



MANUFACTURING'S ROADMAP TO AI AND ENERGY DOMINANCE

October 2025



NATIONAL ASSOCIATION OF
Manufacturers

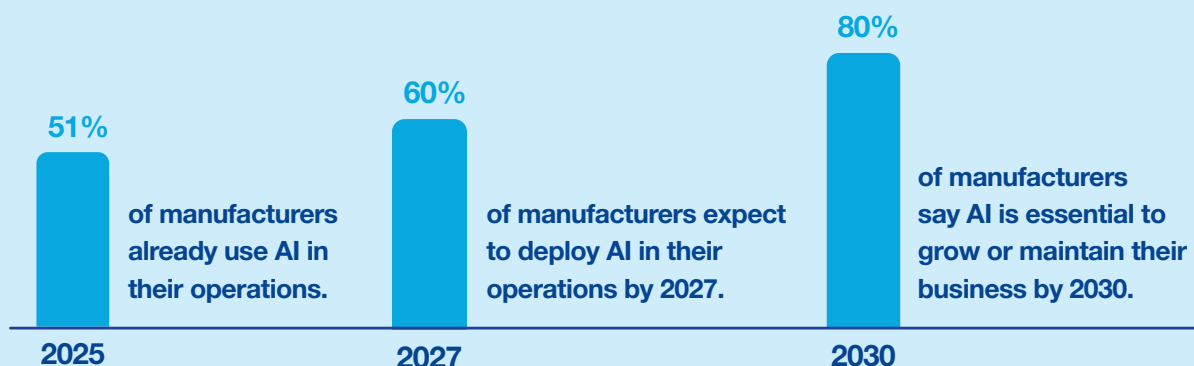
Manufacturing lies at the intersection of American energy dominance, American AI innovation and leadership, and a robust American power grid.

- **AI has become integral to modern manufacturing**, as it increasingly transforms and supports a multitude of aspects of manufacturers' operations, from product design, to shop floor operations, to supply chain management. This digitalization of manufacturing means more dependence on cutting-edge data centers.
- **Manufactured inputs**, such as cooling systems, electrical equipment, water treatment facilities, concrete, steel, servers and semiconductors, are critical components of data centers, AI facilities and the utility grid on which they depend.
- **Manufacturers need abundant energy** sources to power their operations—as do the data centers underpinning AI innovation in America.

AI-powered modern manufacturing depends on an ambitious energy and innovation policy framework. Policymakers must:

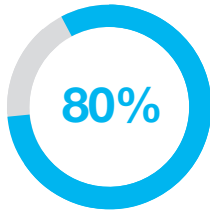
- **Reform America's broken permitting process** to get shovels in the ground faster—with fewer delays and less uncertainty;
- **Bolster American energy dominance** via an all-of-the-above energy strategy;
- **Ensure a reliable, resilient and affordable grid** that can power manufacturing growth and data center operations; and
- **Strengthen American AI leadership** by fostering innovation and preventing regulatory overreach.

Future of Manufacturing Project Survey 2025



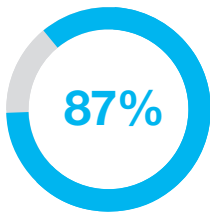
➤ Manufacturers' AI and Energy Dominance Principles

Permitting Reform



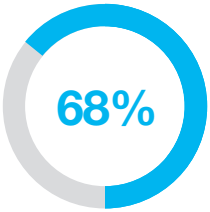
80%

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

Our nation's permitting processes are broken and have been for some time—a fact acknowledged across industries and political parties. Unclear timelines, lack of agency coordination, overlapping statutes and endless litigation continue to drive up the costs of critical projects or halt them altogether. Permitting reform underpins our energy, AI and manufacturing future—now is the time for Congress to act.

- **Reform the National Environmental Policy Act:** Manufacturers need certainty when making investment decisions and planning projects. But bad actors have abused the NEPA process—leading to project delays and years of uncertainty. Policymakers should enact commonsense NEPA reforms that will ensure a speedy process that results in definitive decisions for all projects.
 - **Expedite judicial review under NEPA:** The judicial review process under NEPA has long been abused, with incredibly lengthy and often frivolous litigation too often holding up projects. Manufacturers need a workable statute of limitations, guardrails that limit legal action to affected stakeholders that offer substantive public input and clearer limits on when courts can invalidate an agency action.
 - **Codify Supreme Court NEPA precedent:** Too often, project opponents use speculative or non-proximate project effects to challenge a permit decision. The Supreme Court recently issued a unanimous decision that limits the scope of NEPA. Congress must codify this precedent to ensure that environmental reviews only focus on the impacts of a project to its immediate environmental and community surroundings.



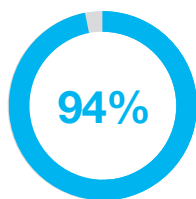
- **Update what triggers a major federal action under NEPA:** The federal government often supports critical manufacturing and energy projects across the country with various incentives. However, this very support frequently triggers a lengthy review and litigation process, defeating the purpose of the government incentives. Projects that receive federal funding should not automatically trigger NEPA solely because they receive federal financial support.
- **Increase the use of categorical exclusions under NEPA:** While Congress looks to reform NEPA, the executive branch should use its existing authority under Section 109 of NEPA, as added by the Fiscal Responsibility Act, to issue new categorical exclusions and more efficiently allow for interagency transferability of these exclusions to ensure critical infrastructure projects can advance unimpeded by unnecessary reviews.
- **Create and maintain enforceable deadlines:** Manufacturers lack predictability for when they can expect final permitting decisions to be issued. Policymakers must establish clear statutory deadlines to avoid leaving the process open to misinterpretation and abuse.
- **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.
- **Modernize the Clean Air Act:** Increasingly, regulations under the Clean Air Act are holding back manufacturing and energy investment. By setting air quality standards that are at or near natural background levels, imposing onerous requirements on new and expanding facilities and failing to account for international emissions, the status quo leaves energy and manufacturing dominance at risk. The administration should ensure 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 make it easier to discount international emissions, ensure a workable review process through realistic timelines, bolster stakeholder voices in the review process and allow for creative solutions for emissions-reduction credit trading across states and regions.

- **Provide greater regulatory certainty:** Manufacturers face difficulties planning projects when the rules of the road change from administration to administration. The same is true when agencies have overlapping or conflicting policies that impact energy and AI development. Agencies must better coordinate when adopting impactful policies, including by designating a lead agency to coordinate efforts to improve the federal permitting process.
- **Unlock access to domestic critical materials, including on federal lands:** Critical materials and minerals are essential inputs for robotics, industrial automation, electronics and electric grid components. Unfortunately, financial and regulatory barriers are impeding the development of domestic mining and processing capacity in a time frame that can meet supply chain needs. Policymakers should advance legislation, incentives and regulations that will allow for expedited approval of critical minerals and materials projects. This includes aligning the Department of Energy's Critical Materials List and the Department of the Interior's Critical Minerals List, which will ensure greater domestic access to these materials through financial incentives and permit streamlining.
- **Accelerate construction of needed energy infrastructure:** America needs enhanced infrastructure to transport energy across the country. Policymakers should modernize the permitting process for pipelines, enhance and improve safety measures around pipeline systems and increase efficiencies through embracing new technologies like AI. Federal agencies also should coordinate with state and local officials to improve the process for interconnecting new transmission and distribution lines to the grid, ensuring that the electrons generated can get to their final destination.

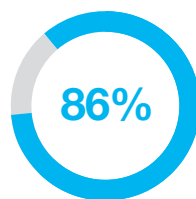




Energy Dominance



of manufacturers support permitting reforms around the buildout of energy generation, infrastructure and products.



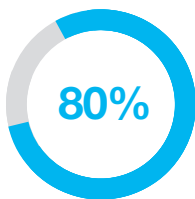
of manufacturers support the permitting reforms to streamline AI, energy and grid projects in President Trump's AI Action Plan.

NAM Q3 2025 Manufacturers' Outlook Survey

Energy demand across the country is experiencing unprecedented explosive growth, and it is not expected to slow down. Manufacturers need to be able to produce and use every energy source available to meet this critical moment. In short, manufacturers need American energy dominance, bolstered by an all-of-the-above energy strategy, that allows our industry to innovate, build and grow here at home.

- **Deploy and maintain more uninterrupted energy generation sources:** Traditional nuclear-generating stations are an important source of baseload energy. Though the economics and permitting of new nuclear generation have been difficult, policymakers should work with stakeholders to identify ways that the projected increase in demand can be leveraged to lower the cost curve of traditional reactors. Policymakers also should adopt policies to streamline the development and deployment of small modular nuclear reactors and allow for the continued buildout of natural gas generation and transportation infrastructure.
- **Boost exploration and development of onshore and offshore energy sources:** The United States has an abundant mix of natural resources that are unmatched by any other nation in the world. Accessing these natural resources in a responsible manner is critical to achieving AI and energy dominance. Policymakers should pursue additional authorities to hold new oil and natural gas lease sales in the Coastal Plain of the Arctic National Wildlife Refuge and the Outer Continental Shelf.
- **Deploy and maintain more renewable generation sources:** The U.S. continues to add significant amounts of energy generation to the grid in the form of solar, wind and battery storage. These assets are key to America's diverse energy portfolio, which has powered manufacturers' global competitiveness. Policymakers should embrace all sources of energy and ensure that both tax and regulatory policies encourage greater investments in the domestic production of all energy technologies.

A Reliable, Resilient and Affordable Grid



of manufacturers want the Trump administration to work with Congress to deliver comprehensive permitting reform legislation to increase energy generation and grid modernization to supply the energy needed to power both AI growth and traditional manufacturing.

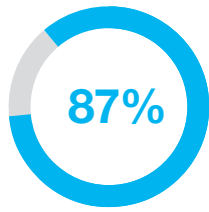
NAM Q3 2025 Manufacturers' Outlook Survey

Ensuring strong production of and access to all types of energy is only part of the solution manufacturing needs. Without serious improvements to our electrical transmission and distribution infrastructure, energy projects will be stranded and prices for all customers will increase while reliability will decrease. By advancing targeted solutions, policymakers can empower manufacturers to innovate and improve the American power grid by bolstering reliability, resiliency and affordability.

- **Construct and interconnect more transmission and distribution lines:** Policymakers should work with all relevant stakeholders, including manufacturers, state and local governments, utilities, consumers and generators, to develop additional transmission and distribution capacity, while ensuring appropriate fairness in allocating the associated project and operational costs. Without new and upgraded capacity in this space, we risk stranding assets and rising costs.
- **Improve and deploy more battery storage technologies to enhance grid balance and lower costs:** Manufacturers recognize the incredible potential that battery storage has for stabilizing the electric grid and lowering energy costs. Policymakers should advance solutions that will secure the domestic supply chains for the materials that are used to manufacture batteries and make it easier and more affordable for grid operators to integrate storage into the grid.
- **Boost and maintain the manufacturing of, and the supply chains for, essential grid components and assets like transformers:** Manufacturers are making significant investments in the domestic production of components that are helping to maintain and modernize our electric grid. Unfortunately, countries like China are spending considerable resources to undercut our competitiveness with products that are lower quality and pose cybersecurity risks. Policymakers should strengthen key manufacturing and energy incentives that will help even the playing field and create more manufacturing jobs in the United States.



AI Innovation and Leadership



of manufacturers say it is important for lawmakers to understand how manufacturers use AI.

NAM Q2 2024 Manufacturers' Outlook Survey



In 2025 alone, 40 states have enacted at least 110 different pieces of legislation regulating the use of AI.

Derived from analysis of data sourced from the National Conference of State Legislatures

As policymakers develop and implement permitting, energy and grid reforms that set the stage for AI growth across manufacturing, Congress and the administration also should put in place an agile, risk-based policy framework for AI itself—one that streamlines compliance, fosters transparency, supports innovation and aligns government policies with the realities of smart manufacturing.

- **Review existing federal laws and regulations:** The growing number and variety of use-cases of AI in manufacturing, on the shop floor and throughout manufacturers' operations require a regulatory environment that is optimized for the development and deployment of these groundbreaking technologies. Policymakers should identify laws and regulations that prevent or inhibit the development or deployment of AI. Additionally, when considering new rules, policymakers should take into account where existing regulations are sufficient rather than adopting new, AI-specific ones.
- **AI is context-specific, so "AI regulation" should be too:** The diversity of use-cases of AI makes manufacturers particularly sensitive to any AI policy or regulatory approach that is one-size-fits-all. Regulation should focus not on the AI technology itself—whether how it is developed or how it operates—but rather on how it is used. Innovation requires a risk-based rather than one-size-fits-all approach.
- **Right-size any AI regulation compliance burden:** The ubiquitous use of AI throughout modern manufacturing, as well as manufacturing's dependence on innovation, underscores the need for rules that enable rather than hinder manufacturers' development and adoption of AI systems. Workable, balanced regulations will avoid imposing undue compliance burdens that would inhibit AI adoption—and industry standards and self-assessments, rather than audits, can help minimize the compliance burden.
- **Promote best practices for transparency of AI development:** Complying with risk-based and use-case-specific regulation requires AI deployers to understand how AI systems are developed and trained so that they can understand how they will perform. The administration, via the National Institute of Standards and Technology, should develop and promote best practices that give AI deployers such transparency.
- **Ensure a level playing field between open and proprietary AI solutions:** Preserving manufacturers' access to AI models that are open source and/or open weights will enable AI advancements across a wide range of companies.





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