

AMERICA ON HOLD

HOW PERMITTING DELAYS STALL MANUFACTURING PROGRESS

A Joint Report by the Foundation for American Innovation and the National Association of Manufacturers



\$7.9 billion+

**The Cost of America's Broken Federal
Permitting System to Manufacturers**





▶ Executive Summary

America’s manufacturing might depends on manufacturers’ ability to get shovels in the ground on job-creating projects across the country. Manufacturing investment drives new jobs, economic strength, and U.S. competitiveness—but projects that are delayed or denied thanks to America’s broken permitting process never live up to that promise. That is why there is a strong and growing bipartisan recognition that permitting reform is critical to American economic and national security in the 21st century.

Permitting challenges—a vast and complex web of interconnecting, and often overlapping, statutes and regulations—affect all project types. Projects range from new manufacturing facilities to factory expansion, from shop floor modernization to capital equipment installation, from pipelines to transmission lines, from semiconductor fabs to auto plants, from solar farms to gas plants, and from critical minerals processing to battery production. These challenges have real-world, quantifiable, negative impacts on manufacturing investment. Up to this point, however, consolidated research demonstrating these impacts has been sparse.

This can be attributed to the sheer number of laws and regulations governing permits and the fact that there is no central permit repository in the federal government that can be pulled from. This report addresses this lack of consolidated data, and our findings starkly show what is at stake if policymakers cannot deliver comprehensive permitting reform in 2026.

This joint report by the National Association of Manufacturers, the largest manufacturing trade association in the U.S., and the Foundation for American Innovation, a think tank championing the technology, talent and ideas essential to American prosperity, security and flourishing, documents what manufacturers are experiencing on the ground: the specific statutes that are creating bottlenecks, and the reforms that would alleviate those bottlenecks to fully unleash manufacturing investment, get shovels in the ground, compete on the world stage and deliver for the American people.

To provide a comprehensive view of the impacts of the permitting burden on manufacturers, the NAM and the FAI conducted a joint survey of the NAM’s members Dec. 9, 2025–Jan. 15, 2026 to identify which projects manufacturers are undertaking, which permits they most often require, where delays and uncertainty slow investment, and what reforms industry prioritizes. A joint analysis of the publicly available permitting data and survey data show that permitting delays cost manufacturers at least \$7.9 billion every year. As the survey results demonstrate, this significant resource diversion harms manufacturing investment and can hinder companies’ ability to open facilities, launch projects, and create jobs across the country.



Scope of Analysis

We estimate using external and survey data that over the past 10 years the U.S. manufacturing sector has incurred an average annual permitting burden of **at least \$7.9 billion**. To do so, unit costs are derived by multiplying the 10-year federal permit counts with the total out-of-pocket and indirect costs of the permitting process, as detailed in the bullets below. See the Appendix for full methodological detail.

Our analysis includes:

- The federal count of applications and final permits obtained by manufacturers over the past 10 years, categorized by permit type (NEPA, Clean Water Act §404 Standard, §404 Nationwide Permits, Endangered Species Act, Clean Water Act §401, Clean Air Act Major and Minor, National Pollutant Discharge Elimination System Major and Minor, and the National Historic Preservation Act);
- Out-of-pocket costs due to approvals, such as application fees, consultants, legal costs, etc.; and
- The indirect costs from delay, such as carrying costs, lost revenue from pushing back project initiation, inventory and contract impacts, etc.

MOST COMMON PERMITTED PROJECT: Building/Expanding a Facility (70%)

Diving deeper: America's manufacturers are bringing about an industrial renaissance—investing in new capacity, expanding plants and modernizing production lines on U.S. soil. But for a large share of firms, the permitting process has become a gating constraint, resulting in regulatory uncertainty, unclear timelines, inconsistent requirements and high transaction costs that can turn even routine upgrades into multi-month or multi-year exercises.

82% needed Clean Water Act permits

73% needed Clean Air Act permits

Key Finding

Permitting reform is not a single-law issue or a topic that only matters for giant, federally sponsored projects. For manufacturers, the daily burden is overwhelmingly about air and water permits, and the pain point comes from the sum of reviews that manufacturers must undergo each year.

The survey results point to a permitting system that is most painful where manufacturers spend most of their time: routine upgrades, expansions and ongoing operations.

- The most common permitted projects in the past 10 years were building/expanding a facility (70%) and adding/modifying production equipment (63%).
- For those projects permitted in the past 10 years, Clean Water Act-related permits (process water or stormwater) were required for more than 82%, and Clean Air Act permits were required for nearly 73% of equipment additions/modifications.
- Of the various approvals and reviews required, respondents reported that Clean Air Act permitting was the most burdensome.
- Nearly 51% of manufacturers said permitting/approval concerns discourage them from investing in new or expanded U.S. capacity.
- Nearly 66% said they are likely to increase U.S. investment if permitting timelines were shorter and more predictable.
- Asked what would help most:

51%

cited making small upgrades easier to permit and using realistic baselines

44%

noted speeding up renewals when operations haven't changed materially

44%

supported judicial review reforms to ensure faster, more predictable reviews with reasonable time limits





What's Driving Delays and Increased Costs in Permitting

The biggest delay drivers were reported as follows:

- Back-and-forth to complete the application: 46%
- Agency workload/queue: 41%
- Required studies (e.g., air modeling, wetlands delineation, species survey): 32%
- Inter-agency coordination: 25%

Among respondents who provided an estimate for total approval time:

58%
 reported approvals taking
 at least 6 months

35%
 reported approvals taking
 at least 12 months

10 months
 estimated weighted
 average approval time



80% of manufacturers say that the length and complexity of the permitting process is harmful to increasing investment.



87% of manufacturers would expand business operations, hire more workers or increase wages and benefits if the permitting process were more streamlined.



68% of manufacturers with permissible expansion plans say they would be able to expand more quickly with a streamlined federal permitting system.

NAM Q2 2024 and Q4 2024 Manufacturers' Outlook Surveys

What Manufacturers Need

Based on survey priorities and the structure of the permitting stack, eight key themes emerged that would reduce delays, increase certainty, and unlock investment by manufacturers:

- 1. Make routine changes routine again.** The permitting process should treat minor facility modifications and upgrades made by manufacturers as proportional with their potential impact and recognize the benefits of these changes.
- 2. Make renewals boring.** If operations have not materially changed, renewals should be closer to a verification process than a re-permitting exercise.
- 3. Make timelines predictable end-to-end,** as manufacturers need clear statutory deadlines to avoid leaving the process open to misinterpretation and abuse.
- 4. Reform NEPA,** including increasing the use of categorical exclusions and responsibly expediting judicial review, so it is used to ensure best project outcomes, not obstruction.
- 5. Modernize the Clean Air Act** to ensure workable PM2.5 and ozone standards and realistic review cycles, recognize regional differences across the country and allow regional emissions credit trading.
- 6. Streamline the Clean Water Act** by clarifying timelines, roles and permitting scope, and expand general permits to reduce duplicative and lengthy reviews.
- 7. Strengthen the threshold** for stopping operations under procedural litigation.
- 8. Create durable certainty** in the permitting process so legally permitted projects stay permitted.

Who We Are



The Foundation for American Innovation 501(c)3 champions the technology, talent, and ideas essential to American prosperity, security, and flourishing. We are builders, hackers, and scholars advancing an optimistic vision of the future—aligning technology with human ends to forge a more perfect union between innovation and the American republic.



The NAM is the voice of the manufacturing community and the leading advocate for a policy agenda that supports and empowers the 13 million people who make things in America. As the largest manufacturing association in the U.S., the NAM's membership includes businesses of all sizes, across all industrial sectors and in all 50 states.

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Introduction

America is in competition with itself. On the one hand, we say we want more domestic production: stronger supply chains, more capital investment, more jobs and increased resilience in the face of shocks. On the other hand, we run a permitting system that often treats routine industrial upgrades as if they were novel developments, subjects renewals to the same scrutiny as first-time applications and leaves firms unable to forecast when—and whether—a decision will come.

The result is years of delay, skyrocketing costs and uncertainty that kills investment in critical sectors. When manufacturers can't reliably forecast how long decisions will take, what conditions will be attached or whether a permit will survive litigation, they make the rational choice: scale more cautiously, shift expansions to less risky jurisdictions, or defer projects altogether.

This report is an attempt to bring the permitting conversation back to first principles: how manufacturers really feel about the U.S. permitting system, what laws and permits do manufacturers interact with most, and which permitting roadblocks are most burdensome and what reforms are needed to change real-world investment decisions.

Why This Report

Permitting debates often fixate on a single statute or project class. But manufacturers experience permitting as a stack: local approvals, state-issued air and water permits, federal requirements that can layer on depending on the project, and procedural tripwires that can stretch timelines far beyond what the underlying risk would justify.

To make progress, we need both a clear picture of what manufacturers are dealing with in practice and a common quantitative frame that policymakers, agencies and stakeholders can use to track whether reforms are reducing delay and uncertainty.

What the Survey Shows

The NAM's permitting survey helps ground this report in the reality of day-to-day industrial investment. The most common permitted activities are not megaprojects, but rather facility expansions and updates to production equipment. These activities most often collide with Clean Water Act and Clean Air Act permitting, with air permitting frequently described as the most burdensome.

Just as important: nearly two-thirds of respondents report that permitting conditions negatively impact their willingness to invest, and that reforms focused on small upgrades, realistic baselines, faster renewals and more predictable judicial review would materially improve the system.



Most manufacturers' exposure to NEPA is indirect, as the law was meant to address major projects with a significant federal nexus, and the vast majority of manufacturers in America are small and medium-sized companies. While many manufacturers may not directly interact with NEPA's statutory and regulatory constraints on a regular basis, they are regularly *impacted* by them. Two key points illustrate the persistent and pervasive way that NEPA can slow down manufacturing permits, despite this lack of direct interaction.

First, manufacturers are heavily indirectly exposed to NEPA, as manufacturers often have significant energy and electricity needs—and energy and electricity infrastructure is often severely constrained by NEPA. The industrial sector accounts for [roughly 26%](#) of total U.S. electricity retail sales, and manufacturing alone represents about [78%](#) of industrial sector electricity purchases. New manufacturing facilities are one of the principal drivers of the current surge in U.S. electricity demand. Grid planners have increased five-year load-growth forecasts [sixfold](#) since 2021, driven in significant part by announced semiconductor, battery and energy manufacturing plants. In addition, electric availability drives siting decisions. Consider southern Arkansas, where companies are racing to develop what may be one of the world's largest lithium deposits, but where local leaders [have warned](#) that the rural power grid will need substantial upgrades to accommodate the enormous electricity demands of commercial-scale direct lithium extraction and processing.

Second, unlike a law like the Clean Air Act, which applies to all major sources of criteria pollutants, NEPA is set off by a federal nexus such as federal land, federal funding or certain federal permitting. As such, developers often "[venue shop](#)" to avoid the federal nexus. In this way, NEPA still drives decision-making even though it doesn't show up in easily measurable timelines.

However, when NEPA does show up, it can become the pacing item that pulls multiple agencies, studies and litigation exposure into what would otherwise be a straightforward industrial project.

“ We were the first mining project covered under the federal government’s FAST-41 permitting program in 2024. From start to finish, the process will take just over two years. We have seen the benefits that streamlining and coordinating federal efforts under NEPA provides to projects like Hermosa. When there is a collective will to support a project needed for national security, the resources are put in place to ensure the defined timeline milestones are met with the same, if not more, amount of rigor and efficiency. By responsibly modernizing NEPA in a bipartisan manner, more critical projects can move forward to support communities, provide jobs, and deliver for America.”

– Pat Risner, President, Hermosa Project, South32

An NAM analysis of public data—57 manufacturing project Environmental Impact Statements finalized between 2016–2025—found that manufacturing EISes take an average of 4.1 years to complete, with a median of 2.9 years (this is relative to recent data from the Council on Environmental Quality that shows a national average for all projects of 2.2 years for an EIS). Additionally, our analysis of public data showed that for U.S. Army Corps of Engineers standard permits (which are a stand-in for NEPA Environmental Assessments), these permits took 1.3 years on average for manufacturing projects versus a four- to six-month national average for all projects reported by CEQ.

What Manufacturers Reported

When NEPA did apply, its impacts were likely to be significant, such as through overly burdensome documentation requirements and extensive litigation.

On delay duration, among respondents who indicated a NEPA pathway:

- 21.2% reported a 12+ month delay, 85.7% of whom experienced delays exceeding 24 months
- Estimated weighted average time attributable to NEPA: 6.5 months

These results reflect the 22% of respondents who reported direct NEPA impacts; however, as discussed above, NEPA necessarily is more applicable to a smaller subset of large, important projects, and the actual impacts of NEPA more broadly are more extensive given that most NEPA interactions for manufacturers are indirect. In short: NEPA isn't the modal manufacturer's direct pain point, but when NEPA is in the loop, it can impose project-level time risk that's out of proportion to how often it appears in a manufacturer's normal upgrade cycle.

“ Projects that strengthen our energy system can face years of unnecessary delays under the current NEPA framework. Uncertain timelines, duplicative reviews, overly expansive analyses, and lengthy litigation can stall or even cancel critical infrastructure. Modernizing NEPA is a critical step toward providing greater certainty for developers and communities so we can deliver the energy needed to support American jobs, strengthen supply chains, and keep energy affordable for families and businesses.”

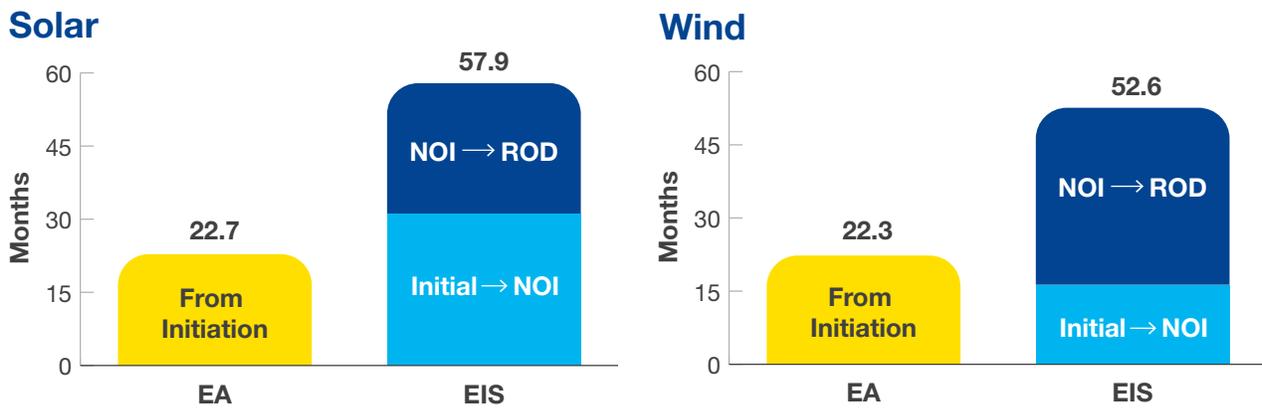
– Toby Z. Rice, President & CEO, EQT

Where NEPA Friction Shows Up for Manufacturers

NEPA typically enters the manufacturing context when a project requires federal land, federal funding or a federal permit. In practice, that tends to mean coordination across agencies with different incentives and timelines, with the review's scope expanding well beyond direct environmental effects and [more attention](#) paid to avoiding litigation than the stated goals of NEPA.

The public data show years-long timelines across a wide variety of sectors and different levels of review—including those that end with a Finding of No Significant Impact.

For solar projects, the [average time](#) to complete an environmental impact statement from initial action (typically the application submission) to the record of decision is 57.9 months, or nearly five years. The numbers are barely better for wind projects, for which the average time is 52.6 months. Meanwhile, for environmental assessments—approximately 99% of which result in FONSI—the average timelines for solar and wind are 22.3 and 22.7 months, respectively.



Legend

■ From Initiation

Environmental Assessment (EA) timeline. Time from when a project formally enters federal review—usually at application submission—until the agency issues a Finding of No Significant Impact (FONSI), clearing the project to proceed. Roughly 99% of federal reviews end here, without requiring a full EIS.

■ Initial → NOI

EIS Phase 1: Application to Notice of Intent. Once a project is flagged as needing deeper review, the agency publishes a Notice of Intent (NOI) in the Federal Register, formally opening the Environmental Impact Statement process. This segment measures how long that handoff takes.

■ NOI → ROD

EIS Phase 2: Scoping through Record of Decision. The main body of the full EIS process—from public scoping and draft review through the agency’s final decision document (Record of Decision, or ROD). This is typically the longest and most resource-intensive phase for project sponsors.

Note: Timelines begin at the initial agency action (typically application submission), not at project conception or pre-application consultation. Categorical Exclusion (CX) data are not available and are excluded from this chart.

For the one geothermal EIS for which the initial action date is available, the review took 42 months. Geothermal projects more often undergo an environmental assessment, for which the average timeline is comparatively “light” at 14.6 months. Of note: even categorical exclusions, which policymakers often incorrectly think of as “exemptions” from NEPA, can drive up development timelines for geothermal projects—particularly in the exploration stage. Reports on the average geothermal categorical exclusion timelines range from [3 months](#) to upwards of half a year.



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Moving from energy generation to energy transportation, a [report](#) from the Niskanen Center and Clean Air Task Force places the average environmental impact statement timeline (from notice of intent to record of decision) for electric transmission projects at 4.3 years. Meanwhile, the Permitting Council [reports](#) that the average EIS timeline for pipelines is 2.42 years.



The average environmental impact statement timeline (from notice of intent to record of decision) for electric transmission projects is 4.3 years. Meanwhile, the average EIS timeline for pipelines is 2.42 years.

Of course, these front-end review timelines do not capture the risk and additional time burden of NEPA litigation. NEPA lawsuits require an average of [23 months](#) to resolve; 56% of pipelines undergoing NEPA are [litigated](#), as are 31% of transmission projects.



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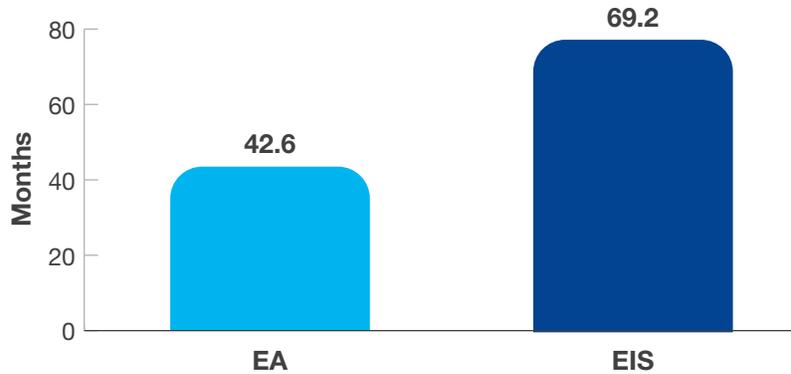
According to the NAM Q4 2024 Manufacturers' Outlook Survey, of companies with permissible projects planned, 68% say they would be able to expand or build new facilities in the U.S. more quickly if Congress and the administration streamline federal permitting by expediting judicial review.

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Beyond energy infrastructure, NEPA hits several other corners of the economy.

For high-speed rail projects, EISes require a whopping [9.35 years](#) on average to complete. For light rail projects, the average is 5.93 years. For bridge construction, repair, and rehabilitation projects identified in the Department of Transportation's permitting tracker, the average environmental impact statement timeline is 5.76 years, while the average environmental assessment timeline is 3.55 years.

Bridge Construction/Repair/Rehabilitation



What's more, NEPA ironically ends up holding back important environmental protection efforts, and in particular forest management. For prescribed burns, EISes [require](#) an average of 32.8 months from initial action to record of decision, while environmental assessments take 19.8 months and categorical exclusions take 9.1 months. For mechanical treatment, EISes average 31.4 months, environmental assessments average 21 months, and categorical exclusions take 9.3 months.

What Reform Would Look Like in Practice

A manufacturer-friendly NEPA system would maintain environmental protections while making the review process legible, bounded and predictable.

Survey responses point in that direction, with respondents supporting reforms that map cleanly to NEPA's most common failure modes:

- **Keep reviews focused on direct, near-term effects (NEPA scope)**
- **Conduct faster, coordinated federal reviews for major projects with multiple agencies (lead federal agency)**
- **Ensure faster, predictable reviews with reasonable court time limits (judicial review reforms)**

In other words, what's needed is narrower scope, better coordination and predictable end-of-process closure.

Clean Air Act

The Clean Air Act is something of a center of gravity for the manufacturing permitting burden. This result has shown up in prior surveys, [including](#) those conducted by the Department of Commerce.

Our survey results are consistent: air permits are common, they are frequently the longest and they are most often described as the most burdensome.

What Manufacturers Reported

Among respondents who required approvals in the past 10 years:

- **72.6% reported needing an air permit to add/modify equipment** (Clean Air Act—e.g., New Source Review/Prevention of Significant Deterioration; Title V where applicable).

Air permits also dominate as the “most burdensome” and “longest.”

- When asked about the most burdensome approvals, **the air permit was ranked #1 by a majority of respondents (50.9%)**, and it had the highest overall burden score of any approval type.
- **When asked which approval from submission to decision was the longest, the air permit was identified by 40.0% of respondents**—more than double the next category.

Half of the respondents needing a permit ranked the Clean Air Act as the most burdensome approval type.

In plain terms, air permitting is where manufacturers feel the system’s sharp edges most often.

What Reform Would Look Like in Practice

When asked what reforms would most improve the permitting system, a significant share of respondents reported the following Clean Air Act-related adjustments:

- **Make small upgrades to equipment like boilers easier to permit and use realistic baselines:** 51.3%
- **Speed up permit renewals for sources of all sizes when operations and emissions haven’t changed materially:** 44.4%
- **Consider feasibility and background levels when setting limits:** 38.5%

Clean Water Act

For manufacturers, Clean Water Act permitting is common and consequential, even when the project itself is a basic facility expansion or equipment purchase. The survey results show that water permitting touches a broad share of routine manufacturing activity, and that manufacturers need water approvals to be more bounded in scope and time.

What Manufacturers Reported

Among respondents who needed approvals:

- **82.1% needed a CWA permit to discharge or manage process water/stormwater** (Clean Water Act – National Pollutant Discharge Elimination System or state equivalent; general or individual permits).
- **48.8% needed a CWA §401 state water quality certification.**
- **29.8% needed a CWA §404 dredge/fill permit** (or state equivalent).

Water approvals also show up as some of the most burdensome and time-consuming, though not as singularly as air permitting:

- When asked about the most burdensome approvals, the process water/stormwater permit was ranked #1 by 20.3% of respondents and in the top three by 85.1% of respondents.
- When asked which approval from submission to decision was the longest, 18.8% of respondents said the process water/stormwater approval was longest, while 11.3% cited the §401 certification and 8.8% indicated the §404 dredge/fill.

Where the Friction Shows Up

Water permitting problems tend to present in two forms:

- **Ongoing operational permitting** (stormwater, wastewater, process water), where the manufacturer's priority is predictable compliance and renewals that reflect stable operations
- **Jurisdictional and sign-off (Sections 401/404)**, where a project can end up with multiple decision points and potential scope creep

What Reform Would Look Like in Practice

Those two dynamics match what manufacturers prioritize in improvement options:

- **Speed up renewals when operations haven't materially changed:** 44.4%
- **Make state water quality sign-offs focused and time limited (CWA §401 scope/timelines):** 24.8%
- **Have clear rules on which streams/wetlands are regulated:** 15.4%

The through-line is that manufacturers want water approvals to “stay in their lane” with their scope of review and to have predictable, bounded schedules.

▶ ESA and NHPA

Much like NEPA, ESA and NHPA are not the approvals most manufacturers encounter most often, but they function as federal overlay processes that can materially compound timelines when triggered.

What Manufacturers Reported

Among respondents who required approvals in the past 10 years:

- **35.7% needed endangered species consultation or permitting (ESA §7/§10)**
- **25.0% needed historic/tribal consultation (NHPA §106)**

Since manufacturers don't come across an ESA or NHPA consultation or permitting as frequently, the largest share of respondents (33.3% and 27.8%, respectively) ranked both as the fourth most burdensome approval process. However, many respondents did place ESA and NHPA in their top three most burdensome approvals—60.9% and 35.7%, respectively. Furthermore, while few respondents cited ESA and NHPA as having the longest approval from submission to decisions (6.3% and 2.5%, respectively), this pattern is consistent with these processes' “overlay risk.” In other words, these processes, while neither the most burdensome nor the longest, add more time to the most burdensome parts of manufacturers' permitting processes, such as the Clean Air Act and the Clean Water Act.

Where the Friction Shows Up

ESA and NHPA frictions are often less about clear substantive disagreement and more about process dynamics. These process dynamics include:

- Multiple entities with consultative roles;
- Iterative requests for information or studies;
- Litigation risk; and
- Late-arising issues that force redesigns or re-scoping.

This connects directly to the delay drivers most cited in response to the survey (application back-and-forth, agency queue, required studies, inter-agency coordination). Process laws like ESA and NHPA are where those drivers tend to snowball.

What Reform Would Look Like in Practice

Manufacturers did not rank ESA/NHPA reforms as the improvements that would help the most as high as the everyday fixes to air and water permitting, likely because many firms only encounter ESA/NHPA episodically. And, more broadly, respondents supported judicial review reforms (43.6%) that would reduce the end-stage uncertainty that overlay processes can magnify. Still, respondents explicitly endorsed making these overlay processes more predictable:

- **Conduct quicker endangered species consultations with clearer rules:** 8.6%
- **Set reasonable timelines for historic/tribal consultation:** 7.7%

➤ Conclusion: A Competitive Manufacturing Permitting Framework

The permitting system is supposed to do two things at once: protect the public and the environment, and provide a clear, lawful path for productive economic activity to proceed. In manufacturing, that second function is increasingly failing. The core problem is not that manufacturers object to permitting in principle; it is that too much of the system has become slow, overly iterative and unpredictable—killing investment across the board.

Our respondents' projects most frequently trigger Clean Air Act and Clean Water Act permits, and manufacturers consistently report that the air permit is the most burdensome and most often the longest. At the same time, a nontrivial share of projects encounter federal “overlay” processes—NEPA review when there is a federal nexus, and ESA and NHPA consultations when species or cultural resources are implicated—that can compound timelines through iterative process dynamics and late-stage uncertainty.

51%

say permitting affects
willingness to invest

66%

would increase investment
with faster permitting

Most importantly, the survey makes clear that permitting is not a minor irritation, but rather a **significant factor shaping industrial decision-making**. A majority of respondents report that permitting and approval concerns affect their willingness to invest in new or expanded U.S. capacity, and an even larger share say they would be likely to increase U.S. investment if permitting timelines were shorter and more predictable. **In short: permitting reform is foundational to the continued dominance and competitiveness of manufacturing in America for the rest of the 21st century.**

A Call to Action for Policymakers

Taken together, the survey and analysis support three conclusions.

First, permitting reform cannot be reduced to a single-law conversation. Manufacturers experience permitting as a stack, and delay often emerges from how those layers interact: state air and water programs, federal procedural triggers, consultations and litigation risk. Fixing only one layer rarely delivers predictable schedules in practice: **manufacturers need comprehensive reforms.**

Second, reforms aimed at the most common interactions—routine upgrades, expansions, and renewals—could have major payoffs. If the system treats small improvements like novel projects, it will choke off modernization.

Third, the binding constraint is often not a substantive environmental dispute but the mechanics of the process. Back-and-forth to complete applications, agency workloads, inter-agency coordination problems and litigation-proofing substantially delay permitting processes across the board, hindering manufacturing investments of all types. These are administrative and statutory design issues that can be solved while delivering positive environmental outcomes.

The United States cannot build a durable industrial renaissance on a permitting system that is unpredictable by default. Done right, permitting reform will produce benefits that are both pro-growth and pro-governance, with more domestic investment and modernization, clearer rules and fewer surprises, a stronger culture of compliance and more credible environmental protection.

A Practical Reform Agenda

The survey responses in this report point toward a reform package that is practical and cross-cutting.

1. Make routine changes routine again.

The most common manufacturer projects should not face the highest transaction costs. Minor modifications and upgrades should be subject to a permitting process that is proportional to their potential environmental impact.

2. Make renewals boring.

When operations have not materially changed, renewal should not function as a reopening of the entire permit. Streamlined renewals offer a high-return reform that reduces burden while keeping environmental obligations intact.

3. Make timelines predictable end-to-end.

Agencies should be accountable to decision schedules once applications are complete, with clear completeness standards and statutory deadlines to reduce iterative back-and-forth.

4. Reform the National Environmental Policy Act

Over the last half-century, NEPA has become a tool for obstructionists to block critical projects. By expediting judicial review, expanding categorical exclusions, codifying Supreme Court precedent to rein in NEPA's scope and clarifying what triggers a federal action, Congress can ensure NEPA functions as intended.

5. Modernize the Clean Air Act

By imposing onerous requirements on new and expanding facilities, the status quo leaves energy and manufacturing dominance at risk. Manufacturers need workable standards for both PM2.5 and ozone under the CAA's National Ambient Air Quality Standards program, and Congress should modernize the NAAQS program to ensure a workable review process through realistic timelines, recognize regional differences across the country, bolster stakeholder voices in the review process and allow for creative solutions for emissions-reduction credit trading across states and regions.

6. Streamline the Clean Water Act

Clean Water Act reviews have led to extended and unnecessary delays given unclear rules, vague divisions of state and federal authority and extended review periods. Policymakers should clarify timelines for when agencies must act on permitting requests, establish clear, commonsense definitions regarding the scope of permitting and consultation requirements, and increase the usage of general permits.

7. Strengthen the threshold for stopping operations under procedural litigation.

For procedural laws and provisions such as NEPA and Section 106 of the National Historic Preservation Act, the threshold for injunctions should be elevated to reflect the capacity of such laws and provisions to provide environmental protections. Under such a construct, preliminary and permanent injunctions should only be issued if specific, imminent and irreparable environmental harm would occur without an injunction.

8. Create durable certainty in the permitting process.

Uncertainty around whether the federal government will use the permitting process to block, slow, or otherwise target disfavored projects makes it extremely difficult for manufacturers to make long-term investment decisions. Congress can address this uncertainty by limiting the revocation and cancellation of permits, creating enforceable deadlines for authorizations and implementing processes to make project developers whole when delays or losses are deemed unfair.

Appendix

This analysis estimates the aggregate compliance cost burden imposed on U.S. manufacturing firms by federal environmental permitting requirements over a 10-year horizon. Drawing on a joint survey conducted by the NAM and FAI from Nov. 24, 2025–Jan. 12, 2026, with 187 total respondents and 10-year (2016–2025) external administrative permit count data, the methodology uses bundle-level ridge regression on log-transformed project costs to derive per-permit unit cost estimates.

Data Sources

- **Survey data:** Each observation reports a total permitting cost, which includes compliance preparation, legal and consultant fees and delay-related carrying costs embedded in self-reported totals. The dataset also captures a multi-select list of permits required for each project. Survey respondents represent a range of firm sizes and manufacturing subsectors.
- **Administrative permit counts:** External 10-year application/action counts by permit type (NEPA, §404 Standard, §404 NWP, ESA, §401, Air Major, Air Minor, NPDES Major, NPDES Minor and NHPA), used to scale unit costs to industry-wide totals.

Bundle Construction and Dependency Rules

Because many permits are co-issued or triggered by the same project action, permits are grouped into four bundles that reflect the underlying regulatory process logic:

- **Air Bundle:** All Clean Air Act permit actions (major and minor Title V/state implementation plan permits)
- **Water Bundle:** NPDES (major and minor) and Clean Water Act §404 (Standard and Nationwide Permit). Clean Water Act §401 State Certification is treated as a dependent action—§401 is invariably triggered by federal water quality actions (§404, NPDES, or NEPA-reviewed projects) and does not represent a standalone cost driver. Its compliance costs are embedded in the Water Bundle estimates.
- **NEPA Bundle:** Environmental Assessment and Environmental Impact Statement reviews
- **Consultation Bundle:** ESA Section 7/10 consultations and NHPA Section 106 reviews, which are often co-triggered by the same projects and share comparable cost intensity.

For each project, the modeled bundle coefficients are exponentiated to produce multiplicative relative weights ($\exp(\beta_{\text{bundle}})$). Each project's observed total cost is then allocated across its selected bundles proportionally to those weights—preserving the project total while distributing it according to the model's estimated relative cost intensities. This avoids equal splitting while remaining anchored to observed data.

The resulting bundle-level allocations are divided by the number of permit actions within each bundle (e.g., if a project selected both NPDES and §404, the water allocation is divided by two) to produce a per-permit-action unit cost. Mean values are used as the primary estimate; the unit cost table in Section 2 also reports medians and 80th percentiles for reference.

Regression Model

A ridge regression is fitted on log-transformed total project cost using four bundle indicators plus permit count and firm size ordinal as predictors. Ridge regularization is employed to address the high collinearity across bundle indicators—many projects require multiple permits—and to guard against overfit on the small survey sample. The regularization penalty λ is selected via five-fold cross-validation, yielding $\lambda = 1.804$. Leave-one-out cross-validation (LOO-CV) is used as the primary fit metric because it is more stable than k-fold CV on small samples.

NEPA Reviews (Environmental Assessments and Environmental Impact Statements)

NEPA review counts were compiled separately for EISes and Environmental Assessments (EAs) across six federal agencies with significant manufacturing-relevant project portfolios. Manufacturing relevance was determined by screening project descriptions against North American Industry Classification System sector codes or, where NAICS data were unavailable, by applying agency-specific manufacturing shares derived from broader permit databases.

Permit Type	Agency	Est. Count (10-yr)	Methodology and Sources
NEPA EIS	EPA	57	EPA EIS Dashboard (cdxapps.epa.gov). 1,119 Final EISes issued 2016–2025; 57 classified as manufacturing-relevant based on project descriptions.
NEPA EA	EDA (Commerce)	550	EDA FY2023 Annual Report and FY2025 PWEAA NOFO. EDA's Public Works program funds manufacturing-adjacent infrastructure projects; 550 EAs estimated over 10 years based on annual award volumes and review obligations.
NEPA EA	DOE	44	DOE NEPA Database (energy.gov). 218 total EAs issued 2016–2025; 44 classified as manufacturing-relevant by project type.
NEPA EA	USACE	124	USACE ORM Public Database (permits.ops.usace.army.mil). 2,775 EA decisions issued 2016–2025; 124 (4.5%) classified as manufacturing-relevant.
NEPA EA	DOD / DPA Title III	100	GAO-25-107688; Defense Production Act Investment announcements; FY2025 DPAP Budget Justification. Estimated 100 manufacturing-relevant EAs based on annual Defense Production Act Title III program obligations.
NEPA EA	CHIPS (Commerce / NIST)	5	NIST CHIPS Program (nist.gov/chips). CHIPS Act semiconductor facility awards requiring individual NEPA review; five major facility EAs confirmed as of 2025.
NEPA EA	NRC	35	NRC NEPA Dashboard (nrc.gov). 102 final EAs issued 2016–2025; 35 classified as manufacturing-relevant (nuclear fuel cycle, materials facilities).
NEPA Total	All Agencies	915	Sum of EIS and EA counts above.

A.2 Clean Water Act §404 Wetlands Permits (Standard Individual and Nationwide)

Section 404 permit counts were derived from the USACE Regulatory database of permit decisions (2016–2025). The full dataset of 27,790 case-by-case decisions was classified by project type; 2,359 decisions (8.5%) were identified as manufacturing-relevant based on applicant NAICS codes and project descriptions. This 8.5% manufacturing share is applied throughout the §404 and related water permit categories.

For Nationwide Permits—pre-authorized, streamlined authorizations for activities with minimal individual impact—annual Pre-Construction Notification volumes were drawn from two USACE workload reports: approximately 40,000 PCNs processed annually (2017 Nationwide Permit Reissuance Fact Sheet) and approximately 25,000 annually (2026 USACE report). The average of these two figures (32,500/year) was applied over 10 years, then multiplied by the 8.4% manufacturing share derived from the case-by-case classification to yield approximately 25,728 manufacturing-relevant NWP actions over the decade.

A.3 ESA Section 7 / Section 10 Consultations

Formal ESA consultation counts were extracted from the FWS ECOS Biological Opinion database. Of 3,929 biological opinions issued between 2016 and 2025, 60 were identified as manufacturing-relevant (1.5%). For informal consultations, FWS Greenbook data indicate approximately 11,000 informal consultations per year nationwide. Applying the same 1.5% manufacturing share to informal consultations across 10 years yields an additional ~1,527 actions. Combined formal and informal manufacturing-relevant ESA consultation actions total approximately 1,587 over the decade.

A.4 Clean Water Act §401 State Certifications

Section 401 certification counts (70,197) are drawn from EPA ICIS-ECHO data and reflect state-issued water quality certifications triggered by federal permit actions. As described in Section 1.2, §401 is a dependent action—it does not arise independently from manufacturer decisions but is instead required as part of the processing pipeline for §404, NPDES or NEPA-covered discharges. Accordingly, §401 counts are shown for reference only and are not separately multiplied in the burden rollup to avoid double-counting costs already embedded in Water Bundle estimates.

A.5 Clean Air Act Air Permits

Air permit counts were derived from EPA's ICIS-Air database (available via EPA ECHO), which tracks NSR permit certifications by facility. Manufacturing-relevant facilities were identified using NAICS and Standard Industry Classification codes. For NSR permits not reported to ICIS-Air (primarily state-administered minor source programs), counts were estimated using a three-state sample methodology.

State-level data sources: Texas—TCEQ Air Permits database (tceq.texas.gov); all 26,000+ NSRs extracted and joined to NAICS/SIC data. Virginia—DEQ PEEP public data portal (portal.deq.virginia.gov); company names classified as manufacturing vs. non-manufacturing using OpenAI. Ohio—Ohio EPA eDOC public records (edocpub.epa.ohio.gov); a random sample of 2,594 public records was drawn, deduplicated on permit IDs and each record classified for manufacturing-relevant NSR applicability. Of 3,594 unique permit documents, 224 (6.2%) were manufacturing NSR-relevant; this ratio was applied to Ohio's estimated 35,000 total permit documents.

A.6 NPDES Discharge / Stormwater Permits

NPDES permit counts (42,110 major; 12,933 minor) were derived from the EPA ICIS-ECHO data download (arcgis.com). The dataset contains approximately 142,000 unique organization names without NAICS codes; manufacturing vs. non-manufacturing classification was performed using OpenAI's API applied to facility names and descriptions. Major NPDES permits are those subject to individual permit review and Effluent Limitation Guidelines; minor permits represent the bulk of stormwater and low-discharge authorizations.

A.7 NHPA Section 106 Historic / Tribal Consultations

Section 106 review counts were estimated from Advisory Council on Historic Preservation workload data. Approximately 120,000 Section 106 project reviews are initiated each year nationwide, of which roughly 95% are resolved without formal ACHP involvement. This implies approximately 6,000 formal (documented) Section 106 reviews annually, or 60,000 over 10 years. Applying the average manufacturing project share observed across EIS, EA and §404 datasets (~5%) yields approximately 3,000 manufacturing-relevant Section 106 consultations over the decade.

Caveats and Limitations

- **NEPA sparsity:** Due to a small subsample, the coefficient (exp = 9.1x) is large and uncertain, and NEPA's \$6.5B contribution over 10 years is sensitive to this.
- **Air permit volume dominance:** With 56,748 major air permit counts, the Air Bundle drives the largest share of total burden (\$42B of the \$79.5B central estimate). Air unit costs are right-skewed—a handful of large industrial projects anchor the mean. The 80th percentile scenario confirms the central estimate is not materially biased by these outliers.
- **§404/NPDES co-occurrence:** The Water Bundle groups NPDES, §404 Standard, and §404 NWP. Where NPDES and §404 are both required for a single project and appear separately in the external count data, there is potential for partial double-counting. Practitioners should note this when comparing against EPA/Corps permit databases.
- **Discount factor assumption:** A uniform 25% discount is applied to all minor/streamlined permit tiers (Air Minor, NPDES Minor, §404 NWP). This is a simplifying assumption grounded in process complexity differences.
- **Survey representativeness:** The survey likely over-represents mid-to-large manufacturers with complex projects. Cost estimates may be biased upward relative to the full manufacturing population, which includes many small firms with simpler permitting needs.



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