GLOBAL X INSIGHTS

Three Themes Driving America's Manufacturing Revival

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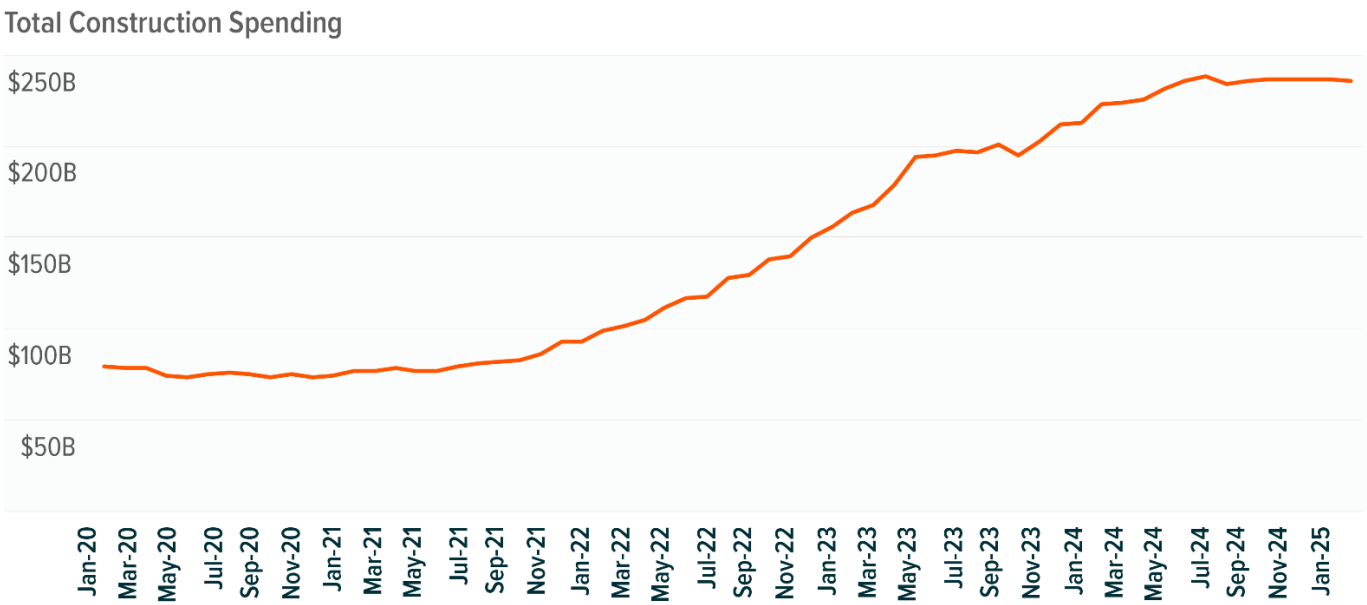
For decades, U.S. companies prioritized offshore manufacturing, optimizing for lower costs and efficiency through global supply chains. Now, a convergence of economic and geopolitical forces is driving a reversal—manufacturing is coming back home. This transformation does not appear to be just a short-term economic shift, but a strategic recalibration of national priorities to rebuild industrial capacity, strengthen supply chain resilience, and secure long-term competitiveness.

Reshoring, however, will require more than just favorable policy. Large investments in U.S. infrastructure, automation, and energy supply will be essential to transform the U.S. into a modern-era industrial powerhouse. The Global X U.S. Infrastructure Development ETF (PAVE), the Global X Robotics & Artificial Intelligence ETF (BOTZ), and the Global X U.S. Electrification ETF (ZAP) could be potential strategies investors can leverage to get exposure to these themes.

Key Takeaways

- **U.S. Infrastructure**: Construction activity is expected to remain elevated, due to the modernization of roads, ports, and logistics networks that will likely be needed to sustain domestic production activity, alongside the build out of new manufacturing facilities through private investments.
- **Industrial Robotics**: Hyper-automation will be critical to mitigate labor shortages and drive productivity while maintaining cost competitiveness.
- **U.S. Electrification**: Rising manufacturing activity and its power-intensive nature is expected to increase electricity demand, requiring power grid upgrades to support reshoring-driven energy needs.

TOTAL CONSTRUCTION SPENDING: MANUFACTURING IN THE UNITED STATES



Source: FRED, St. Louis. (2025, February 3). Total Construction Spending: Manufacturing in the United States.

U.S. Infrastructure: Laying the Foundation for a Production Boom

In our view, manufacturing revival in the U.S. hinges on domestic infrastructure improving at a pace that matches the rise of production activity. We're not just talking about a one-off upgrade, but a sustained, multi-year transformation—one that includes not only the construction of new factories but also the modernization of critical infrastructure to support a domestic production ecosystem.

A historical parallel can be drawn to China's infrastructure boom in the 2000s, which played a pivotal role in its manufacturing dominance. Between 2002 and 2016, China's infrastructure investment as a share of GDP surged from 8% to 24%, enabling its rapid industrial expansion.[1] While the U.S. benefits from a strong infrastructure foundation built over the 20th century, maintaining momentum in reshoring manufacturing will require significant infrastructure investment to meet the demands of a revitalized industrial base.

That momentum is already building. In the wake of the pandemic, U.S. manufacturers have aggressively increased domestic facility construction. In 2024, U.S. manufacturing-related construction spending surged to $236 billion—more than doubling from end of 2021 levels.[2] A sustained pipeline of projects remains in planning phases, reinforcing the trend.[3]

Federal trade policy is adding further pressure. The use of tariffs, particularly under the Trump administration, has accelerated the shift toward domestic manufacturing. In the last few months, we've seen new reshoring investments, including massive commitments from companies such as Apple and Taiwan Semiconductor Manufacturing Company (TSMC), potentially adding up to hundreds of billions in infrastructure spending.[4,5]

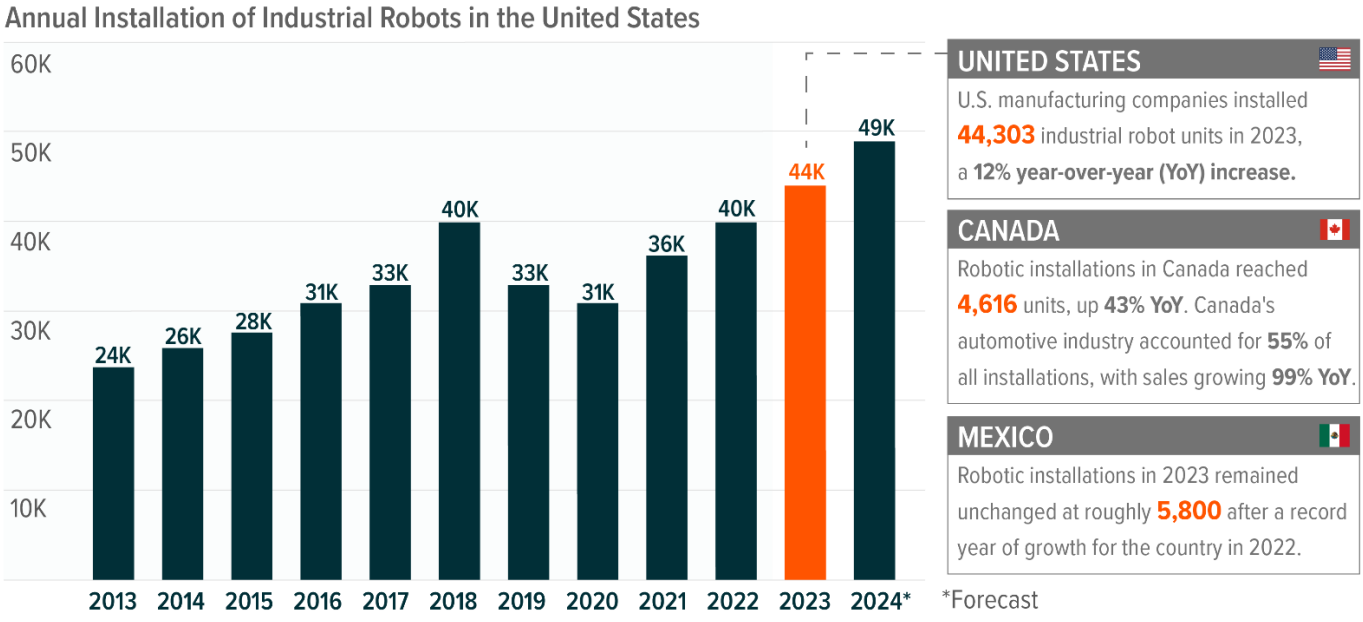
The challenge, however, extends beyond building new facilities. American infrastructure has generally been in a poor state. A newly released study by the American Society of Civil Engineers (ASCE) graded U.S. infrastructure a **C**. The grade, although a modest improvement from a C- allotted in 2021, points to aging roads, deteriorating bridges, and outdated water systems, alongside broader issues in energy, food supply, and other infrastructure sectors.[6]. The U.S. transportation network was designed for an era of offshored manufacturing, not for a rebirth of domestic production. Without modernized roads, rail networks, and ports, logistics bottlenecks could derail the reshoring trend. In all, the ASCE estimates that $9.1 trillion in infrastructure investments will be needed over the next decade.

The Infrastructure Investment and Jobs Act (IIJA) of 2021 addresses this challenge of modernizing U.S. infrastructure, allocating nearly $1.2 trillion to upgrade transportation, energy, and broadband infrastructure. Although the legislation has come under political crossfire, in our view, it's likely safe from significant cutback or full repeal given the central role it plays in strengthening the U.S. infrastructure base at such a pivotal moment.

Industrial Robotics: No Reshoring Without Hyper-Automation

While automation is often seen as a threat to jobs, it is likely the linchpin of America's manufacturing revival. Although rising wages abroad and the growing risks of global supply chains have narrowed the cost gap between U.S. and offshore production, automation can provide a definitive competitive edge that makes reshoring not just feasible but imperative.

INDUSTRIAL ROBOT SALES JUMP AS MANUFACTURING ENTERS A NEW ERA



Sources: IFR Press Room. (2024, April 30). U.S. Companies Invest Heavily in Robots - IFR Preliminary Results. International Federation of Robotics (IFR).

For manufacturers, automation is the solution to two key challenges—labor shortages and cost parity. For sectors like semiconductors, EV batteries, and aerospace—first in line to reshore considering their critical importance—automation is not only cost-effective but essential for achieving the high-precision and throughput required. These sectors demand exacting production standards that only state-of-the-art robotic systems can consistently meet.

The economic case for robotics is also strengthening. The cost of deploying industrial robots is estimated to have declined nearly 25% in the last decade due to advances in sensors, software, and hardware.[7] Meanwhile, U.S. manufacturing wages rose nearly 4% in 2024 and are projected to climb another 35% by 2030, further supporting automation's role in maintaining cost competitiveness.[8]

This shift is already well underway. As of 2023, global manufacturers operated nearly 4.3 million industrial robots, marking 10% year-over-year (YoY) growth.[9] The U.S. market has seen a surge in adoption, with manufacturers installing 44,303 robots in 2023, a 12% increase from the prior year.[10] Canada saw even stronger growth, with installations rising 43% YoY, driven by the automotive sector.[11]

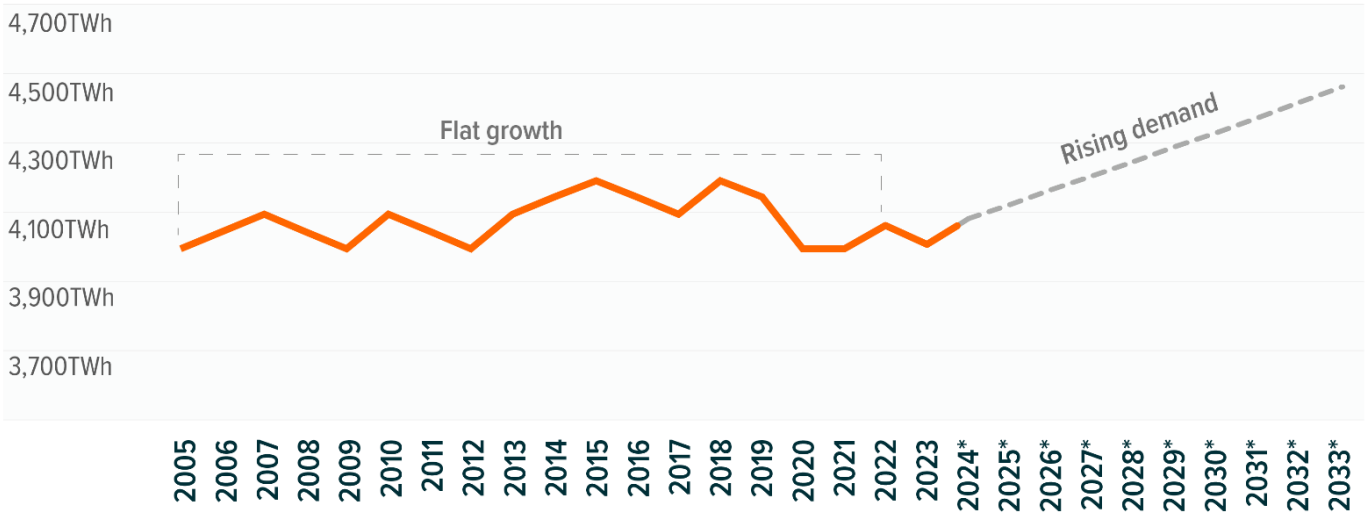
Looking ahead, advancements in AI, edge computing, and sensors should continue to redefine industrial automation. Robotics is evolving from fixed, pre-programmed machines into adaptive, intelligent systems capable of handling complex, dynamic tasks. Future industrial robots, including humanoids, could work seamlessly alongside human operators, taking on dangerous or repetitive tasks while allowing workers to focus on higher-value functions.

U.S. Electrification: Manufacturing Amplifies Power Needs

The expansion of U.S. manufacturing is inextricably tied to the country's ability to meet rising electricity demand. History offers some evidence. In 1900, manufacturing accounted for roughly 10% of U.S. electricity consumption, rising to well over 50% by 1950, driven by electrified assembly lines and industrial processes.[12] The post-WWII boom accelerated this trend, with industrial electricity consumption growing at roughly 7% annually from 1945 to 1970.[13]

U.S. ELECTRICITY DEMAND SET TO SURGE AFTER YEARS OF STAGNATION

U.S. Electricity Use and Projection



Sources: EIA. (2024). Electricity 2024, Executive Summary; Grid Strategies. (2024, December). Strategic Industries Surging: Driving US Power Demand; S&P Insights. (2024, December 4). AI and energy: The big picture; Statista. (n.d.). Electricity end use in the United States from 1975 to 2023, accessed on February 10, 2025.

*Forecast

This power-growth dynamic could reemerge in the coming decades, as the U.S. reshapes manufacturing, especially in sectors like semiconductors, EVs, and solar energy. A semiconductor fabrication facility (fabs), for example, can use as much power as 30,000 homes, highlighting the power-intensive nature of the industry.[14] Nearly seventy-five semiconductor fabs are under construction in the U.S.[15]

Emerging semiconductor processes are also becoming more energy hungry. Taiwan Semiconductor Manufacturing Company (TSMC), for example, is expected to consume nearly 24% of Taiwan's electricity by 2030 as it dominates high-end chip manufacturing—those under 10 nanometers (nm).[16] The U.S. is projected to produce nearly 20% of such high-end semiconductors by 2030, starting from zero in 2022.[17]

As of 2022, industrial sector use makes up about 35% of total U.S. electricity demand, according to the EIA.[18] And as electrification increases—across industries, data centers, and electrified vehicle fleets—U.S. electricity demand is projected to grow nearly 47% by 2040 which, alongside power generation, underscores the need for grid modernization.[19,20]

The Inflation Reduction Act (IRA) has allocated $394 billion to clean energy initiatives, accelerating investments in renewable energy, grid resilience, and battery storage, looking to spur the power generation sector.[21] But more will likely be needed. As more factories are built domestically, particularly in the industrial heartlands, the U.S. will need to expand both power generation capacity and transmission infrastructure to support these energy-intensive industries.

Conclusion: U.S. Reindustrialization Presents an Attractive Opportunity

The reshoring of U.S. manufacturing is unlikely a fleeting trend—it appears to be a generational transformation that will require sustained investment in infrastructure, automation, and electrification. The opportunities for investors could be significant, as these structural shifts will likely drive demand across multiple sectors. This realignment of national priorities could likely reshape America's economic landscape and could secure its competitive edge for decades to come. We believe pioneering companies, across the three themes we highlight, are likely to benefit from these strengthening tailwinds.

Related ETFs

PAVE – Global X U.S. Infrastructure Development ETF

BOTZ – Global X Robotics & Artificial Intelligence ETF

ZAP – Global X U.S. Electrification ETF

Click the fund name above to view current performance and holdings. Holdings are subject to change. Current and future holdings are subject to risk.

Footnotes

1. Journal of Development Economics. (2022, September). Infrastructure investment and growth in China: A quantitative assessment.
2. FRED Economic Data. (2025, March 3). Total Construction Spending: Manufacturing in the United States. Accessed on March 3, 2025.
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5. TSMC. (2025, March 2). Giant chipmaker TSMC to spend $100B to expand chip manufacturing in US, Trump announces.
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Investments in infrastructure-related companies have greater exposure to the potential adverse economic, regulatory, political and other changes affecting such entities. Investment in infrastructure-related companies are subject to various risks including governmental regulations, high interest costs associated with capital construction programs, costs associated with compliance and changes in environmental regulation, economic slowdown and excess capacity, competition from other providers of services and other factors.

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