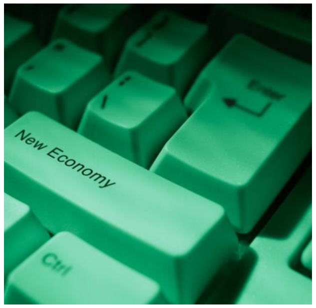

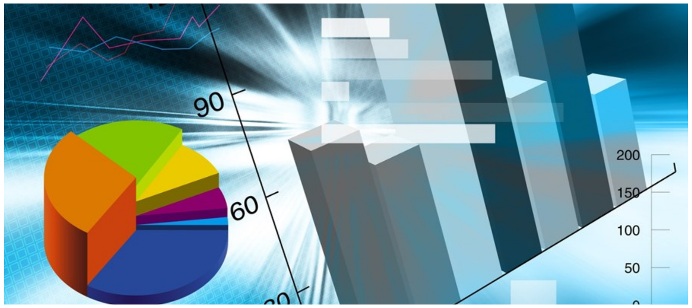

NATIONAL FLUID POWER ASSOCIATION
NFPA

2025
Market Outlook

First Quarter

ITR ECONOMICS

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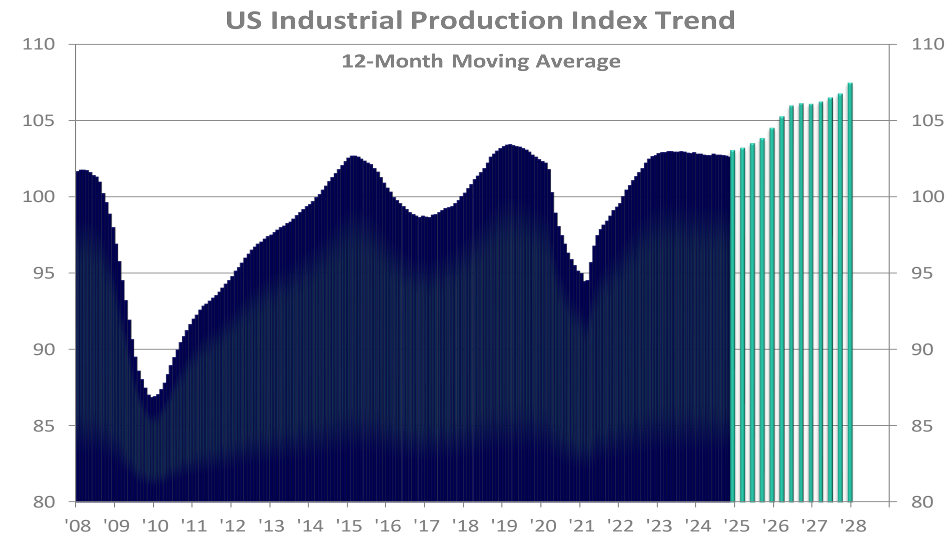
overview

Growth Lies Ahead; Here Are Some Key Drivers:



Consumers: Rising incomes and inflation-adjusted savings balances will help boost Retail Sales rise in the years ahead. Higher-income earners and those who saw their home prices rise and stock portfolios increase in value in recent years will likely drive much of the growth. Those demographics struggling with inflation should get some relief in 2025, but price sensitivity will linger. Retail Sales growth will start out sluggish in early 2025 but then ramp up later in the year. Improving consumer metrics will also be a positive for other sectors ranging from manufacturing to services.

Interest Rates: The Federal Reserve has shifted to a more accommodative monetary policy; however, a lower Federal Funds Rate (a short-term rate) does not necessarily equate to lower interest rates for businesses. Commercial loans and mortgage rates trend similarly to US Government Long Term Bond Yields, which we anticipate will likely generally rise this year. Beyond rates, borrowing conditions are improving. Many lenders have stopped tightening their credit standards, and the default risk premium has moved lower, suggesting lenders are less concerned about recession risks – though there are lingering concerns specific to the CRE market. When deciding on capex, focus on timing the ROI to best align with your market trends. Aim to have the payback period completed ahead of the 2030s, as we anticipate tougher economic times in that decade.

Inflation: Prices will generally rise in the coming years, picking up the pace in the second half of 2025. Inflation will be temperate relative to 2021 and 2022 levels but not as low as in the 2010s. If further tariffs are put in place, they could pose an upside risk to our pricing outlooks.

Businesses: While borrowing costs are unlikely to come down, elevated corporate profits and corporate cash will allow businesses to spend more. We expect investments in domestic capacity in recent years to have a cumulative positive effect, helping the economy reach record heights. Rise will be driven both by higher volumes and higher dollar values. Efficiency gains will be necessary to maintain or improve margins.

The Labor Market: Labor challenges will persist in the upcoming years, as will the upward pressure on wages. While the labor market has softened, it will remain relatively tight in the coming years due in part to the aging population. It will be important to focus resources on attracting and retaining talent. Keep your wages and benefits competitive for your region and industry.

Key Industries and Takeaways for Your Business

It may feel difficult to be optimistic at this point in the business cycle, but there are green shoots. Leading indicators, including the ITR Leading Indicator™, point to upcoming business cycle rise; however, markets will trend differently throughout this period. In the construction market, residential construction will rise for much of the next few years, despite affordability constraints, given the high demand for housing. The nonresidential construction sector lags the overall economy and is likely to undergo mild decline for much of 2025 and into 2026. There will be areas of opportunity within nonresidential construction, notably data centers, as they are in high demand and likely to rise in the coming two years. Within the industrial sector (which will be boosted generally by the nearshoring efforts of the past few years), manufacturing related to technology will likely be an area of opportunity.

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

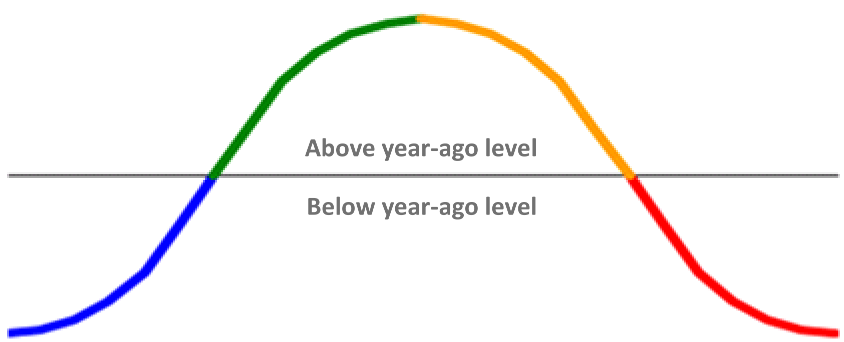
calculating rates-of-change and using leading indicators to see the future.

Business Cycle:

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

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.



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.

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	2025	2026	2027
6	NFPA Total Shipments	D	-9.8%	6.0%	7.6%	1.9%
7	NFPA Hydraulic Shipments	D	-14.3%	9.4%	9.7%	1.8%
8	NFPA Pneumatic Shipments	D	-9.0%	4.5%	6.9%	2.2%
10	US Logging Production	A	-10.8%	1.2%	2.0%	1.7%
10	US Oil and Gas Extraction Production	C	2.7%	2.2%	4.2%	2.7%
10	US Mining and Oil Field Machinery Production	D	-7.4%	0.6%	11.7%	-2.4%
10	US Food Production	A	-1.1%	0.6%	1.9%	0.6%
10	US Wood Products Production	B	0.0%	3.7%	2.1%	0.5%
10	US Paper and Products Production	B	1.4%	-1.3%	0.9%	-1.0%
10	US Petroleum Refineries Production	B	1.6%	3.3%	-0.3%	1.4%
10	US Chemicals and Chemical Products Production	B	1.9%	0.7%	0.6%	1.1%

A RECOVERY

B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

Business Cycle

Page Number	Industry	Phase	Current	2025	2026	2027
10	US Rubber and Plastics Products Production	D	-1.6%	-0.4%	2.8%	-0.3%
10	US Fabricated Metal Products Production	A	-0.8%	1.9%	1.6%	1.7%
10	US Farm Machinery Shipments	B	1.5%	7.8%	1.0%	3.7%
10	US Lawn and Garden Equipment Production	D	-9.2%	0.5%	6.2%	-0.1%
10	US Construction Machinery Production	D	-5.7%	-0.7%	7.1%	-2.0%
10	US Machinery New Orders	B	0.3%	5.0%	4.4%	-0.2%
10	US Instruments Production	B	0.8%	4.1%	2.3%	0.6%
11	US Metal Working Machinery New Orders	B	1.5%	4.2%	1.9%	1.7%
11	US Total Renewable Energy Consumption	C	4.0%	0.6%	4.8%	1.8%
11	US Engines, Turbines, Generators, and Other Power Generation Equipment New Orders	D	-3.8%	6.5%	5.0%	1.4%
11	US Engines and Power Transmission Equipment Production	A	-1.2%	2.2%	7.3%	1.5%

A RECOVERY

B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

Business Cycle

Page Number	Industry	Phase	Current	2025	2026	2027
11	US General Purpose Machinery Production	A	-3.6%	0.3%	5.7%	-0.7%
11	US Material Handling Equipment New Orders	D	-2.8%	4.0%	5.5%	3.2%
11	US Electronic Components Production	B	7.3%	11.0%	3.1%	0.0%
11	US Motor Vehicle Parts Production	C	0.3%	0.8%	3.9%	1.5%
11	US Ship-Building and Repair Production	B	1.5%	3.0%	-1.0%	4.2%
11	US Medical Equipment and Supplies Production	D	-2.9%	0.7%	0.5%	0.9%
11	US Heavy-Duty Truck Production	D	-1.2%	2.4%	5.1%	1.2%
11	North America Light Vehicle Production	C	0.3%	0.9%	3.7%	-0.3%
11	US Industrial Production	A	-0.2%	1.4%	1.5%	1.3%
11	US Electric and Gas Utilities Production	B	1.9%	0.1%	2.0%	0.0%
11	US Plastics Products Production	D	-1.2%	1.7%	0.9%	1.3%

A RECOVERY

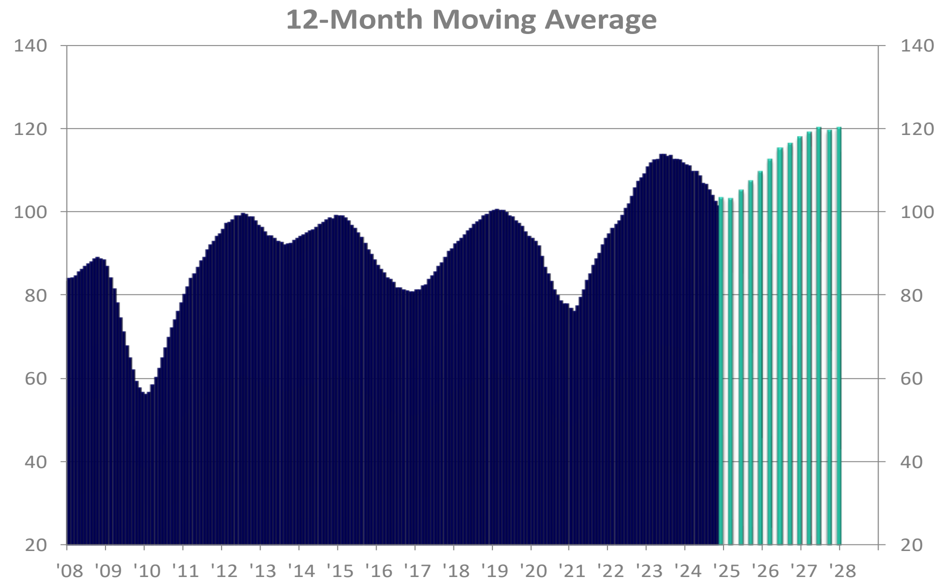
B ACCELERATING GROWTH

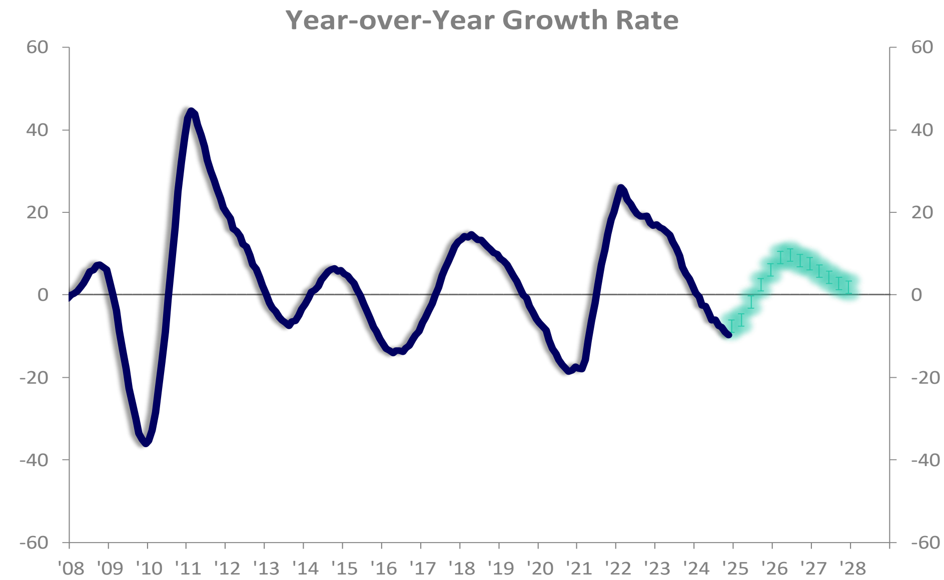
C SLOWING GROWTH

D RECESSION

NFPA Total Shipments

Shipments Will Rise Alongside Sluggish Recovery for US Industrial Production





Industry Outlook

2025: 6.0%

2026: 7.6%

2027: 1.9%

Outlook & Supporting Evidence

- Annual NFPA Total Shipments are declining, down 9.8% from the year-ago level. Annual Shipments will reach a low in early 2025, likely tracking the lower end of our forecast range. Annual Shipments will then rise, reaching new record highs starting in 2026. Shipments will plateau in 2027.
- US Industrial Production has plateaued with a downward tilt. We anticipate the accumulation of investment in domestic manufacturing amid nearshoring trends will gradually allow higher levels of industrial activity and increased spending on capital equipment, supporting demand for fluid power equipment.
- Interest rates are unlikely to come down much, but activity will pick up as businesses and consumers accept and adapt to that reality. Consumers and businesses alike remain in relatively solid financial positions.

Phase & Amplitudes

Phase D

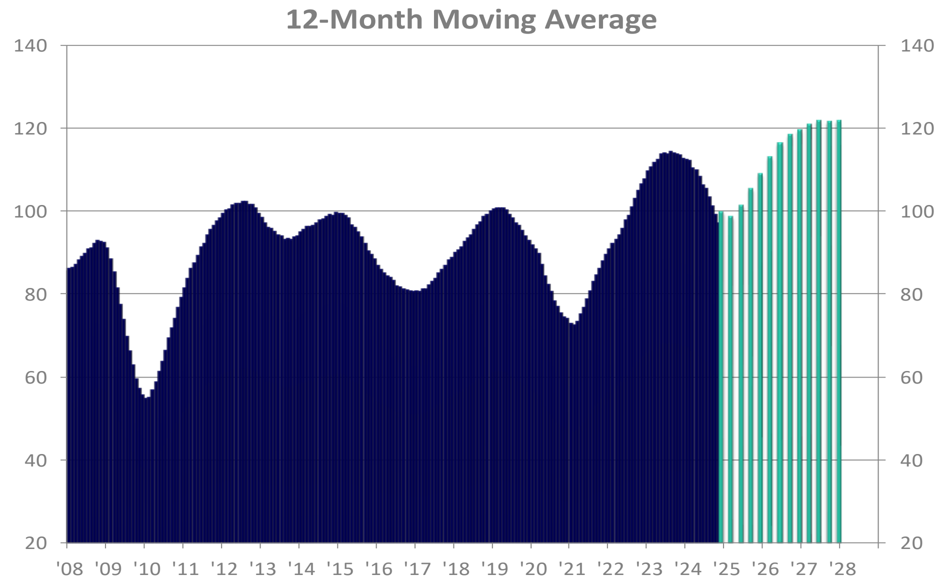
Recession

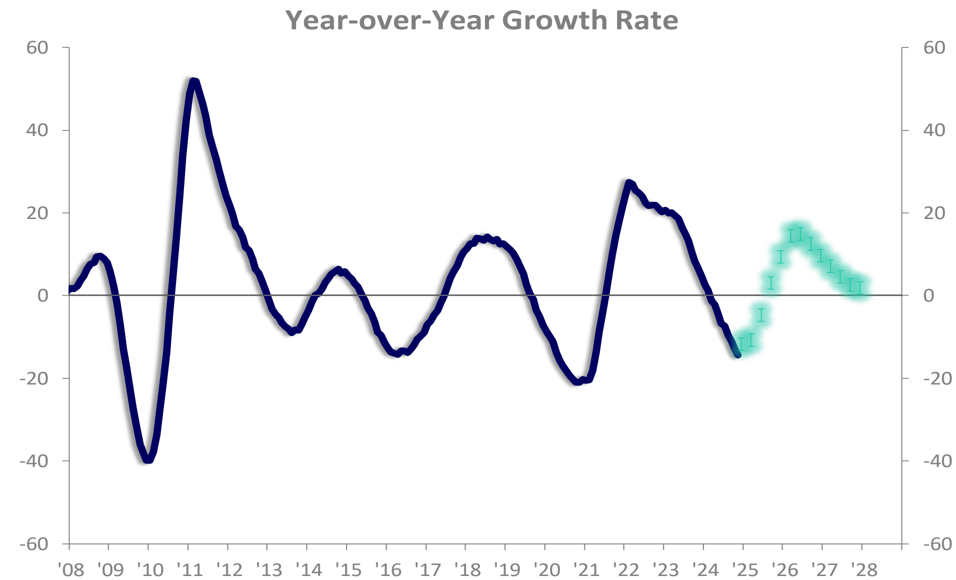
November 2024 Annual Growth Rate (12/12): -9.8%

November 2024 Annual Average (12MMA): 101.4

NFPA Hydraulic Shipments

Expect Lingering Headwinds from High Rates; Some Machinery Markets Improving





Industry

Outlook

2025: 9.4%

2026: 9.7%

2027: 1.8%

Outlook & Supporting Evidence

- Annual NFPA Hydraulic Shipments are declining. Hydraulic Shipments may come in lower than forecasted in the near term. However, leading indicators support a near-term low, and we still anticipate Annual Shipments will rise for much of 2025 and 2026. Hydraulic Shipments will plateau in 2027.
- Elevated interest rates will remain a lingering downside pressure. Cash balances have helped buffer that downside effect, and, over time, businesses will gradually adjust to the new normal of elevated rates.
- Trends may vary depending on exposure to different machinery markets. The Material Handling Equipment and Construction Machinery markets are in Phase D, Recession. Other markets, such as General Purpose Machinery, Fabricated Metal Products, and Metalworking Machinery are in cyclical rising trends.

Phase & Amplitudes

Phase D

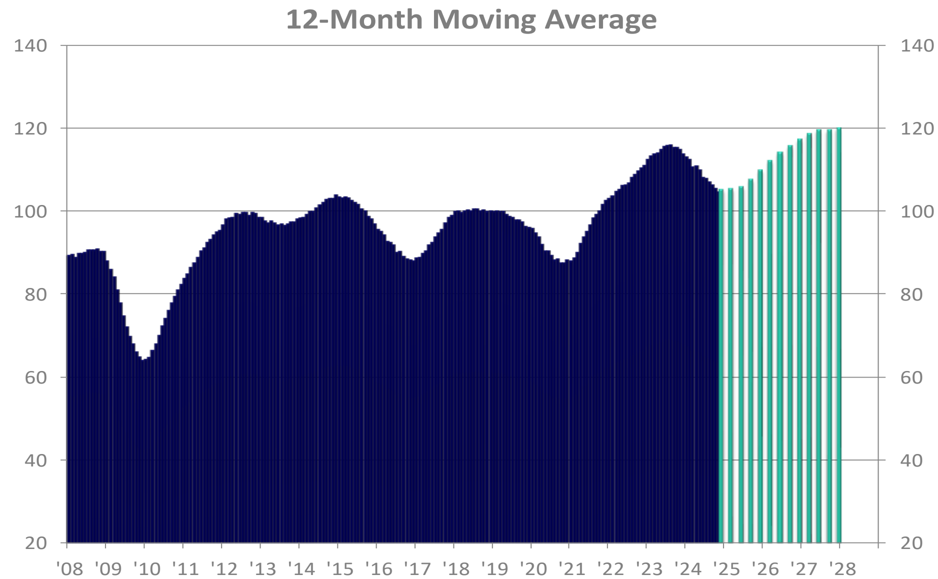
Recession

November 2024 Annual Growth Rate (12/12): -14.3%

November 2024 Annual Average (12MMA): 97.2

NFPA Pneumatic Shipments

Shipments Likely to Rise in 2025 Despite Softness From Auto and Trucking Industries



Industry Outlook

2025: 4.5%

2026: 6.9%

2027: 2.2%

Outlook & Supporting Evidence

- Annual NFPA Pneumatic Shipments will reach a low in the near term, then rise through 2026. Pneumatic Shipments will plateau in 2027.
- The automotive and heavy truck sectors will experience lingering softness this year. High financing costs are impacting affordability. On the heavy truck side, key industry metrics such as freight rates, volumes, and revenues remain at or below year-ago levels, but cyclical rise for these metrics suggest now is the time to prepare for the next rising trend.
- The medical equipment industry will pick up in the near term and rise through mid-2026. The aging demographic provides a solid base for this market moving forward. The chemicals, electronics, and paper end markets are already rising, and food production is likely to turn up later this year.

Phase & Amplitudes

Phase D

Recession

November 2024 Annual Growth Rate (12/12): -9.0%

November 2024 Annual Average (12MMA): 104.5

NFPA Markets: Forecast Summary

Economic Opportunities for NFPA Members:

- US Single-Unit Housing Starts are poised for growth in the second half of the decade, as low vacancy rates signal a need for more housing supply. Starts are likely to vary by region. Pay attention to population trends; commercial construction typically follows residential construction.
- The US Energy Activity Index indicates a marginal increase in business activity in late 2024, and survey respondents noted a slight increase in capex plans for 2025, particularly for drilling and completion. The Trump administration is prioritizing support of the oil and gas industry and has rolled back some EV-related polices. Keep abreast of policy changes to pinpoint areas of relative opportunity.
- Power generation is an area of opportunity for NFPA members. A growing population and the rising adoption of AI is driving increasing electricity demand. A stronger utilities grid will be necessary to support future growth.

Economic Risks for NFPA Members:

- The Federal Reserve is easing monetary policy, but long-term interest rates are elevated. While many consumers and businesses are likely to acclimate to the higher rate environment, elevated rates may dampen growth in more interest-rate-sensitive industries.
- The labor market remains relatively tight. The unemployment rate is 4.1%, well below the 20-year average of 5.8%. Long-term demographic trends suggest that the labor market will remain tight for years to come, and inflation will pick up again, putting upward pressure on labor costs. This may incentivize increased automation, however, which could present opportunities for NFPA members.
- Exports may suffer, as extended periods of US dollar strength may make cheaper foreign goods more attractive. The potential for increased trade tensions is also a notable risk that could disrupt supply chains and present a challenge for profitability.

Management Objectives:

- Passing on price increases to inflation-weary customers may be more difficult given the cumulative impact of recent inflationary periods. Consider alternative strategies to maintain and grow your margins. Engage your workforce to tackle the question of how to improve efficiencies. Operational improvements and technological upgrades can work in tandem to fully utilize the skills of your workforce.
- Balance the need to strengthen your relationships with suppliers with the benefits of diversifying your supply chain to reduce geographic risks.
- Ensure that your quality control processes are ready to keep pace as growth picks up in the latter half of 2025.
- Consider locking in input costs now to get ahead of the next inflationary trend.

NFPA Markets

End-Use Markets	R-o-C	Mar-25	Jun-25	Sep-25	Dec-25	Mar-26	Jun-26	Sep-26	Dec-26	Mar-27	Jun-27	Sep-27	Dec-27
US Logging Production	12/12	-8.8%	-6.9%	-1.2%	1.2%	2.7%	3.5%	2.2%	2.0%	1.5%	1.0%	1.0%	1.7%
US Oil and Gas Extraction Production	12/12	1.9%	1.7%	1.8%	2.2%	3.3%	3.8%	4.4%	4.2%	3.4%	3.0%	2.4%	2.7%
US Mining and Oil Field Machinery Production	12/12	-9.3%	-7.9%	-4.4%	0.6%	5.9%	9.9%	12.1%	11.7%	9.9%	5.8%	0.4%	-2.4%
US Food Production	12/12	-0.7%	-0.6%	-0.1%	0.6%	1.2%	1.9%	1.9%	1.9%	1.7%	1.3%	1.0%	0.6%
US Wood Products Production	12/12	-0.7%	0.2%	2.0%	3.7%	3.8%	3.4%	2.5%	2.1%	2.1%	1.8%	1.3%	0.5%
US Paper and Products Production	12/12	2.5%	1.0%	-0.7%	-1.3%	-1.0%	0.3%	1.1%	0.9%	0.0%	-0.9%	-1.4%	-1.0%
US Petroleum Refineries Production	12/12	1.5%	1.9%	2.9%	3.3%	3.2%	2.6%	1.1%	-0.3%	-1.0%	-0.9%	0.0%	1.4%
US Chemicals and Chemical Products Production	12/12	2.7%	2.8%	1.9%	0.7%	-0.6%	-0.8%	-0.2%	0.6%	1.6%	1.7%	1.5%	1.1%
US Rubber and Plastics Products Production	12/12	-2.5%	-2.9%	-2.1%	-0.4%	1.2%	2.5%	3.2%	2.8%	1.9%	0.6%	-0.4%	-0.3%
US Fabricated Metal Products Production	12/12	-0.9%	-0.4%	0.6%	1.9%	2.9%	3.2%	2.6%	1.6%	0.8%	0.7%	1.2%	1.7%
US Farm Machinery Shipments	12/12	4.6%	6.6%	7.6%	7.8%	6.9%	4.5%	3.0%	1.0%	1.0%	2.1%	2.8%	3.7%
US Lawn and Garden Equipment Production	12/12	-9.8%	-9.1%	-6.2%	0.5%	6.6%	10.3%	10.2%	6.2%	2.8%	1.0%	0.2%	-0.1%
US Construction Machinery Production	12/12	-3.1%	-3.9%	-3.3%	-0.7%	2.8%	7.2%	8.7%	7.1%	5.5%	2.4%	-0.5%	-2.0%
US Machinery New Orders	12/12	-0.1%	0.4%	2.1%	5.0%	6.7%	7.5%	6.6%	4.4%	2.5%	0.6%	-0.3%	-0.2%
US Instruments Production	12/12	1.4%	2.4%	3.4%	4.1%	4.3%	3.8%	3.1%	2.3%	1.6%	1.2%	0.8%	0.6%

A RECOVERY

B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

Hide 3Q23-4Q24 after proofing of phases are solidified

NFPA Markets

End-Use Markets	R-o-C	Mar-25	Jun-25	Sep-25	Dec-25	Mar-26	Jun-26	Sep-26	Dec-26	Mar-27	Jun-27	Sep-27	Dec-27
US Metal Working Machinery New Orders	12/12	2.0%	1.5%	2.7%	4.2%	5.3%	4.9%	3.7%	1.9%	1.7%	1.0%	1.2%	1.7%
US Total Renewable Energy Consumption	12/12	3.3%	1.5%	0.9%	0.6%	1.1%	2.3%	3.5%	4.8%	5.1%	4.5%	3.1%	1.8%
US Engines, Turbines, Generators, and Other Power Generation Equipment New Orders	12/12	-3.0%	-0.4%	3.0%	6.5%	8.1%	8.5%	7.2%	5.0%	1.5%	-0.9%	-0.4%	1.4%
US Engines and Power Transmission Equipment Production	12/12	2.5%	5.3%	3.7%	2.2%	2.6%	4.4%	7.4%	7.3%	5.0%	1.7%	0.0%	1.5%
US General Purpose Machinery Production	12/12	-5.1%	-3.8%	-1.7%	0.3%	1.6%	3.3%	4.9%	5.7%	5.3%	3.1%	0.8%	-0.7%
US Material Handling Equipment New Orders	12/12	-1.4%	1.8%	3.7%	4.0%	5.8%	6.3%	6.0%	5.5%	3.7%	3.2%	3.0%	3.2%
US Electronic Components Production	12/12	8.9%	10.4%	10.9%	11.0%	9.5%	7.9%	5.9%	3.1%	1.1%	0.1%	-0.5%	0.0%
US Motor Vehicle Parts Production	12/12	-0.9%	-1.2%	-0.2%	0.8%	2.8%	3.8%	4.2%	3.9%	2.9%	2.1%	1.4%	1.5%
US Ship-Building and Repair Production	12/12	4.1%	4.8%	4.4%	3.0%	0.7%	-0.8%	-1.2%	-1.0%	0.3%	1.2%	3.2%	4.2%
US Medical Equipment and Supplies Production	12/12	-3.9%	-3.7%	-1.6%	0.7%	1.9%	2.2%	1.5%	0.5%	0.3%	-0.3%	0.0%	0.9%
US Heavy-Duty Truck Production	12/12	-5.9%	-7.8%	-3.6%	2.4%	6.9%	10.2%	8.9%	5.1%	2.5%	-0.4%	-0.6%	1.2%
North America Light Vehicle Production	12/12	-0.5%	-1.0%	-0.4%	0.9%	3.5%	5.3%	5.1%	3.7%	2.4%	0.9%	0.0%	-0.3%
US Industrial Production	12/12	0.4%	0.6%	0.9%	1.4%	2.0%	2.4%	2.2%	1.5%	0.9%	0.5%	0.6%	1.3%
US Electric and Gas Utilities Production	12/12	2.6%	1.1%	0.4%	0.1%	0.6%	1.8%	2.5%	2.0%	1.2%	0.4%	0.1%	0.0%
US Plastics Products Production	12/12	-1.2%	-1.0%	0.3%	1.7%	2.7%	2.9%	2.1%	0.9%	0.4%	0.3%	0.8%	1.3%

A RECOVERY
B ACCELERATING GROWTH
C SLOWING GROWTH
D RECESSION

INDICATORS

US Leading Indicators

Indicator	Direction		
	1Q25	2Q25	3Q25
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

- While signs are pointing toward rise in US Industrial Production in the coming quarters, rise will be modest due in part to still-elevated interest rates.

- The US ISM PMI (Purchasing Managers Index) monthly rate-of-change has risen for the third month in a row, but one quarter does not make a trend. We continue to monitor this leading indicator and others for their potential signals for the macroeconomy.

- We are at an inflection point for the industrial sector; rise is likely going forward, but some contradictory leading indicators indicate that the strength of rise is likely to be limited. Well-positioned consumers and businesses, however, will support a stronger 2025 than 2024, particularly in the second half of the year.

Leading indicators suggest that muted economic growth will be the prevailing trend for 2025. Capitalizing on growth may be tricky, as margins will come under pressure when inflation heats up in late 2025. Lean into your competitive advantages to garner customer loyalty and avoid competing on price alone. Preparing your supply chain for the potential of rising trade tensions is advisable.

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

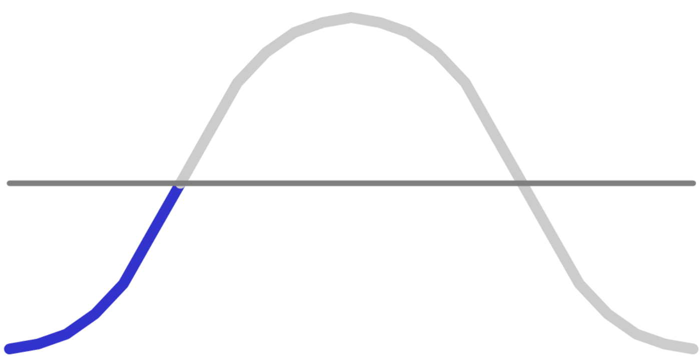
US Industrial Production Index — Index of total industrial production in the United States; includes manufacturing, mining, and utilities. Source: Federal Reserve Board. Index, 2017 = 100, NSA.

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

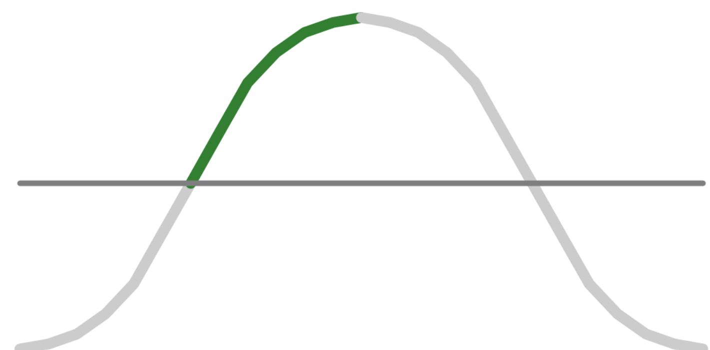
7 Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)

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

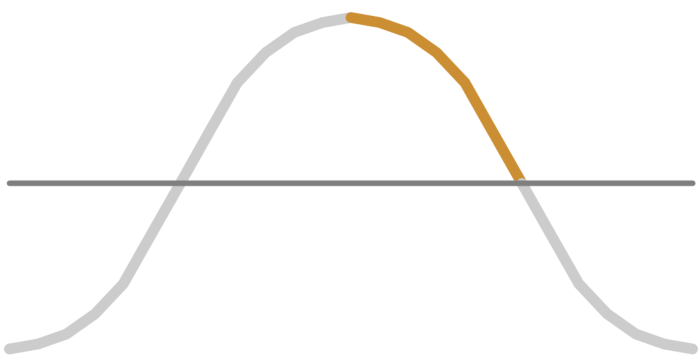
Phase



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

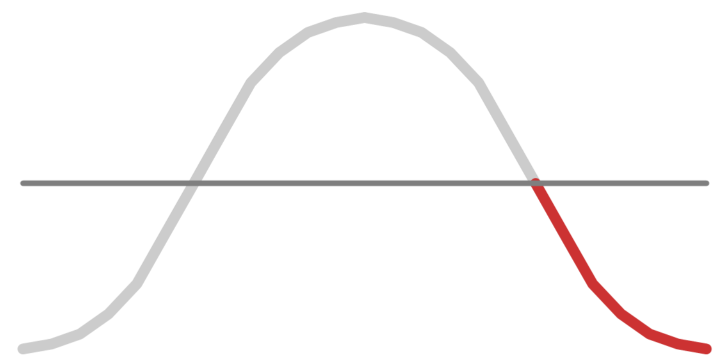
7 Consider capital equipment needs for the next cycle

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