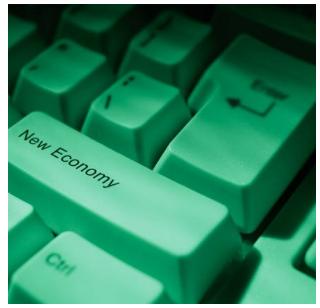

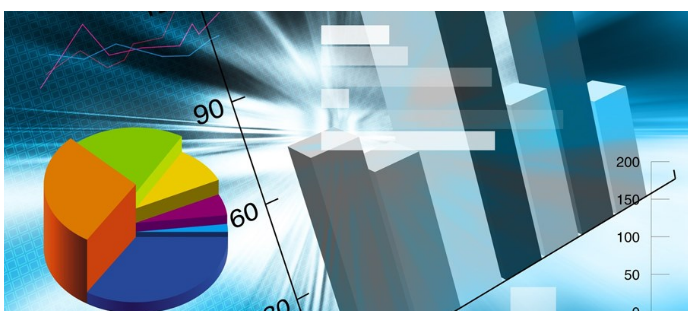

NATIONAL FLUID POWER ASSOCIATION

NFPA

2024

Company Market Outlook

Fourth Quarter

ITR ECONOMICS

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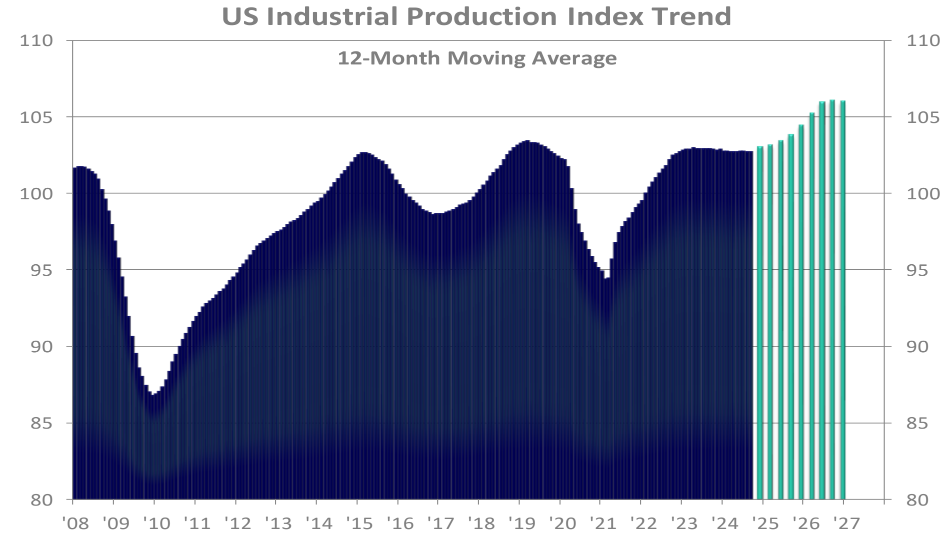
overview

Mixed Signals

Economic signals are mixed. Inflation is easing, real incomes are rising, and employment is at record highs. However, interest rates remain elevated, muting demand for large-ticket items that are typically financed, and some demographics are under strain from the cumulative inflation of recent years . The industrial sector and B2B spending are plateauing, while US Single-Unit Housing Starts have hit a bump in the road . Consumer spending is keeping things moving but also cutting into consumers' saving ability. As we wrap up 2024 and head toward 2025, there are some key factors to keep in mind.



Interest Rate Cuts: The Federal Reserve has begun to lower rates. Lower rates will provide an eventual boost for markets, such as durable goods and construction, and will offer some relief for consumers holding floating-rate debt, such as credit card debt. The direction of the impact is only half the story; the other key element for planning is the timing, which is unique to your specific business and market. The effects of interest rate cuts are unlikely to be instantaneous, instead taking time to develop. Some potential buyers may remain on the sidelines waiting for further cuts. In some markets, such as nonresidential construction, it can take years for projects to go from conception to completion. Consider the stage of your market – using a construction analogy, are you or your customers doing the site work, putting up the framing, or painting the walls?

Residential Construction: Prior rise in leading US Single-Unit Housing Starts is a solid signal for cyclical rise in the macroeconomy to come, but a recent tick down in Starts suggests there could be some waffling in the macroeconomy during 2025. We will be watching closely to see how reactive this sector is as rates are lowered. A tepid response in this market could pose a risk of stagnation in other sectors dragging on longer.

Stock Market Volatility: In recent years, the S&P 500 has been rising faster than US Corporate Profits , a growing risk factor for stock valuations. Avoid conflating the stock market with the economy, as it is only a small part of the picture and is prone to volatility. Talk to your financial advisor to ensure that your portfolio matches your risk profile.

Employment: The labor market has loosened somewhat but remains robust. Keep in mind that employment decisions lag the macroeconomy, so slowing growth in employment is a reaction to prior macroeconomic softening, not a harbinger of the future . Demographic trends suggest that the labor market will be tight in the coming years . Look for ways to reduce your dependence on labor, if possible. Take an active approach to managing employee morale and retention; otherwise, your growth in 2025-26 could be throttled by labor challenges.

Growth in 2025—Albeit Mild Growth—Brings Opportunities and Challenges

There are tentative signals that 2025 will be a somewhat stronger year than 2024, including rise in the ITR Leading Indicator™. For businesses closely tied to the industrial economy, now is a good time to ensure you have not fallen behind with regards to labor and capital investments that will be needed to support mild growth in 2025 and 2026. It is also important to be proactive in addressing longer-term challenges ahead, including the potential for higher energy prices, margin compression, and labor shortages. Reacting to changes alongside everyone else may result in missed growth opportunities – now is the time to get ahead of the curve.

Terminology & Methodology

Data Trends:

Monthly Moving Total (MMT) vs Monthly Moving Average (MMA):

Totals are used when it makes sense to add the data together, as with units sold or total dollars spent. Averages are used when the data cannot be compounded, such as with an index, percent, price level, or interest rates.

3MMT/A and 12MMT/A:

A 3-month or 12-month moving total/average is the total/average of the monthly data for the most recent 3 and 12 months, respectively. The 3MMT/A illustrates the seasonal changes inherent to the data series. The 12MMT/A removes seasonal variation in order to derive the underlying cyclical trend. It is also referred to as the annual total or annual average.

Rates-of-Change:

A rate-of-change figure is the ratio comparing a data series during a specified time period to the same period one year ago. **Rates-of-change** are expressed in terms of the **annual percent change in a 12MMT/A, 3MMT/A, and actual monthly data.**

Rates-of-change reveal whether activity levels are rising or falling compared to last year. A rate-of-change trend illustrates and measures cyclical change and trends in the data.

ITR Economics' three commonly used rates-of-change are the **1/12**, **3/12**, and **12/12**, which represent the year-over-year percent change of a single month, 3MMT/A, and 12MMT/A (respectively).

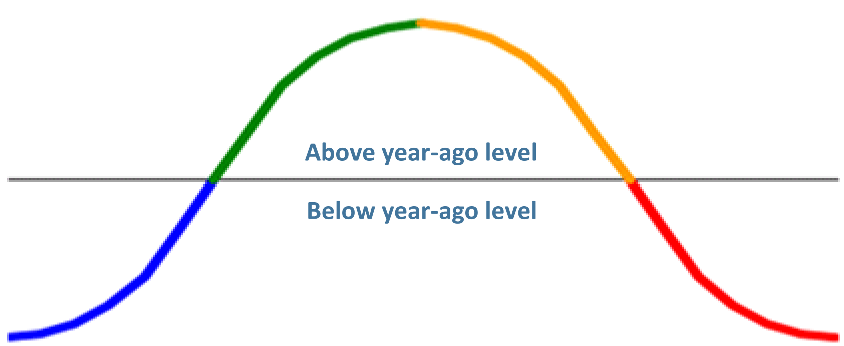
A rate-of-change above 0 indicates the data is higher than one year prior, while a rate-of-change below 0 indicates the data is below one year earlier.

Our video tutorials offer step-by-step instruction for

calculating rates-of-change and using leading indicators to see the future.

Business Cycle:

The data trends and rates-of-change identify positions in the business cycle. Those positions are:



Recovery (A): 12/12 is rising but is below zero; the data trend is below the year-ago level and is either heading toward a low or is in the early stages of rise. This is the first positive phase of the business cycle.

Accelerating Growth (B): 12/12 is rising and is above zero; the data trend is accelerating in its ascent and is above the year-ago level. This is the second positive phase of the business cycle.

Slowing Growth (C): 12/12 is declining but remains above zero; the data trend ascent is slowing or has stopped its rise, but it is still above the year-ago level. This is the first negative phase of the business cycle.

Recession (D): 12/12 is declining and is below zero; the data trend is below the year-ago level and the rate of decline is increasing. This is the second and final negative phase of the business cycle.

Business Cycle

Page Number	Industry	Phase	Current	2024	2025	2026
6	NFPA Total Shipments	D	-7.4%	-7.6%	6.0%	7.6%
7	NFPA Hydraulic Shipments	D	-9.7%	-11.7%	9.4%	9.7%
8	NFPA Pneumatic Shipments	D	-7.8%	-7.9%	4.5%	6.9%
10	US Logging Production	D	-10.8%	-8.6%	2.0%	2.0%
10	US Oil and Gas Extraction Production	C	4.0%	2.8%	2.2%	4.2%
10	US Mining and Oil Field Machinery Production	D	-5.5%	-7.5%	0.6%	11.7%
10	US Food Production	A	-1.5%	-0.2%	1.7%	1.5%
10	US Wood Products Production	A	-1.0%	-0.9%	3.7%	2.1%
10	US Paper and Products Production	B	0.3%	2.3%	-1.3%	0.9%
10	US Petroleum Refineries Production	B	1.5%	0.2%	-0.5%	2.4%
10	US Chemicals and Chemical Products Production	B	1.4%	-0.2%	1.2%	0.9%

A RECOVERY

B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

Business Cycle

Page Number	Industry	Phase	Current	2024	2025	2026
10	US Rubber and Plastics Products Production	D	-0.3%	0.5%	2.7%	0.8%
10	US Fabricated Metal Products Production	A	-1.0%	-0.9%	1.9%	1.6%
10	US Farm Machinery Shipments	A	-0.1%	6.6%	13.5%	-1.5%
10	US Lawn and Garden Equipment Production	D	-8.9%	-9.3%	4.9%	6.2%
10	US Construction Machinery Production	A	-4.9%	-3.2%	-0.7%	7.1%
10	US Machinery New Orders	C	0.1%	-0.3%	5.0%	4.4%
10	US Instruments Production	A	0.0%	0.6%	4.1%	2.3%
11	US Metal Working Machinery New Orders	A	-0.2%	3.3%	4.2%	1.9%
11	US Total Renewable Energy Consumption	B	4.1%	3.6%	0.6%	4.8%
11	US Engines, Turbines, Generators, and Other Power Generation Equipment New Orders	D	-0.2%	-2.5%	6.5%	5.0%
11	US Engines and Power Transmission Equipment Production	A	-3.3%	-6.6%	4.2%	6.0%

A RECOVERY

B ACCELERATING GROWTH

C SLOWING GROWTH

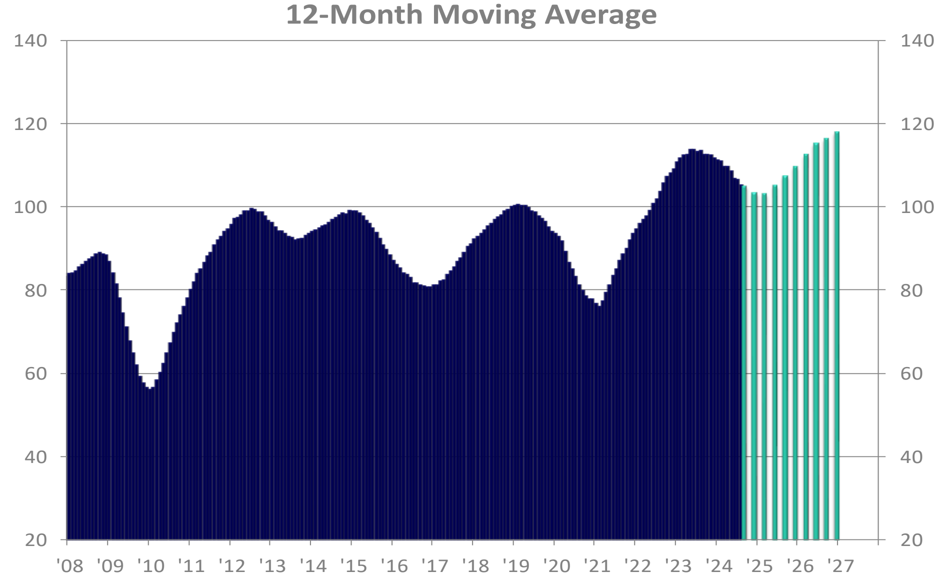
D RECESSION

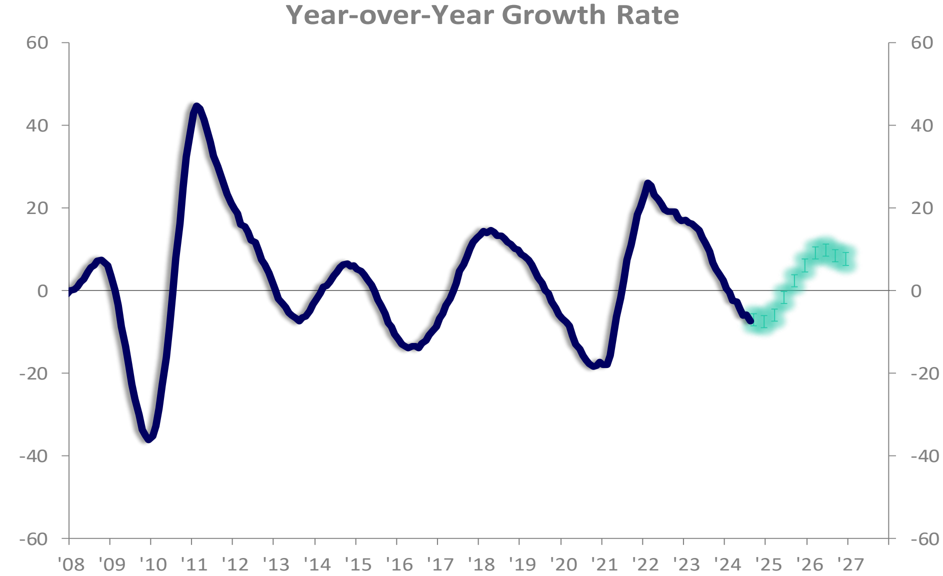
Business Cycle

Page Number	Industry	Phase	Current	2024	2025	2026
11	US General Purpose Machinery Production	D	-4.0%	-5.7%	0.3%	5.7%
11	US Material Handling Equipment New Orders	D	-1.5%	-4.9%	1.0%	2.2%
11	US Electronic Components Production	B	6.7%	7.0%	11.0%	3.1%
11	US Motor Vehicle Parts Production	C	1.4%	0.8%	0.8%	3.9%
11	US Ship-Building and Repair Production	D	-2.1%	1.6%	3.0%	-1.0%
11	US Medical Equipment and Supplies Production	D	-0.3%	-1.1%	0.9%	0.8%
11	US Heavy-Duty Truck Production	D	-0.1%	-0.3%	2.4%	5.1%
11	North America Light Vehicle Production	C	2.0%	0.5%	0.9%	3.7%
11	US Industrial Production	D	-0.2%	0.1%	1.4%	1.5%
11	US Electric and Gas Utilities Production	B	1.1%	2.5%	0.1%	2.0%
11	US Plastics Products Production	D	-0.5%	-0.8%	1.7%	0.9%

NFPA Total Shipments

Forecast Revised Downward on Lagged Impact of Interest Rate Pressures; Rise by Mid-2025





Industry Outlook

2024: -7.6%

2025: 6.0%

2026: 7.6%

Outlook & Supporting Evidence

- We downward revised our forecast for annual NFPA Total Shipments by 5.1%, 6.0%, and 1.6% for 2024, 2025, and 2026, respectively. Annual Shipments are feeling more weight from prior interest rate hikes than we previously anticipated. We now expect the low to occur slightly later, in early 2025 rather than year-end 2024.
- Underpinned by resilient consumer demand, the industrial sector is poised to rise in the coming year, with growth concentrated toward the back half of the year. We expect improving economic data and slightly lower interest rates to perk up capex, helping drive rise in Shipments. We expect record highs for Shipments in 2026, in part due to higher prices and the potential to benefit from reshoring trends.

Phase & Amplitudes

Phase D

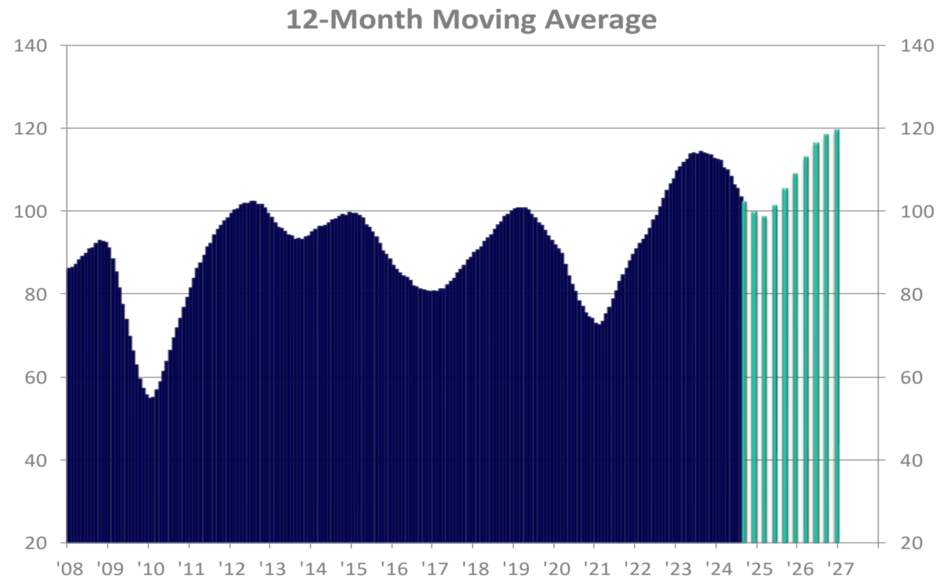
Recession

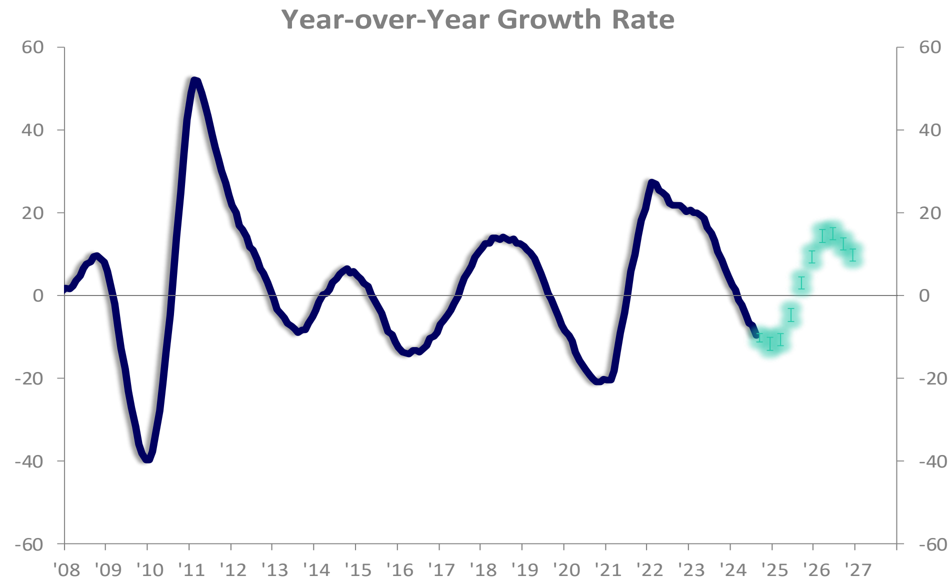
August 2024 Annual Growth Rate (12/12): -7.4%

August 2024 Annual Average (12MMA): 105.2

NFPA Hydraulic Shipments

Forecast Lowered; Gradual Improvement in End Markets Expected in 2025





Industry Outlook

2024: -11.7%

2025: 9.4%

2026: 9.7%

Outlook & Supporting Evidence

- We revised our forecast for annual NFPA Hydraulic Shipments downward by 8.1%, 6.0%, and 1.2% for 2024, 2025, and 2026, respectively. Shipments will trough in early 2025 then rise through at least 2026.
- Traditional machinery markets are taking a hit from high interest rates. Off-highway is facing downward pressure from declining farm income, a conservative oil and gas sector, high interest rates cooling construction markets, and sluggish manufacturing. We expect these factors to linger in the near term but gradually improve in 2025, as leading indicators are generally moving higher.
- US Machinery Manufacturing Utilization and US Machinery, Equipment, and Supplies Wholesale Sales/Inventory Ratio show nascent improvement, suggesting Shipments will transition to recovery in 2025.

Phase & Amplitudes

Phase D

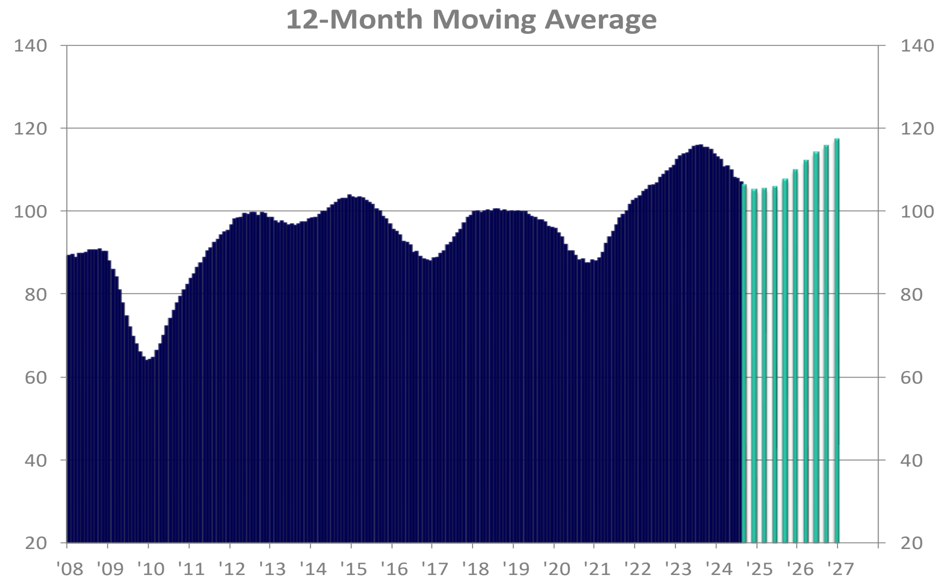
Recession

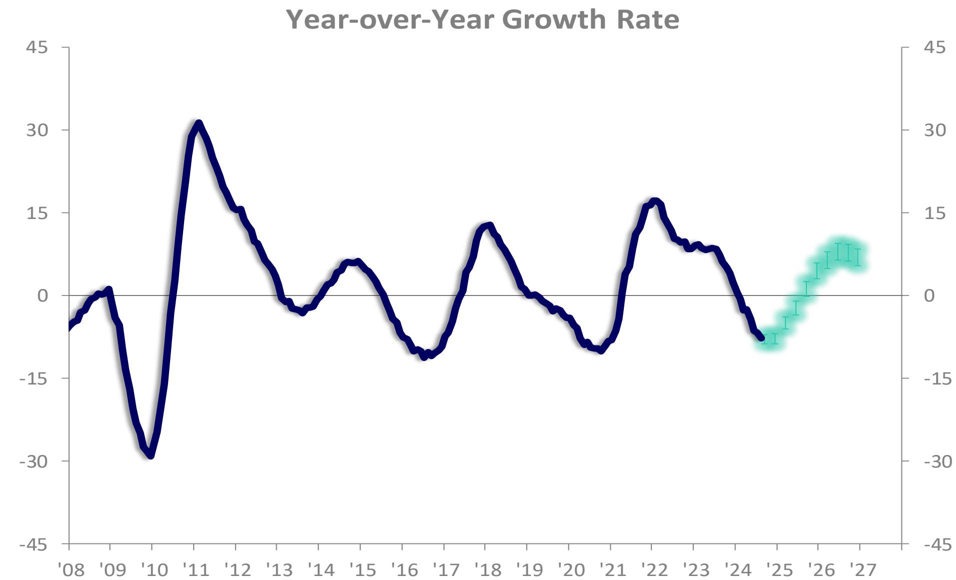
August 2024 Annual Growth Rate (12/12): -9.7%

August 2024 Annual Average (12MMA): 103.4

NFPA Pneumatic Shipments

Forecast Lowered; Food, Chemical, and Electronics Markets Leading the Next Rising Trend





Industry Outlook

2024: -7.9%

2025: 4.5%

2026: 6.9%

Outlook & Supporting Evidence

- We downgraded our forecast for annual NFPA Pneumatic Shipments by 4.8%, 3.3%, and 2.0% for 2024, 2025, and 2026, respectively. Interest rates are exerting more downward pressure than previously thought.
- Annual Shipments will decline in the near term before rising through at least 2026.
- Food, chemical, and electronics components end markets have already transitioned to cyclical rise. Automotive and heavy truck markets will mildly decline in early 2025, but they will end the year in a rising trend. On Net, we expect this to result in Shipments rising 4.5% in 2025.
- Inflation will begin to heat up again in late 2025 and in 2026, contributing to a higher dollar value of Shipments. However, beware potential margin squeeze as input costs rise and buyers remain price-sensitive.

Phase & Amplitudes

Phase D

Recession

August 2024 Annual Growth Rate (12/12): -7.8%

August 2024 Annual Average (12MMA): 107.0

NFPA Markets: Forecast Summary

Economic Opportunities for NFPA Members:

- Defense-adjacent sectors are an area of opportunity as geopolitical conflict persists, with no sign of resolution. US Ammunition, Small Arms, and Ordnance Production is at record highs, while the more volatile US Defense Capital Goods New Orders are in a recovery trend.
- An increasing trend of protectionism through tariffs and incentivizing domestic sourcing poses a potential growth opportunity, however it comes with a downside of higher costs. Benefitting industries include the high-tech sector, renewable energy, and electric vehicles. The utilities industry is likely to be a winner in the coming years as a more robust electric grid is needed to support new datacenters and electric vehicles.
- The second half of this decade is likely to be a good time to do business in the US. Automation will likely be a popular solution given the tight labor market and a need to make efficiency improvements to protect margins.

Economic Risks for NFPA Members:

- The Federal Reserve started to lower the Federal Funds Rate and signaled further rate decreases. Some buyers are holding off until those lower rates are realized, delaying the upside effect of looser monetary policy. Additionally, longer-term rates that are set by the market, such as US Treasurys and mortgage rates, have ticked up since the last Fed meeting and risk further cooling construction markets.
- Margin squeeze is a risk in the coming years as inflation is likely to pick up again in the latter half of 2025 and 2026. Foreshadowing this next round of inflation is an uptick in government borrowing to fund deficit spending. While it was relatively easy to pass through costs during the early 2020s, the market is now more price-sensitive.
- Recent weakness in the US ISM PMI (Purchasing Managers Index) and US Business Confidence Index could jeopardize expected recovery in 2025. We are monitoring this weakness to determine if the trend will continue or if it is just volatility.

Management Objectives:

- Don't be afraid to invest in your business as we see growth ahead in the coming years. Financing costs are likely to be at their lowest in the coming year, as we anticipate a ramp up in inflation beyond 2025 that will drive interest rates higher again. Look for investments that will repay themselves in the next four to five years as you want to go into the 2030s with limited debt and extra cash.
- The labor market is tight and will continue to pose challenges for employers due to demographic trends. Be very intentional with your company culture and values and make sure your benefits packages are competitive to your local area.
- Look for creative ways to apply emerging technologies such as AI to improve the efficiency of your workforce.

NFPA Markets

End-Use Markets	R-o-C	Dec-24	Mar-25	Jun-25	Sep-25	Dec-25	Mar-26	Jun-26	Sep-26	Dec-26	Mar-27	Jun-27	Sep-27
US Logging Production	12/12	-8.6%	-6.3%	-3.5%	-0.7%	2.0%	3.3%	3.6%	2.9%	2.0%	1.4%	0.9%	1.2%
US Oil and Gas Extraction Production	12/12	2.8%	1.9%	1.7%	1.8%	2.2%	3.3%	3.8%	4.4%	4.2%	3.4%	3.0%	2.4%
US Mining and Oil Field Machinery Production	12/12	-7.5%	-9.3%	-7.9%	-4.4%	0.6%	5.9%	9.9%	12.1%	11.7%	9.9%	5.8%	0.4%
US Food Production	12/12	-0.2%	0.9%	1.4%	1.5%	1.7%	1.8%	2.1%	1.9%	1.5%	1.0%	0.2%	0.0%
US Wood Products Production	12/12	-0.9%	-0.7%	0.2%	2.0%	3.7%	3.8%	3.4%	2.5%	2.1%	2.1%	1.8%	1.3%
US Paper and Products Production	12/12	2.3%	2.5%	1.0%	-0.7%	-1.3%	-1.0%	0.3%	1.1%	0.9%	0.0%	-0.9%	-1.4%
US Petroleum Refineries Production	12/12	0.2%	-1.2%	-1.9%	-1.7%	-0.5%	1.3%	2.7%	3.0%	2.4%	1.8%	1.1%	0.6%
US Chemicals and Chemical Products Production	12/12	-0.2%	-0.1%	0.3%	0.8%	1.2%	1.5%	1.4%	1.3%	0.9%	0.4%	0.1%	-0.2%
US Rubber and Plastics Products Production	12/12	0.5%	1.2%	2.0%	2.6%	2.7%	2.1%	1.6%	1.4%	0.8%	0.4%	0.0%	0.3%
US Fabricated Metal Products Production	12/12	-0.9%	-0.9%	-0.4%	0.6%	1.9%	2.9%	3.2%	2.6%	1.6%	0.8%	0.7%	1.2%
US Farm Machinery Shipments	12/12	6.6%	9.6%	13.3%	16.9%	13.5%	8.1%	2.8%	-0.7%	-1.5%	0.0%	4.0%	6.7%
US Lawn and Garden Equipment Production	12/12	-9.3%	-8.4%	-6.0%	-1.7%	4.9%	8.6%	10.3%	9.2%	6.2%	3.6%	-0.4%	-3.5%
US Construction Machinery Production	12/12	-3.2%	-3.1%	-3.9%	-3.3%	-0.7%	2.8%	7.2%	8.7%	7.1%	5.5%	2.4%	-0.5%
US Machinery New Orders	12/12	-0.3%	-0.1%	0.4%	2.1%	5.0%	6.7%	7.5%	6.6%	4.4%	2.5%	0.6%	-0.3%
US Instruments Production	12/12	0.6%	1.4%	2.4%	3.4%	4.1%	4.3%	3.8%	3.1%	2.3%	1.6%	1.2%	0.8%

A RECOVERY

B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

NFPA Markets

End-Use Markets	R-o-C	Dec-24	Mar-25	Jun-25	Sep-25	Dec-25	Mar-26	Jun-26	Sep-26	Dec-26	Mar-27	Jun-27	Sep-27
US Metal Working Machinery New Orders	12/12	3.3%	2.0%	1.5%	2.7%	4.2%	5.3%	4.9%	3.7%	1.9%	1.7%	1.0%	1.2%
US Total Renewable Energy Consumption	12/12	3.6%	3.3%	1.5%	0.9%	0.6%	1.1%	2.3%	3.5%	4.8%	5.1%	4.5%	3.1%
US Engines, Turbines, Generators, and Other Power Generation Equipment New Orders	12/12	-2.5%	-3.0%	-0.4%	3.0%	6.5%	8.1%	8.5%	7.2%	5.0%	1.5%	-0.9%	-0.4%
US Engines and Power Transmission Equipment Production	12/12	-6.6%	-3.0%	-1.9%	1.0%	4.2%	5.7%	7.4%	6.9%	6.0%	4.6%	2.9%	-0.5%
US General Purpose Machinery Production	12/12	-5.7%	-5.1%	-3.8%	-1.7%	0.3%	1.6%	3.3%	4.9%	5.7%	5.3%	3.1%	0.8%
US Material Handling Equipment New Orders	12/12	-4.9%	-6.3%	-5.0%	-1.6%	1.0%	2.7%	3.2%	2.3%	2.2%	2.1%	1.2%	0.7%
US Electronic Components Production	12/12	7.0%	8.9%	10.4%	10.9%	11.0%	9.5%	7.9%	5.9%	3.1%	1.1%	0.1%	-0.5%
US Motor Vehicle Parts Production	12/12	0.8%	-0.9%	-1.2%	-0.2%	0.8%	2.8%	3.8%	4.2%	3.9%	2.9%	2.1%	1.4%
US Ship-Building and Repair Production	12/12	1.6%	4.1%	4.8%	4.4%	3.0%	0.7%	-0.8%	-1.2%	-1.0%	0.3%	1.2%	3.2%
US Medical Equipment and Supplies Production	12/12	-1.1%	-2.0%	-1.7%	-0.7%	0.9%	2.1%	2.1%	1.8%	0.8%	0.0%	-0.5%	-1.1%
US Heavy-Duty Truck Production	12/12	-0.3%	-5.9%	-7.8%	-3.6%	2.4%	6.9%	10.2%	8.9%	5.1%	3.2%	1.5%	1.6%
North America Light Vehicle Production	12/12	0.5%	-0.5%	-1.0%	-0.4%	0.9%	3.5%	5.3%	5.1%	3.7%	2.4%	0.9%	0.3%
US Industrial Production	12/12	0.1%	0.4%	0.6%	0.9%	1.4%	2.0%	2.4%	2.2%	1.5%	0.9%	0.5%	0.6%
US Electric and Gas Utilities Production	12/12	2.5%	2.6%	1.1%	0.4%	0.1%	0.6%	1.8%	2.5%	2.0%	1.2%	0.4%	0.1%
US Plastics Products Production	12/12	-0.8%	-1.2%	-1.0%	0.3%	1.7%	2.7%	2.9%	2.1%	0.9%	0.4%	0.3%	0.8%

A RECOVERY

B ACCELERATING GROWTH

C SLOWING GROWTH

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US Leading Indicators

Indicator	Direction		
	4Q24	1Q25	2Q25
ITR Leading Indicator™	🟢	🟢	N/A
ITR Retail Sales Leading Indicator™	🟢	🟢	🟢
US OECD Leading Indicator	🟢	🔴	🔴
US ISM PMI (Purchasing Managers Index)	🟢	🟢	🔴
US Total Capacity Utilization Rate	🟢	🟢	N/A

Green denotes that the indicator signals cyclical rise for the economy in the given quarter. Red denotes the opposite.

What it means for the US economy

- Leading indicators continue to suggest rise for many sectors through the end of this year and in 2025, though still-high interest rates are dampening the steepness of that ascent. Mild growth is the most probable outcome for most core segments of the US economy next year.

- Recovery in the ITR Leading Indicator™ has stalled in recent months. Recovery this cycle has been shallow compared to prior descent, mirroring the degree of expected recovery in the industrial sector.

- The ITR Retail Sales Leading Indicator™ has declined throughout the third quarter of this year. Should this decline persist, it could mean weakness in the pace of rise for US Total Retail Sales in the second half of 2025.

For many leading indicators, the strength of rise is more muted than robust at this time. Depending on your market, expect a more sluggish upward trend compared to the previous cycle, due in part to the lagged effects of still-elevated interest rates. Technology and renewables-focused markets continue to be areas of relative opportunity.

Appendix — Market Definitions

US Logging Production Index — This industry comprises establishments primarily engaged in one or more of the following: (1) cutting timber; (2) cutting and transporting timber; and (3) producing wood chips in the field. Source: Federal Reserve Board. NAICS Code: 1133. 2017 = 100, not seasonally adjusted (NSA).

US Oil and Gas Extraction Production Index — Includes exploration and extraction of crude petroleum and natural gas; drilling, completing, and equipping wells; operating separators, emulsion breakers, desilting equipment, and field gathering lines for crude petroleum and natural gas; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property. Also includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands, and the production of natural gas, sulfur recovery from natural gas, and recovery of hydrocarbon liquids. Source: Federal Reserve Board. NAICS Code: 211. Index, 2017 = 100, NSA.

US Mining and Oil Field Machinery Production Index — This industry comprises establishments primarily engaged in manufacturing oil and gas field and underground mining machinery and equipment. Includes coal breakers, cutters, and pulverizers, core drills, mining cars, derricks, drilling equipment, rock crushing equipment, etc. Source: Federal Reserve Board. NAICS Code: 33313. Index, 2017 = 100, NSA.

US Food Production Index — Industries in the US Food Manufacturing subsector transform livestock and agricultural products into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products. The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers. Source: Federal Reserve Board. NAICS Code: 311. Index, 2017 = 100, NSA.

US Wood Products Production Index — Industries in the Wood Product Manufacturing subsector manufacture wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes (i.e., mobile homes), and prefabricated wood buildings. The production processes of the Wood Product Manufacturing subsector include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that then may be further cut, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers. The Wood Product Manufacturing subsector includes establishments that make wood products from logs and bolts that are sawed and shaped, and establishments that purchase sawed lumber and make wood products. With the exception of sawmills and wood preservation establishments, the establishments are grouped into industries mainly based on the specific products manufactured. Source: Federal Reserve Board. NAICS Code: 321. Index, 2017 = 100, NSA.

Appendix — Market Definitions

US Paper and Products Production Index — Industries in the Paper Manufacturing subsector make pulp, paper, or converted paper products. The manufacturing of these products is grouped together because they constitute a series of vertically connected processes. More than one is often carried out in a single establishment. There are essentially three activities. The manufacturing of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet. Converted paper products are made from paper and other materials by various cutting and shaping techniques and includes coating and laminating activities. Source: Federal Reserve Board. NAICS Code: 322. Index, 2017 = 100, NSA.

US Petroleum Refineries Production Index — This industry comprises establishments primarily engaged in refining crude petroleum into refined petroleum. Petroleum refining involves one or more of the following activities: (1) fractionation; (2) straight distillation of crude oil; and (3) cracking. Source: Federal Reserve Board. NAICS Code: 32411. Index, 2017 = 100, NSA.

US Chemicals and Chemical Products Production Index — The US Chemical Manufacturing subsector is based on the transformation of organic and inorganic raw materials by a chemical process and the formulation of products. This subsector distinguishes the production of basic chemicals that comprise the first industry group from the production of intermediate and end products produced by further processing of basic chemicals that make up the remaining industry groups. Source: Federal Reserve Board. NAICS Code: 325. Index, 2017 = 100, NSA.

US Rubber and Plastics Products Production Index — Industries in the Plastics and Rubber Products Manufacturing subsector make goods by processing plastics materials and raw rubber. The core technology employed by establishments in this subsector is that of plastics or rubber product production. Plastics and rubber are combined in the same subsector because plastics are increasingly being used as a substitute for rubber; however the subsector is generally restricted to the production of products made of just one material, either solely plastics or rubber. Source: Federal Reserve Board. NAICS Code: 326. Index, 2017 = 100, NSA.

US Fabricated Metal Products Production Index — Industries in the Fabricated Metal Product Manufacturing subsector transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture, or treat metals and metal formed products fabricated elsewhere. Important fabricated metal processes are forging, stamping, bending, forming, and machining, used to shape individual pieces of metal; and other processes, such as welding and assembling, used to join separate parts together. Establishments in this subsector may use one of these processes or a combination of these processes. Source: Federal Reserve Board. NAICS Code: 332. Index, 2017 = 100, NSA.

Appendix — Market Definitions

US Farm Machinery Shipments — Total shipments in the United States includes agricultural and farm machinery and equipment, and other turf and grounds care equipment, including planting, harvesting, and grass mowing equipment (except lawn and garden-type). Source: US Census Bureau. NAICS Code: 333111. Measured in billions of dollars, NSA.

US Lawn and Garden Equipment Production Index — This U.S. industry comprises establishments primarily engaged in manufacturing powered lawnmowers, lawn and garden tractors, and other home lawn and garden equipment, such as tillers, shredders, yard vacuums, and leaf blowers. Source: Federal Reserve Board. NAICS Code: 333112. Index, 2017 = 100, NSA.

US Construction Machinery Production Index — This industry comprises establishments primarily engaged in manufacturing construction machinery, surface mining machinery, and logging equipment. Includes backhoes, bulldozers, construction tractors, pile-driving equipment, off-highway trucks, road graders, etc. Source: Federal Reserve Board. NAICS Code: 33312. Index, 2017 = 100, NSA.

US Machinery New Orders — New orders for machinery in the United States. Industries in the machinery manufacturing subsector create end products that apply mechanical force. Includes machinery used for saw mills and woodworking, plastics and rubber, paper, textiles, printing, food, and semiconductor industries. Source: US Census Bureau. NAICS Code: 3332. Measured in billions of dollars, NSA.

US Instruments Production Index — This industry comprises establishments primarily engaged in manufacturing navigational, measuring, electromedical, and control instruments. Examples of products made by these establishments are aeronautical instruments, appliance regulators and controls (except switches), laboratory analytical instruments, navigation and guidance systems, and physical properties testing equipment. Source: Federal Reserve Board. NAICS Code: 3345. Index, 2017 = 100, NSA.

US Metal Working Machinery New Orders — New orders for metal working machinery in the United States. This industry comprises establishments primarily engaged in manufacturing metalworking machinery, such as metal cutting and metal forming machine tools; cutting tools; and accessories for metalworking machinery; special dies, tools, jigs, and fixtures; industrial molds; rolling mill machinery; assembly machinery; coil handling, conversion, or straightening equipment; and wire drawing and fabricating machines. Source: US Census Bureau. NAICS Code: 33351. Measured in billions of dollars, NSA.

Appendix — Market Definitions

US Total Renewable Energy Consumption — Total renewable energy consumption in the United States, measured in quadrillions of btu, NSA. Renewable energy is from Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action. Energy consumption is the use of energy as a source of heat or power or as a raw material input to a manufacturing process. Source: US Energy Information Administration.

US Engines, Turbines, Generators, and Other Power Generation Equipment New Orders — New orders in the United States for engines, turbines, power transmission equipment, generators, gears, motors, drives, speed changers, etc. Source: US Census Bureau. NAICS Code: 3336. Measured in billions of dollars, NSA.

US Engines and Power Transmission Equipment Production Index — This U.S. industry comprises establishments primarily engaged in manufacturing gears, speed changers, and industrial high-speed drives (except hydrostatic) and mechanical power transmission equipment (except motor vehicle and aircraft), such as plain bearings, clutches (except motor vehicle and electromagnetic industrial control), couplings, joints, and drive chains and internal combustion engines (except automotive gasoline and aircraft). Source: Federal Reserve Board. NAICS Code: 333612-8. Index, 2017 = 100, NSA.

US General Purpose Machinery Production Index — General purpose machinery manufacturing, including pumps and compressors, material handling equipment, elevators and moving stairways, conveyors, industrial trucks, power driven hand tool manufacturing, welding and soldering equipment, packaging machinery, fluid power manufacturing, etc. Source: Federal Reserve Board. NAICS Code: 3339. Index, 2017 = 100, NSA.

US Material Handling Equipment New Orders — New orders for material handling equipment in the United States. This industry comprises establishments primarily engaged in manufacturing material handling equipment, such as elevators and moving stairs; conveyors and conveying equipment; overhead traveling cranes, hoists, and monorail systems; and industrial trucks, tractors, trailers, and stacker machinery. Source: US Census Bureau. NAICS Code: 33392. Measured in billions of dollars, NSA.

US Electronic Components Production Index — This industry comprises establishments primarily engaged in manufacturing semiconductors and other components for electronic applications. Examples of products made by these establishments are capacitors, resistors, microprocessors, bare and loaded printed circuit boards, electron tubes, electronic connectors, and computer modems. Source: Federal Reserve Board. NAICS Code: 3344. Index, 2017 = 100, NSA.

Appendix — Market Definitions

US Motor Vehicle Parts Production Index — Production index for the manufacture of motor vehicle parts. Includes the following parts for motor vehicles: engines and engine parts, alternators, generators, automotive lighting fixtures, coils and ignitions, distributors, spark plugs, windshield washer pumps, fuel pumps, starters, voltage regulators, wiring harnesses, steering and suspension components, brake systems, transmission and power train parts, seating and interior trim, fenders, tops, body parts, air bags, catalytic converters, mufflers, radiators, wheels, air conditioners, and other motor vehicle parts. Source: Federal Reserve Board. NAICS Code: 3363. Index, 2017 = 100, NSA.

US Ship-Building and Repair Production Index — This U.S. industry comprises establishments primarily engaged in operating a shipyard. Shipyards are fixed facilities with drydocks and fabrication equipment capable of building a ship, defined as watercraft typically suitable or intended for other than personal or recreational use. Activities of shipyards include the construction of ships, their repair, conversion and alteration, the production of prefabricated ship and barge sections, and specialized services, such as ship scaling. Source: Federal Reserve Board. NAICS Code: 336611. Index, 2017 = 100, NSA.

US Medical Equipment and Supplies Production Index — Medical equipment and supplies manufacturing index for the United States. Examples of products made by these establishments are surgical and medical instruments, surgical appliances and supplies, dental equipment and supplies, orthodontic goods, ophthalmic goods, dentures, and orthodontic appliances. Source: Federal Reserve Board. NAICS Code: 3391. Index, 2017 = 100, NSA.

US Heavy-Duty Truck Production Index — Heavy-Duty Truck Production. This industry comprises establishments primarily engaged in (1) manufacturing heavy duty truck chassis and assembling complete heavy duty trucks, buses, heavy duty motor homes, and other special purpose heavy duty motor vehicles for highway use or (2) manufacturing heavy duty truck chassis only. Includes trucks weighing 14,000 pounds or more. Source: Federal Reserve Board. NAICS Code: 33612. Index, 2017 = 100, NSA.

North America Light Vehicle Production — Passenger car and light-duty truck production (classes 1-3) in the US, Canada, and Mexico combined, including transplants. A passenger car is a road motor vehicle, other than a motorcycle, intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). Source: WardsAuto. Measured in millions of units, NSA.

Appendix — Market Definitions

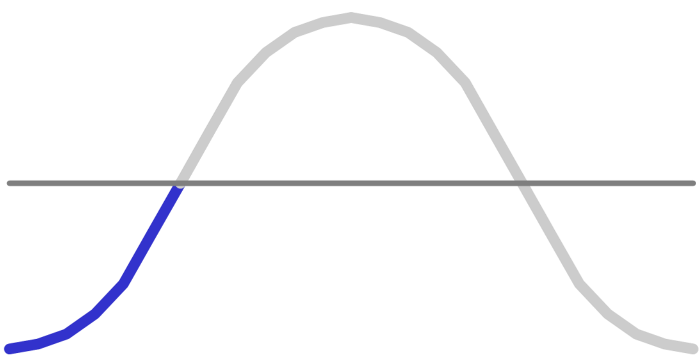
US Industrial Production Index — Index of total industrial production in the United States; includes manufacturing, mining, and utilities. Source: Federal Reserve Board. Index, 2017 = 100, NSA.

US Electric and Gas Utilities Production Index — Index of electric and gas utilities production in the United States. This industry includes establishments primarily engaged in operating electric power generation facilities. These facilities convert other forms of energy, such as water power (i.e., hydroelectric), fossil fuels, nuclear power, and solar power, into electrical energy. The establishments in this industry produce electric energy and provide electricity to transmission systems or to electric power distribution systems. This industry also includes: (1) establishments primarily engaged in operating gas distribution systems (e.g., mains, meters); (2) establishments known as gas marketers that buy gas from the well and sell it to a distribution system; (3) establishments known as gas brokers or agents that arrange the sale of gas over gas distribution systems operated by others; and (4) establishments primarily engaged in transmitting and distributing gas to final consumers. Source: Federal Reserve Board. NAICS Code: 2211, 2212. Index, 2017 = 100, NSA.

US Plastics Products Production Index — This industry group comprises establishments primarily engaged in processing new or spent (i.e., recycled) plastics resins into intermediate or final products, using such processes as compression molding, extrusion molding, injection molding, blow molding, and casting. Within most of these industries, the production process is such that a wide variety of products can be made. Source: Federal Reserve Board. NAICS Code: 3261. Index, 2017 = 100, NSA.

Management Objectives™

Phase



A

1 Scrupulously evaluate the supply chain

2 Model positive leadership (culture turns to behavior)

3 Start to phase out marginal opportunities (products, processes, people); repair margins

4 Perform due diligence on customers and extend credit

5 Be on good terms with a banker; you will need the cash more now than in any other phase

6 Invest in customer market research; know what they value and market/price accordingly

7 Hire key people and implement company-wide training programs ahead of Phase B

8 Allocate additional resources to sales and marketing

9 Invest in system/process efficiencies

10 Make opportunistic capital and business acquisitions; use pessimism to your advantage

Management Objectives™

1 Ensure quality control keeps pace with increasing volume

2 Invest in workforce development: hiring, training, retention

3 Ensure you have the right price escalator; space out price increases

4 Maximize your profit margins through differentiation; stand out from the crowd and set yourself apart

5 Use improved cash flow to strategically position the business to beat the business cycle

6 Expand credit to customers

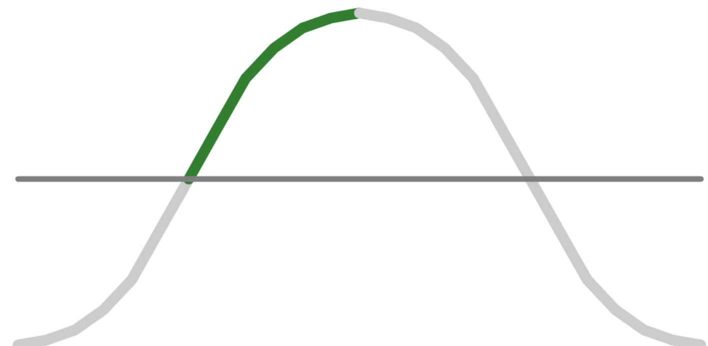
7 Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)

8 Communicate competitive advantages; build the brand

9 Query users for what they want and what is important to them

10 Sell the business in a climate of maximum goodwill

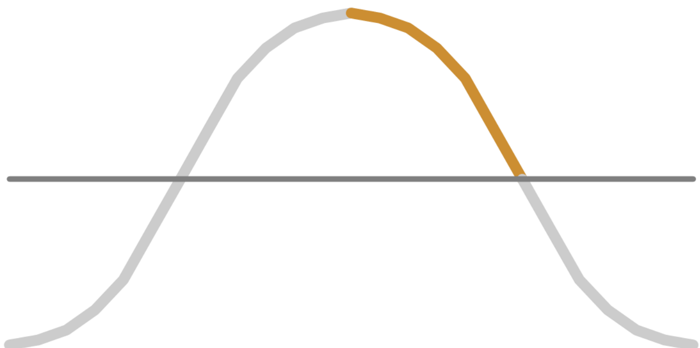
Phase



B

Management Objectives™

Phase



C

1 Know if your markets are headed for a soft landing or a hard landing

2 Cash is king; beware of unwarranted optimism

3 Stay on top of aging receivables

4 Revisit capital expenditure plans

5 Lose the losers: if established business segments are not profitable during this phase, eliminate them

6 Use competitive pricing to manage your backlog through the coming slowdown

7 Avoid committing yourself to long-term expenses at the top of the price cycle, but lock in revenue

8 Go entrepreneurial and/or counter-cyclical

9 Evaluate your vendors for financial strength; if needed, look for additional vendors as a safety net

10 If the cycle looks recessionary, cross-train key people to prepare for workforce attrition/reduction

Management Objectives™

1 Implement aggressive cost-cutting measures

2 Offer alternative products with a lower cost basis

3 Perform due diligence on acquisitions while valuations are falling

4 Reduce advertising as consumers become more price conscious

5 Enter or renegotiate long-term leases

6 Negotiate labor contracts

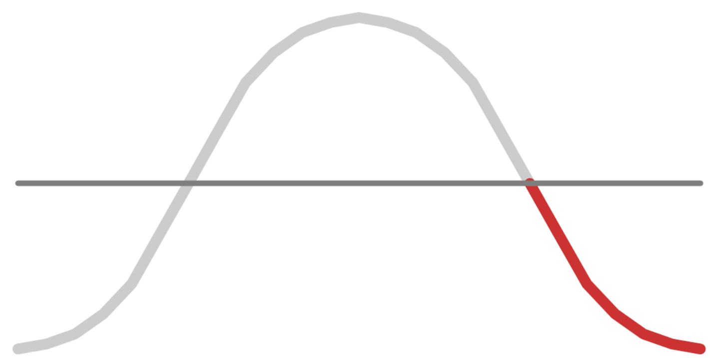
7 Consider capital equipment needs for the next cycle

8 Tighten credit policies

9 Develop programs for advertising, training, and marketing to implement in Phase A

10 Lead with optimism, remembering that Phase D is temporary

Phase



D