bureau of Safety and Environmental Enforcement
Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2016	U.S. Department of Transportation's Pipeline and Hazardous Materials and Safety Administration
Rivers and Harbors Act of 1899	USACE

Table 3-1. *Federal Statutes Governing the Siting, Permitting, and Operation of Oil and Natural Gas Infrastructure*

the permitting process, especially for oil and natural gas infrastructure. It is important to note that this complicated framework of environmental laws and regulations has evolved since their enactment in the 1970s and contributed to vastly improved air and water quality across the country. However, the complicated framework now impedes infrastructure development at a time when it is urgently needed.

A growing source of complexity and delay is the emergence of conflicting federal and state policy priorities, particularly around climate objectives and the energy transition. While cooperative federalism is designed to balance national and local interests, divergent approaches to infrastructure needs and economic development often result in overlapping or contradictory requirements. States may adopt policies or standards that go beyond federal law, or use delegated authority to advance state-focused policy goals, sometimes at odds with federal determinations of need or environmental impact. These tensions add significantly to the complexity, increase litigation risk, and undermine predictability that both developers and regulators seek in the permitting process.

C. A NEPA Primer

NEPA is often referred to as the "Magna Carta" of environmental laws. Signed into law in 1970, it created a governmentwide mandate to consider the environmental impacts of major federal actions that significantly affect the quality of the human environment. NEPA is not limited to government actors but also applies to private parties undertaking projects located on federal lands or waters, built using federal funding, or subject to federal regulatory

approval. NEPA does not mandate a particular substantive outcome; rather, when properly applied, NEPA ensures informed and transparent decisions by agencies.

The federal government, rather than the project applicant, is responsible for fulfilling obligations under NEPA. The federal agency with the greatest oversight authority is designated as lead for coordinating the review—in cooperation with other federal, state, and/or local agencies possessing specific expertise or jurisdiction—and documenting the agencies' analysis. NEPA provides a three-tiered approach to environmental reviews: categorical exclusion (CE), environmental assessment (EA), and environmental impact statement (EIS). CEs apply to projects that "normally do not have a significant effect on the human environment." When a CE does not apply to a proposed action, an EA is used to determine whether or not the federal action has the potential to cause significant environmental effects. An EIS is the most detailed review and is used when the environmental impacts are determined or anticipated to be significant. The regulatory requirements for an EIS are generally more detailed and rigorous than the requirements for an EA.

Across EA/EIS reviews of a given project, agencies scope purpose and need, develop and compare reasonable alternatives (including the no-action alternative), analyze environmental effects, and identify mitigation. Public involvement in the NEPA process provides feedback through comments on draft documents and publication of the final decision record. While agencies have discretion on what factors to apply and methods to employ, and how to scope its review, NEPA is a frequent target for litigation challenges, seeking to nullify the federal permit or other agency action or decision informed by the NEPA review.

NEPA does not operate in isolation; ideally, it provides a coordinating framework for ensuring compliance with other federal environmental and cultural resource statutes. For energy infrastructure projects, such as natural gas pipelines, the NEPA process incorporates the analyses needed for FERC certificates under the NGA, U.S. Army Corps of Engineers (USACE) permits under Section 404 of the CWA, and consultations under the ESA and Section 106 of the NHPA. It can also provide a platform for addressing permit requirements under the CAA and other sections of the CWA.

When agencies like FERC or USACE serve as the lead federal agency, the NEPA document is meant to be the shared analytical backbone for their decisions, as well as those of cooperating agencies. In practice, however, this coordination is fractured. Cooperating agencies often conduct parallel reviews to satisfy their own distinct statutory responsibilities and procedural requirements, establishing their own record for their decision-making, adding time, duplication, and complexity to the review. Past efforts such as One Federal Decision and FAST-41 have attempted to improve alignment and predictability of such disparate reviews, but coordination remains a significant focus area for process improvement.

D. Permitting and Compliance: How Project-Specific Permitting Informs Compliance Obligations

Permitting began as a mechanism to ensure that infrastructure development complied with foundational environmental laws while safeguarding the public's need for safe, reliable projects. Over time, compliance has become deeply embedded in every stage of project development, from planning and design to funding and execution.

The federal environmental review and permitting continues to play a central role in informing a project's compliance obligations under the various laws and regulations:

- **Establish Legal Limits:** Permits set enforceable limits for pollution and resource use associated with an activity that would otherwise be unlawful, such as waste disposal, emissions, and water discharges.
- **Define Monitoring and Reporting Requirements:** Agency approvals typically require permittees to monitor activities and report or correct any unanticipated or unauthorized impacts.
- **Provide a Baseline for Performance:** The underlying environmental review and analysis establish baseline conditions, enabling agencies and developers to detect changes, assess impacts, and evaluate effectiveness of mitigation measures.

- **Document Compliance:** Regulatory agencies use the terms and conditions of approvals to determine compliance, providing transparency for the permittee regarding their compliance obligations.

With the exception of general permits, under the current regulatory framework, agencies tend to use permit reviews to establish highly project-specific compliance requirements, an approach that was essential when the country's environmental laws and regulations were first issued. Today, agencies and project developers have decades of environmental data and legal precedent to draw upon. In many cases, the continued reliance on bespoke, project-by-project evaluations may not reflect the maturity of today's regulatory frameworks or how project developers have adapted to meet anticipated requirements. Environmental permitting and regulatory compliance are now deeply embedded in project delivery processes, with developers routinely collecting environmental baseline data, engaging with stakeholders, and incorporating mitigation plans as standard practice. Further, the advancement of AI technologies can automate the repetitive nature of project-by-project evaluations, particularly where assessments have previously been completed.[187] This shift invites a broader conversation about how permitting can better reflect modern project delivery while still upholding environmental protections.

FINDING 3-2: Permitting remains a foundational tool for ensuring environmental compliance, but as compliance becomes embedded in modern infrastructure planning, and AI technology advances, the permitting process itself must evolve.

E. Recent Modernization/Streamlining Efforts

Of the statutes identified previously, actions under NEPA and CWA Section 401, long considered pillars of environmental oversight, have increasingly become targets of litigation that delay or derail projects without necessarily improving environmental outcomes. Between 2013 and 2022, federal agencies faced hundreds of NEPA-related cases, with energy projects comprising nearly a third of all challenges.[188] Section 401 certifications have similarly been mired in legal uncertainty, as the Environmental Protection Agency (EPA) issued materially different rules in rapid succession between 2020 and 2023, further complicating compliance for developers. These dynamics have spurred bipartisan calls for reform, culminating in legislative actions and ongoing rulemakings by the CEQ and EPA.

1. NEPA

NEPA preceded most modern-day environmental laws. This context, namely the absence of a robust environmental regulatory framework at its enactment, is critical to understanding the original policy objectives of the law. Congress directed the implementing agencies to "ensure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations" (42 U.S. Code § 4332, Section 102(b)). The current robust body of protective statutes, implementing regulations, and associated case law not only quantifies resources of concern, but also may lead to duplicative analyses or over-analysis of a project that may add little to no value in a federal agency's decision-making processes, as each agency can only require mitigation measures for which it has statutory authority to do so.

NEPA has been amended multiple times since its enactment in 1970, but the Fiscal Responsibility Act of 2023 (Public Law 118-5) (FRA) made some of the most substantive changes since its inception. The FRA included numerous revisions to NEPA, including codification of some long-standing practices (e.g., affirming CEQ's historical practice of establishing certain levels of NEPA reviews, including CEs, EAs, and EISs). In addition, the FRA made some changes to NEPA to streamline and accelerate, or at least cap, NEPA review timelines. For example, the FRA added a new section to NEPA (Section 107) that establishes page limits, as well as one- and two-year time limits for the completion of EAs and EISs, respectively. Additionally, the FRA added new Section 109 to NEPA, which provides

187 Pacific Northwest National Laboratory. "Permit AI: Faster Federal Permitting Using AI." n.d. https://www.pnnl.gov/projects/permitai.

188 The Breakthrough Institute. "Understanding NEPA Litigation: A Systematic Review of Recent NEPA-Related Appellate Court Cases." See Executive Summary. July 11, 2024. https://thebreakthrough.org/issues/energy/understanding-nepa-litigation.

agencies with the authority to adopt and use other agencies' CEs.

In January 2025, EO 14154 Unleashing American Energy directed the Chair of the CEQ to provide guidance to expedite and simplify the NEPA permitting process.[189] Consistent with EO 14154, that guidance and any resulting agency NEPA-implementing regulations were to "expedite permitting approvals and meet deadlines established in the [FRA]." In response, on February 19, 2025, CEQ published a memorandum to guide federal agencies on the implementation of NEPA and EO 14154 and released an interim final rule on February 25, 2025, that rescinded the agency's NEPA-implementing regulations and directed federal agencies to consult with CEQ to revise their NEPA-implementing regulations.[190, 191] Several federal agencies have already revised their NEPA-implementing regulations and issued new, agency-specific procedural guidance on those regulations, emphasizing streamlined reviews, narrower scope of effects, and implementing provisions of the FRA, including NEPA time limits.

On September 29, 2025, CEQ released updated guidance on the implementation of NEPA and an updated template for agency-level regulations "to further assist agencies in establishing or revising their NEPA-implementing procedures."[192] That guidance and template summarize multiple recent changes to NEPA and its interpretation, including the FRA, the Supreme Court's decision in *Seven County*,[193] the One Big Beautiful Bill Act (OBBBA), and Trump Administration Executive Orders. These documents replace the guidance that CEQ issued in February 2025, but both sets of documents are consistent in promoting a more focused NEPA environmental review.

Additionally, a provision in the OBBBA, as signed into law on July 4, 2025, amended Section 112 of NEPA to offer an expedited review process for applicants willing to pay a fee. Applicants can now pay a fee to CEQ to accelerate NEPA timelines. Under the provision, project sponsors who pay a fee equivalent to 125% of the estimated cost of preparing the EA or EIS document will receive assurances that an EA will be completed within 180 days or an EIS will be completed within one year of the publication of the Notice of Intent.

Further, the Trump Administration has taken steps to accelerate NEPA permitting and improve efficiency through the increased use of technology. On April 15, 2025, the Presidential Memorandum titled "Updating Permitting Technology for the 21st Century" directed the CEQ to establish a Permitting Innovation Center, develop a Permitting Technology Action Plan, and collaborate with agencies to digitize applications, enhance interagency coordination, and increase transparency.[194] CEQ fulfilled a key milestone by publishing[195] the Permitting Technology Action Plan on May 30, 2025, setting forth strategies to integrate digital tools and streamline infrastructure project reviews.

FINDING 3-3: Recent administration action seeks to clarify federal agencies' NEPA obligations and actively deploy technology solutions to achieve a more efficient environmental review process, consistent with recent statutory change and legal precedent.

2. CWA 401

A primary source of conflict in the Section 401 process is the dispute over the appropriate scope of a state's review. At its core, the question is whether a state's review is limited to the direct water quality

189 "Executive Order 14154: Unleashing American Energy." 90 *Federal Register* 8353 (Jan. 29, 2025). https://www.federalregister.gov/documents/2025/01/29/2025-01956/unleashing-american-energy.

190 CEQ. "Memorandum for Heads of Federal Departments and Agencies: Implementation of the National Environmental Policy Act." Feb. 19, 2025. https://ceq.doe.gov/docs/ceq-regulations-and-guidance/CEQ-Memo-Implementation-of-NEPA-02.19.2025.pdf.

191 CEQ. "Removal of National Environmental Policy Act Implementing Regulations." 90 *Federal Register* 10610–10616 (Feb. 25, 2025). https://www.federalregister.gov/documents/2025/02/25/2025-03014/removal-of-national-environmental-policy-act-implementing-regulations and https://www.federalregister.gov/documents/2025/03/05/C1-2025-03014/removal-of-national-environmental-policy-act-implementing-regulations.

192 The White House. "CEQ Releases Guidance to Streamline NEPA Reviews." September 29, 2025. https://www.whitehouse.gov/articles/2025/09/ceq-releases-guidance-to-streamline-nepa-reviews/.

193 *Seven Cnty. Infrastructure Coal. v. Eagle Cnty., Colorado*, 605 U.S. 168, 184 (2025).

194 The White House. "Updating Permitting Technology for the 21st Century." April 15, 2025. https://www.whitehouse.gov/presidential-actions/2025/04/updating-permitting-technology-for-the-21st-century/.

195 Council on Environmental Quality. "Permitting Technology Action Plan." May 30, 2025. https://permitting.innovation.gov/CEQ_Permitting_Technology_Action_Plan.pdf.

impacts of a "point source discharge" or if it can consider the broader impacts of the "activity as a whole."[196] This debate has been central to legal and political battles for years. The 2020 EPA Rule[197] was designed to narrow the scope of review, limiting states to "potential water quality impacts directly occurring from the project's point source discharges that triggered review under Section 401." This rule was immediately challenged by a coalition of states, Tribes, and environmental groups who argued that it undermined the CWA's purpose.[198]

In a subsequent action, the 2023 EPA Rule[199] reversed the course set by the 2020 rule. The new rule, effective in November 2023, authorized states to consider the impacts from the entire "activity subject to the Federal license or permit"[200]—not just the discharge—when making water quality certification decisions. This marked the first time that this broader scope of review was explicitly established in regulation. While the rule does not extend certification authority to nonfederal waters, it clarifies that certifying authorities may consider a wider range of water quality impacts, provided they are tied to applicable provisions of the CWA or other appropriate state laws.

The constant legal and regulatory churn between different administrations creates a state of profound regulatory uncertainty. This rulemaking exemplifies the uncertainty: The 2020 rule was challenged, vacated by a federal court, temporarily reinstated by the Supreme Court, and then replaced by the 2023 rule, which is now also under legal challenge. Such instability means that the rules for project permitting are in constant flux, raising costs and making long-term planning for energy infrastructure projects nearly impossible. The regulatory whiplash is a significant challenge, independent of any specific rule's content.

196 Harvard Law School Environmental & Energy Law Program. "Section 401 Water Quality Certification." January 29, 2025. https://eelp.law.harvard.edu/tracker/section-401-water-quality-certification/.

197 Clean Water Act Section 401 Certification Rule, 85 *Federal Register* 42, 210 (July 13, 2020).

198 Harvard Law School Environmental & Energy Law Program. "Section 401 Water Quality Certification." January 29, 2025.

199 Clean Water Act Section 401 Water Quality Certification Improvement Rule, 88 *Federal Register* 66, 558 (September 27, 2023).

200 Harvard Law School Environmental & Energy Law Program. "Section 401 Water Quality Certification." January 29, 2025.

FINDING 3-4: The Clean Water Act Section 401 process has become a permitting chokepoint—not due to a change in statutory intent, but because of its vulnerability to shifting regulatory interpretations and procedural manipulation.

III. PERMITTING PROCESS AND PUBLIC ENGAGEMENT

A. Preconstruction Permitting Is the Most Challenging Phase of Project Development

Not all permits are created equal. The challenges associated with securing permit authorizations for new oil and gas infrastructure, or even support infrastructure, are notably different than those the industry faces when seeking approvals for operations following initial development and construction. Proposed project sites on undeveloped land (greenfield) and/or in areas with limited existing infrastructure often require permits or other approvals prior to breaking ground or construction activities. And for many major infrastructure projects, navigating the current regulatory permitting framework is a multiyear process, even without the litigation that often follows any kind of large new development.

With some exceptions, the need for a federal permit authorization constitutes a "major federal action," which, under the existing definition, triggers the federal agency's obligations under NEPA. New developments may exceed the thresholds allowable under existing NEPA CEs. In those instances, the pace of development or preconstruction permitting for major infrastructure projects is often driven by the NEPA federal environmental review process and corresponding development of an EA or EIS, which generally must be completed in advance of permit issuance. In addition to federal requirements, state and local permitting processes play a critical role—particularly during the preconstruction phase, where land use, environmental, and community engagement approvals can introduce additional complexity and variability.

Permits associated with oil and gas activities following startup of operations or even expansions to

Preconstruction	Operations
• Project design and engineering • Siting and proximity to resources of concern • Alternatives • Potential mitigation measures • Purpose and need • Public engagement • Array of cooperating and permitting agencies—federal, state, Tribal, local	• Compliance with permitted authorizations via scheduled or routine inspections • Changes to level or extent of activities • Effectiveness of mitigation measures • Enforcement actions • Predictable, recurring renewal review cycle

Table 3-2. *Preconstruction vs. Operations Permitting – Considerations*

existing infrastructure (brownfield) are often less time consuming as they generally do not require the same kind of rigorous environmental analysis and consideration of public comments associated with initial development and construction. Operational permitting tends to be primarily focused on compliance with ongoing environmental and safety regulations and follows routine renewal and compliance cycles, offering greater predictability and lower risk of delay (Table 3-2).

It is important to distinguish permitting from compliance itself as these two terms are often used interchangeably. Compliance obligations remain the cornerstone of environmental stewardship and represent the substantive obligation to adhere to the statutory requirements throughout a project's lifecycle. By contrast, a permit itself is not compliance, and it is not protection. Rather, it is an authorization to proceed within those legal frameworks that provide the substantive obligations. The permit itself is an administrative step designed to facilitate lawful development. Understanding this distinction is critical in a policy reform conversation: streamlining permitting processes can improve administrative efficiency without weakening environmental protections, because compliance obligations remain intact and enforceable.

B. Role of Public Engagement in the Federal Permitting Process: Strategic Role, Community Impact, and Reform Opportunities

The 2019 *Dynamic Delivery* report emphasized that early outreach, transparency, and responsiveness are essential to building trust and reducing opposition.[201] But in today's world, where social media can amplify concerns in real time, the stakes are even higher. A single misstep or overlooked voice can escalate into public backlash or legal action. On the other hand, meaningful engagement can turn skeptics into collaborators and transform complex permitting processes into shared problem-solving.

Infrastructure projects bring promise—jobs, cleaner energy, better connectivity—but they also bring disruption. Construction noise, land use changes, ecological impacts, and cultural sensitivities are real and often deeply felt. Input from nonpermitting state and federal agencies and public engagement is often how these impacts are surfaced, understood, and addressed. It is how agencies and developers move from "telling" to "listening," and from "compliance" to "relationship-building," enabling dialogue to resolve conflicts and mitigate impacts.

Over the past decade, the oil and gas industry has made meaningful strides in public engagement—often under intense scrutiny and complex regulatory conditions. These efforts show that when companies treat engagement as a relationship rather than a requirement, they can achieve better outcomes for both projects and communities. Some examples include:

- **American Petroleum Institute Recommended Practice (API RP) 1185:**[202] Created through

201 NPC. "Dynamic Delivery: America's Evolving Oil and Natural Gas Transportation Infrastructure." 2019. https://dynamicdelivery.npc.org/.

202 American Petroleum Institute. *API Recommended Practice 1185, 1st Edition: Pipeline Public Engagement*. March 2024. https://www.api-webstore.org/standards/1185?utm_campaign=rp%201185&utm_source=standardshighlights&utm_medium=PubNotice.

collaboration among industry leaders, government agencies, and public advocates, RP 1185 offers a framework for inclusive engagement across hazardous liquid and gas transmission pipelines. It emphasizes transparency, local knowledge, and community input—not just as risk mitigation, but as a pathway to improved safety and trust. Since it was published in March 2024, much of the industry has begun the process of actively incorporating the key principles into broader community engagement practices.

- **API RP 100-3:**[203] Updated in April 2024, RP 100-3 provides a framework for proactive community engagement throughout the lifecycle of upstream onshore oil and gas operations. The latest edition aligns outreach activities with evolving regulatory and stakeholder expectations. By emphasizing transparency, responsiveness, and collaboration, RP 100-3 supports regulatory compliance, fosters trust, and helps ensure timely permitting and operational continuity.
- **Utilization of digital tools:** Pipeline companies are increasingly utilizing and leveraging digital tools to improve transparency, access to information, and responsiveness to community concerns. Online tools for public comment, virtual town halls, and real-time updates can reach more people, especially in rural or underserved areas. These tools can empower stakeholders and improve consistency, problem resolution, and proactive communication by the company.

When done well and appropriately tailored to the scale of a given project, stakeholder engagement can:

- Improve project design by incorporating local insights.
- Identify project locations to avoid due to environmental concerns.
- Reduce delays by identifying and addressing stakeholder concerns early.
- Enhance safety and environmental stewardship through community engagement and feedback.
- Build durable support that helps projects weather political and legal challenges.[204]

But when engagement is rushed, inconsistent, or not appropriately tailored to the scope and scale of a given project, it can backfire. Those who feel excluded or their input overlooked may challenge permits, organize opposition, or pursue litigation. And they are often right to do so. A durable permitting process must make space for meaningful cooperation and dialogue that leads to developing solutions—not just public notice.

FINDING 3-5: Industry has increasingly adopted best practices and integrated stakeholder engagement and community outreach into its project development practices, reinforcing the objectives of the existing preconstruction permitting framework.

IV. PERMITTING TIMELINES AND REVIEWING AGENCY COMPLEXITY

A. Typical Federal Permitting Timelines for Energy Infrastructure

An average project proposed in the United States faces substantial delays, taking an estimated four to five years to navigate the federal permitting

203 American Petroleum Institute. *API Recommended Practice 100-3, Community Engagement Guidelines, 2nd ed.* April 2024. https://www.api.org/products-and-services/standards/important-standards-announcements/rp100-3.

204 Section 7 of the Natural Gas Act authorizes FERC to certify interstate natural gas pipelines and, if voluntary easement negotiations with landowners fail, grants Section 7 certificate holders eminent domain authority. In crafting this provision, Congress recognized that pipelines require a continuous corridor across multiple states, making them vulnerable to a single landowner who refuses to sell or demands excessive compensation. The Act's eminent domain authority balances the public's interest in obtaining the benefits of a FERC-approved pipeline with the landowner's property rights by requiring "just compensation" for the land acquired. Though an important tool, industry data shows eminent domain authority is seldom relied upon. According to INGAA's 2021 filing to FERC's NOI on the Certificate Policy Statement, of 25,268 tracts for Section 7(c) projects over 10 miles, less than 1% required valuation determined through court proceedings, and 71% of easements were secured before a final offer letter was sent, which is the final step a developer must take before initiating condemnation proceedings. INGAA's member companies, which represent the largest U.S. interstate natural gas pipeline operators, reaffirmed this commitment in recent FERC filings, emphasizing the preferred approach of early engagement and negotiated agreements. FERC's longstanding certificate policy reinforces this approach by balancing the public benefits of a project against an applicant's anticipated use of eminent domain, creating a strong incentive for developers to minimize reliance on its eminent domain authority.

process.[205] This timeline is not uniform and varies significantly across different sectors. Table 3-3 provides a clear view of the scale of the challenge, shared by multiple other industry sectors, by showing the weighted average permitting times for projects in various sectors, as calculated by McKinsey.[206]

The most complex and extensive projects, particularly those requiring an EIS, experience the longest delays. The median duration for completing an EIS has decreased from 3.6 years in 2019 to 2.2 years in 2024, possibly reflecting reforms under the One Federal Decision policy[207] and the Fiscal Responsibility Act (FRA) of 2023. Despite improvement in the median duration for completing an EIS since 2019, 61% of EISs take more than two years to complete, a timeframe that does not include

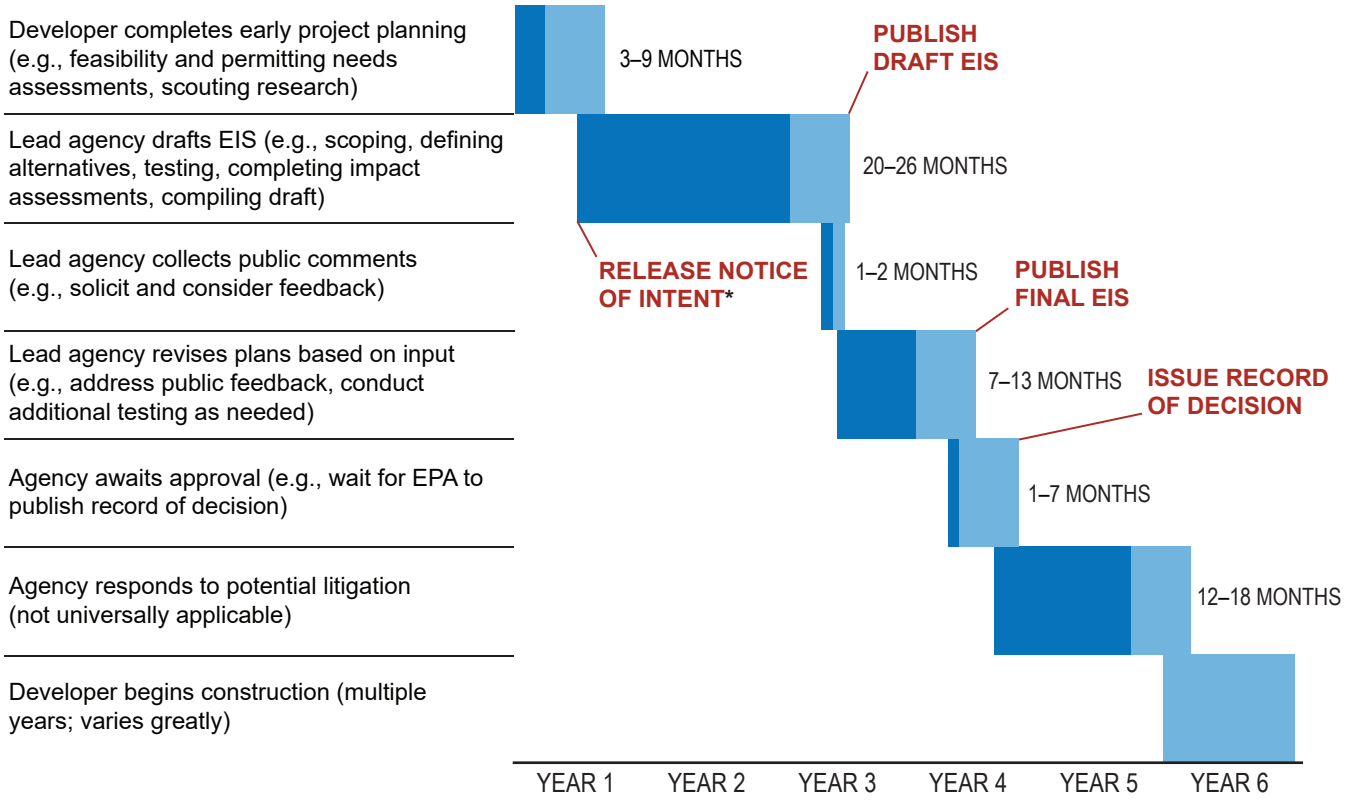
205 McKinsey & Company. "Unlocking US Federal Permitting." July 28, 2025. https://www.mckinsey.com/industries/public-sector/our-insights/unlocking-us-federal-permitting-a-sustainable-growth-imperative.

206 McKinsey & Company. "Unlocking US Federal Permitting." July 28, 2025.

207 Exec. Order No. 13807, 82 *Federal Register* 40,463 (Aug. 24, 2017) (set a two-year goal for completing environmental reviews and directed federal agencies to begin streamlining review processes).

Industry Sector	Average Permitting Time (Years)
Mining	8–9
Oil and Gas Pipelines	4–5
Energy Generation	4–5
Electricity Transmission	4–5
Transportation	3–4
Oil and Gas Extraction	3–4
Broadband and Telecom	3–4
Manufacturing	2–3

Table 3-3. *Average Permitting Timelines Across Industry Sectors*



*Red text represents a key milestone in the timeline.
Note: EPA mandates minimum 45-day waiting period following draft EIS submission.
Source: Exhibit from "Unlocking US federal permitting: A sustainable growth imperative," October 2023, McKinsey & Company, www.mckinsey.com. © 2025 McKinsey & Company. All rights reserved. Reprinted by permission.

Figure 3-1. *Illustrative Timeline of NEPA Permitting Process for EIS-Level Projects*

preplanning and potential postdecision litigation[208] (see Figure 3-1). The final EIS does not mark the end of the process, as the federal permitting process is a sequential, multiyear endeavor that begins with a Notice of Intent, proceeds through draft and final EIS creation, and concludes with a Record of Decision from the lead federal agency. Even after the Record of Decision, requisite permit authorizations[209] may lag for months, delaying the ability to initiate construction.

Between 2019 and 2024, natural gas pipelines requiring a certificate of public convenience and necessity encountered a de facto policy at FERC to prepare an EIS for essentially all natural gas pipeline projects, even those projects where an EA would have been the appropriate scope of review. On May 27, 2021, then-Chairman Glick set out a policy that FERC would perform an EIS when issuing a Section 7 certificate unless the commission could determine that the project would either not cause any significant environmental impacts or that such impacts would be mitigated.[210] This policy essentially created a minimum two-year permitting review for all interstate natural gas pipelines.

B. Reviewing Agency Complexity

The federal permitting process operates within a complex legal and political landscape that includes state and Tribal jurisdictions. The principle of cooperative federalism, along with the recognition of Tribal sovereignty, grants state and Tribal entities the authority to influence and, in some cases, halt projects that are otherwise moving through the federal review process. The jurisdictional overlap can create administrative bottlenecks as each agency must conduct its own review within the bounds of its own statutory mandate and review timeline. The lack of centralized coordination, insufficient staffing, and outdated internal procedures often results in complexity and potential friction that is not always accounted for in the federal review timeline.

Friction arises when there exists conflicting agency decisions, where one regulator's approval of a project can be nullified by another agency's denial, reflecting the distinct statutory obligations and priorities of state and federal agencies. The Seneca Lakes Underground Storage Project illustrates how this can translate into the failure of a project (see Case Study 8). Despite securing a federal certificate from FERC for the storage of natural gas, the project was ultimately abandoned after the State of New York denied its permit for storage of liquefied petroleum gas (LPG).

To illustrate this more particularly, for projects that require consultation with federally recognized Tribes, implementation of the consultation process can be inconsistent and reactive. While the principle of consultation is widely accepted, it is often initiated late in the process and can lack meaningful integration of Tribal input. These issues are compounded by resource constraints within some Tribes, as well as the absence of centralized systems for identifying and notifying Tribes.

It is also important to note that input from cooperating agencies, like state fish and wildlife departments, can also be critical to the success of a project. Cooperating agency staff identify potential impacts to public trust resources, such as wildlife, timber, and fish, and recommend mitigation solutions to the lead agency and project developer. If this input is not accounted for in the final federal approval, it can breed distrust in the permitting process and leaves the permitting decision at risk for legal challenges or other project delays.

These illustrate a deeper challenge: the overall complexity of the permitting process itself. Fragmented procedures, overlapping requirements, and limited coordination across agencies contribute to delays and uncertainty. Durable permitting reform must address these structural inefficiencies through earlier engagement, better data systems, clearer interagency protocols, and reduction in permitting timelines to improve outcomes for all stakeholders.

208 CEQ. "Environmental Impact Statement Timelines (2010-2024)." January 13, 2025. https://ceq.doe.gov/docs/nepa-practice/CEQ_EIS_Timeline_Report_2025-1-13.pdf.

209 Examples include CWA Section 401 and Section 404 permits, ESA consultations, NHPA Section 106 compliance, air permits, and stormwater construction permits.

210 Chairman Richard Glick to Senator John Barrasso, September 24, 2021, in FERC eLibrary. https://elibrary.ferc.gov/eLibrary/filedownload?fileid=56e59657-6ff2-cfd7-a24b-7c27d4100000 (explaining that before the Commission can "balance all factors bearing on the public interest ... it must first adequately assess the significance of a project's adverse impacts, including its impact on climate change.").

FINDING 3-6: The complexity of the permitting process—marked by overlapping responsibilities, reactive consultation practices, and agency silos—creates structural inefficiencies that extend timelines and reduce predictability.

V. STATUTES HAVE BEEN TRANSFORMED FROM "ACORNS TO OAKS"

"A 1970 legislative acorn has grown over the years into a judicial oak that has hindered infrastructure development 'under the guise' of just a little more process."[211] This simple statement from the U.S. Supreme Court in *Seven County* exemplifies how a seemingly modest statutory provision can grow into sweeping obligations that cast a shadow on infrastructure development. The legal challenges to NEPA-informed federal permitting decisions have created a chilling effect on America's ability to build or even design bold, large-scale projects. The U.S. Supreme Court did not stop with just that statement. The Justices further expounded on the impact, indicative of the problem at hand:

> *NEPA has transformed from a modest procedural requirement into a blunt and haphazard tool employed by project opponents (who may not always be entirely motivated by concern for the environment) to try to stop or at least slow down new infrastructure projects. Some project opponents have invoked NEPA and sought to enlist the courts in blocking or delaying even those projects that otherwise comply with all relevant substantive environmental laws. Indeed, certain project opponents have relied on NEPA to fight even clean-energy projects—from wind farms to hydroelectric dams, from solar farms to geothermal wells.*
>
> *All that has led to more agency analysis of separate projects, more consideration of attenuated effects, more exploration of alternatives to proposed agency action, more speculation and consultation and estimation and litigation. Delay upon delay, so much so that the process seems to border on the Kafkaesque. Fewer projects make it to the finish line. Indeed, fewer projects make it to the starting line. Those that survive often end up costing much more than is anticipated or necessary, both for the agency preparing the EIS and for the builder of the project. And that in turn means fewer and more expensive railroads, airports, wind turbines, transmission lines, dams, housing developments, highways, bridges, subways, stadiums, arenas, data centers, and the like. And that means fewer jobs, as new projects become difficult to finance and build in a timely fashion.*[212]

The Supreme Court called for a "course correction of sorts" to bring NEPA "back in line with the statutory text and common sense."[213]

This observation resonates beyond NEPA, extending to other federal environmental laws, including the CWA, the CAA, and the ESA, which have experienced similar judicial and regulatory expansion. These statutes are essential for environmental protection and establishing compliance obligations. Yet, their largely unchanged statutory text has been layered with accumulating judicial and regulatory interpretations leading to delay, defeats, and increased costs for new energy projects. Like NEPA, these laws have grown beyond the confines of their legislative text, from acorns to oaks, overshadowing the balance Congress intended.

The purposes of the major federal environmental laws, including NEPA, have remained largely constant over time (see Table 3-4). The purpose of the CWA, for example, has remained the same since 1972: "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 USC § 1251. Since 1963, the goal of the CAA has been to "protect and enhance the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." 42 USC 7401(b). The purposes of the ESA also have not changed since the law was first enacted (*See* 16 USC 1531(b)).

Likewise, the core statutory provisions of the major federal environmental laws have not changed, at least not significantly, in decades. The CWA and the ESA have not undergone significant amendments since the 1980s. The last significant amendments to the CAA were the 1990 Clean Air Act Amendments. And until the Fiscal Responsibility Act of 2023, NEPA had not been amended in more

211 *Seven Cnty. Infrastructure Coal. v. Eagle Cnty., Colorado*, 605 U.S. 168, 184 (2025).

212 *Id.* at 183–84 (citations and internal quotation marks omitted).

213 *Id.* at 184.

Environmental Law	Express Purpose	Case Law	Court Case Titles
National Environmental Policy Act (NEPA)	To encourage productive and enjoyable harmony between people and the environment; prevent or eliminate environmental damage; and enrich the understanding of ecological systems.	A procedural statute that requires federal agencies to take a "hard look" at the environmental impacts of a proposed action and inform the public of their considerations. It is a "procedural cross-check," not a "substantive roadblock," and does not mandate specific environmental outcomes.	• *Seven County Infrastructure Coalition v. Eagle County*, No. 23-975 (U.S. May 29, 2025) • *Ctr. for Biological Diversity v. U.S. Bureau of Land Mgmt.*, 141 F.4th 976 (9th Cir. 2025) • *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062 (9th Cir. 2002) • *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87 (1983) • *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989)
Clean Water Act (CWA)	To restore and maintain the chemical, physical, and biological integrity of the nation's waters.	A comprehensive and all-encompassing program for water pollution regulation designed to address a pollution "crisis." The law's purpose is to restore and maintain the integrity of the nation's waters.	• *Sackett v. E.P.A.*, 566 U.S. 120 (2012) • *Cnty. of Maui, Hawaii v. Hawaii Wildlife Fund*, 590 U.S. 165 (2020) • *City of Milwaukee v. Illinois & Michigan*, 451 U.S. 304 (1981)
Endangered Species Act (ESA)	To conserve the ecosystems upon which endangered and threatened species depend and provide a program for their conservation.	A comprehensive scheme with the broad purpose of protecting endangered and threatened species.	• *Ctr. for Biological Diversity v. U.S. Bureau of Land Mgmt.*, 698 F.3d 1101 (9th Cir. 2012) • *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687 (1995)
National Historic Preservation Act (NHPA)	To foster conditions where modern society and historic properties can coexist; provide federal leadership in historic preservation; and encourage the preservation of both federally and nonfederally owned historic properties.	A procedural statute that requires agencies to consider the effects of their actions on historic properties. It is a "stop, look, and listen" provision that encourages agencies to generate and carefully consider information about the impact of federal actions on historic properties.	• *Tohono O'odham Nation v. United States Dep't of the Interior*, 138 F.4th 1189, 1192 (9th Cir. 2025) • *Hualapai Indian Tribe v. Haaland*, 755 F. Supp. 3d 1165, 1173 (D. Ariz. 2024) • *Pres. Coal., Inc. v. Pierce*, 667 F.2d 851, 854 (9th Cir. 1982) • *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 803 (9th Cir. 1999) • *Apache Survival Coal. v. United States*, 21 F.3d 895, 898 (9th Cir. 1994)
Clean Air Act (CAA)	To protect and enhance the quality of the nation's air resources, to promote public health and welfare, and to encourage actions for pollution prevention.	A statutory approach to pollution that was enacted to address the inadequacy of common law in controlling air pollution. The act aims to strike a balance between encouraging economic development and protecting the environment.	• *Union Elec. Co. v. E.P.A.*, 427 U.S. 246, 249 (1976) • *Alaska Dep't of Env't Conservation v. E.P.A.*, 540 U.S. 461, 469-471 (2004)
Migratory Bird Treaty Act (MBTA)	No express purpose identified in the statute.	The purpose is derived from international conventions the United States entered into with Great Britain (on behalf of Canada), Mexico, Japan, and the Soviet Union. The goal is to protect migratory bird species from "indiscriminate slaughter" and ensure their preservation, as well as to prevent their extermination and extinction.	• *United States v. Corbin Farm Serv.*, 444 F. Supp. 510 (E.D. Cal. 1978) • *United States v. Vance Crooked Arm*, 788 F.3d 1065, 1069 (9th Cir. 2015) • *Nat. Res. Def. Council, Inc. v. U.S. Dep't of the Interior*, 478 F. Supp. 3d 469, 472 (S.D.N.Y. 2020)

Table 3-4. *Examples of Legal Interpretation of Foundational Laws that Impact Permitting*

than 50 years (and the FRA did not change NEPA's principal requirement, the need for a "detailed statement" found at 42 U.S.C. § 4332(c)).

While their core statutory texts may have remained the same, that does not mean the permitting landscape has been calm. *Sackett v. EPA*[214] illustrates how a single, static phrase can generate decades of uncertainty. In recounting decades of competing agency and judicial interpretations of "waters of the United States," the Court noted that the petitioners, simply seeking to backfill property for their home, had "spent well over a decade navigating the CWA, and their voyage has been bumpy and costly."[215] When a decade of litigation ensues because a landowner wants to build a house at a certain location on their property, it is not surprising that infrastructure developers hesitate to pursue the scale of infrastructure projects the United States needs.

The discussion and case studies to follow call out these same dynamics. A range of environmental laws have been weaponized, not to fulfill their legislative purposes (i.e., protect resources and the public), but to delay and defeat new energy and infrastructure projects. From one administration to the next, the federal agencies have engaged in a kind of tug of war, issuing competing regulations, policies, and procedures that turn compliance into a moving target. The result is an increasingly complex and volatile permitting process that threatens the viability of critical infrastructure projects and undermines the credibility and durability of environmental protections.

The Supreme Court is correct: A course correction seems appropriate to bring federal environmental laws and the permitting process as a whole back in line with statutory text, intended congressional purpose, and common sense. Congress designed the environmental laws to protect environmental resources, not to hamstring new infrastructure and energy projects.[216]

214 598 U.S. 651 (2023) (also referred to as *Sackett II*).

215 *Id.* at 661-63; *see also id.* at 663 ("The phrase ['waters of the United States'] has sparked decades of agency action and litigation.").

216 See *Seven County*, 605 U.S. at 184.

FINDING 3-7: While judicial oversight of the laws and regulations that govern infrastructure permitting is essential for accountability, some project opponents deploy expansive readings of NEPA as a litigation strategy to block or delay infrastructure development, frustrating national energy and infrastructure priorities.

FINDING 3-8: Shifting agency interpretations across administrations have turned permitting compliance into a moving target, creating a complex and volatile process that jeopardizes critical infrastructure and erodes confidence in environmental protections.

VI. LITIGATION LANDSCAPE

After an agency issues or denies a permit, affected entities have a limited period of time to file a legal challenge. The Administrative Procedure Act (APA) provides generic rules and procedures applicable to legal challenges to agency permitting actions. In addition, several of the substantive permitting statutes add to or supplant the APA for purposes of legal challenges to an agency permitting action under the statute.

What follows is a summary of the key features of the landscape for legal challenges to agency permitting actions. The summary is organized as a chronology of the main steps in a legal challenge, i.e., a litigation life cycle.

Standing: Who may file a legal challenge?

The first step in the litigation life cycle is determining who is allowed to file a legal challenge against the agency permitting action, i.e., who has standing. In general, a person has standing to file a legal challenge against some other person's action if they suffered an "injury in fact" from the action.

In addition, some permitting statutes have statute-specific grounds for standing. In administrative law, there is a policy and legal debate about whether lawsuits can be brought by organizations or associations that are not directly impacted by an agency's permitting action, but claim injury based on broader interests. Such entities often assert "associational"

standing. An association has standing to bring suit on behalf of its members when: (a) its members would otherwise have standing to sue in their own right; (b) the interests it seeks to protect are germane to the organization's purpose; and (c) neither the claim asserted nor the relief requested requires the participation of individual members in the lawsuit.[217]

What is the deadline for filing the legal challenge?

The second step in the litigation life cycle is for the person or persons who have standing to file their challenge by the applicable deadline. Such a deadline is referred to as the statute of limitations. Under the APA, the statute of limitations for a challenge to an agency action is six years, which can place a long shadow of litigation uncertainty over a permitted activity. However, some statutes set a shorter statute of limitations for challenges to agency actions, such as 60 or 120 days.[218]

Which court should review the legal challenge?

The next step is determining which court system should hear the legal challenge. This element is referred to as "venue." Clear venue clauses in permitting statutes provide predictability, centralize litigation, and improve administrative efficiency by concentrating similar cases in specified courts. Venue is determined by the statute authorizing the permit. Some statutes (e.g., the NGA) direct challenges to the Court of Appeals for the District of Columbia Circuit, while others use the circuit court of appeals for the region in which the project is located.[219] The choice of venue affects the speed, expertise, and consistency of judicial review, and sometimes offers opportunities for the litigant to select a preferred jurisdiction.

A related issue is determining the level of court that initially should hear the challenge, i.e., the court that has "original jurisdiction." Typically, a civil action under federal law will go first to a federal district court, with any appeal going to the court of appeals for that district. Some permitting statutes, however, direct a civil action directly to a federal court of appeals. As noted previously, a legal challenge subject to the NGA goes directly to a court of appeals.

The question of "original jurisdiction" can be uncertain when the challenge involves the issuance or denial of a federal permit by a state agency acting under a delegation of power from the federal law, such as a state certification under Section 401 of the CWA. The Court of Appeals for the Third Circuit has held that state-level permitting decisions must be reviewed initially through state administrative and judicial processes even if the state was acting pursuant to a federal delegation.[220]

What standards should the court use to review the agency action?

Having determined which entity can file a legal challenge and in what court, the next question is what "standard of judicial review" the court should apply in evaluating the legal validity of the agency permitting action. Under the APA, courts are required to hold an agency action unlawful if the court determines that the action was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."[221] The scope of review under the arbitrary-and-capricious standard is narrow and deferential to the agency. A court is not supposed to play the role of fact finder or substitute its judgment for that of the agency. The Supreme Court has explained that an agency rule is arbitrary and capricious only if "the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise."[222]

When it comes to environmental reviews under NEPA, this standard is further clarified by the Supreme Court in *Seven County*. In NEPA cases,

217 *Food & Drug Admin. v. All. for Hippocratic Med.*, 602 U.S. 367, 398 (2024).

218 See, e.g., 15 U.S.C. § 717r(b) (NGA – 60 days); 42 U.S.C. § 7607(b)(1) (CAA – 60 days); 33 U.S.C. § 1369(b)(1) (CWA – 120 days).

219 See, e.g., 15 U.S.C. § 717r(b) (NGA); 33 U.S.C. § 1369(b)(1) (CWA).

220 *Township of Bordentown, N.J. v. Fed. Energy Regulatory Comm'n*, 903 F.3d 234 (3rd Cir. 2018).

221 5 U.S.C. § 706(2)(A).

222 *Motor Vehicle Mfrs. Ass'n of the U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

courts should afford "substantial deference" to agencies when applying the APA's arbitrary-and-capricious standard of review.[223] The reason to apply "substantial deference" relates to the fact that NEPA review is "purely procedural" and makes up "only one input into an agency's decision."[224] Substantial deference is also required because, in carrying out NEPA review, such as formulating alternatives and identifying environmental impacts, agencies necessarily "make a series of fact-dependent, context-specific, and policy-laden choices," which courts "should not micromanage… so long as they fall within a broad zone of reasonableness."[225]

What relief may the court impose if it determines that agency action was unlawful?

The next step in the litigation life cycle is determining the relief or "remedy" that a court may impose for an unlawful agency action. In some circumstances, the court may provide relief even before it has reached a final decision on the merits of the legal challenge. The entity that brought the legal challenge can ask for a preliminary injunction, which halts the activity subject to the permit pending the outcome of the litigation. An entity seeking a preliminary injunction must establish: (1) it is likely to succeed on the merits, (2) it is likely to suffer irreparable harm in the absence of preliminary relief, (3) the balance of equities tips in its favor, and (4) the injunction is in the public interest.[226]

If a court arrives at a final decision on the merits that an agency's permitting action was unlawful, it can provide two categories of remedies. The normal approach is to "vacate" the permitting action, which requires the activity subject to the permit to come to a halt unless and until the agency issues a new, legally valid permit.[227] In certain circumstances, a court may "remand" the action back to the agency without vacating the authorization, thereby allowing the activity to continue while the agency revisits the permit. To determine whether to "remand without vacatur," courts typically consider first the seriousness of the deficiencies of the agency action and second, the likely disruptive consequences of vacatur on the permitted activity.[228] The Supreme Court has recognized that remand without vacatur may be appropriate in cases involving NEPA, which imposes procedural rather than substantive requirements on an agency. In the *Seven County* decision, the Court reasoned that "even if an EIS falls short in some respects, that deficiency may not necessarily require a court to vacate the agency's ultimate approval of a project, at least absent reason to believe that the agency might disapprove the project if it added more to the EIS."[229]

Transparency of costs of a legal challenge?

An additional factor that impacts the postpermitting litigation landscape is the financing of attorney's fees. Under the traditional rule on attorney's fees, each party pays its own attorney's fees, win or lose. This contrasts with the English rule, where the losing party pays the winner's fees. To reduce barriers for individuals, small businesses, and nonprofit organizations challenging government actions, Congress enacted the Equal Access to Justice Act (EAJA) in 1980, making it permanent in 1985. The EAJA creates a statutory exception to the U.S. rule by allowing prevailing parties to recover attorney's fees from the federal government if the government's position was not substantially justified; even a partial victory or procedural settlement can trigger these payments, regardless of the lawsuit's broader merit or public benefit.

There is no systemic, centralized tracking method or required disclosure of EAJA payments. The reporting requirement was repealed as part of the 1995 Paperwork Reduction Act, largely due to some agencies arguing the reporting was burdensome and was not necessary for program administration. Prior to the 1995 repeal, Congress and the Government Accountability Office reviewed the data to monitor trends, identify potential abuses, and assess which

223 *Seven County*, 605 U.S. at 179-180 ("In short, when determining whether an agency's EIS complied with NEPA, a court should afford substantial deference to the agency.").

224 *Id.* at 180.

225 *Id.* at 183.

226 *Winter v. Natural Resources Defense Council, Inc.*, 555 U.S. 7 (2008).

227 See e.g., *Sierra Club v. U.S. Dept. of Trans.*, 125 F.4th 1170, 1186 (D.C. Circ. 2025) ("Remand with vacatur is the ordinary remedy for unlawful agency action and the government has not asked us to depart from the ordinary course here." (internal citations omitted)); see also CRS Legal Sidebar. "Set Aside" and Vacatur Under the Administrative Procedure Act, LSB11357. Sept. 2, 2025. (noting that vacatur of unlawful agency actions has been the ordinary remedy for decades).

228 *American Great Lakes Ports Ass'n v. Schultz*, 962 F.3d 510, 518-519 (D.C. Cir. 2020).

229 *Seven County*, 605 U.S. at 185.

statutes and agencies were most frequently involved in EAJA claims.

Many states have "EAJA-like" statutes or intervenor compensation programs designed to ensure that citizens and small entities can challenge unreasonable state governmental actions without being deterred by the cost of litigation. The state statutes vary in scope and in standards for eligibility, with several states requiring advance or prenotice application before incurring the costs,[230] a demonstration of meaningful participation,[231] and publicly reported payments made under the program.

VII. LITIGATION DELAYS DEVELOPMENT OF INFRASTRUCTURE

"As night follows day, an environmental challenge follows the [FERC's] approval of a natural gas pipeline."[232] So began an opinion by the D.C. Circuit Court of Appeals reviewing a challenge to an approved natural gas pipeline project designed to provide grid reliability and support the State of Indiana's plan to retire a coal-fired facility and replace it with wind and solar energy sources. Legal challenges to federal permitting decisions have become a defining feature of infrastructure development in the United States. While litigation can be a legitimate tool for accountability, its growing use to contest procedural requirements of environmental reviews rather than substantive environmental harms has led to costly delays, project cancellations, and deliberate uncertainty. This approach to litigation is an ineffective approach that consumes public and private resources, delays the construction, maintenance, and operation of sited and approved projects, creates uncertainty for communities and project developers, and weakens the resiliency of U.S. energy infrastructure.

A. Transformation of NEPA from Procedural Safeguard to Litigation Tool

NEPA is one of the most frequently litigated environmental statutes.[233] Roughly 30% of projects undergoing an EIS face litigation, with nearly 90% of plaintiffs claiming a NEPA violation.[234] Common NEPA claims include improper reliance on CEs, inadequate analysis of effects, and failure to prepare a NEPA document.[235] Projects subject to litigation in district courts face delays of one to two years, and those that appeal to circuit courts require an average of a little more than four years to resolve.[236] Even when agencies prevail, as they do in 80% of appeals,[237] the time lost can be strategically devastating.

Project opponents have leveraged NEPA's procedural requirements to challenge agency decisions, creating delay often on technical or procedural grounds rather than substantive environmental concerns. As the Supreme Court observed in *Seven County*, NEPA is increasingly used to block or slow projects that already comply with substantive environmental laws. This shift has real consequences:

- Agencies spend a median of 20 months litigating environmental documents for energy projects.
- Nearly 8% of energy projects are litigated for more than five years.
- Fossil fuel projects account for 66% of all challenged energy projects, with NGOs filing the majority of cases.[238]

230 National Association of Regulatory Utility Commissioners. "State Approaches to Intervenor Compensation." December 2021. https://pubs.naruc.org/pub/B0D6B1D8-1866-DAAC-99FB-0923FA35ED1E.

231 National Association of Regulatory Utility Commissioners. "State Approaches to Intervenor Compensation." December 2021.

232 *Citizens Action Coalition of Indiana, Inc. v. FERC*, 125 F.4th 229, 235 (D.C. Cir. 2025).

233 Congressional Research Service. "National Environmental Policy Act: Judicial Review and Remedies." June 26, 2025. https://www.congress.gov/crs-product/IF11932.

234 McKinsey & Company. "Unlocking US Federal Permitting." July 28, 2025.

235 Congressional Research Service. "National Environmental Policy Act: Judicial Review and Remedies." June 26, 2025. https://www.congress.gov/crs-product/IF11932.

236 McKinsey & Company. "Unlocking US Federal Permitting." July 28, 2025.

237 McKinsey & Company. "Unlocking US Federal Permitting." July 28, 2025.

238 The Breakthrough Institute. "The Procedural Hangover: How NEPA Litigation Obstructs Critical Projects." July 24, 2025. https://thebreakthrough.org/issues/energy/the-procedural-hangover.

The Atlantic Coast Pipeline is a case in point (see Case Study 1). Despite securing multiple federal permits and winning a key U.S. Supreme Court case, the project was ultimately canceled after six years of litigation and repermitting cycles. Legal uncertainty drove costs from $4.5 billion to $8 billion, illustrating how even favorable rulings cannot overcome the cumulative impact of procedural delays.

A project that has proceeded despite NEPA litigation challenges is the Rio Grande LNG project (see Case Study 2). When the D.C. Circuit remanded FERC's approval, it required a supplemental environmental review. FERC responded with more detailed analysis and justification but did not impose new substantial environmental protections or pause construction. Further, future litigation against FERC's supplemental NEPA analysis now faces much higher barriers after *Seven County*.

In contrast, the Mountain Valley Pipeline (MVP) project faced a much more unsettled litigation environment. Federal appeals courts were more willing to vacate agency permits based on deficiencies in cumulative impacts, greenhouse gas analysis, and failure to consider alternatives. Admittedly, the MVP litigation had a blend of outcomes—early on, environmental protections were bolstered through the litigation process, but as litigation persisted, opponents increasingly leveraged the procedural requirements to delay progress. Only after Congress intervened in 2023 did the project find relief from the litigation loop and was able to complete construction in mid-2024 and achieve full operational capacity in early 2025, increasing energy supply to the Mid-Atlantic markets. There is a need to restore balance in the permitting process so that environmental protections are maintained without allowing procedural statutes like NEPA to become instruments of indefinite delay.

FINDING 3-9: NEPA lawsuits typically fail in court but succeed in delaying or even causing cancellation of infrastructure projects. The consequences go beyond years of delay or millions of dollars in expenses; they include unmet energy demand, reduced energy reliability, weakened energy security, and prolonged reliance on older, less efficient, and potentially higher-emitting energy assets.

B. Weaponization of the Clean Water Act

The litigation challenges do not stop with NEPA. Extensive litigation over Section 401 of the CWA has led to cancellation of critical infrastructure projects, while litigation challenging the Section 404 Nationwide Permit 12 led to a nationwide injunction preventing use of the permit.

1. Section 401

Litigation under Section 401 of the Clean Water Act has emerged as a significant barrier to the timely development of energy infrastructure. Originally intended to give states a voice in protecting water quality, Section 401 has increasingly been used to delay or block federally approved projects. As discussed previously, the flexibility inherent in cooperative federalism has allowed states to pursue broader policy objectives, including climate priorities, through their Section 401 authority, sometimes resulting in direct conflict with federal infrastructure goals. A notable example is the Constitution Pipeline, which was ultimately canceled[239] when the State of New York denied its Section 401 water quality certification (see Case Study 3). While citing water quality concerns, the decision reflected the state's climate and energy transition goals. Further, the denial came after years of delay stemming from New York's repeated use of the "withdraw and refile" tactic to avoid the one-year statutory deadline for certification decisions. This procedural maneuvering, since employed by several states, prompted legal challenges and federal rulings that such actions constituted a waiver of state authority. However, the uncertainty surrounding how courts interpret the waiver continues to complicate project planning and execution.

The EPA has attempted to clarify Section 401 through rulemaking, but these efforts have instead deepened regulatory instability. Between 2020 and 2023, EPA issued two materially different rules—one narrowing state authority and the other expanding it—each reflecting opposing policy

239 Reuters. "Williams Cancels N.Y. Constitution Natgas Pipeline." February 24, 2020. https://tinyurl.com/5n8v8592.

priorities.[240] The agency has now signaled its intent to revisit the rule again, citing ongoing uncertainty about the scope of certification and the need for additional guidance.[241] This regulatory instability increases the risk of litigation and inconsistent outcomes across jurisdictions. Industry stakeholders are concerned that the lack of clarity undermines the cooperative federalism principles of the CWA and creates a hostile environment for long-term infrastructure investment.

Without durable reforms to Section 401, such as clearer statutory deadlines, limits on procedural abuse, and consistent federal guidance, the permitting process will remain vulnerable to disruption. This not only jeopardizes the viability of individual projects but also undermines broader efforts to modernize the energy grid and reduce emissions.

FINDING 3-10: Protracted litigation over CWA Section 401 certifications has highlighted the need for regulatory certainty that will bring clarity and stability for the permitting process.

2. Section 404

Litigation under Section 404 of the CWA has increasingly disrupted the implementation of the Nationwide Permit (NWP) program, which was designed to streamline approvals for infrastructure projects with minimal environmental impact. While NWPs are intended to reduce regulatory burdens and expedite permitting for routine activities such as pipeline maintenance, linear infrastructure water crossings, and minor roadwork, recent court decisions have exposed their vulnerability to broad legal challenges.

In particular, litigation targeting NWP 12, which authorizes discharges related to oil and gas pipeline construction, has resulted in nationwide injunctions and vacatur of permits, even for projects that had already received federal approval. Certainty around NWP 12 has remained unsettled since 2021 due to ongoing litigation in the U.S. District Court for the District of Columbia.[242] The plaintiffs allege that the USACE failed to adequately evaluate or mitigate the permit's impacts on threatened and endangered species, as required by the ESA. In response, the USACE maintains NWP 12's general and specific conditions provide adequate safeguards and warns that vacating the permit would overwhelm agency resources and delay essential infrastructure nationwide. Meanwhile, in June 2025, USACE proposed to reissue and modify the Nationwide Permits, including NWP 12. In the proposal, USACE explained how it has adapted its procedures to address litigation risk, citing biological assessments and preconstruction notification requirements to safeguard listed species.

The consequences of litigation extend well beyond procedural delays. Project developers face significant financial risk when permits are vacated mid-development, often after years of planning and investment. In the case of Keystone XL, litigation under NEPA and CWA Section 404 contributed to a 13-year delay and eventual cancellation, resulting in billions of dollars in sunk costs and lost economic opportunity (see Case Study 4).

The legal outcomes, pending challenges, and frequent renewal cycles create uncertainty not only for individual projects, as seen in the cancellation of the Keystone XL and Atlantic Coast pipelines, but also for the broader permitting framework. The uncertainty, compounded by indiscriminate vacaturs of nationally applicable permits, creates delay or can derail essential pipeline integrity work needed to maintain the safety and reliability of the existing network of energy infrastructure.

C. Challenges to Market Need

Interstate oil, natural gas, and natural gas liquids (NGL) pipelines, by definition, cross state lines, and their customers are often located in multiple states.

240 Establishment of Public Docket and Listening Sessions on Implementation Challenges Associated With Clean Water Act Section 401, 90 *Federal Register* 29,828, 29,828 (July 7, 2025); see also Clean Water Act Section 401 Water Quality Certification Improvement Rule, 88 *Federal Register* 66,558 (Sept. 27, 2023), Clean Water Act Section 401 Certification Rule, 85 *Federal Register* 42,210, 42,227 (July 13, 2020).

241 EPA. "Establishment of Public Docket and Listening Sessions on Implementation Challenges Associated With Clean Water Act Section 401," 90 *Federal Register* 29,828, 29,828 (July 7, 2025). https://www.federalregister.gov/documents/2025/07/07/2025-12564/establishment-of-public-docket-and-listening-sessions-on-implementation-challenges-associated-with.

242 *Center for Biological Diversity v. Spellmon*, No. 22cv02586 (filed May 3, 2021).

Opposition from a single state or subset of states served by a proposed project can frustrate development of infrastructure designed to serve a broader range of Americans. As states adopt new laws or policies that are dependent upon a reduction in the use of fossil fuels for energy generation or residential or commercial use, lawsuits are raising challenges to the "market need" alongside the typical NEPA claims.

The Gas Transmission Northwest LLC (GTN) XPress Project in the Pacific Northwest and the Regional Energy Access Project (REAP) in the Northeast both went through federal review and faced legal challenges from states, environmental groups, and Tribal entities (see Case Study 5). A central issue in the litigation over these projects is the emerging argument over demonstration of market need. Opponents question the evidence supporting increased pipeline capacity, citing changes in energy demand, state decarbonization policies, and the rapid growth of renewable energy. They further argue that precedent agreements do not reflect genuine market demand, and that insufficient consideration of changing energy markets could result in stranded assets and unnecessary costs for ratepayers. FERC has long held that precedent agreements are the best indicator of market need. Long-term contracts between sophisticated commercial actors making long-term investments based on the needs of the systems they operate clearly signal market need in a concrete way beyond what academic studies or state mandated policies can demonstrate.

Increasingly, these challenges are rooted in state climate policies that prejudice against energy infrastructure projects supported by fossil fuels—such as coal-to-gas conversions for electric generating units. In both GTN and REAP, state-level opposition introduced costly delays and litigation, despite the projects being fully subscribed and federally approved. The misalignment between state climate goals and federal reliability mandates has created a regulatory environment where infrastructure designed to meet peak demand and support grid stability is delayed or canceled, exacerbating reliability risks and economic burdens.[243] Despite the litigation, both projects are in service, incrementally improving energy reliability in these regions although reliability challenges persist.

FINDING 3-11: State-level climate mandates targeting fossil fuel development have prejudiced energy infrastructure projects designed to enhance grid reliability. The misalignment between state climate goals and federal energy reliability objectives have thwarted the addition of necessary infrastructure, resulting in delayed or canceled projects and imposing higher costs on consumers. Sophisticated commercial entities making investments in the market remains the best indication of market need.

D. Delays to What End?

Litigation challenging approvals of infrastructure projects brings uncertainty and often leads to delays in both construction or operation of a project. Federal judges who routinely preside over these cases are taking notice and openly acknowledge that such litigation rarely results in meaningful environmental improvements. One recent opinion lamented how "rarely" the "cottage industry that uses the nation's environmental laws to retard new development"[244] wins on their "dubious claims" and yet "emerge victorious because delay is the coin of the realm." The court went further: "Developers—overwhelmed by the torrent of challenges—often abandon their projects rather than weather the storm. Many more are cowed from even entering the market."[245]

The Supreme Court has also highlighted the broader impact of this litigation cycle on the American public. It is not only that fewer infrastructure projects make it to the finish line, but that litigation impacts prevent projects from ever being initiated, stating "[i]ndeed, fewer projects make it to the starting line."[246] Such dissuasions lead to a landscape where projects are fewer in number, more expensive to finance, and increasingly "difficult to finance and build in a timely fashion."

243 The NPC provides further discussion on these concerns in its 2025 study, "Reliable Energy: Delivering on the Promise of Gas-Electric Coordination." https://gas-electric.npc.org/.

244 *Appalachian Voices v. Fed. Energy Regulatory Comm'n*, 139 F.4th 903, 916 (D.C. Cir. 2025) (Henderson, J., concurring).

245 *Id.* at 917; *see also id.* at 921 ("Construction of our nation's vital infrastructure must now navigate endless veto-gates in order to proceed, leading many projects to fail.").

246 *Seven County*, 605 U.S. at 184.

FINDING 3-12: Faced with persistent legal and procedural obstacles that compound project costs, many developers choose to withdraw their projects rather than endure years of costly delays, while others are discouraged from pursuing new infrastructure altogether.

The judiciary's accurate portrayal of the litigation impacts can be succinctly captured in two forms: the "litigation proofing" of permitting reviews by federal agencies and, unfortunately, the cancellation of projects.

1. Litigation Proofing

Increased litigation of federal permits has driven the rise of "litigation proofing" for U.S. oil and natural gas infrastructure. This practice involves federal agencies and developers producing extensive NEPA reviews to anticipate and defend against every conceivable legal objection.

The outcomes of NEPA-related litigation provide compelling evidence that review duration does not equate to certainty. Projects with an EIS have a strong likelihood of facing litigation alleging NEPA procedural violations. While federal agencies prevail in a remarkable 80% of these cases, the lawsuits still result in project delays of an average of more than four years.[247] This reveals a critical paradox: the permitting process itself, not the legal merits of the project, has become the primary mechanism for delay.

Efforts to create litigation-proof documents can backfire. The very act of trying to create an unassailable, litigation-proof document by making the review longer and more detailed can be counterproductive. The more complex and exhaustive a NEPA document becomes, the more technical requirements it contains, and the more potential procedural omissions or errors a challenger can allege. A lengthy, detailed EIS can become a larger target for a plaintiff seeking to find a minor flaw in a vast document.[248] The Uinta Basin Railway Project underscores this paradox. The Surface Transportation Board prepared a 3,600-page EIS under NEPA, aiming to anticipate and address every conceivable objection and preempt challenges. Despite this, environmental groups challenged the permit, and the D.C. Circuit Court vacated the approval, triggering years of delay. Although the Supreme Court ultimately reversed the lower court decision in 2025,[249] the litigation consumed more than four years and introduced significant uncertainty and cost. This case demonstrates that even highly detailed reviews cannot guarantee immunity from procedural challenges, and that litigation often functions primarily as a mechanism for delay rather than substantive change.

Another emblematic example is the Boardman to Hemingway Transmission Line (B2H) project, a 300-mile electric transmission line in Oregon and Idaho (see Case Study 6). The Bureau of Land Management's EIS exceeded 7,000 pages, addressing alternatives, cultural resources, wildlife, and mitigation measures to withstand legal challenges. Yet the project still faced multiple lawsuits and appeals, and its permitting process stretched from 2007 to beginning of construction in 2025. This case underscores questions about how to balance environmental rigor with timely infrastructure development.

While agencies win most NEPA appeals, this high success rate is misleading. Litigation rarely alters project design but almost always imposes delays and financial burdens. For energy projects, lawsuits add an average of nearly four years to timelines.[250] Litigation results less often in court-ordered changes to project design but rather in increased uncertainty and financial burden that may cause developers to ultimately abandon projects. In many cases, plaintiffs achieve their goal when delays and uncertainty lead developers to abandon projects—a strategic "win" despite losing in court.

FINDING 3-13: Even though federal agencies consistently win a large majority of NEPA lawsuits, the threat of litigation still slows down the permitting process as agencies and staff go to excessive lengths to litigation proof their decisions.

247 McKinsey & Company. "Unlocking US Federal Permitting." July 28, 2025 (citing Chiappa, Nikki et al., "Understanding NEPA litigation: A systemic review of recent NEPA-related appellate court cases." The Breakthrough Institute. July 11, 2024.).

248 Mallett, Cade. "Backdoor NEPA Proceduralization: Less Environmental Substance Begets More Environmental Procedure." 2025.

249 Discussed in more detail in Section VIII.

250 The Breakthrough Institute. "Understanding NEPA Litigation." July 11, 2024. https://thebreakthrough.org/issues/energy/understanding-nepa-litigation.

2. When Legal Wins Still Mean Project Losses

The 2019 NPC *Dynamic Delivery* study warned that litigation was becoming a powerful lever to challenge, delay, or stop energy infrastructure projects—often driven by climate concerns and policy debates rather than project-specific impacts.[251] That insight has proven prescient. Federal permitting statutes such as NEPA were designed as procedural safeguards, not substantive veto points, but procedural complexity has created systemic vulnerability. As noted previously, federal agencies win about 80% of these NEPA cases; however, litigation adds an average of four years to project timelines. For developers, time, not legal merit, is the decisive factor. Even when projects prevail in court, prolonged uncertainty erodes financial viability and stakeholder confidence, demonstrating that legal success does not always translate into project completion.

Obstacles created by the previously discussed regulatory hurdles and state policies have led to the cancellation of major natural gas pipeline projects that would have improved access to natural gas. For example, National Fuel's Northern Access Project was canceled in 2024 after several years of litigation over federal and state authorizations.[252] Although FERC determined the project to be in the public interest and National Fuel prevailed in court, delays drove up costs and customers rejected revised rates. Similarly, in 2020, Dominion Energy and Duke Energy canceled the Atlantic Coast Pipeline,[253] despite prevailing in the U.S. Supreme Court on its Appalachian Trail crossing permit and having already installed 31.4 miles of pipe, due to legal uncertainty from environmental opposition and rising costs.

Natural gas pipelines are not alone. Oil and NGL projects have encountered the same legal and regulatory hurdles, within ongoing litigation creating years of uncertainty. The oil and NGL pipeline permitting experience reflects a systemic vulnerability: Permitting statutes designed for procedural review have become levers for strategic opposition. The Dakota Access Pipeline remains operational but under continuous legal siege, while the Keystone XL Pipeline illustrates how environmental opposition has mastered the use of NEPA and CWA provisions to reshape project timelines. These battles are less about substantive environmental outcomes and more about exploiting procedural complexity to delay projects. The result is a systemic vulnerability where infrastructure planning is dictated less by policy and more by litigation strategy.

For other projects, the near certainty of prolonged litigation coupled with escalating costs made cancellation a strategic decision rather than a legal defeat. As natural gas pipeline projects like Constitution,[254] Diamond East Expansion,[255] and PennEast[256] (see Case Study 7) sought permits, environmental groups were securing injunctions and procedural victories elsewhere, reshaping investor expectations. Court victories against major pipelines, such as the Atlantic Coast Pipeline, Dakota Access, and the Keystone XL, had established a pattern: Environmental opposition was organized, well-funded, and increasingly successful in court.

Developers began to understand that even full compliance with NEPA, the CWA, and all other environmental regulatory requirements would not shield them from lawsuits. Even with strong compliance commitments, the prospect of multiyear litigation and eroding timelines and capital rendered these projects economically inviable before construction began. Cancellation became a rational choice—not because the projects lacked legal merit, but because the economics could not withstand prolonged uncertainty.

251 Specifically, the NPC found that for natural gas and oil pipelines, "the most frequently claimed NEPA errors have been insufficient analysis of direct and indirect effects and insufficient review of upstream GHGs, downstream GHGs, and cumulative impacts." *Dynamic Delivery* at 3-59.

252 National Fuel Gas Supply Corp., Notice of Intent to Allow Certificate to Expire, FERC Docket No. CP15-115 (Dec. 9, 2024). Part of the project would have transported natural gas from Pennsylvania into markets in the Northeast. See also National Fuel Gas Supply Corp., 158 FERC ¶ 61,145 at P 32 (2017).

253 The project would have connected natural gas supplies from West Virginia to markets in Virginia and North Carolina, primarily to manage the regional retirement of coal-fired electric generation.

254 Designed to transport 0.65 Bcf/d of gas from Pennsylvania to New York.

255 Designed to carry 1 Bcf/d of natural gas from a gathering system in Luzerne County and Lycoming Counties in Pennsylvania and terminate in Mercer County, New Jersey.

256 The 118-mile project would have shipped natural gas from the Appalachian region through Pennsylvania and New Jersey.

FINDING 3-14: Without reform, litigation will continue to function as an obstacle, undermining energy security and investment certainty.

The reality that legal victories do not always translate into successful project delivery highlights the importance of this study's mission. By highlighting the disconnect between legal success and project completion, this study underscores the need for reforms that restore predictability, reduce unnecessary delays, and ensure that environmental protections are achieved without sacrificing the nation's ability to build essential projects.

VIII. RECENT SUPREME COURT DECISIONS HAVE NOT FULLY RESOLVED THESE ISSUES

Recent Supreme Court cases made headway into narrowing or overturning past legal reasoning that expanded the breadth of the permitting review timeline and unpredictability of the permitting process without advancing any significant environmental protections. Some argue these cases resolved most of the issues discussed previously and question whether permitting reform is still needed. Our response is a resounding "yes"—reform is not only still needed, but also necessary to build more of the infrastructure our nation demands.

As noted previously, the Supreme Court recently issued its decision in *Seven County Infrastructure Coalition v. Eagle County*.[257] In this 8-0 decision, the Supreme Court emphasized that NEPA is a "purely procedural statute," not a substantive one, and that judicial review of agency NEPA decisions must be grounded in substantial deference to the agency's judgment when the agency is exercising discretion granted by the statute. Justice Sotomayor, in her concurring opinion, also emphasized that NEPA remains an "action-forcing" statute but only within the bounds of an agency's jurisdiction.

The facts of this case illustrate some of the absurdity of NEPA litigation. The Surface Transportation Board (STB) reviewed a proposed 88-mile railroad project that would connect Utah's Uinta Basin to the national freight rail network. The STB prepared a 3,600-page EIS analyzing construction and operation of the railway; however, the federal district court vacated the EIS and final order, holding that the STB improperly narrowed its environmental review by not fully analyzing the effects from upstream oil drilling and downstream oil refining.

The Supreme Court reversed the lower court's decision, emphasizing two key principles: first, that courts must afford substantial deference to agency judgments under NEPA, particularly when an EIS falls within a broad zone of reasonableness—even if it contains minor deficiencies. Second, the Court clarified that NEPA does not require agencies to evaluate environmental effects of upstream or downstream projects that are temporally or geographically separate and outside the agency's regulatory authority. Because the STB lacked jurisdiction over future oil and gas development, its EIS properly limited analysis to the railway project itself.

This decision provided a great deal of clarity and positive impact on the federal permitting process. Key takeaways include:

- NEPA was not intended to be a roadblock to energy or other infrastructure developments.
- NEPA was not meant to expand an agency's environmental review beyond its own statutory authority over a proposed project.
- NEPA does not require an agency to review environmental effects that are separate in time, geography, or regulatory jurisdiction.
- NEPA grants substantial discretion to an agency's scope of environmental review and content of an EA or EIS.
- "Reasonably foreseeable" environmental effects under NEPA must be those directly tied to the proposed action, not speculative or indirect effects.

The *Seven County* decision clarified the level of deference the courts may apply when an agency exercises discretion granted by a statute, while *Loper Bright Enterprises v. Raimondo*[258] addressed how courts should review an agency's interpretation of a statute. In *Loper Bright*, the Supreme Court overturned the *Chevron* doctrine,[259] which had long

257 *Seven County*, 605 U.S. 168 (2025).

258 *Loper Bright Enterprises v. Raimondo*, 144 S. Ct. 2244 (2024).

259 *Chevron U.S.A. Inc. v. Nat. Res. Def. Council*, 467 U.S. 837 (1984).

required courts to defer to reasonable agency interpretations of ambiguous statutes. The Court held that such deference was incompatible with the APA, which mandates that courts—not agencies—resolve questions of law. Drawing on constitutional principles and historical precedent, the Supreme Court reaffirmed the judiciary's role as the final arbiter of statutory meaning.

Importantly, *Loper Bright* did not eliminate all judicial consideration of agency interpretations. Courts may still apply *Skidmore* deference,[260] which allows courts to give persuasive weight to agency views based on factors such as the quality of the reasoning, consistency over time, and alignment with statutory purpose. Well-reasoned and transparent agency decisions may still carry influence, even if they are no longer dispositive. This shift encourages agencies to produce robust and defensible permitting analyses but also could introduce variability in how courts assess agency interpretations or application of agency discretion—especially when the statutes contain flexible or ambiguous language.

Together, *Loper Bright* and *Seven County* offer a pathway toward greater legal clarity and predictability in federal permitting, but that path is not without complexity. These decisions strengthen accountability by requiring agencies to ground their decisions in clear statutory authority, which may improve transparency and public trust. Courts are now better positioned to determine whether a statute grants discretionary authority, and to distinguish between legal interpretation (to be exercised by the courts) and factual judgment (to be exercised by the agency). For example, under NEPA, courts may interpret what constitutes a "detailed" environmental report but defer to an agency's discretion in determining what facts or impacts are "significant." Determining facts and setting policy remain functions reserved for administrative agencies; courts are limited to interpreting the statutory framework that governs those decisions. Additional litigation concerns and risks include:

- The substantial discretion granted to an agency conducting an environmental review could work against infrastructure projects if an administration chose to conduct overly expansive environmental reviews beyond its statutory jurisdiction. Federal agencies retain the discretion to go beyond statutory minimums and if a federal authorization is denied on that basis or if mitigation measures are based upon environmental concerns outside of an agency's jurisdiction, the project proponent may not be successful in challenging the agency's decision. *Seven County* directs the federal courts to grant substantial deference to the agency's scope and content of its environmental review.
- Conversely, an administration could choose to conduct a narrower environmental review to speed up the review process and selectively omit relevant impacts, particularly in politically sensitive projects. Emphasizing NEPA as a "purely procedural statute" and granting substantial discretion to an agency's environmental review could make it difficult to successfully challenge this type of environmental review.
- The Supreme Court did not address the debate of vacatur versus remand of a project's federal permit or certificate when a court identifies a NEPA deficiency. This leaves open the question of whether courts should be limited to remanding decisions with instructions, or if vacatur remains appropriate in some cases.

In practice, this evolving pathway and framework may lead agencies to adopt more cautious approaches to rulemaking and permitting decisions. While *Skidmore* deference offers a mechanism for courts to respect agency expertise, it lacks the procedural predictability of the *Chevron* "two step" analysis. Agencies can no longer rely on judicial deference simply because their interpretation is reasonable; instead, they must demonstrate that their reasoning is persuasive, well grounded, and consistent with the statute's text and purpose. It remains uncertain whether this shift will produce greater legal durability of agency decisions or introduce new variability in judicial outcomes. This underscores the need for clearer statutory drafting, stronger administrative records, and a renewed focus on durability in federal permitting decisions.

IX. EXISTING STREAMLINED PERMITTING MECHANISMS

As explored throughout this chapter, the permitting process for energy infrastructure in the United States is anything but straightforward. Layers of

260 *Skidmore v. Swift & Co.*, 323 U.S. 134 (1944).

statutes, overlapping agency responsibilities, and shifting regulatory interpretations have created a landscape where even routine activities can face years of review and uncertainty. All who have navigated this process are united in a call for a new path forward.

Against this backdrop, existing streamlined permitting mechanisms stand out as practical solutions for how to create a more efficient process without sacrificing the core elements that underpin our permitting system. These mechanisms are not blanket exemptions or shortcuts; rather, they are carefully crafted pathways for evaluation and authorization of activities that are well understood, low risk, or already subject to robust oversight. These kinds of eligible activities do not require extensive project-specific preconstruction review and approval procedures. To the extent that there is a dispute about the legal validity of a streamlined permitting mechanism that prompts litigation, that litigation occurs when the mechanism itself is promulgated or updated. Because the validity of the mechanism is resolved upstream from a specific project's use of the mechanism, there is far less project-specific litigation for projects that use these mechanisms.

What makes these mechanisms work? Three common traits stand out:

- First, they are targeted in scope. Streamlined approaches are typically reserved for categories of activities where the impacts are predictable and manageable. By focusing on well-understood activities, these mechanisms reduce the need for activity-specific reviews, allowing agencies to concentrate resources on more complex, potentially higher-risk projects.
- Second, transparency remains central. Even when a project qualifies for a streamlined process, there is almost always a requirement to notify the relevant agency—and often the public as well. This notification is not just a formality; it is a way to ensure that the activity fits the criteria and that stakeholders stay informed. Reporting and recordkeeping requirements provide ongoing transparency and accountability, allowing agencies to monitor compliance and respond quickly to any unforeseen impacts.
- Finally, standardization is key. Too often, the current permitting system is slowed by project-specific reviews that require tailored mitigation measures, even when projects share similar characteristics and impacts. This approach leads to multiple projects implementing essentially the same safeguards, but only after a lengthy review. Streamlined mechanisms rely on clear, consistent environmental safeguards, operational practices, or mitigation measures wherever substantial similarities exist. These conditions are designed to ensure that projects remain within the bounds of anticipated impact and that any risks are managed consistently. Standardization not only expedites review but also provides clarity and predictability for project sponsors, agencies, and stakeholders.

These existing streamlined mechanisms are significant to permitting reform efforts in at least two ways. First, reforms could expand or enhance how these mechanisms are implemented to make them more effective and efficient. Second, they offer models for new permitting approaches, including approaches that replace project-specific reviews with standardized requirements for broader categories of activities.

Streamlined permitting mechanisms offer a way to reconcile the need for efficiency with the imperatives of protection and engagement—fulfilling the triple mandate (Build, Protect, Engage). They do not solve every challenge, but when appropriately crafted and applied, they can help move projects forward while maintaining the integrity of our permitting system. The following section explores how these mechanisms are currently used, grouping them by their primary function—either reducing agency's project-specific review burden or enhancing coordination and leveraging resources—and acknowledging their limitations while highlighting how each supports the broader goals of permitting reform.

A. Mechanisms that Reduce Agency's Project-Specific Review Burden

In lieu of detailed, project-specific review for qualifying activities, these mechanisms shift the timing of the environmental impacts assessment, expediting approvals for routine, low-impact, or previously reviewed actions. By reducing unnecessary procedural hurdles, they help fulfill the mandate to Build infrastructure efficiently, while maintaining essential safeguards.

1. Army Corps of Engineers Nationwide Permits

The USACE NWP program is often cited as a model for streamlining approvals for routine infrastructure activities. First issued in 1977, NWPs authorize categories of activities under CWA Section 404 and Section 10 of the Rivers and Harbors Act of 1899 where impacts are expected to be minimal. While the program has evolved since its inception, it has remained remarkably consistent in providing effective oversight through changing administrations. By allowing qualifying projects to proceed under standardized conditions, NWPs help agencies and developers avoid the delays of case-by-case review, advancing the national imperative to build critical infrastructure efficiently.[261] Project sponsors acting under the authorization of an NWP must ensure that the project complies with the terms of the NWP and all relevant environmental and resource laws.

The full effectiveness of the NWPs is shaped as much by their limitations as their strengths. While some sponsors can self certify compliance with NWP requirements and move forward quickly, others must submit a preconstruction notification (PCN) to the USACE based on general or regional conditions, which can trigger lengthy review timelines. The intended predictability is further complicated by inconsistent approaches across Corps Districts. For example, activities that may be allowed under a certain NWP (including NWP 12) in one region may be disallowed in another, and in some cases the permit is not available in specific jurisdictions. These inconsistencies can frustrate project sponsors and undermine the transparency and fairness that are essential for public trust and engagement. Moreover, NWPs are not immune from legal challenge; periodic litigation—sometimes resulting in nationwide injunctions—can create uncertainty for both agencies and the regulated community.

2. Air Quality Permits by Rule

Air quality "permit-by-rule" (PBR) programs offer a streamlined path for categories of activities that are well understood and subject to standardized requirements. Under the CAA, the EPA has promulgated regulations authorizing PBR mechanisms for certain categories of facilities in certain locations. By allowing qualifying projects to operate under a set of preestablished rules, PBRs reduce the need for individualized permit review and help agencies and developers move forward with confidence.

As an example, a PBR program exists for Indian country (all land within the limits of any Indian reservation under the jurisdiction of the U.S. government), allowing the reviewing agency to issue a PBR for a category of emissions units or sources that are similar in nature, have substantially similar emissions and would be subject to the same or substantially similar requirements governing operations, emissions, monitoring, reporting, and recordkeeping.[262] Texas also has an EPA-approved PBR program that includes PBRs for the oil and gas industry.[263]

The PBR approach supports the "build" mandate by expediting approvals while "protecting" the environment through clear operational and emissions standards. Yet, implementation is not without challenges. States have authority to implement their own CAA permitting programs, including whether to implement PBRs, creating variability such that not all activities or regions are covered equally. It is not clear whether a state may use an EPA-approved PBR already adopted by another state, and some states may be reluctant to adopt new PBRs. For project sponsors, demonstrating eligibility and complying with notification and reporting requirements can still be complex, especially when rules differ from one state to another. Despite these hurdles, PBRs remain a valuable tool for balancing efficiency, environmental protection, and public transparency—provided they are kept up to date and accessible to all stakeholders.

261 Two NWPs of particular importance to linear infrastructure projects are NWP 3 (Maintenance) and NWP 12 (Oil and Gas Pipelines). NWP 3 authorizes repair, rehabilitation, or replacement of previously authorized, currently serviceable structures or fills (e.g., culverts, bulkheads, bridges) and temporary structures and fills necessary for maintenance. NWP 12 authorizes construction, maintenance, repair, and removal of pipelines and associated facilities; trenching, backfilling, and minor discharges of dredged or filling material; and access roads and substations related to oil and gas pipelines.

262 See 40 CFR 49.156(f)(3). PBRs are currently available for auto body repair and miscellaneous surface coating operations (49.162), petroleum dry cleaning facilities (49.163), and gasoline dispensing facilities (49.164). These PBRs specify emissions controls, operational requirements, and recordkeeping obligations for any qualifying source.

263 The oil and gas categories include oil and gas handling and production facilities; temporary oil and gas facilities; pipeline meter, purging, and maintenance; and planned maintenance, startup, and shutdown and oil and gas handling and production facilities. https://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/index.html.

3. FERC Blanket Certificates for Natural Gas Pipelines

A FERC blanket certificate is an authorization issued by FERC under the NGA that allows natural gas pipeline companies to undertake certain routine activities, such as maintenance, minor expansions, and certain facility upgrades, without the need for individual, case-by-case FERC approvals. This approach offers predictability and efficiency, supporting the "build" mandate by allowing noncontroversial projects to proceed, contingent upon standardized environmental conditions being met. However, the program's effectiveness is shaped by several practical challenges. Cost thresholds for qualifying activities have not always kept pace with inflation or the rising costs of construction, limiting the range of projects that can benefit. Additionally, procedural protests, even from parties with no direct interest, can delay or escalate blanket certificate activities into more burdensome project-specific reviews. The categories of eligible projects are also somewhat narrow, sometimes excluding activities that would otherwise have minimal environmental impact, such as brownfield development or compressor station upgrades at existing sites. These limitations can frustrate both developers and agencies, highlighting the need for ongoing review and adjustment to ensure the program continues to deliver on its promise of efficient, environmentally responsible infrastructure development.

4. NEPA Categorical Exclusions

Categorical exclusions (CEs) are a foundational tool for streamlining the permitting process, allowing agencies to bypass detailed environmental review for activities that have been shown through experience and data to pose little risk. The CEQ has defined a categorical exclusion as:

> *A category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of [its NEPA regulations] and for which, therefore, neither an environmental assessment nor an environmental impact statement is required.*

By focusing resources on projects with greater potential impacts, CEs help agencies build infrastructure more efficiently and direct attention where it is needed most. Further, each CE must go through a notice-and-comment process, ensuring transparency and opportunity for the public to engage on scope and potential use.

However, agencies often craft CEs narrowly, sometimes limiting their utility to a small set of circumstances or requiring extensive documentation to demonstrate eligibility, as illustrated by these examples of CEs that apply to the natural gas sector:

- **Department of Energy:** Routine maintenance and upgrades to existing energy infrastructure, such as power lines and substations; approvals for natural gas exports by marine vessel under Section 3 of the NGA; small-scale energy R&D projects conducted in existing facilities.
- **FERC:** Modifications, upgrades, or repairs to existing FERC-jurisdictional facilities and abandonment of facilities (e.g., pipelines, compressor stations) where no excavation or environmental disturbance occurs.
- **USACE:** Maintenance dredging in previously authorized navigation channels; repair or replacement of existing water control structures (e.g., culverts, levees) within their original footprint.
- **Bureau of Land Management (BLM):** Renewal of existing rights-of-way for infrastructure such as pipelines, transmission lines, or roads.

Further, the process for adopting or borrowing CEs across agencies can be cumbersome, and "extraordinary circumstances" provisions may trigger additional review even for seemingly routine actions. These hurdles can erode the efficiency gains that CEs are meant to provide. CEs also remain vulnerable to legal challenge if stakeholders believe they are being misapplied. In practice, CEs work best when they are clear, consistently applied, and supported by robust data—delivering on the promise to build efficiently, protect the environment, and engage the public in meaningful ways.

5. Statutory Exemptions

Statutory exemptions represent some of the most durable and predictable forms of streamlining in the permitting landscape. In these, Congress has provided clear boundaries that help agencies and project sponsors focus their efforts where they matter most. Different laws define these activities by either providing a specific list of examples or

by establishing thresholds for applicability. These exemptions support the build mandate by removing unnecessary procedural barriers for low-risk activities, while still protecting the environment through well-defined eligibility criteria. For example, in the CWA, Section 404(f) exempts several categories of activities such as farming, construction of irrigation ditches, and farm and forest roads from the requirements of Section 404. Section 106(a) of NEPA exempts an agency from having to prepare an EA or EIS if the proposed activity falls within certain categories of agency decision-making (e.g., subject to a CE, or not a final agency action).

While federal agencies are responsible for developing CEs, Congress must take action to amend any currently defined statutory exemptions. This makes the process for enacting or amending statutory exemptions inherently slow and subject to political negotiation. As a result, some opportunities for streamlining remain unrealized, and the patchwork of exemptions can create confusion or gaps in coverage. Despite these challenges, statutory exemptions remain a powerful tool for balancing efficiency and protection, providing a stable foundation for permitting reform.

6. Emergency NEPA Review and Permit Authorizations

Emergency authorizations are designed for those rare but critical moments where infrastructure must be built or repaired quickly to address immediate threats to public health, safety, or the environment. By allowing agencies to expedite review and permitting in response to natural disasters or urgent needs, these emergency mechanisms ensure that the nation can respond swiftly without being hamstrung by procedural delays. It is important to note that environmental review is not bypassed during emergency authorizations, but the process is deferred and can occur while the activity is underway or even after the work has finished. Accordingly, CEQ has issued guidance[264] to address alternative arrangements for NEPA compliance under such circumstances.[265]

Likewise, federal agencies include regulatory provisions or mechanisms under other laws to expedite applicable reviews or authorizations in emergency situations. For example, FERC's regulations allow for waiver of some standard processes for maintenance activities that are not foreseen and require immediate attention—whether to address safety, compliance with Pipeline and Hazardous Materials Safety Administration regulations, or urgent environmental matters.

Recently, EO 14156, Declaring a National Energy Emergency,[266] directed federal agencies to identify and use all lawful emergency or other authorities available to them to facilitate the nation's energy supply and expedite the delivery of energy infrastructure. In response, the USACE is implementing emergency review protocols for Section 404 permits, and some USACE districts are coordinating with state agencies to establish modified review timelines for Water Quality Certifications under Section 401 of the CWA.

These tools are essential for the build mandate, enabling rapid response when time is of the essence, but they also present complex challenges. Emergency procedures are not always fully coordinated across agencies, which can lead to divergent review timelines. Stakeholder sentiment may also be divided, especially if emergency actions are perceived as bypassing normal engagement or environmental review, raising concerns about transparency and accountability. Additionally, even well-intentioned emergency authorizations can invite litigation or public scrutiny if not clearly justified and communicated. Ultimately, the effectiveness of emergency permitting depends on clear protocols, interagency cooperation, and a commitment to maintaining public trust even under urgent circumstances.

B. Mechanisms that Enhance Coordination and Leverage Resources

Mechanisms that enhance coordination and leverage resources improve efficiency by fostering early engagement, standardized steps, and shared responsibility among agencies, sponsors, and

264 CEQ. "Emergencies and the National Environmental Policy Act Guide." September 14, 2020. https://ceq.doe.gov/docs/nepa-practice/emergencies-and-nepa-guidance-2020.pdf.

265 NEPA. "Emergency Alternative Arrangements." n.d. https://ceq.doe.gov/nepa-practice/alternative_arrangements.html (containing a list of approved, alternative NEPA arrangements).

266 "Executive Order 14156: Declaring a National Energy Emergency." 90 *Federal Register* 20,003 (Jan. 29, 2025). https://www.federalregister.gov/documents/2025/01/29/2025-02003/declaring-a-national-energy-emergency.

stakeholders. By enhancing coordination and predictability, they support the triple mandate of build, protect, and engage by enabling timely infrastructure development, ensuring rigorous review, and facilitating meaningful stakeholder participation.

1. FERC Prefiling Process

The FERC prefiling process was designed to foster early engagement among project sponsors, agencies, Tribes, landowners, and other stakeholders with the goal of smoothing the path for major pipeline and LNG projects by identifying and addressing issues before a formal application is submitted. The prefiling process is mandatory for LNG terminal projects (as codified at 18 CFR 157.21(c)) but is considered voluntary for pipeline and gas storage projects. In theory, this approach should enhance coordination, reduce surprises, and support the triple mandate by integrating environmental protection and public engagement from the outset. In practice, however, the benefits have been mixed. Review timelines for prefiling projects have not always outperformed those for traditional filings, and recent FERC NEPA guidance, while setting deadlines for environmental reviews, does not guarantee accelerated outcomes for projects using prefiling. Stakeholders sometimes expect a fully developed project proposal even during early engagement, leading to disconnects and frustration. These challenges underscore the importance of clear expectations, robust agency participation, and ongoing process improvements to realize the full potential of early coordination.

2. Applicant-Prepared NEPA Documents

To assist with the lead federal agency's review and evaluation of proposed projects, NEPA-implementing regulations and agency practices allow project sponsors to prepare draft or preliminary EAs to submit in conjunction with applications for permits. The lead federal agency retains sole responsibility for determining the adequacy of the EA, but this practice can, in principle, accelerate the permitting process by leveraging the sponsor's resources and expertise. This allows agencies to focus their efforts on review and oversight, rather than independently developing an EA document.

However, implementation is not always straightforward. Some stakeholders perceive applicant-prepared EAs as biased or lacking independence, raising questions about the integrity of the review. Not all agencies have clear or consistent procedures for accepting and using these documents, and some, such as FERC, limit their use to specific circumstances, such as the prefiling process.[267] Where processes do exist, they can be unnecessarily restrictive, requiring prior agency approval or limiting the types of projects that qualify. These hurdles can diminish the efficiency gains. To retain public trust, transparent standards and robust agency oversight are necessary to ensure that efficiency does not come at the expense of environmental protection or meaningful engagement.

3. Third-Party Contractors

Several federal agencies allow project sponsors to fund independent third-party consultants that are selected and supervised by agency staff to assist with environmental reviews and permit processing. Agency guidance and practice govern the use and selection of third-party contractors to ensure potential conflicts of interest are appropriately vetted. This mechanism can expand agency capacity, reduce bottlenecks, and support timely project delivery, all while maintaining agency control over the process. Project sponsors benefit from more expedient environmental reviews and typically perceive an advantage of having additional resources dedicated to the review of their project.

This mechanism is not without its own challenges. Some agencies lack clear regulations or procedures for selecting and managing third-party contractors, and conflict-of-interest reviews can be so stringent that they severely limit the pool of qualified candidates. In some cases, contracting regulations (such as those administered by the General Services Administration) add further complexity. These constraints can slow down reviews and frustrate both agencies and sponsors. To fully realize the benefits of this approach, agencies need clear, practical guidance that balances the need for independence with the realities of limited and qualified resources while maintaining integrity and public confidence in the review.

267 FERC. "Guidance for Applicant-Prepared Draft of Environmental Assessments for Certain Proposed Natural Gas Projects." 2011. https://www.ferc.gov/sites/default/files/2020-04/draft-ea-guidance.pdf.

4. ESA Consultation Mechanisms

Section 7 of the ESA requires federal agencies to ensure that actions they undertake, authorize, or fund are not likely to jeopardize threatened or endangered species (i.e., listed species) or adversely modify designated critical habitat for listed species. To satisfy this obligation, federal agencies must consult with the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS)—collectively the Services—when proposed actions may affect listed species or critical habitat. This process may be relatively efficient when either no listed species or critical habitat are impacted by a proposed action, or the proposed action is demonstrated to result in either no effect or no adverse effect to a listed species. However, when listed species or their designated critical habitat potentially would be adversely affected, this consultation process is often a source of delay and uncertainty.

A suite of tools has emerged to streamline and clarify the process. Mechanisms such as provision of designated nonfederal representative status,[268] programmatic consultation,[269] habitat conservation plans (HCPs),[270] and Section 4(d) rules for threatened species[271] are designed to enhance coordination, provide predictability, and focus resources on activities most likely to affect listed species. Even though these tools can streamline the process, development and implementation of some, such as programmatic consultations and HCPs, remain time- and resource-intensive, sometimes taking years to complete. Agency motivation and resources to pursue these mechanisms also vary, and statutory limitations, such as the restriction of 4(d) rules to threatened (not endangered) species, can limit their applicability.

5. Lessons Learned from Existing Streamlined Permitting Mechanisms

Existing streamlined permitting mechanisms show clear potential for a more efficient, predictable, and durable permitting process. However, implementation challenges, such as fragmented agency practices, inconsistent application across regions and agencies, and complex notification requirements, can limit widespread adoption. Current mechanisms also remain narrowly focused on low-impact activities, missing opportunities to accelerate projects in already disturbed or industrialized areas or project types for which there are consistent and well-established environmental mitigation strategies.

Future reforms should build on these lessons by standardizing procedures, reducing unnecessary administrative hurdles, and expanding coverage to a broader range of projects and geographies. By expanding, harmonizing, and reinforcing these mechanisms, policymakers can modernize permitting to better fulfill the triple mandate: enabling timely infrastructure development, maintaining rigorous environmental and safety standards, and fostering meaningful public engagement.

FINDING 3-15: Existing streamlined permitting mechanisms are limited by fragmented agency practices, complex notification and reporting rules, and the restricted applicability of these mechanisms to only a subset of activities.

FINDING 3-16: When appropriately crafted, streamlined permitting mechanisms can provide a pathway to modernize federal permitting—offering efficiency, predictability, and legal durability while upholding environmental and public safeguards. Reform efforts should focus on expanding, harmonizing, and reinforcing these mechanisms.

268 Agencies can designate project sponsors as nonfederal representatives to aid in the consultation process. With such designation, project sponsors work cooperatively with the Services to evaluate project impacts to listed species or critical habitats and seek Service concurrence (i.e., agreement that the project's impact does not warrant more extensive review).

269 Programmatic consultants means consultation between the lead agency and Services for recurring or routine actions in a particular geographic area. It can be used to predefine how covered activities could impact listed species, as well as associated conservation measures and/or mitigation practices to be implemented, streamlining permitting for routine actions.

270 Under Section 10(a)(1)(B) of the ESA, incidental take permits allow nonfederal entities to conduct otherwise lawful activities that may unintentionally harm listed species, provided they submit a habitat conservation plan (HCP) to minimize and mitigate impacts. HCPs can be developed for individual projects or programmatically through general conservation plans (GCPs), which streamline permitting for routine actions and enhance species conservation with predefined measures.

271 Section 4(d) of the ESA allows the Services to issue rules that customize protections for threatened species to prevent further decline and facilitate recovery. The rules focus on activities that pose real threats to the species, while allowing actions that are unlikely to cause harm. This can reduce unnecessary restrictions and make requirements more predictable.

X. CONCLUSION

The lessons from this chapter point to a single overarching truth: a permitting system that works must balance speed, integrity, and durability. The triple mandate—to build infrastructure efficiently, protect environmental value, cultural resources, and public safety, and engage stakeholders—remains the guiding principle. Likewise, legal durability is not a secondary concern; it is the cornerstone of a system that inspires confidence among project sponsors, investors, and the public. Experience with existing streamlined mechanisms demonstrates both promise and limitations. Tools like NWPs, programmatic consultations, and CEs can accelerate reviews, but inconsistent application across agencies and regions, burdensome notice requirements, and narrow coverage have constrained their effectiveness.

The existing permitting framework, though grounded in decades of statutory and regulatory practice, has guided us to this point without delivering the predictability that modern infrastructure development demands. The historic role played by the framework in shaping environmental oversight is undeniable, but clinging to outdated mechanisms now impedes progress rather than ensuring it. The framework no longer provides certainty in the process or confidence in the outcome. Inconsistent application, shifting policy priorities, and broad judicial remedies have introduced instability that undermines investment and planning. These challenges make clear that efficiency alone is not enough; the system must evolve to guarantee legal durability and permit certainty as foundational principles.

Permit certainty is central to the vision forward. Certainty means that once a permit is lawfully granted, it should remain valid and enforceable absent extraordinary circumstances. Revocations driven solely by changes in political priorities undermine predictability, increase risk, and erode trust in the permitting system. The revocation of the Keystone XL presidential permit after years of planning and investment illustrates this vulnerability: the decision was not based on new environmental findings but on a shift in policy direction and priorities from one presidential administration to another. Such reversals create significant sunk costs, disrupt energy markets, and discourage future investment for needed infrastructure projects, even when projects have met all substantive legal and environmental requirements.

Judicial remedies such as vacatur and universal injunctions have amplified uncertainty in recent years. Vacatur nullifies agency actions entirely, while universal injunctions extend relief far beyond the parties to a case, sometimes halting entire permitting programs nationwide. For example, in 2020, a Montana federal district court vacated NWP 12 on a nationwide basis, enjoining the USACE from authorizing any dredge-and-fill activities under the permit until it completed the necessary consultations under the ESA.[272] This sweeping injunction halted thousands of infrastructure projects across the country, including utility lines and pipelines, and forced the USACE to revert to case-by-case permitting under Section 404 of the CWA.[273] These remedies introduce uncertainty for developers and agencies alike, amplifying risk and slowing progress on critical infrastructure. While judicial oversight is essential, remedies should be appropriately tailored to avoid unnecessary disruption to nonparties and national infrastructure goals.

Taken together, these lessons underscore that efficiency alone is not enough. A durable permitting system must embed legal certainty and stability into its framework. Permitting statutes must evolve to meet contemporary demands. By ensuring that permits remain reliable authorizations, the permitting system can achieve its core objectives: enabling timely development, safeguarding environmental protections and public safety, and maintaining public confidence. Certainty and stability are the foundation for a permitting system that works and a prerequisite for the nation's ability to meet its energy, infrastructure, and environmental goals. In doing so, the permitting process can evolve from a system vulnerable to litigation and delay to a proactive model that supports national infrastructure goals, protects public values, and delivers durable legal outcomes.

272 *Northern Plains Res. Council v. U.S. Army Corps of Eng'rs*, 460 F. Supp. 3d. 1030 (D. Mont. 2020).

273 In 2025, the Supreme Court addressed the legitimacy of such universal injunctions. In *Trump v. CASA*, the Court held that federal courts lack equitable authority under the Judiciary Act of 1789 to issue injunctions that extend beyond the plaintiffs with standing and remedies must be tailored to the parties before the court. Despite this holding, the Court's decision left open the possibility of issuing nationwide relief through class actions, potentially shifting the strategic landscape for both challengers and regulators.

XI. CASE STUDIES

Case Study 1: Atlantic Coast Pipeline

The Atlantic Coast Pipeline (ACP) was a proposed 600-mile natural gas pipeline intended to transport Appalachian shale gas from West Virginia through Virginia to North Carolina. Initially estimated to cost $4.5 billion – $5 billion, the project faced intense legal scrutiny and public opposition from its inception in 2014. Despite securing multiple federal permits, winning a key Supreme Court case in 2020 allowing the pipeline to cross the Appalachian Trail, and having already installed 31.4 miles of pipe, other permits remained under review, vacated, or reissued, creating a cycle of repermitting and relitigation. The project developers concluded that the permitting process had become a moving target, with no clear path to completion. The project was ultimately canceled in July 2020 due to persistent litigation, regulatory uncertainty, and ballooning costs—estimated at $8 billion by the time of cancellation. The ACP case highlights how the current federal permitting framework can be leveraged to delay projects indefinitely, even after favorable judicial outcomes.

Project Name	Atlantic Coast Pipeline
Geography	West Virginia, Virginia, North Carolina
Federal Statutes Involved	NEPA, ESA, CWA Section 404, National Forest Management Act
Lead Federal Agency	FERC, U.S. Forest Service, U.S. Fish and Wildlife Service
Review Type	Environmental Impact Statement (EIS), Biological Opinion, Forest Crossing Permit
Court of Litigation	U.S. Court of Appeals for the Fourth Circuit; U.S. Supreme Court
Litigation Outcome	Fourth Circuit Court of Appeals vacated U.S. Forest Service and U.S. Fish and Wildlife permits—failures to meet NEPA and ESA standards (halted construction) U.S. Supreme Court upheld Appalachian Trail crossing permit
Project Outcome	Canceled in July 2020
Time Impact	6 years from proposal to cancellation (2014–2020)
Cost Impact	Estimated increase from $4.5B to $8B due to delays and legal uncertainty
Key Takeaway	Illustrates how each permit creates separate litigation that can be used to undermine project viability—even after favorable Supreme Court rulings. Illustrates how permit vacatur—even when later reversed—can derail project timelines and investor confidence. U.S. District Court vacatur of NWP 12 in Keystone XL litigation created legal uncertainty for ACP's reliance on NWP 12.

Table 3-5. *Case Study 1 Summary Table*

Case Study 2: Rio Grande LNG

The Rio Grande LNG project is a multiphase liquefied natural gas export terminal expected to produce up to 27 million metric tons per annum (MMTpa) of LNG for global export. The project includes the Rio Bravo Pipeline, designed to transport natural gas from the Agua Dulce Hub to the export terminal in Brownsville, Texas. The federal permitting process began in 2015 and involved extensive environmental review under NEPA. After initial FERC approval in 2020, the Rio Grande LNG project faced legal setbacks over environmental justice and climate analysis. Reauthorization in 2023 led to further challenges, with the D.C. Circuit vacating the reauthorization in 2024, reinstating it in 2025, and prompting FERC to issue a Final Supplemental EIS and reaffirm approval in October 2025. Despite legal setbacks, construction continued during the appeals process. Though ongoing appeals, rehearing requests, and possible Supreme Court hearing remain on the horizon, on October 16, 2025, the developer made a positive final investment decision on Train 5 at Rio Grande LNG, the final train for this phase of the project, and issued full notice to proceed with construction.

Project Name	Rio Grande LNG
Geography	Brownsville, Texas
Federal Statutes Involved	NEPA, Clean Air Act, Natural Gas Act, Coastal Zone Management Act
Lead Federal Agency	FERC
Review Type	Environmental Impact Statement (EIS), Supplemental EIS
State Permitting Authorities	TCEQ, Texas General Land Office, Local Governments
Court of Litigation	D.C. Circuit Court of Appeals
Litigation Outcome	D.C. Circuit remanded FERC approval for NEPA deficiencies (2021); second appeal, D.C. Circuit vacated FERC reapproval (2024) then reinstated the approval while FERC addressed EIS deficiencies (March 2025)
Project Outcome	FERC authorizations reinstated; construction ongoing
Time Impact	2015–TBD (ongoing)
Cost Impact	No cost impact announced attributable to the delays from litigation and procedural remands
Key Takeaway	Illustrates need for clarity on when a court should vacate FERC's project approval due to procedural missteps and not because of substantive environmental harm. Illustrates how courts can require new supplemental environmental impact statements, leading to repeated cycles of analysis and public comment. Illustrates how multiple, sequential agency reviews allowed each approval to be challenged in federal court, prolonging uncertainty even after initial approvals.

Table 3-6. *Case Study 2 Summary Table*

Case Study 3: Constitution Pipeline

The Constitution Pipeline was a proposed 124-mile natural gas pipeline designed to transport up to 650 million cubic feet per day from the Marcellus Shale in Pennsylvania to New York. Initially approved by FERC in 2014, the project faced immediate opposition from the State of New York, which denied a critical water quality certification under Section 401 of the CWA in 2016. This denial triggered a prolonged legal battle that ultimately reached the U.S. Supreme Court, which declined to hear the case in 2018, leaving the state's denial intact. FERC later ruled that New York had waived its Section 401 authority by delaying its decision, but the ruling came too late to salvage the project. Despite favorable rulings from FERC and the D.C. Circuit on procedural grounds, the project was canceled in early 2020 due to regulatory uncertainty and escalating costs—rising from an initial estimate of $700 million to nearly $1 billion.

Project Name	Constitution Pipeline
Geography	Pennsylvania to New York
Federal Statutes Involved	Clean Water Act (Section 401), Natural Gas Act
Lead Federal Agency	Federal Energy Regulatory Commission (FERC)
Review Type	Environmental Impact Statement (EIS), Water Quality Certification
Court of Litigation	Second Circuit Court of Appeals, D.C. Circuit, U.S. Supreme Court
Litigation Outcome	Second Circuit upheld state water quality certification denial; U.S. Supreme Court declined review
Project Outcome	Canceled in February 2020
Time Impact	8 years from proposal to cancellation (2012–2020)
Cost Impact	Estimated increase from $700M to nearly $1B due to delays
Key Takeaway	Demonstrates how a state can abuse cooperative federalism under the Clean Water Act to override federal approvals and strategically delay or cancel projects. Demonstrates how a state permitting agency can use procedural tools to strategically block projects, arguably exercising state discretion.

***Table 3-7.** Case Study 3 Summary Table*

Case Study 4: Keystone XL Pipeline

The Keystone XL Pipeline was a proposed 875-mile crude oil pipeline intended to transport up to 830,000 barrels per day of crude oil from Alberta, Canada, to Steele City, Nebraska, connecting to existing infrastructure for delivery to Gulf Coast refineries. At the time of its initial proposal in 2008, the project was estimated to cost approximately $7 billion. Despite multiple federal approvals—including Presidential Permits issued in 2008, 2017, and 2019—the project faced persistent legal challenges under NEPA, ESA, and CWA. Litigation in the U.S. District Court for Montana vacated key permits, including USACE NWP 12, citing inadequate environmental review and failure to consult with the USFWS, halting construction. The project was ultimately canceled in June 2021 after President Biden revoked the permit.

Project Name	Keystone XL Pipeline
Geography	Alberta, Canada → Montana, South Dakota, Nebraska
Federal Statutes Involved	NEPA, ESA, CWA Section 404, Presidential Permit Authority
Lead Federal Agency	U.S. State Department, U.S. Army Corps of Engineers
Review Type	Environmental Impact Statement (EIS), Nationwide Permit 12
Court of Litigation	U.S. District Court for the District of Montana
Litigation Outcome	U.S. District Court for Montana vacated NWP 12 in 2020, citing failure to consult under ESA; Presidential Permit revoked; litigation mooted
Project Outcome	Canceled in June 2021
Time Impact	13 years from initial proposal to cancellation (2008–2021)
Cost Impact	$2.4 billion spent for permitting, land acquisition, litigation
Key Takeaway	Illustrates how overlapping statutory requirements, shifting executive policies, and persistent litigation can be fatal for long-term infrastructure investments—even when initial permits are secured. Demonstrates how the federal permitting framework can enable delay tactics through litigation, even after multiple agency approvals. Illustrates how a project-specific challenge to NWP12 can trigger nationwide regulatory disruption and how litigants may use it as leverage to enforce broader environmental compliance. Demonstrates need for standards on issuance and revocation of permits.

Table 3-8. *Case Study 4 Summary Table*

Case Study 5: GTN Xpress Project and Regional Energy Access Project

The Gas Transmission Northwest LLC (GTN) XPress Project in the Pacific Northwest and the Regional Energy Access Project (REAP) in the Northeast are recent examples of natural gas pipeline expansions that have undergone federal permitting and faced legal challenges following the approval of FERC. Each project faced litigation focused on several key issues, including the adequacy of environmental review, consistency with state climate policies, and the sufficiency of evidence supporting market need for additional pipeline capacity. Both projects relied upon precedent agreements to demonstrate the market need.

Project Name	GTN XPress Project (Pacific Northwest)	Regional Energy Access Project (Northeast)
Geography	Idaho, Washington, Oregon	Pennsylvania, New Jersey, Maryland
Federal Statutes Involved	NEPA, Clean Air Act, Natural Gas Act, Administrative Procedure Act (APA)	NEPA, Clean Air Act, Natural Gas Act, APA
Lead Federal Agency	FERC	FERC
Review Type	EIS, Air Permit Reviews, Certificate of Public Convenience & Necessity	EIS, Air Permit Reviews, Certificate of Public Convenience & Necessity
Court of Litigation	Fifth Circuit Court of Appeals, FERC	D.C. Circuit Court of Appeals, FERC
Litigation Outcome	Fifth Circuit affirmed FERC certificate (Oct. 2025); upholding FERC's determination of public need and NEPA analysis	D.C. Circuit vacated FERC approval (July 2024); FERC reinstated certificate (Jan. 2025); D.C. Circuit denied en banc rehearing (Jan. 2025)
Project Outcome	Operational; construction completed 2024	Operational; construction completed 2024
Time to Completion	~5 years (2019–2024)	~4 years (2021–2024)
Cost Impact	Impact of delays not publicly disclosed.	Impact of delays not publicly disclosed.
Key Takeaways	Despite going into service in 2024, the Fifth Circuit issued its decision in October 2025, creating legal risk beyond project completion. Cost allocation and market need are now as critical as NEPA compliance in pipeline permitting disputes.	Despite being largely operational, the Court vacated the FERC certificate based on market need and NEPA concerns, creating regulatory uncertainty until FERC acted. Courts may not solely rely on precedent agreements to demonstrate market need in light of competing market studies and state climate laws.

Table 3-9. *Case Study 5 Summary Table*

Case Study 6: Boardman to Hemingway Transmission Line

The Boardman to Hemingway Transmission Line (B2H) is a 500-kilovolt (kV), 300-mile transmission project proposed to connect Boardman, Oregon, to the Hemingway Substation near Melba, Idaho, to improve regional grid reliability and integrate renewable energy. The project began in 2007 and required approvals from at least nine federal agencies and multiple state entities. Federal reviews included NEPA, ESA, CWA, NHPA, and the Federal Land Policy and Management Act of 1976 (FLPMA), with Records of Decision issued by BLM, USFS, and the U.S. Navy. State-level reviews involved Oregon's Energy Facility Siting Council (EFSC), Oregon Department of Energy, and public utility commissions (PUCs) in both Oregon and Idaho. The project was also designated a FAST-41 Covered Project to improve interagency coordination. Despite these efforts, the permitting process spanned nearly two decades, undergoing extensive environmental review, public engagement, and interagency coordination. After nearly 19 years of permitting, the project began construction in June 2025, with energization expected by 2027.

Project Name	Boardman to Hemingway Transmission Line (B2H)
Geography	Boardman, Oregon, to Melba, Idaho
Federal Statutes Involved	NEPA, ESA, CWA Section 404, NHPA, FLPMA, Energy Policy Act Section 216(h)
Lead Federal Agency	BLM, USFS, U.S. Navy, USACE, USFWS
Review Type	Environmental Impact Statement (EIS), FAST-41 Coordination
State Permitting Authorities	Oregon EFSC, Oregon DOE, Oregon and Idaho PUCs
Court of Litigation	Oregon Supreme Court
Litigation Outcome	Oregon Supreme Court upheld Oregon EFSC Site Certificate; no major federal litigation
Project Outcome	Approved; construction expected to begin in 2025
Time Impact	20 years (2007–2027 projected)
Cost Impact	Not publicly disclosed; delays attributed to permitting complexity
Key Takeaway	Illustrates how fragmented permitting leads to duplicative reviews across multiple federal and state agencies. Illustrates the limitations of the FAST-41 process; despite federal coordination among nine federal agencies and successfully obtaining federal Records of Decision, state-level litigation and permitting remained a bottleneck for the project.

Table 3-10. *Case Study 6 Summary Table*

Case Study 7: PennEast Pipeline

The PennEast Pipeline was a proposed 116-mile natural gas pipeline designed to transport Marcellus Shale gas from Luzerne County, Pennsylvania, to Mercer County, New Jersey. Initially approved by FERC in 2018, the project faced intense legal opposition from the State of New Jersey and environmental groups. New Jersey challenged PennEast's authority to exercise federal eminent domain over state-owned land, citing sovereign immunity under the Eleventh Amendment. The U.S. Supreme Court ruled 5–4 in favor of PennEast, holding that NGA §717f(h) authorizes FERC certificate holders to condemn state-owned land for pipeline construction. The State of New Jersey also refused to issue water quality permits, citing environmental concerns and incomplete application materials. The Delaware River Basin Commission (DRBC) held extensive public comment sessions and faced pressure from environmental groups to deny the project. The DRBC's slow review and lack of clear approval created further uncertainty. In September 2021, PennEast canceled the project, citing the inability to secure state-level permits and regional approvals, despite prevailing in the Supreme Court.

Project Name	PennEast Pipeline
Geography	Pennsylvania to New Jersey
Federal Statutes Involved	Natural Gas Act (NGA), Clean Water Act (CWA), Eleventh Amendment
Lead Federal Agency	FERC
Review Type	Environmental Impact Statement (EIS), Certificate of Public Convenience
Court of Litigation	U.S. District Court for New Jersey, Third Circuit Court of Appeals, U.S. Supreme Court
Litigation Outcome	Supreme Court upheld federal eminent domain over state lands
Project Outcome	Canceled in September 2021
Time Impact	6 years from application to cancellation (2015–2021)
Cost Impact	Not publicly disclosed
Key Takeaway	Illustrates that Supreme Court victories cannot guarantee project completion when state-level permitting and litigation remain unresolved. State CWA 401 permits give states veto power for federally authorized and approved projects, even those determined to meet regional energy needs. Illustrates the challenges when multiple agencies do not coordinate, conducting their own review of the same information, data, and potential impacts. No entity is responsible for or authorized to resolve conflicts.

Table 3-11. *Case Study 7 Summary Table*

Case Study 8: Seneca Lakes Underground Storage Project

The Seneca Lakes Underground Storage Project was a proposed expansion of underground natural gas and LPG storage in salt caverns near Seneca Lake, NY. The project required both federal (FERC) and state (New York State Department of Environmental Conservation (NYS DEC)) approvals. FERC had jurisdiction over the natural gas storage and granted a certificate of public convenience and necessity in 2014. The LPG storage component required a separate permit from the NYS DEC, triggering a state-level environmental review and administrative hearing process. From the outset, the project faced strong opposition from residents, environmental groups, and municipalities. Concerns centered on the risks to drinking water, seismic activity, and other safety concerns. Following a contested state agency hearing, the NYS DEC denied the LPG storage permit. The project was abandoned in 2018.

Project Name	Seneca Lakes Underground Storage Project
Geography	Seneca Lake, Schuyler County, NY
Federal/State Statutes Involved	Natural Gas Act (NGA), NEPA, NY Environmental Conservation Law
Lead Federal/State Agency	FERC (methane), NYS Department of Environmental Conservation (LPG)
Review Type	FERC Certificate, State Environmental Review, Administrative Hearing
Court/Agency of Litigation	FERC, NYS DEC, NYS DEC Administrative Law Judge
Litigation Outcome	FERC rehearing requests denied; NYS DEC permit denied after contested agency hearing
Project Outcome	Abandoned in 2018 after state permit denial
Time Impact	8 years from initial proposal (2010–2018)
Cost Impact	Not publicly disclosed
Key Takeaways	Demonstrates how state-level authority and public opposition can override federal approval of an important energy infrastructure project. Projects can experience an extensive administrative process, including contested hearings and strong grassroots activism during an agency's review, signaling a likelihood of lengthy litigation. Illustrates the need for permitting frameworks to balance economic development, environmental protection, and public engagement.

***Table 3-12.** Case Study 8 Summary Table*

Chapter 4

POLICY SOLUTIONS FOR TIMELY, EFFICIENT INFRASTRUCTURE EXPANSION

I. INTRODUCTION

A. Abstract

Since the NPC published *Dynamic Delivery: America's Evolving Oil and Gas Infrastructure* in 2019, economic and geopolitical shifts have reinforced the report's central conclusion: Expanding U.S. oil and natural gas transport infrastructure is essential for economic and energy security. That report also found that permitting delays were constraining timely infrastructure development, a challenge that persists despite reform efforts.

This study finds that projects remain burdened by processes that add delay and uncertainty, ultimately raising costs for consumers and weakening national security. This chapter offers recommendations for reforming the permitting system to enable the timely development of infrastructure that is critical to American interests while protecting the environment.

Building on findings from *Dynamic Delivery*, this study responds to the economic, technological, and geopolitical changes that have reshaped America's energy landscape and to the continuing challenge of aligning the permitting system with national interests. This chapter presents a vision of a modernized framework that fulfills a triple mandate for industry and government: to build critical infrastructure efficiently, to protect environmental and community interests with strong standards, and to engage the public transparently.

The following sections examine how recent developments have reinforced the importance of oil and gas infrastructure, analyze why current permitting processes continue to fall short of national needs, and present recommendations for both immediate improvements and more innovative reform through a new system of standardization and compliance-based permitting for linear infrastructure. Though the scope of this study is focused on reforms to enable more efficient approvals for oil and natural gas infrastructure, its recommendations would be beneficial across other types of energy projects as well.

B. Paramount Importance of U.S. Energy Infrastructure

The inability to efficiently develop infrastructure in response to demonstrated or projected market demand harms U.S. interests by increasing energy costs, diminishing energy reliability, and impeding national security objectives. Events since 2019 have underscored the paramount importance of U.S. oil and natural gas infrastructure to national prosperity and global stability. The 2022 European energy crisis demonstrated the indispensability of U.S. exports for allied

nations and global market balances. The United States became the largest source of liquefied natural gas (LNG) imports to the European Union in 2024, displacing Russian natural gas volumes after energy sanctions were imposed on Moscow following its invasion of Ukraine.

U.S. LNG has become invaluable as Russian gas supplies to Europe via pipeline have been curtailed. Only one of four Russian supply pipeline networks remains online as of November 2025,[274] leaving Russian piped gas volumes to the continent down 87% from prewar levels. During the second half of this decade, the United States is scheduled to add approximately 14 Bcf/day of LNG export capacity, more than doubling today's rate and enabling an even greater ability to supply international customers.

A surge in domestic energy demand is testing the capabilities of existing infrastructure, especially the natural gas production and delivery system. U.S. electricity demand is forecast to grow by more than 2% annually in coming years, reaching 4,311 billion kWh as soon as 2026.[275] Key drivers are power consumption from AI data centers, onshoring of manufacturing, and greater residential usage. Residential electricity prices have been rising since 2021, marking a shift from prior years with relative price stability. A lack of adequate energy infrastructure capacity in certain regions of the country has exacerbated this trend.

Simultaneously, the accelerating expansion of data centers, driven by the growth of AI, is creating unprecedented electricity demand. The commercial viability of this buildout depends on timely and robust transmission expansion, efficient interconnection processes, and expanding natural gas generation capacity and pipeline infrastructure. Expanding these systems is essential for ensuring reliable electricity supply, grid stability, and competitive energy costs.

The findings of the 2025 NPC study *Reliable Energy: Delivering on the Promise of Gas-Electric Coordination*[276] reinforce the urgency of this alignment: The nation's natural gas and electric sectors are now deeply interdependent, with infrastructure constraints and coordination gaps posing significant risks to reliability, resilience, and affordability. As detailed in the study, healthy alignment between the two sectors depends on robust, "fit-for-purpose" infrastructure, clear accountability, and long-term planning to ensure that fuel availability and electric system performance remain synchronized. These lessons underscore that accelerating the buildout of power infrastructure through permitting reforms is not only critical for meeting AI-driven electricity demand but also for preserving reliability in an increasingly interconnected, growing energy system.

Plentiful U.S. natural gas is an important source of energy security and affordability. It is easily stored and can be transported domestically via pipeline or internationally as LNG. Natural gas emits less carbon dioxide than other baseload energy sources, and given that it is a dispatchable resource, it complements intermittent renewable sources such as wind and solar power when used to generate electricity.

America's ability to build infrastructure at pace and in response to market demand will help determine our economic growth and national power trajectories. Yet, many of the challenges identified in 2019—permitting delays, procedural complexity, and project uncertainty—continue to constrain new capacity additions and thus jeopardize U.S. national interests and its aspiration of energy dominance.

C. Persistent Permitting Challenges

Chapter 3 of this report found that the U.S. oil and gas infrastructure permitting process has evolved from a procedural environmental safeguard into a bureaucratic structure that does not deliver the predictability that modern infrastructure development demands. Today's permitting process exposes infrastructure development to uncertain and lengthy timelines to fulfill process mandates that do not necessarily foster

274 AgroReview. "Russian Gas Exports to Europe Reach Historic Low in 2025." November 3, 2025. https://agroreview.com/en/newsen/russian-gas-exports-europe-reach/.

275 EIA. "Short-Term Energy Outlook Data Browser. U.S. Electricity Industry Overview; Total Electricity Consumption (billion kilowatthours)." https://www.eia.gov/outlooks/steo/data/browser/#/?v=19&f=A&s=0&maptype=0&ctype=linechart. Retrieved November 27, 2025.

276 NPC. "Reliable Energy: Delivering on the Promise of Gas-Electric Coordination." 2025. https://gas-electric.npc.org/.

better environmental performance. The significant redundancies in the permitting processes create inefficiencies and consume industry and government resources without necessarily meaningfully improving environmental outcomes.

A modernized permitting system must replace procedural redundancy with timely approvals and substantive accountability. Permitting reform must preserve the environmental safeguards and participatory processes that maintain public trust, even as it streamlines the redundant procedures that delay critical projects.

In addition, today's lengthy permitting procedures generate multiple opportunities for litigation on the basis of procedural errors. As a result, infrastructure project developers, regardless of energy type, as well as agency personnel processing permit authorizations, must assume and plan for potential multiyear litigation after the issuance of permits. Such litigation has become, in effect, part of the U.S. permitting process, even though data show that only a small percentage of claims are successful.

D. Lessons from Streamlining Mechanisms

Fortunately, several mechanisms already exist in federal and state law that speed infrastructure development while maintaining environmental standards, including Nationwide Permits issued by the U.S. Army Corps of Engineers (USACE), General Permits from the Environmental Protection Agency (EPA), and Permit-by-Rule (PBR) from the Texas Commission on Environmental Quality.

These programs share common traits: clear eligibility criteria, standardized conditions, and predictable compliance obligations, all of which meet the triple mandate with efficient construction, environmental protection through compliance mechanisms, and monitoring and enforcement standards after permitting issuance.

Unfortunately, the use of such high-efficiency mechanisms has been limited. Only certain states and federal agencies have adopted them, often with narrow eligibility criteria. And without complementary reforms to limit litigation and other project risks, they are insufficient to deliver on U.S. energy infrastructure buildout needs.

Additionally, other attempts to expedite infrastructure permitting through enhanced transparency and agency coordination have not been fully optimized. For example, FAST-41—the 2015 legislatively established process that attempted to improve federal agency coordination and timeliness of environmental reviews for infrastructure projects—leveraged earlier versions of permit reform that incorporated similar coordination mechanisms for transportation projects through the 1998 Transportation Equity Act for the 21st Century. Despite FAST-41 pushing for increased transparency and visibility in the permitting process, it failed to drive broad substantive improvement, as the underlying permitting framework was left unchanged.

FAST-41's limited practical utility contributed to its underutilization and further highlighted the challenges of working under the current permitting process model. Additional steps to deliver bold, comprehensive reform that addresses problems in the current framework while protecting our nation's environment and maintaining public engagement are needed.

E. Report Recommendations

A central premise of this report and its recommendations is meeting a triple mandate for energy infrastructure:

- **Build:** Enable timely, responsible construction of energy infrastructure that serves national objectives.
- **Protect:** Ensure continued environmental and safety safeguards and risk mitigation through smarter, not slower, regulation.
- **Engage:** Sustain public participation and accountability through transparent, standardized processes.

Clarity, predictability, transparency, and accountability should replace the ambiguity, uncertainty, and inefficiency that characterize the current approach. Achieving this shift to a process that sets clear rules for infrastructure development, earns public trust, and provides long-term stability for developers will be challenging, but is a challenge worth undertaking.

The NPC urges Congress and the administration to ambitiously pursue comprehensive permitting reform so that project developers can expect a timely and reliable license to build when they follow clearly defined standards and comply with all applicable environmental and other statutes.

The following sections offer recommendations that would meaningfully improve today's permitting framework. This information is presented in two sections:

- **First, NPC has identified targeted recommendations to improve permitting processes and outcomes in the near term, until more comprehensive reform efforts are adopted.** This includes suggested legislative improvements to the National Environmental Policy Act (NEPA), the judicial review process, and the Clean Water Act (CWA), and administrative actions that can be taken to facilitate infrastructure development through programs operated under existing law.
- **Second, this report offers a new vision for interstate infrastructure permitting designed to accelerate approvals while maintaining environmental protection and community engagement.** If adopted, this approach would streamline the permitting process for linear projects through reliance on clear environmentally protective standards and compliance.

The reform ideas offered herein are immediate and longer-term actions that can yield positive results for the nation. Acting on these recommendations will reduce procedural barriers and limit the interruption of the critical infrastructure development that is needed to serve the public. By restoring the nation's capacity to deliver timely and responsible projects, the United States can reduce consumer costs, fuel economic growth, and strengthen national security at home and abroad.

II. TARGETED RECOMMENDATIONS TO IMPROVE PERMITTING PROCESSES IN THE NEAR TERM

Recommendation 1: Clarify NEPA's Purpose and Scope through Legislative Action

RECOMMENDATIONS:

- The NPC recommends that Congress amend NEPA to clarify the law's procedural nature and the requirement to focus only on direct environmental impacts of proposed projects within the reviewing agency's legal authority.

1. Detailed Explanation

This recommendation calls for Congress to clarify NEPA's role as an important tool in informing agencies of the potential environmental impacts of their major actions. This legislative undertaking would ensure that NEPA remains an effective, informational, and procedural statute without serving as a barrier to efficiently developing energy infrastructure needed to serve the public.

The Supreme Court's 2025 decision in *Seven County Infrastructure Coalition v. Eagle County, Colorado* clarified that NEPA:

- "[I]s a purely procedural statute that ... simply requires an agency to prepare an EIS—in essence, a report."
- "[I]s a procedural cross-check, not a substantive roadblock. The goal of the law is to inform agency decisionmaking, not to paralyze it."
- "[I]mposes no *substantive* constraints on the agency's ultimate decision to build, fund, or approve a proposed project. So when reviewing an agency's EIS, 'the only role for a court' is to confirm that the agency has addressed environmental consequences and feasible alternatives as to the relevant project."
- "[C]alls for the agency to focus on the environmental effects of the project itself, not on the potential environmental effects of future or geographically separate projects."

The *Seven County* ruling held that courts should afford "substantial deference" to an agency as to the scope and contents of an environmental impact statement (EIS). Once an agency has issued a permit or completed the NEPA process, judicial review should be limited to procedural adequacy. These proposed legislative reforms to the judicial process are addressed in Recommendation 2.

2. Benefits

- Helps relieve agencies of the burden to "litigation proof" NEPA reports by clarifying in statute the scope of NEPA reviews and better enables them to meet NEPA's statutory requirements concerning page length and compliance deadlines.
- Supports more focused and concise NEPA reviews, reducing overall permitting timelines, and bringing needed infrastructure online faster.
- Reinforces Tribal authority over projects on trust lands and prevents misuse of NEPA to obstruct Tribally supported projects.
- Provides greater certainty for project developers of all infrastructure types.

3. Actions Required to Implement

- Congress should amend NEPA's statutory definitions to focus environmental reviews on direct and reasonably foreseeable impacts within a reviewing agency's statutory authority, consistent with *Seven County*.
- Congress should clarify that under NEPA, an agency is not required to analyze environmental effects from upstream or downstream projects that are separate in time and space from the project at hand.
- Congress should direct federal agencies to adopt a Determination of NEPA Adequacy

process, allowing agencies to rely on existing environmental analyses for projects in previously studied or disturbed areas.

- Congress should clarify limits on agency discretion regarding review timelines and should enforce strict timelines around Notice of Intent publication.

4. Related Recommendations

- Congress should amend NEPA to provide distinct treatment for projects located on Tribal trust lands. Tribal trust lands are held in trust by the United States for the benefit of specific Tribes, not the general public. NEPA should be amended to ensure that, for projects on Tribal trust lands, NEPA is used principally for the benefit of and to inform Tribes, and not as a vehicle for unrelated third parties to control the use of Tribal property or delay or defeat Tribally supported projects.
- Congress should direct the Council on Environmental Quality (CEQ) to ensure that all agency NEPA-implementing regulations or procedures are reflective of these legislative changes.
- Congress should clarify that duly issued permits should not be revoked or vacated on policy grounds, absent a separate finding of substantive noncompliance, material new facts, or a change in law.

Recommendation 2: Enact Judicial Reforms to Streamline Environmental Litigation and Increase Transparency

RECOMMENDATIONS:

- The NPC recommends that Congress amend NEPA and all substantive environmental statutes to implement judicial reforms to expedite permitting litigation and reduce uncertainties within the litigation process.

1. Detailed Explanation

The existing judicial framework for environmental permitting has become a significant source of delay, uncertainty, and inconsistency for critical infrastructure projects. Though NEPA and related substantive environmental statutes were designed to ensure informed decision-making, litigation under these laws has increasingly been used as a tool to obstruct rather than improve agency decision processes. Congress should therefore implement comprehensive judicial reforms to clarify the scope, timing, and process of judicial review in environmental permitting cases, promoting both accountability and efficiency while preserving the opportunity for legal review.

Under the proposed NEPA reforms detailed previously, courts would retain their oversight role but be limited to procedural review, ensuring that agencies have fulfilled their informational obligations. Specifically, courts should be empowered only to instruct agencies to correct deficiencies or provide additional explanations in environmental review documents, rather than to vacate permits or issue injunctions that halt construction and delay infrastructure development. The remedy in NEPA cases should be limited to remand without vacatur, ensuring that projects can proceed while procedural corrections are made.

Judicial reform should also enhance transparency and fairness in environmental litigation. To this end, Congress should clarify standing requirements to ensure that only parties with a direct, concrete interest and who have meaningfully participated in the administrative process may bring NEPA challenges. This reform would preserve legitimate oversight while reducing procedural abuse. Additionally, legislative language should support transparency in the allocation of litigation-related costs to ensure equitable access to justice while preventing the use of repetitive suits to delay projects of national interest. This would address long-standing inequities in the litigation process without explicitly invoking statutory compensation mechanisms.

Finally, Congress should strengthen judicial efficiency through structural reforms that centralize environmental litigation and promote consistency. Designating jurisdiction in the federal district court located in the state—or adjacent state for offshore projects—where the infrastructure is sited for infrastructure-related cases as well as imposing clear timelines and statutes of limitation would bring uniformity to judicial outcomes, reduce forum-shopping, and ensure that litigation proceeds expeditiously. Together, these reforms would modernize environmental litigation to support a transparent, fair, and efficient process that balances environmental stewardship with national infrastructure and energy security goals.

2. Benefits

- Reduces the risk that permits will be vacated or enjoined due to procedural errors, ensuring project timelines and investments remain stable.
- Expedites litigation resolution and reduces inconsistent rulings through the use of centralized venues and deadlines.

3. Actions Required to Implement

NEPA-Specific Judicial Reforms

- Congress should enact legislation establishing that judicial remedies under NEPA are limited to remand without vacatur, and limit

injunctions to cases of imminent environmental harm.

- Congress should clarify standing requirements for NEPA challenges, restricting suits to parties with a direct, concrete interest and who have meaningfully participated in the administrative process.

Broader Judicial Reforms

- Congress should authorize segmentation of project construction so that portions of infrastructure projects unaffected by litigation may proceed while localized permitting concerns are addressed.
- Congress should legislate broader judicial reforms to improve consistency and efficiency:
  - Designate jurisdiction in the federal district court located in the state—or adjacent state for offshore projects—where the infrastructure is sited for infrastructure and NEPA-related cases.
  - Establish a 180-day statute of limitations for judicial challenges to permit issuances unless a shorter statute of limitations is already codified. Direct courts to adhere to expedited timelines for decisions.
  - Prohibit plaintiffs from raising new issues in court that were not raised during agency comment periods.
  - Expressly grant the permit applicant or beneficiary of the agency approval the right to appeal a remand order, including scenarios where the federal agency does not appeal the remand order.

4. Challenges to Implementation

- Courts may view legislative restrictions on vacatur and injunction authority as encroachments on judicial discretion.
- Advocacy groups may argue that narrowed standing and expedited timelines limit public participation.

5. Related Recommendations

Congress should include provisions promoting transparency in litigation-related cost allocation to deter repetitive or frivolous lawsuits to both ensure equitable access to justice and prevent misuse of environmental statutes for non-environmental objectives.

Recommendation 3: Limit the Scope of Clean Water Act Section 401 Review Authority

RECOMMENDATIONS:

- The NPC recommends that EPA issue a final rule and Congress amend the CWA Section 401 to explicitly limit the scope of state water quality certification review and conditions for federally licensed or permitted interstate energy infrastructure projects to only those factors that are directly related to water quality impacts.

1. Detailed Explanation

This recommendation directly addresses the challenge of using Section 401 water certifications to veto otherwise federally approved projects by narrowing the legal grounds upon which a state can deny or condition a certification for an interstate pipeline. By restricting the scope of review to water quality impacts, it prevents states from using their Section 401 authority as a proxy for broader policy positions, such as climate change concerns related to the use of the resource being transported, or non-water quality-related aspects of the project's construction. Furthermore, reinforcing the strict, nonextendable one-year deadline eliminates the primary procedural mechanism states have historically used to effectively stall or force the abandonment of projects without issuing an outright denial. Together, these changes ensure that state water quality concerns are met, as intended by the CWA, without allowing the certification process to become an instrument for a state veto of interstate projects already approved under federal law.

Additional complex issues with implementation of delegated 401 authority exist. They are not addressed here but could be considered in a future study.

This revised framework must:

- Strictly limit the scope of certification review to whether the federally licensed or permitted interstate energy infrastructure activity complies with applicable state, Tribal, and federal water quality standards (e.g., effluent limitations, water quality-related criteria). Exclude consideration of non-water quality impacts, such as general climate policy, air emissions, and overall economic need for the project.
- Reinforce and clarify the one-year statutory deadline for state or Tribal action on a certification request, specifying that this deadline is nontolling and cannot be restarted by procedural maneuvers, voluntary applicant withdrawals, or incomplete information requests once a request is deemed filed by the federal licensing agency.
- Establish a clear and immediate waiver of certification authority if the state or Tribe fails to act within the one-year statutory period or if a denial is based on factors demonstrably outside the defined water quality scope of review. The federal licensing agency (e.g., FERC) should be given the nondiscretionary authority to issue the federal license or permit following such a determination.
- If the conditions placed on a certification approval are demonstrably outside the defined water quality scope of review, authorize the federal licensing agency (or EPA) to determine whether to include those conditions into the federal authorization.

2. Benefits

- Provides clear, predictable rules for both project proponents and regulators, reducing ambiguity and litigation.
- Accelerates the permitting timeline for vital interstate energy and transportation infrastructure projects.
- Facilitates the safe and reliable transport of oil and natural gas across state lines, supporting national energy goals.

- Restores the balance of authority and objectives of cooperative federalism by respecting state and Tribal authority over water quality issues, while respecting federal authority over interstate commerce.
- Minimizes costly delays associated with protracted certification disputes and procedural roadblocks, potentially lowering costs for consumers.

3. Actions Required to Implement

- The EPA should put into effect CWA Section 401 implementing regulations, specifically defining the scope of review and reinforcing the nontolling, one-year deadline for interstate pipeline projects.
- The EPA and federal licensing agencies (e.g., FERC, USACE) should issue joint guidance documents explaining to states/Tribes and applicants how the new scope of review and waiver mechanisms will be applied in practice for interstate pipeline certifications.
- Federal and state/Tribal agencies involved in the Section 401 process should train permitting personnel on the new regulatory requirements, particularly regarding what constitutes a valid water quality-related condition or denial.
- Congress should enact legislation amending CWA Section 401 to codify the changes adopted in EPA's final rule as recommended previously.
- Congress should authorize the lead federal agency, on a nondiscretionary basis, to issue a federal certification upon a state or Tribal Section 401 authority failing to act within the one-year deadline or by issuing a decision outside permissible water quality scope.

4. Challenges to Implementation

- States may oppose the new rule or law as an overreach and infringement on their traditional water quality authority under the CWA, potentially leading to legal disputes.
- States might attempt to develop new procedural mechanisms or utilize ambiguous legal language to continue delaying or effectively denying certifications even within the newly limited scope.

Recommendation 4: Revise and Expand General Permits and Categorical Exclusions

RECOMMENDATIONS:

- The NPC recommends that agency heads, in coordination with CEQ, revise existing general permits and categorical exclusions to maximize their utility by other agencies and issue new general permits and categorical exclusions for routine oil and gas activities.

1. Detailed Explanation

Each federal regulatory or permitting agency has developed its own series of general permits and categorical exclusions. Many of these agencies have recently undertaken efforts to adopt other agencies' categorical exclusions in response to the President's Executive Order 14154 *Unleashing American Energy*. The NPC recommends the additional steps of (1) modifying the language of existing categorical exclusions for oil and gas activities to maximize multiagency use, establish a threshold for nonreporting activities, and identify a target timeline for issuance; and (2) reviewing historical data associated with previously issued authorizations to identify new classes of activities for which the agencies should develop new categorical exclusions.

2. Benefits

- Encourages upfront coordination among agencies to develop a more standardized approach and efficient review of routine activities.
- Increases transparency and predictability for developers, while ensuring consistency between agencies as they consider potential effects and apply permit conditions.

3. Actions Required to Implement

- The National Energy Dominance Council should convene a multiagency task group of technical staff to coordinate the oil and gas categorical exclusion revision and expansion.
- The multiagency task group should undertake a comprehensive review of existing general permits and categorical exclusions for applicability to oil and gas activities and revise the resulting subset or develop new categorical exclusions that include procedural safeguards such as nonreporting thresholds (e.g., quantitative limits on activities for which the applicant may proceed with work without waiting to receive an agency verification letter or other approval).
- The draft series of revised and/or new oil and gas categorical exclusions should be published in the *Federal Register* for public comment prior to finalization.

4. Challenges to Implementation

- The process for developing new categorical exclusions has typically been led by a single regulatory agency, in consultation with resource managers such as the U.S. Fish and Wildlife Service and others. Thus, application of the multiagency working group model may initially be more time consuming than past development efforts.
- Interest groups may be skeptical of the effectiveness of categorical exclusions due to the issues with ambiguity of categorical exclusions under Section 390 of the Energy Policy Act of 2005. This can be resolved by specifically defining key concepts and clarifying when these categorical exclusions apply.
- Agencies may take an overly conservative approach by broadly determining that "extraordinary circumstances" apply, thereby defaulting to more extensive review processes rather than utilizing available general permits and categorical exclusions.

Recommendation 5: Extend Clean Water Act Section 404 USACE Nationwide Permit Renewal Periods

RECOMMENDATIONS:

- The NPC recommends that Congress revise the Clean Water Act Section 404(e)(2) such that Nationwide Permits are issued for a period of 10 years.

1. Detailed Explanation

Nationwide Permits (NWPs) authorize categories of activities under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899 that have limited individual and cumulative adverse environmental effects. These permits regulate the discharge of dredge-and-fill material into waters of the United States and the construction of obstructions in waters of the United States, respectively. The USACE has issued a total of 57 NWPs authorizing many different types of activities, ranging from commercial and residential real estate development to construction and maintenance of transmission lines and pipelines. Despite their status as important infrastructure permitting mechanisms for activities with limited environmental impacts, NWPs have been subject to uncertainty in recent years, driven by the frequency of the statutory renewal cycle and litigation challenging renewal of this critical permitting mechanism.

Under CWA Section 404(e), NWPs must be reissued by the USACE, in consultation with EPA, at least every five years, or the permit programs expire. These renewals are intended to focus on clarifying permit conditions, updating language for consistency, and improving the administrative efficiency of the program. Significant updates in environmental policy or conditions targeting environmental protection are uncommon and are usually limited to adding or modifying "general conditions" or regional restrictions to mitigate perceived impacts.

Legislative reform to extend the NWP renewal period from five years to ten years strengthens the program's durability and provides greater certainty to NWP applicants without compromising environmental oversight for qualifying projects with limited environmental impacts. Restricting early renewal reviews—which may be driven by shifting policy priorities rather than addressing actual environmental harm—increases predictability for industries that rely on NWPs to build, maintain, and repair critical infrastructure. This adjustment also maintains the agency's ability to respond to environmental impacts through public hearings and comment periods.

2. Benefits

- Improves durability of the NWP program that authorizes activities with minimal individual and cumulative environmental impacts but are vital for managing tens of thousands of projects without overwhelming agency resources.
- Adds confidence and certainty to infrastructure projects and budget planning cycles, which are critical for keeping projects on schedule and reducing administrative burdens.
- Further promotes a successful streamlined permitting mechanism that has broad support for its efficiency and predictability.
- Reduces impacts of shifting political priorities by limiting how frequently the NWPs can be reviewed.
- Decreases the frequency of litigation that historically follows renewals of certain NWPs, such as NWP 12 for oil and gas pipeline infrastructure.

3. Actions Required to Implement

- Congressional subcommittees should conduct hearings seeking further information on the NWP program and the benefits or risks of the ten-year expiration period.

- Congress should amend Section 404(e)(2) to specify changing the general permit expiration from five years to ten years.
- Once the amendments are enacted, the USACE must revise the NWP regulations to adjust to the longer renewal cycle.
- USACE or EPA should update their guidance or approvals that implement Section 404, as well as update the associated programmatic reviews to reflect these revisions.

Recommendation 6: Expand FERC's Blanket Certificate Program

RECOMMENDATIONS:

- The NPC recommends that FERC permanently increase the cost thresholds under its blanket certificate program and expand eligibility to allow a greater number of natural gas projects to receive expedited authorization, improving efficiency and responsiveness to rising energy demand.

1. Detailed Explanation

Following a prolonged period of uncertainty surrounding natural gas and LNG infrastructure approvals, the FERC has recently accelerated its certificate review and approvals for pipeline, storage, and LNG projects. These actions demonstrate renewed regulatory support for the expansion of U.S. natural gas infrastructure. To sustain this momentum, FERC should pursue additional, durable reforms to streamline permitting, and increase certainty for project developers while maintaining adequate shipper rate protections.

The blanket certificate program under the Natural Gas Act (NGA) allows interstate natural gas pipelines to perform certain construction, replacement, and maintenance activities without obtaining separate, project-specific authorization from FERC. These activities fall into two categories: automatic authorizations, which permit work to proceed without prior approval; and prior notice authorizations, which require public notice and an opportunity for comment before approval.

Each category has specific cost caps that determine eligibility. In June 2025,[277] FERC issued a Notice of Inquiry (NOI) in response to an industry request, seeking comment on whether these thresholds remain appropriate given inflation, rising construction costs, and the increasing scale of infrastructure projects. As part of this NOI, FERC temporarily raised the prior notice cost cap from $41.1 million to $61.65 million for projects constructed and placed in service by May 31, 2027. Though this interim adjustment is a positive step, it does not go far enough. FERC should permanently raise the cost caps to reflect current market conditions and expand eligibility under the blanket certificate program to include additional project types.

2. Benefits

- Reforming the blanket prior notice program will help the U.S. meet rising energy demand by providing regulatory certainty, reducing permitting backlogs, and enabling faster deployment of natural gas infrastructure.
- Encourages development of previously studied or disturbed areas, which allows for upgrades and expansions at existing facilities with minimal environmental impact to proceed faster, bypassing a multiyear NGA Section 7(c) review.
- Permitting incremental rates for blanket projects ensures consumers only pay for infrastructure from which they benefit.
- Streamlines workload for both FERC staff and applicants by eliminating redundant filings.

3. Actions Required to Implement

- Increase cost thresholds to better reflect market conditions and rising infrastructure costs.
- Adjust cost limits annually using the greater of two calculations: a three-year rolling average of construction costs submitted by pipeline operators under Exhibit K of their certificate applications, or the gross domestic product (GDP) implicit price deflator.
- Expand and refine the blanket certificate program to achieve additional regulatory

277 FERC has opened a Notice of Inquiry (RM25-12) to receive comment on its blanket certificate program. While NPC members support the proposal included in its report, some members of the council will likely encourage FERC to maintain rate protection for pipeline shippers as it considers broader changes to this program.

efficiency and better account for increasing demand and provide regulatory certainty by creating a path for expedited permitting for additional projects.

- Allow natural gas compression projects sited within previously studied or otherwise environmentally disturbed areas of existing natural gas facilities to proceed under prior notice without a cost cap.
- Allow operators to seek incremental rates for blanket certificate projects.
- Allow pipelines to secure temporary workspace by mutual agreement with landowners.
- Remove the cost cap for receipt points to mirror FERC's current rules for delivery points.
- Extend the construction completion period to 24 months to account for supply chain and labor constraints.
- Allow for automatic authorization of main line projects under the cost cap.
- Update and align abandonment authority with actual abandonment costs, including authorizing automatic abandonment of storage wells.
- Refine the protest process to allow only parties with a direct, substantial economic interest to intervene, and direct FERC's Office of Energy Projects to resolve protests within 10 days.
- Ensure the blanket certificate program provides adequate protection for shippers.

Recommendation 7: Establish and Enforce Federal Authorization Schedules for Natural Gas Infrastructure Projects

RECOMMENDATIONS:

- The NPC recommends that FERC and other federal and state permitting agencies establish and follow permit authorization schedules for natural gas infrastructure projects to ensure consistent and predictable unified delivery of federal authorizations.

1. Detailed Explanation

Congress has consistently called for improved agency coordination to ensure unified review and issuance of federal authorizations needed for an infrastructure project. The Energy Policy Act of 2005 established FERC as the lead federal agency for purposes of coordinating completion of all applicable federal authorizations, including federally delegated state authorizations. The law also provided FERC with authority to establish a schedule for receipt of such authorizations. FERC regulations promulgated following enactment of the Energy Policy Act of 2005 established that deadline as "no later than 90 days after the commission issues its final environmental document."[278]

FERC itself has failed to consistently meet this 90-day deadline, as have the commission's peer federal agencies and some states acting on delegated federal authority. This inconsistency delays the benefits the public would receive from a proposed infrastructure project.

The administration should, via executive order, direct FERC and other federal agencies with permitting authority for interstate natural gas projects to abide by FERC's 90-day authorization deadline for permit issuance after the commission issues a final environmental document for jurisdictional infrastructure projects.

278 18 CFR 157.22.

2. Benefits

- Predictable authorization dates will allow project developers to more effectively plan construction activities and generally contribute to more efficient development of infrastructure projects writ large.

3. Actions Required to Implement

- The administration should direct FERC and other federal agencies with permitting authority for NGA infrastructure projects to develop and adhere to authorization schedules developed by FERC and issue all relevant authorizations no later than 90 days following the issuance of a final environmental document by FERC.
- The administration should direct USACE and EPA to communicate this to the states.
- The Office of Management and Budget should monitor agency performance by requiring notification from FERC of the failure to meet any deadline for a natural gas project under its jurisdiction.
- Agencies should be directed to maximize the use of third-party contractors to assist with permit reviews and processing.

4. Challenges to Implementation

- There is no legal standard to enforce a 90-day deadline for the issuance of all relevant federal and state authorizations.
- Insufficient staff resources could present an implementation challenge.

5. Related Recommendations

FERC should continue to rely on precedent agreements as the most persuasive indicator of market need when reviewing infrastructure proposals under the NGA.

Recommendation 8: Streamline NEPA Implementation by Eliminating Duplicative Permitting Requirements

The NPC supports the administration's efforts to promote U.S. energy development, streamline agency permitting, and standardize and clarify NEPA procedures.

RECOMMENDATIONS:

- The NPC recommends that the White House CEQ, in coordination with the Secretaries of Energy and Interior, the Administrator of EPA, the Assistant Secretary of the Army (Civil Works), and other department heads, as determined by CEQ, take action to identify and eliminate duplicative permitting processes and NEPA procedural requirements and promote greater consistency across federal, state, and local jurisdictions.

1. Detailed Explanation

Each federal agency has obligations under NEPA, and many have developed implementation procedures tailored to their specific mission and activities. These federal processes often overlap with corresponding state and local environmental reviews and permitting systems, resulting in redundant analyses, multiple public comment periods, and inconsistent data requirements.

The high degree of variability among state permitting processes—both in timeline and scope—can also introduce significant uncertainty and delay for infrastructure projects. Coordination among federal, state, and local agencies is essential to streamline these processes, avoid duplicative analyses, and ensure that each level of government focuses on its distinct regulatory responsibilities.

Multiple policy actions have been undertaken (or initiated) to direct agencies to streamline their procedures and limit duplication, including the recission of the CEQ NEPA Implementation Regulations; the September 29, 2025, CEQ guidance; and the initial publication of agency Interim Final Rules. By aligning permitting and environmental review procedures, federal agencies can identify overlapping elements and better integrate environmental review with their core permitting processes while preserving state authority. This integration would streamline reviews, improve interagency consistency, and reduce unnecessary procedural repetition.

2. Benefits

- Supports Executive Order 14154, *Unleashing American Energy*, which directs federal agencies to eliminate delays in their respective permitting processes.
- Reduces duplicative environmental review.
- Decreases administrative burdens and may substantially shorten overall permit timelines.
- Encourages collaborative federal-state partnerships that respect the principles of federalism while advancing national energy and infrastructure priorities.

3. Actions Required to Implement

- Agencies should promptly conform to Executive Order 14154 and the September 29, 2025, CEQ guidance.
- The National Energy Dominance Council should coordinate with the Chair of the CEQ to further direct agencies to:
  - Identify duplicative requirements between its various authorizing statutes and other federal laws and regulations.
  - Take actions to execute potential efficiencies, including by integrating processes where allowable under existing laws.
  - Work with states to develop model permitting frameworks that enhance alignment with federal review standards.

- Each federal agency should assess its primary permitting program requirements and NEPA procedural requirements and consider opportunities to reduce redundancy and integrate process steps (e.g., providing a consolidated opportunity for public comment on a single project).
- Agencies should consider developing an integrated procedural handbook that outlines their complete permitting processes and how each step meets NEPA and other statutory obligations. These handbooks should clarify points of coordination with state and local agencies and be made publicly available.

4. Challenges to Implementation

- Because agencies and states implement permitting programs under diverse and sometimes overlapping statutory authorities, reforms will not yield uniform results nationwide.
- Variability among state environmental statutes and differences in available state resources will affect the degree to which alignment can be achieved.
- Successful implementation will require sustained intergovernmental engagement and potential incentives for states to harmonize timelines and review scopes with federal processes.

5. Related Recommendations

- When undertaking revisions, the agencies should concurrently assess whether the current procedures conform with recent judicial decisions. For example, to conform with the 2025 U.S. Supreme Court *Seven County* decision, the agencies should clearly articulate that NEPA does not require an analysis of environmental effects of upstream and downstream projects that are separate in time or place.
- In recognition of ongoing discussions in Congress about meaningful permitting reform—including potential statutory changes to NEPA—the agencies should share their findings with their respective oversight committees.
- Agencies should leverage technology, including AI and shared data platforms, to develop solutions to accelerate permitting timelines. For example, agencies should use AI to utilize prior environmental and biological assessments for new applications of infrastructure in previously studied or disturbed areas.
- State and local governments should be encouraged to streamline permitting for natural gas distribution projects to ensure the delivery of affordable and reliable energy supplies to end-use consumers. Federal policymakers should consider implementing mechanisms to incentivize action in this regard.

Recommendation 9: Prioritize Improvements to Energy Systems Adjacent to Oil and Natural Gas Infrastructure

RECOMMENDATIONS:

- The NPC recommends that Congress and the administration streamline processes to promote development of electric power infrastructure—generation, transmission, and interconnects—to support the interconnected nature of U.S. energy systems and accelerate economic competitiveness and security.

1. Detailed Explanation

The U.S. energy system is an interdependent network where fuels, infrastructure, and operations are closely linked. Natural gas—supplying more than 43% of electricity generation[279]—is transported through pipelines constructed from steel, the production of which requires coal, oil, and gas. Wind and solar, generating about 15% of electricity,[280] rely on dispatchable sources like natural gas, coal, nuclear, and hydro for reliability. Petroleum and natural gas are essential for producing solar panels, wind turbines, and critical minerals, while petroleum production, transportation and refining are major electricity consumers. Recognizing these connections is an essential predicate for developing effective energy and permitting policy in support of oil and natural gas production.

To adequately meet growing energy demand, it is important not only to improve the permitting of oil and natural gas infrastructure, but it is also equally important to address issues that prevent efficient development of electricity assets—generation, transmission, and interconnections. An expedited review process for projects within both infrastructure systems is needed to deliver lower prices, enhanced reliability, and faster economic growth.

The findings in the 2025 NPC Gas-Electric Coordination study, *Reliable Energy: Delivering on the Promise of Gas-Electric Coordination*,[281] reinforce the urgency of this alignment: The nation's natural gas and electric sectors are now deeply interdependent, with infrastructure constraints and coordination gaps posing significant risks to reliability, resilience, and affordability. As detailed in the NPC Gas-Electric study, healthy alignment between the two sectors depends on robust, "fit-for-purpose" infrastructure, clear accountability, and long-term planning to ensure that fuel availability and electric system performance remain synchronized. These lessons underscore that accelerating the buildout of power infrastructure is not only critical for meeting growing electricity demand but also for preserving reliability in an increasingly interconnected and dynamic energy system.

2. Benefits

- Ensures stable and dispatchable electricity supply to support oil and gas production, refining, and transportation during periods of high demand.
- Provides the power foundation necessary for other large electricity users, including large-scale AI training and data processing, enabling the U.S. to maintain global leadership in emerging digital technologies.
- Strengthens energy security and underpins industrial expansion, job creation, and technological innovation.
- Supports the energy sector's use of electrified systems that are essential for production, transportation, and refining.

279 EIA. "Electricity Explained. Electricity in the United States." March 26, 2024. https://www.eia.gov/energyexplained/electricity/electricity-in-the-us.php.

280 EIA. "Electricity Data Browser." Net Generation, United States, all sectors, annual, 2024. Includes wind and utility-scale solar as a percentage of all fuels (utility scale). Retrieved on November 25, 2025. https://bit.ly/3Kw3VoB.

281 NPC. "Reliable Energy: Delivering on the Promise of Gas-Electric Coordination." 2025. https://gas-electric.npc.org/.

- Expands natural gas-fired generation and associated infrastructure to enhance grid flexibility and prevent reliability shortfalls.
- Supports domestic energy independence and resilient power supply for critical digital and industrial assets.

3. Actions Required to Implement

- Federal policymakers should establish policies that encourage coordination between federal and state regulators to facilitate the rapid addition of new generation facilities, which may include co-location, where appropriate, with AI-driven data centers, optimizing fit-for-purpose infrastructure investment and land use.
- Congress should direct FERC and DOE to streamline siting and environmental review processes and promote greater coordination with state and local jurisdictional entities on large-scale transmission siting requirements to help accelerate electric transmission buildout.
- FERC, regional grid operators, and state utility commissions should accelerate interconnection processes in regions that have experienced backlogged interconnection queues for natural gas-fired dispatchable generation and related infrastructure.
- Congress should support the development and expansion of natural gas pipelines and storage facilities necessary to ensure reliable fuel supply for natural gas generation supporting industrial and AI-related electricity demand.
- DOE and FERC, in coordination with system operators and states, should jointly develop a leading practices framework for comprehensive long-term planning that considers affordability, energy reliability, resilience, fuel assurance, emissions goals (where applicable), and fit-for-purpose infrastructure development with clear milestones for grid modernization and interconnection efficiency.
- The administration should establish a federal-state power infrastructure coordination task force to identify leading practices related to permitting timelines, interconnection standards, and siting decisions across jurisdictions, ensuring consistency and accelerating infrastructure deployment.
- The administration should leverage federal land to support electric power to oil and gas operations and AI infrastructure development via increased permitting and siting flexibility.

4. Challenges to Implementation

- Multijurisdictional environmental review processes may delay infrastructure projects.
- High capital costs for transmission and pipeline development require clear investment signals and regulatory certainty.
- Aligning regional grid operators, utilities, and private developers on planning and interconnection priorities may prove challenging.
- Rapid advances in AI technology and data center demand could outpace infrastructure development timelines.

5. Related Recommendations

- Establish enforceable deadlines and coordinated interagency review processes for all energy and infrastructure projects.
- Identify and communicate leading practices for expanding and upgrading the electric grid to accommodate growing digital and industrial loads.
- Codify that judicial remedies under NEPA are limited to remand without vacatur, and limit injunctions to cases of imminent environmental harm.
- Integrate AI into the permitting process: CEQ should continue to expedite use of AI technology across agencies to accelerate permitting timelines.

III. A BROADER VISION: QUALIFIED INFRASTRUCTURE AUTHORIZATIONS

Recommendation 10: Streamlined Permitting for Energy Infrastructure

RECOMMENDATIONS:

- The NPC recommends that Congress explore and adopt a new approach to infrastructure permitting that maximizes reliance on standardized approaches in lieu of case-specific review. Under this new approach, efficient approval of qualified energy infrastructure would be granted if projects meet clearly articulated standards and monitoring requirements that provide reliable environmental protection and stakeholder engagement consistent with the law and the public interest.

This approach would reorient energy project development in the United States, such that infrastructure authorizations are granted more quickly and environmental protection is ensured through compliance with transparent, enforceable standards and strong intergovernmental oversight, while preserving the existing division of authority between federal and state entities.

1. Detailed Explanation

Chapter 3 documented how the proliferation of case-specific reviews and requirements have complicated and extended the permitting process, forcing applicants to consume time and resources in ways that are often unnecessary to support environmental protection.

Chapter 3 also described how certain streamlined permitting mechanisms in existing laws have in some cases accelerated project development. The chapter also identified associated challenges and limits with these existing mechanisms:

- **Inconsistencies in Application:** Though streamlined approval processes have been applied to specific activities across various environmental statutes, they have not been broadly applied under all applicable statutes or in instances with predictable environmental effects.
- **Additional Procedure:** Under some streamlined mechanisms, notice requirements are often laden with a significant number of processes, such as extensive preconstruction notification and conflict-of-interest review (when using third parties to prepare environmental documents) that reduce the streamlining effect. This process takes time and introduces additional procedural hurdles.
- **Limited Coverage:** Only a select group of states allow standardized permitting under specific regulations. Its use nationwide occurs only in some instances. This heterogeneous approach reduces the applicability of streamlined mechanisms, and results in missed opportunities in a broader range of geographic areas and industry activities.

Effective permit streamlining must respect the existing balance of federal and state jurisdictional authority. For example, in the case of interstate electric transmission, FERC and the states share siting authority. The NPC does not recommend any change to this jurisdictional structure. Instead, the proposed framework would improve coordination among existing authorities through clearer statutory standards, predictable timelines, and consistent environmental criteria.

Broader and more comprehensive use of streamlined permitting mechanisms would help achieve the goal of building urgently needed infrastructure without reducing standards for environmental protection or public involvement. These recommendations would be implemented in addition to, and not in place of, existing streamlined permitting processes, such as the Nationwide Permitting process available through the USACE.

Effective permit streamlining would address these challenges and other implementation issues by defining clear criteria for project eligibility and following a clear set of principles. The following principles provide the foundation for this approach:

- **Category-Based Eligibility:** Defined categories of energy projects (e.g., type, location, design) with standardized designs and construction methods, including well-understood and mitigable environmental impacts. Projects within these categories could be offered approval under the expectation of high performance and enforcement of environmental law. Unique or unusual projects could be subject to longer consultation periods, additional review, or bespoke remediation plans.
- **Objective Criteria:** Objective, unambiguous criteria for projects to build would limit the need for project-specific review processes. Criteria could include quantitative thresholds (e.g., disturbed acreage, emissions levels, habitat needs) or technical characteristics (e.g., routine equipment, standardized studies). The criteria could vary if a project would be constructed in an already disturbed area or existing energy corridor. The creation of clear objective criteria would minimize bespoke reviews and provide developers and local communities with greater predictability.
- **Enforceable Standards:** Congress could define clear, explicit performance standards in line with environmental statutes that projects would be expected to achieve in design and construction.
- **Simple Notice with Timely Approval:** Standardized, simple, and time-bound public notice-and-comment periods could be established. This would ensure that public participation remains meaningful without creating redundant, confusing, or open-ended procedural steps.
- **Standardized Monitoring and Verification:** Criteria-based monitoring protocols could be incorporated directly into the permitting framework and expectations for projects, using standardized data collection and reporting. Under this framework, periodic monitoring would verify compliance and provide meaningful data.
- **Credible Enforcement:** Permitting agencies could leverage a new streamlined process to reallocate personnel toward monitoring, inspections, audits, and compliance verification. Shifting agency capacity and NEPA staff focus from case-by-case procedural review to oversight would enable stronger, more consistent enforcement. This would ensure that permitting efficiency does not come at the expense of accountability.
- **Periodic Review of Criteria and Standards:** Congress could direct agencies to promptly report new information regarding the environment, technological developments, new mitigation techniques, and other similar specifications on a standardized, periodic basis to inform amendments to standardized criteria. This would ensure that the system reflects the best available science and technology and remains in the public interest. Updates to the framework would allow the incorporation of new environmental information and mitigation methods and the removal of obsolete standards or criteria, maintaining the integrity and legitimacy of the mechanism.
- **Intergovernmental Coordination and Transparency:** Frequent coordination between federal, state, Tribal, and local entities to align rules and standards with best practices and local needs. Shared data platforms, monitoring agreements, and public engagement practices would eliminate duplication and improve transparency.

These principles directly address the shortcomings of existing streamlined approaches identified in Chapter 3 by embedding uniformity, clarity, and accountability into a new permitting framework.

This framework shares conceptual similarities with programmatic EISs and EAs under NEPA,

which also allow agencies to analyze environmental effects of recurring actions or classes of projects in a standardized manner. However, unlike programmatic EISs and EAs, which operate within NEPA's procedural structure and still often require subsequent project-specific analyses, the proposed framework would provide statutory presumptive approval for qualifying projects that meet predefined environmental criteria and enforceable standards. This would elevate the efficiency and predictability of review while maintaining environmental protection.

Though Congress should seek to maximize use of new streamlining procedures, individual reviews may be necessary for projects that are especially complex or unique. Projects that fall outside established criteria should receive accelerated case-specific review under the existing permitting framework with a clarified NEPA scope and a reformed judicial review process.

2. Benefits

- Greater reliance on standardized review for eligible infrastructure activities would facilitate approval on efficient and predictable timelines for projects in which potential environmental and social impacts are well understood and able to be avoided, minimized, or mitigated.

3. Actions Required to Implement

- Developing this new framework would require careful and effective implementation by Congress and federal agencies to establish the rules, standards, and practices that best enable the buildout of energy infrastructure to achieve intended economic and environmental outcomes. Reliance on the legislative process would allow for public participation and create clarity for project developers and the public. Developing standard criteria in statute, rather than through agency rulemaking, would ensure greater transparency, predictability, and durability for both the public and developers.
- Congressional committees with jurisdiction over applicable environmental statutes should hold hearings on the applicability of standardization and streamlining approaches within their jurisdictions and should solicit input on measures to help achieve reforms.
  - Congress should then consider enacting legislation, including enabling amendments to substantive environmental statutes, as needed, to establish a streamlined infrastructure approval process for interstate infrastructure projects and other energy activities if needed.

4. Related Recommendations

- Implement the near-term recommendations outlined in this report while congressional review and consideration of a streamlined process occur.
- Maintain existing streamlined permitting frameworks, such as NWPs under the CWA.
- Incorporate judicial reforms to accelerate and bring certainty to permitting litigation as discussed in this report.
- Expand authority for existing streamlined mechanisms, such as programmatic environmental tools and nonstatutory environmental protections, including wildlife refuges and corridors.

EXAMPLE: QUALIFIED INFRASTRUCTURE AUTHORIZATION FOR INTERSTATE ENERGY SYSTEMS

The following example is provided to help policymakers better understand how the application of standardized permitting criteria and related processes could streamline interstate energy infrastructure permitting while maintaining environmental protection and robust public engagement. Although the text contemplates an example of infrastructure authorization under a single federal agency, it should not be interpreted as a specific NPC endorsement or recommendation to centralize approvals for *all* energy infrastructure types under the federal government.[282]

A new framework could include the following:

- ***Clear federal siting authority.*** This would revolve around a single federal permitting agency (or infrastructure-specific agencies) with authority to site critical infrastructure systems needed to serve or advance the public interest. The lead agency would collect environmental information related to a proposed project and issue a single federal approval to satisfy the requirements of all applicable federal siting and environmental statutes.
- ***Development by Congress of clear environmental standards covering project design, construction, and mitigation to satisfy the requirements of all applicable federal authorizations.*** When applying to the permitting agency, project developers would submit a comprehensive environmental report that follows inclusion criteria defined in statute. The report would describe the proposed project, identify alternatives that would achieve the project's objectives, and include an analysis of potential impacts along with plans to avoid, minimize, or mitigate such impacts for the following resource categories:
  - Water use and quality
  - Fish, wildlife and vegetation
  - Cultural and historic resources
  - Socioeconomic benefits and effects
  - Geological and soil resources
  - Land use, recreation, and aesthetics
  - Air and noise quality
  - Reliability and safety

  The reporting, public notification, and participation requirements described here would serve as the *functional equivalent* of NEPA's procedural obligations, including its requirement to prepare a detailed statement for major federal actions. Congress would need to declare by statute that this information is sufficient to satisfy the NEPA obligations of the lead federal permitting agency and any other federal agencies with permitting authority over elements of the project. Developing standard criteria in statute, rather than through agency rulemaking, would ensure greater transparency, predictability, and durability for both the public and developers.[283]
- ***Robust public notification and participation within the agency's infrastructure approval process.*** Congress would ensure that the public is informed of, and able to monitor and participate in, the single permitting agency's evaluation of interstate energy infrastructure proposals under its siting authority. This would include ensuring that:

282 For example, FERC and the Surface Transportation Board serve as a central federal authority for the approval of natural gas and rail infrastructure, but liquids pipelines and electric transmission are primarily sited and approved at the state level. The NPC has not considered and is not offering a view on the specific question of federal versus state authorization of infrastructure. The example provided is merely to help conceptualize the streamlining principles articulated in this report.

283 Congress could, however, direct the single federal permitting agency to solicit the views of federal, state, and Tribal agencies with permitting authority for an aspect of a proposed project to help assess the environmental report's adherence to the standard conditions developed by Congress.

- Affected landowners and communities are notified when an application has been submitted.
- The environmental report and all other documents pertinent to the permit issuance are available to the public through an accessible online platform.
- Members of the public are afforded the opportunity to comment on the application and, when applicable, formally intervene in the proceeding.
- All formal filings and comments of the applicant,[284] agency, and members of the public are maintained on an accessible online platform, and *ex parte* communications are prohibited.

- ***The authority to condition infrastructure authorizations.*** The single permitting agency would have the authority to attach enforceable conditions to its approvals[285] to ensure its decisions are aligned with the public interest. Congress should clarify the bounds of an agency's conditioning authority to ensure it does not frustrate the purpose of its siting authority.[286]
- ***Construction oversight and compliance.*** The single permitting agency would have the authority to require the presence of environmental inspectors or monitors at construction and restoration sites to ensure compliance with the environmental report and any applicable authorization conditions. Environmental inspectors would have the authority to pause activities at a project site when necessary to ensure compliance. Developers would be required to submit regular reports, including of any incidents of noncompliance, to the single permitting agency and those reports should be made available to the public on an accessible online platform.
- ***For federal authorizations, a unified approval.*** Congress would establish by statute that an approval issued by the single permitting authority for an interstate energy infrastructure project that meets standardized design and environmental criteria satisfies the requirements of its siting authority and all other applicable federal authorizations necessary for the project to proceed to construction.

284 Not including Critical Energy/Electric Infrastructure Information.

285 For example, FERC has conditioning authority under the NGA and often conditions its approvals to ensure developers follow the construction procedures and mitigation measures described in their application, which includes an environmental report similar to the hypothetical proposal outlined here. FERC allows deviation from specific activities outlined in the report, but only upon written approval by the commission and demonstration that the changes provide an equal or greater level of environmental protection.

286 For example, the Supreme Court, in addressing the bounds of the term "public interest" under the Natural Gas Act, defined the primary purpose of the statute as "encourag[ing] the orderly development of plentiful supplies of...natural gas at reasonable prices" and that "public interest" must be interpreted within purpose of the statute rather than a broad directive to promote the general welfare. While the Court did state that there are subsidiary purposes of the law, which include conservation and the environment, these subsidiary interests are subordinate to its primary purpose. See, *NAACP v Federal Power Commission*, 1976.

Appendix A

REQUEST LETTER, DESCRIPTION OF THE NPC, AND NPC ROSTER

The Secretary of Energy
Washington, DC 20585

June 30, 2025

Mr. Alan Armstrong
Chair
National Petroleum Council
1625 K Street, NW
Washington, DC 20006-1656

Dear Mr. Armstrong:

Many of President Trump's directives, including Executive Order 14156, ***Declaring a National Energy Emergency***, Executive Order 14154, ***Unleashing American Energy***, and Executive Order 14213, ***Establishing the National Energy Dominance Council***, underscore the critical role of domestic energy and natural resources in powering the Nation's economic prosperity and national security. Meeting future energy needs will require ingenuity, innovation, and market-based solutions.

Accordingly, I request that the National Petroleum Council (NPC) undertake a broad ***Future Energy Systems*** study with subcomponent deliverables designed to recognize and leverage the vast potential of domestic oil and natural gas resources and industry expertise to advance Administration goals for increasing the availability of affordable, reliable, and secure energy for American consumers and our allies. The scope of this study should be developed with key objectives, deliverables, and timelines mutually determined between the NPC and the Department. Please work with Deputy Assistant Secretary Ryan Peay from the Office of Fossil Energy and Carbon Management (FECM) to delineate the preliminary scope and subcomponent deliverables within the next 30 days.

For the initial deliverables within the ***Future Energy Systems*** study, I am requesting the NPC address two priority topics immediately, with reports delivered to me by December 2025. These topics are crucial to advancing the priorities outlined in President Trump's energy agenda and require prompt and focused attention:

Oil and Natural Gas Infrastructure Permitting. Streamlining and expediting permitting is essential for all parts of the energy value chain and for building infrastructure to meet future energy needs. Re-evaluating and updating the permitting section of the NPC's 2019 Dynamic Delivery study report with practical recommendations based on current legislation and regulations can provide meaningful input to support the effective redesign of government systems and siting of new energy infrastructure. The advice of the NPC on this topic will be particularly helpful in concert with the work of the National Energy Dominance Council. Important also will be insights regarding factors that affect industry's ability to attract and retain private sector investment or rapidly deploy new technologies that increase safety, integrity, or operational efficiency.

Gas-Electric Coordination. A failure of natural gas infrastructure to keep pace with growing natural gas demand has created natural gas supply challenges and revealed new risks to the reliability of interconnected natural gas and electric power systems. A misalignment between the electric power and natural gas markets has exacerbated these risks resulting in inadequate access to natural gas and cost impacts to power consumers. The misalignment is rooted in fundamental market differences that influence decision making and the pace of infrastructure development made worse by legacy decarbonization mandates and the rapid growth of electricity demand. The NPC, working with both natural gas suppliers and electric power producers, can bring forward unique insights regarding the growth of natural gas demand in the United States and resolution of the misalignment of the natural gas and electric markets that if not addressed could threaten energy security, reliability, and affordability. This study should assess how rising natural gas and electricity demand and shifting load patterns are straining natural gas pipelines in key regions of the United States; examine what impact these strains can have on energy reliability; and recommend actionable strategies to address the misalignment between these two industries that can prevent or mitigate reliability impacts. The study will fill an important gap and complement ongoing gas-electric reliability and coordination initiatives involving industry and/or government by specifically focusing on the energy reliability risk viewed from the perspective of natural gas infrastructure operations and capabilities.

For the broad ***Future Energy Systems*** study, I request the NPC consider other additional subcomponents for which it can deliver high-value, actionable, and timely advice. Topics that may meet these criteria include energy security, infrastructure security, and analyses supporting U.S. energy trade and competitiveness globally.

I welcome continued dialogue with the NPC as we work together to shape a new era of American technology leadership and energy dominance. Please keep me advised of progress on the efforts addressed in this letter.

Sincerely,

Chris Wright

Chris Wright
Secretary of Energy

cc: Ryan Lance
Vicki Hollub

DESCRIPTION OF THE NATIONAL PETROLEUM COUNCIL

In May 1946, the President stated in a letter to the Secretary of the Interior that he had been impressed by the contribution made through government/industry cooperation to the success of the World War II petroleum program. He felt that it would be beneficial if this close relationship were to be continued and suggested that the Secretary of the Interior establish an industry organization to advise the Secretary on oil and natural gas matters. Pursuant to this request, Interior Secretary J. A. Krug established the National Petroleum Council (NPC) on June 18, 1946. In October 1977, the Department of Energy was established and the Council's functions were transferred to the new Department.

The purpose of the NPC is solely to advise, inform, and make recommendations to the Secretary of Energy and the Executive Branch on any matter requested or approved by the Secretary, relating to oil and natural gas or the oil and gas industries. Matters that the Secretary would like to have considered by the Council are submitted in the form of a letter outlining the nature and scope of the study. The Council reserves the right to decide whether it will consider any matter referred to it.

Examples of reports of studies undertaken by the NPC at the request of the Secretary include:

- *Bottleneck to Breakthrough: A Permitting Blueprint to Build (2025)*
- *Reliable Energy: Delivering on the Promise of Gas-Electric Coordination (2025)*
- *Charting The Course – Reducing GHG Emissions from the U.S. Natural Gas Supply Chain (2024)*
- *Harnessing Hydrogen: A Key Element of the U.S. Energy Future (2024)*
- *Principles, and Oil & Gas Industry Initiatives and Technologies for Progressing to Net Zero (2022)*
- *Petroleum Market Developments – Progress and Actions to Increase Supply and Improve Resilience (2022)*
- *Meeting the Dual Challenge: A Roadmap to At-Scale Deployment of Carbon Capture, Use, and Storage (2019)*
- *Dynamic Delivery: America's Evolving Oil and Natural Gas Transportation Infrastructure (2019)*
- *Supplemental Assessment to the 2015 Report – Arctic Potential (2018)*
- *Arctic Potential: Realizing the Promise of U.S. Arctic Oil and Gas Resources (2015)*
- *Enhancing Emergency Preparedness for Natural Disasters (2014)*
- *Advancing Technology for America's Transportation Future (2012)*
- *Prudent Development: Realizing the Potential of N. America's Abundant Natural Gas & Oil Resources (2011)*
- *One Year Later: An Update On Facing the Hard Truths about Energy (2008)*
- *Facing the Hard Truths about Energy: A Comprehensive View to 2030 of Global Oil & Natural Gas (2007)*
- *Observations on Petroleum Product Supply (2004)*
- *Balancing Natural Gas Policy – Fueling the Demands of a Growing Economy (2003)*
- *Securing Oil and Natural Gas Infrastructures in the New Economy (2001)*
- *U.S. Petroleum Refining—Assuring the Adequacy and Affordability of Cleaner Fuels (2000)*

The NPC does not concern itself with trade practices, does not lobby, nor does it engage in any of the usual trade association activities. The Council is subject to the provisions of the Federal Advisory Committee Act of 1972.

Members of the National Petroleum Council are appointed by the Secretary of Energy and represent all segments of the oil and gas industries and related interests. The NPC is headed by a Chair and a Vice Chair, who are elected by the Council. The Council's operations are supported entirely by voluntary contributions from its members. Additional information on the Council is available at www.npc.org.

NATIONAL PETROLEUM COUNCIL MEMBERSHIP, 2025

NAME	TITLE	ORGANIZATION
J. Kevin Akers	President and Chief Executive Officer	Atmos Energy Corporation
M. Jay Allison	Chairman and Chief Executive Officer	Comstock Resources, Inc.
Orlando A. Alvarez	Chairman and President	bp America Inc.
Thurmon M. Andress	President	Andress Oil & Gas Company LLC
Alan S. Armstrong	ChairExecutive Chairman	The Williams Companies, Inc.
Greg L. Armstrong	Co-Founder and Retired Chairman and Chief Executive Officer	Plains All American Pipeline, L.P.
Robert G. Armstrong	Chairman of the Board	Armstrong Energy Corporation
William D. Armstrong	President	Armstrong Oil & Gas, Inc.
Greg A. Arnold	Chairman and Chief Executive Officer	The Arnold Companies
Vicky A. Bailey	President	Anderson Stratton Enterprises, LLC
Holly A. Bamford	Chief Conservation Officer	National Fish and Wildlife Foundation
Filipe Barbosa	Senior Partner	McKinsey & Company, Inc.
Edward H. Bastian	Chief Executive Officer	Delta Air Lines, Inc.
Kamel Ben Naceur	2022 President	Society of Petroleum Engineers
Kevin D. Book	Managing Director, Research	ClearView Energy Partners, LLC
Jason E. Bordoff	Founding Director, Center on Global Energy Policy Professor of Professional Practice in International and Public Affairs School of International and Public Affairs Co-Founding Dean Emeritus, Columbia Climate School	Columbia University
E. Russell Braziel	Executive Chairman	RBN Energy, LLC
Mary Anne Brelinsky	President and Chief Commercial Officer	Alpha Generation, LLC
Daniel E. Brown	President and Chief Executive Officer	Chord Energy Corporation
Maryam S. Brown	President and Chief Executive Officer	Southern California Gas Company
Mark S. Brownstein	Senior Vice President, Energy Transition	Environmental Defense Fund
Jeffrey A. Bruner	Retired President	Iroquois Pipeline Operating Company
Calvin G. Butler, Jr.	President and Chief Executive Officer	Exelon Corporation
Daniel C. Cardenas, Jr.	Chief Executive Officer and Chairman	National Tribal Energy Association
Robert B. Catell	Chairman, Advanced Energy Research and Technology Center	Stony Brook University
W. C. W. Chiang	Chairman and Chief Executive Officer	Plains All American Pipeline, L.P.
John J. Christmann IV	Chief Executive Officer	APA Corporation
Ralph Cleveland	Former President and Chief Executive Officer	American Association of Blacks in Energy

NAME	TITLE	ORGANIZATION
Carlin G. Conner	Chairman and Chief Executive Officer	International-Matex Tank Terminals
David E. Constable	Executive Chairman	Fluor Corporation
Christi L. Craddick	Chairman, Railroad Commission of Texas	State of Texas
Helima L. Croft	Head of Global Commodity Strategy and MENA Research, Global Research	RBC Capital Markets Corporation
Edmund Crooks	Vice-Chair, Americas	Wood Mackenzie Inc.
Trammell S. Crow	Founder	EarthX
W. Allen Custard, III	President	Pitts Oil Company, LLC
Kimberly L. David	Chairman, Oklahoma Corporation Commission	State of Oklahoma
Charles D. Davidson	Partner	Quantum Capital Group
Roberto E. De Hoyos	Vice President of Public Affairs	Tenaris Global Services
Robert F. Delamar	Chief Executive Officer and Co-Founder	Kanata Clean Power & Climate Technologies Corp.
Domenic J. Dell'Osso, Jr.	President and Chief Executive Officer	Expand Energy Corporation
Claiborne P. Deming	Director	Murphy USA, Inc.
Timothy S. Duncan	Former President and Chief Executive Officer	Talos Energy Inc.
W. Byron Dunn	Founding Partner and Chief Executive Officer	Tubular Synergy Group
Gregory L. Ebel	President and Chief Executive Officer	Enbridge Inc.
John W. England	Partner, Global Sector Leader – Oil, Gas & Chemicals	Deloitte LLP
Neva M. Espinoza	Senior Vice President, Energy Supply and Low-Carbon Resources	Electric Power Research Institute
Alexander Esslemont	Former President and Chief Executive Officer	Parker Wellbore
Jillian C. Evanko	President and Chief Executive Officer	Chart Industries, Inc.
Corri A. Feige	President and Principal	Terra Piniun, LLC
Fereidun Fesharaki	Chairman Emeritus	FACTS Global Energy
Bryan K. Fisher	Managing Director, Climate Aligned Industries	Rocky Mountain Institute
James C. Flores	Chairman, Chief Executive Officer and President	Sable Minerals, Inc.
Randy A. Foutch	Lead Independent Director	Helmerich & Payne, Inc.
Ann G. Fox	President and Chief Executive Officer	Nine Energy Service, Inc.
Mark N. Fox	Chairman	Mandan, Hidatsa and Arikara Nation
Jack A. Fusco	President and Chief Executive Officer	Cheniere Energy, Inc.
Paula A. Gant	President and Chief Executive Officer	GTI Energy
Robert W. Gee	President	Gee Strategies Group LLC

NAME	TITLE	ORGANIZATION
Meg A. Gentle	Executive Director	HIF Global
Seifi Ghasemi	Former Chairman, President and Chief Executive Officer	Air Products and Chemicals, Inc.
James A. Gibbs	Chairman	Five States Energy Company, LLC
Angela D. Gildea	ENR Regional Co-Leader of Americas	KPMG LLP
David C. Glendon	Chairman	Sprague Operating Resources LLC
Paula R. Glover	President	Alliance to Save Energy
Timothy Go	President and Chief Executive Officer	HF Sinclair Corporation
Christopher L. Golden	U.S. Country Manager	Equinor Exploration and Production International
Andrew Gould	Advisory Board Chairman	Kayrros SAS
Jay C. Graham	Chief Executive Officer	Spur Energy Partners LLC
Samantha J. Gross	Director, Energy Security and Climate Initiative and Fellow, Foreign Policy	The Brookings Institution
David W. Grzebinski	Chief Executive Officer	Kirby Corporation
James T. Hackett	President	Tessellation Services, LLC
Kourtney K. Hadrick	Operating Director – Energy	Southern Ute Indian Tribe Growth Fund
John A. Harju	Vice President for Strategic Partnerships, Energy & Environmental Research Center	University of North Dakota
Marilu Hastings	Executive Vice President and Director, Mitchell Innovation Lab	The Cynthia and George Mitchell Foundation
Blainey Maguire Hess	President and Chief Executive Officer	Maguire Oil Company
John B. Hess	Former Chief Executive Officer	Hess Corporation
Jack D. Hightower	Chairman and Chief Executive Officer	HighPeak Energy, Inc.
Stephen L. Hightower	President and Chief Executive Officer	Hightowers Petroleum Co.
Jeffery D. Hildebrand	Executive Chairman and Founder	Hilcorp Energy Company
Torrence L. Hinton	President, Ohio	FirstEnergy Corp.
Forrest E. Hoglund	Chairman and Chief Executive Officer	SeaOne Holdings, LLC
Vicki A. Hollub	President and Chief Executive Officer	Occidental Petroleum Corporation
Hunter L. Hunt	Chairman and Chief Executive Officer	Hunt Energy, LLC
Ray L. Hunt	Chairman Emeritus	Hunt Consolidated, Inc.
Rusty Hutson Jr.	Co-Founder and Chief Executive Officer	Diversified Energy Company PLC
J. Jon Imaz	Chief Executive Officer	Repsol
Roger W. Jenkins	Non-Executive Advisor	Murphy Oil Corporation
Angela D. John	Board Member	TETRA Technologies, Inc.
Thomas E. Jorden	Chairman, Chief Executive Officer and President	Coterra Energy Inc.
J. Martin Keighley	Chief Executive Officer	CarbonFree
Nathaniel O. Keohane	President	Center for Climate and Energy Solutions

NAME	TITLE	ORGANIZATION
James Y. Kerr II	Chairman, President and Chief Executive Officer	Southern Company Gas
John W. Ketchum	Chairman, President and Chief Executive Officer	NextEra Energy, Inc.
Ryan S. Keys	Co-Chief Executive Officer	Triple Crown Resources, LLC
Elizabeth R. Killinger	Former President, NRG Home & Reliant	NRG Energy, Inc.
Vello A. Kuuskraa	President	Advanced Resources International, Inc.
Ryan M. Lance	Vice Chair	National Petroleum Council
Roderick A. Larson	President and Chief Executive Officer	Oceaneering International, Inc.
Mark E. Lashier	Chairman and Chief Executive Officer	Phillips 66 Company
Stephen D. Layton	President	E&B Natural Resources Management Corporation
Olivier Le Peuch	Chief Executive Officer	SLB
Doreen J. Leavitt	Director of Natural Resources	Iñupiat Community of the Arctic Slope
Francisco J. Leon	President and Chief Executive Officer	California Resources Corporation
Rebecca B. Liebert	President and Chief Executive Officer	The Lubrizol Corporation
Timothy C. Lieuwen	Executive Vice President for Research	Georgia Institute of Technology
Michael C. Linn	President and Chief Executive Officer	MCL Ventures LLC
Melanie A. Little	President and Chief Executive Officer	Colonial Pipeline Company
Arunava J. Majumdar	Dean, Stanford Doerr School of Sustainability Jay Precourt Professor, Professor of Mechanical Engineering, Senior Fellow at the Precourt Institute for Energy, and Senior Fellow, by courtesy, at the Hoover Institution	Stanford University
Maryann T. Mannen	President and Chief Executive Officer	Marathon Petroleum Corporation
Paul D. Marsden	President, Energy, Global Business Unit	Bechtel Energy, Inc.
Andrew S. Marsh	Chairman and Chief Executive Officer	Entergy Corporation
Elizabeth A. Matthews	Former Senior Vice President and General Counsel	Bristow Group Inc.
Robert S. McAnnally	President and Chief Executive Officer	ONE Gas, Inc.
William D. McCabe	Vice President, Navajo Petroleum	Navajo Nation Oil and Gas Company
Kelly R. McClelland	Chairman, Chief Executive Officer and President	Offshore Inspection Group, Inc.
Mark A. McFarland	President and Chief Executive Officer	Talen Energy Corporation
Rae McQuade	President	North American Energy Standards Board

NAME	TITLE	ORGANIZATION
Kenneth B. Medlock III	James A. Baker III and Susan G. Baker Fellow in Energy and Resource Economics Senior Director, Center for Energy Studies, James A. Baker III Institute for Public Policy Director, Master of Energy Economics, Economics Department	Rice University
Katie Mehnert	Founder and Chief Executive Officer	ALLY Energy
Chad Michael	Partner and President	Tudor, Pickering, Holt & Co., LLC
David B. Miller	Founding Partner	EnCap Investments L.P.
Jeffrey A. Miller	Chairman, President and Chief Executive Officer	Halliburton Company
Mark K. Miller	President	Merlin Energy, Inc.
Valerie A. Mitchell	President	Troy Energy
Jaime Muguiro	Chief Executive Officer	Cemex, S.A.B. de C.V.
David L. Murfin	President	Murfin Drilling Co., Inc.
Mark B. Murphy	President	Strata Production Company
Arjun N. Murti	Partner, Energy Macro and Policy	Veriten LLC
Richard G. Newell	Chief Technology Officer, Sustainability Solutions and Chief Sustainability Officer	C3.ai, Inc.
J. Larry Nichols	Chairman Emeritus	Devon Energy Corporation
Pierce H. Norton II	President and Chief Executive Officer	ONEOK, Inc.
Meg E. O'Neill	Chief Executive Officer and Managing Director	Woodside Energy Group Ltd.
Todd Osmera	Director, Jicarilla Apache Oil & Gas Administration	Jicarilla Apache Nation
Donald L. Paul	Executive Director of the USC Energy Institute Professor and William M. Keck Chair of Energy Resources Viterbi School of Engineering	University of Southern California
Robert W. Perciasepe	Senior Advisor	Center for Climate and Energy Solutions
José L. Pérez	President and Chief Executive Officer	Hispanics In Energy
Adam B. Peters	Chief Executive Officer, Air Liquide North America Vice President and Executive Committee Member	Air Liquide Group
Douglas J. Pferdehirt	Chairman and Chief Executive Officer	TechnipFMC plc
William A. Pizer	President and Chief Executive Officer	Resources for the Future
François L. Poirier	President and Chief Executive Officer	TC Energy Corporation
Patrick Pouyanné	Chairman and Chief Executive Officer	TotalEnergies, S.E.
Tricia R. Pridemore	Commissioner, Georgia Public Service Commission	State of Georgia

NAME	TITLE	ORGANIZATION
Toby Z. Rice	President and Chief Executive Officer	EQT Corporation
Katherine T. Richard	Founder, Chief Executive Officer and Co-Chief Investment Officer	Warwick Investment Group LLC
R. Lane Riggs	Chairman, Chief Executive Officer and President	Valero Energy Corporation
Corbin J. Robertson, Jr.	Chairman and Chief Executive Officer	Quintana Minerals Corporation
Rex A. Rock, Sr.	President and Chief Executive Officer	Arctic Slope Regional Corporation
Todd J. Russo	Chief Executive Officer	Buckeye Partners, L.P.
Matthew K. Schatzman	Chairman and Chief Executive Officer	NextDecade Corporation
Tisha Conoly Schuller	Chief Executive Officer and Founding Principal	Adamantine Energy LLC
Amy M. Schumacher	Chief Executive Officer	The Heritage Group
Anna C. Shaughnessy	2025 President	American Geosciences Institute
Suhail A. Sikhtian	Managing Director, Co-Head, Global Natural Resources Group, Chairmen of Investment Banking	Goldman, Sachs & Co. LLC
Lorenzo Simonelli	Chairman and Chief Executive Officer	Baker Hughes Company
Eric S. Slifka	President and Chief Executive Officer	Global Partners LP
Jeffrey B. Spath	Stephen A. Holditch '69 Department Head Chair in Petroleum Engineering Head, Harold Vance Department of Petroleum Engineering	Texas A&M University
Bert K. Stedman	Chairman	The Energy Council
Saadia G. Sultan	Founder and Managing Partner	Sultan Global Group
Cindy B. Taylor	Chief Executive Officer and President	Oil States International, Inc.
Berry H. Tew, Jr.	State Geologist of Alabama Oil and Gas Supervisor, Geological Survey of Alabama	State of Alabama
Alex Tiller	Chief Executive Officer and President	Carbonvert Inc.
Scott W. Tinker	Director Emeritus, Bureau of Economic Geology	The University of Texas
William Paschall Tosch	Vice Chairman, Energy Investment Banking	J.P. Morgan Securities LLC
H. A. True	Executive Partner and Chief Operating Officer	Bridger Pipeline LLC
Robert B. Tudor III	Chief Executive Officer	Artemis Energy Partners
D. James Umpleby III	Executive Chairman	Caterpillar Inc.
Gregory B. Upton, Jr.	Executive Director and Associate Professor – Research, Center for Energy Studies	Louisiana State University
Michael Vallejo	President and Chief Financial Officer	Arena Energy, LLC
Vaughn O. Vennerberg II	President and Founder	Ossian Oil and Gas Resources
Frank A. Verrastro	Senior Advisor, Energy Security and Climate Change Program	Center for Strategic & International Studies

NAME	TITLE	ORGANIZATION
Patricia K. Vincent-Collawn	Executive Chair	TXNM Energy, Inc.
Bruce H. Vincent	Chief Executive Officer	Vincent & Company
Richard Voorberg	Retired President, North America	Siemens Energy, Inc.
John B. Walker	Executive Chairman	EnerVest, Ltd.
John W. Wallace	Chairman and Chief Executive Officer	DeGolyer and MacNaughton
Everett M. Waller	Second Chair, Osage Minerals Council	Osage Nation
Cynthia J. Warner	Senior Operating Partner	GVP Climate, LLP
Anastacia B. Warunek	Executive Vice President of Global Business	Cenergy International Services, Inc.
Gretchen H. Watkins	Former President	Shell USA, Inc.
J. Robinson West	Chairman Emeritus, Center for Energy Impact	The Boston Consulting Group
Stephen D. Westhoven	President and Chief Executive Officer	New Jersey Resources Corporation
William H. White	Principal	White Interests
Clay C. Williams	Chairman and Chief Executive Officer	NOV Inc.
Mary Jane Wilson	President and Chief Executive Officer	WZI Inc.
Michael K. Wirth	Chairman of the Board and Chief Executive Officer	Chevron Corporation
Darren W. Woods	Chairman, President and Chief Executive Officer	Exxon Mobil Corporation
Alex W. Wright	Chief Executive Officer and President	Ariel Corporation
Lori Wrotenbery	Executive Director	Interstate Oil and Gas Compact Commission
Ezra Y. Yacob	Chairman and Chief Executive Officer	EOG Resources, Inc.
Danial D. Yates	Executive Director	The Ground Water Protection Council
George M. Yates	President and Chief Executive Officer	HEYCO Energy Group, Inc.
Lloyd M. Yates	President and Chief Executive Officer	NiSource Inc.
Daniel H. Yergin	Vice Chairman	S&P Global Corporation
Vern D. Yu	President and Chief Executive Officer	AltaGas Ltd.

Appendix B

STUDY GROUP ROSTERS

STUDY PARTICIPATION

Participants in this study contributed in a variety of ways, ranging from work in all study areas, to involvement on a specific topic, to reviewing proposed materials. Involvement in these activities should not be construed as endorsement or agreement with all the statements, findings, and recommendations in this report. Additionally, while U.S. government participants provided significant assistance in the identification and compilation of data and other information, they did not take positions on the study's recommendations.

As a federally appointed and chartered advisory committee, the NPC is solely responsible for the final advice provided to the Secretary of Energy. However, the NPC believes that the broad and diverse participation has informed and enhanced the study and advice. The NPC is very appreciative of the commitment and contributions from all who participated in the process.

This appendix lists the individuals who served on this study's Committee, Coordinating Subcommittee, and Task Groups, as a recognition of their contributions. In addition, the NPC wishes to acknowledge the numerous other individuals and organizations who participated in some aspects of the work effort. Their time, energy, and commitment significantly enhanced the study, and their contributions are greatly appreciated.

LIST OF STUDY GROUPS

- Permitting Committee Roster
- Permitting Coordinating Subcommittee Roster
- Permitting Task Group 1 – Chapter 1: Supply, Demand, and Intervening Infrastructure Hurdles
- Permitting Task Group 2 – Chapter 2: Review of 2019 *Dynamic Delivery* Report Recommendations
- Permitting Task Group 3 – Chapter 3: Permitting at a Crossroads: Addressing Legal Barriers to Build a Durable Permitting System that Works
- Permitting Task Group 4 – Chapter 4: Policy Solutions for Timely, Efficient Infrastructure Expansion

COMMITTEE ON OIL AND NATURAL GAS INFRASTRUCTURE PERMITTING

CHAIR

François L. Poirier
President and Chief Executive Officer
TC Energy Corporation

GOVERNMENT REPRESENTATIVE

Kyle Haustveit
Assistant Secretary for Fossil Energy
U.S. Department of Energy

EX OFFICIO

Alan S. Armstrong
Chair, National Petroleum Council
The Williams Companies, Inc.

EX OFFICIO

James Y. Kerr II
Chair, NPC Gas-Electric Coordination Committee
Southern Company Gas

EX OFFICIO

Ryan M. Lance
Vice Chair, National Petroleum Council
ConocoPhillips Company

EX OFFICIO

Toby Z. Rice
Vice Chair, NPC Gas-Electric Coordination Committee
EQT Corporation

SECRETARY

Marshall W. Nichols
Executive Director
National Petroleum Council

MEMBERS

Orlando A. Alvarez
Chairman and President
bp America Inc.

Holly A. Bamford
Chief Conservation Officer
National Fish and Wildlife Foundation

E. Russell Braziel
Executive Chairman
RBN Energy, LLC

Daniel C. Cardenas, Jr.
Chief Executive Officer and Chairman
National Tribal Energy Association

W. C. W. Chiang
Chairman and Chief Executive Officer
Plains All American Pipeline, L.P.

Jack A. Fusco
President and Chief Executive Officer
Cheniere Energy, Inc.

Kourtney K. Hadrick
Operating Director – Energy
Southern Ute Indian Tribe Growth Fund

Mark E. Lashier
Chairman and Chief Executive Officer
Phillips 66 Company

Maryann T. Mannen
President and Chief Executive Officer
Marathon Petroleum Corporation

Mark K. Miller
President
Merlin Energy, Inc.

Tisha Conoly Schuller
Chief Executive Officer and Founding Principal
Adamantine Energy LLC

William Paschall Tosch
Vice Chairman
Energy Investment Banking
J.P. Morgan Securities LLC

Gretchen H. Watkins
Former President
Shell USA, Inc.

Michael K. Wirth
Chairman of the Board and Chief Executive Officer
Chevron Corporation

Darren W. Woods
Chairman, President and Chief Executive Officer
Exxon Mobil Corporation

Lloyd M. Yates
President and Chief Executive Officer
NiSource Inc.

Vern D. Yu
President and Chief Executive Officer
AltaGas Ltd.

PERMITTING COORDINATING SUBCOMMITTEE ROSTER

CHAIR

Alex Oehler
Vice President, External Relations
TC Energy

SECRETARY

James Slutz
Managing Director
National Petroleum Council

MEMBERS

Edward Arnett
Chief Executive Officer
The Wildlife Society

Faith Caparas
Director, Public Policy
ConocoPhillips

Lisa Epifani
Head of Policy
ClearPath

Sarah Gainer
Director, Federal Affairs
The Southern Company

Mark Gebbia
Principal
Gebbia Consulting, LLC

Joshua Gibbon
SVP Commercial
TC Energy

Kourtney Hadrick
Operating Director – Energy
Southern Ute Indian Tribe Growth Fund

Jake Hinch
Federal Government Affairs Manager
Marathon Petroleum Corporation

Paul Hughes
Generation Policy Manager
Southern Company

Elise Krekorian
Executive Branch & Federal Regulatory Affairs Director
The Williams Companies, Inc.

Jan Mares
Senior Advisor
Resources for the Future

Brianne Metzger-Doran
Vice President, Operation Services
TC Energy

Erin Potter-Sullenger
Senior Counsel – Environmental, Health & Safety
The Williams Companies, Inc.

Robert Smith
VP Regulatory Affairs
Cheniere Energy

Sarah Tomalty
Senior Advisor
bp

Jamie Wall
Vice President – Public and Government Affairs
Global Public Policy, U.S. Government Relations
Exxon Mobil Corporation

Lane Wilson
Senior Vice President and General Counsel
The Williams Companies, Inc.

Brian Wulf
Regulatory Affairs & Compliance Improvement Manager
Exxon Mobil Corporation

Kenneth Yagelski
Director, Gas Supply
Southern Company Gas

ALTERNATE MEMBERS

Alex Calabro
Director, Federal Government Relations
Exxon Mobil Corporation

Cameron Kovach
Chief Program Officer
The Wildlife Society

Daniel McCarl
Attorney
Maynes, Bradford, Shipps & Sheftel LLP

Steven McCord
Manager of NAESB, Compliance and Reporting
TC Energy

Edgar Trillo
Director
TC Energy

Janine Watson
VP Natural Gas Strategy and Business Planning
TC Energy

CSC OBSERVERS

Emily Ward
Administrative Assistant
National Petroleum Council

Robert Corbin
Consultant
National Petroleum Council

Carol Butero
VP EHS
Kinder Morgan

Stephanie Muecke
Senior Analyst
Boston Consulting Group

CSC SECRETARY

Marshall Nichols
Executive Director
National Petroleum Council

CSC SECRETARY

Margo Regier
Study Coordinator
National Petroleum Council

CSC GOVERNMENT REPRESENTATIVE

Ryan Peay
Deputy Assistant Secretary for Resource Sustainability Office of Fossil Energy and Carbon Management
U.S. Department of Energy

CSC ALT. GOV. REPRESENTATIVE

Blair Pasalic
Director of Planning and Administration, Office of Resource Sustainability
U.S. Department of Energy

CSC ALT. GOV. REPRESENTATIVE

Stephanie Plith
AO Operations
U.S. Department of Energy – Fossil Energy

CSC GOV. RESOURCES

Logan Guy
Contractor
U.S. Department of Energy

CSC GOV. RESOURCES

Jonah Saacks
Senior Consultant
Deloitte Consulting LLP

CSC PROJECT MANAGER

Amy Coldham
Manager, Business Planning
TC Energy

CSC PRINCIPAL ASST.

Jeremiah Guice
Regulatory Affairs Analyst
bp

TASK GROUP 1

CHAIR

Sarah E. Tomalty
Senior Advisor
bp

SECRETARY

Emily Ward
Administrative Assistant
National Petroleum Council

MEMBERS

David Brankin
Senior Counsel
Southern Company Gas

Neel Brown
Managing Director
Progressive Policy Institute

Andrew B. Cameron
Senior Strategy Analyst
TC Energy

Elina Carpen
Assistant Director, Global Energy Center
Atlantic Council

Landon R. Derentz
Vice President for Energy and Infrastructure
Atlantic Council

Joan Dreskin
General Counsel
Interstate Natural Gas Association of America

Dean Ellis
Vice President, Regulatory Affairs
bp

Emily Gerhardt
Senior Director, Government Affairs
Southern Company

Talia Johnson
Vice President Natural Resources Investment Banking
J.P. Morgan

Mason McLean
Manager - Energy Intelligence & Analysis
TC Energy

Meagan M. Neal
Senior Analyst, Enterprise Policy
Chevron

Christopher B. Smith
Regulatory Counsel
Interstate Natural Gas Association of America

Robert Smith
VP Regulatory Affairs
Cheniere Energy

Austin Smithson
Policy Advisor
Chevron

Janine M. Watson
VP Natural Gas Strategy and Business Planning
TC Energy

TASK GROUP 2

CHAIR

Brian J. Wulf
Regulatory Affairs & Compliance Improvement Manager
Exxon Mobil Corporation

SECRETARY

Robert Corbin
Consultant
National Petroleum Council

MEMBERS

David Brankin
Senior Counsel
Southern Company Gas

Emily Gerhardt
Senior Director, Government Affairs
Southern Company

Jake Hinch
Federal Government Affairs Manager
Marathon Petroleum Corporation

Melissa M. Mitchell
Attorney
PHMSA/Independent Contractor

Benjamin A. Nussdorf
General Counsel
National Propane Gas Association

Michael Oberman
Manager, Competitive Intelligence
TC Energy

Jeffrey C. Ratcliff
Regulatory Affairs Advisor
Exxon Mobil Corporation

Michael Sansone
Senior Advisor, Federal Government Relations
TC Energy

Brooks M. Smith
Partner
Troutman Pepper Locke

Michael A. Smith
Director, External Relations
TC Energy

Sandra R. Werner
Regulatory Affairs Advisor
Exxon Mobil Corporation

TASK GROUP 3

COCHAIRS

Elise Krekorian
Executive Branch & Federal Regulatory Affairs Director
The Williams Companies, Inc.

Erin Sullenger
Senior Counsel - Environmental, Health & Safety
The Williams Companies, Inc.

SECRETARY

Robert Corbin
Consultant
National Petroleum Council

MEMBERS

Edward B. Arnett
Chief Executive Officer
The Wildlife Society

Alicia Bishop
Manager of Environmental Programs
Southern Company Gas

Faith Caparas
Director - Public Policy
ConocoPhillips

Kyle W. Danish
Partner
Van Ness Feldman, LLP

Erik W. Dilts
Director, US Environment
TC Energy

Mark Gebbia
Principal
Gebbia Consulting, LLC

Daniel F. McCarl
Attorney
Maynes, Bradford, Shipps & Sheftel LLP

Meagan M. Neal
Senior Analyst, Enterprise Policy
Chevron

Krystina Parker
Supervisor, Environmental Permitting
Plains Pipeline

Robert Smith
VP Regulatory Affairs
Cheniere Energy

Allison K. Stuckey
Extern
The Williams Companies, Inc.

Karen Ward
Director, Government and Public Affairs
Plains All American

Patrick Winnubst
Manager, Env Programs
Southern Company Gas

TASK GROUP 4

CHAIR

Brianne Metzger-Doran
Vice President, Operation Services
TC Energy

SECRETARY

Robert Corbin
Consultant
National Petroleum Council

MEMBERS

Leslie Abrahams
Deputy Director
Center for Strategic and International Studies

Edward B. Arnett
Chief Executive Officer
The Wildlife Society

David Brankin
Senior Counsel
Southern Company Gas

Alexis O. Burns
Intern
Center for Strategic and International Studies

Faith Caparas
Director - Public Policy
ConocoPhillips

Michael J. Catanzaro
CEO
CGCN Group

Lisa E. Epifani
Head of Policy
ClearPath

Mark Gebbia
Principal
Gebbia Consulting, LLC

Emily Gerhardt
Senior Director, Government Affairs
Southern Company

Joshua Gibbon
SVP Commercial
TC Energy

Matthew Mailloux
Program Director - Clean Energy Innovation and Permitting
ClearPath

Joseph Majkut
Director
Center for Strategic and International Studies

Jan Mares
Senior Advisor
Resources for the Future

Daniel F. McCarl
Attorney
Maynes, Bradford, Shipps & Sheftel LLP

Meagan M. Neal
Senior Analyst, Enterprise Policy
Chevron

Michael Oberman
Manager, Competitive Intelligence
TC Energy

Alex Oehler
Vice President, External Relations
TC Energy

Chris Russo
Regulatory & Policy Advisor
Exxon Mobil Corporation

Clay Seigle
Senior Fellow
Center for Strategic and International Studies

Brooks M. Smith
Partner
Troutman Pepper Locke

Michael A. Smith
Director, External Relations
TC Energy

Robert Smith
VP Regulatory Affairs
Cheniere Energy

Austin Smithson
Policy Advisor
Chevron

Karen Ward
Director, Government and Public Affairs
Plains All American

Janine M. Watson
VP Natural Gas Strategy and Business Planning
TC Energy

Sandra R. Werner
Regulatory Affairs Advisor
Exxon Mobil Corporation

National Petroleum Council
1101 Vermont Ave NW, #300
Washington, DC 20005
www.npc.org

ISBN 978-0-9799700-9-2
90000>
9 780979 970092