Steel Founders' Society of America

2023 Industry Market Forecast

SFSA

Steel Founders' Society of America

The function of the Marketing Committee is to **broaden the market for and promote the use of steel castings** by investigating and developing new markets, developing and implementing an effective marketing program, and communicating the advantages of steel castings to present and prospective consumers in an effective manner.

To carry out its mission, the committee maintains liaison with other committees of the Society through the staff, identifies technical, business and market topics of interest to customers and SFSA members, directs development of the material and delivery of the information. The committee develops the deliverables for the marketing program such as messaging, competitive input, target market, and specific planning, The committee also performs related market research to help guide the work of the Society and **prepares each year for the Society an annual forecast of steel casting demand**…..

Customer Education Resources

- Member Directory
- Free SFSA Publications
- Online Specs./Stds. Tool
- Customer Webinars
- White Papers
- Foundry Glossary
- **New Steel Casting Design Videos**
- **Handbook Supplement 6 Update**
- **Steel Casting NDT Methods**
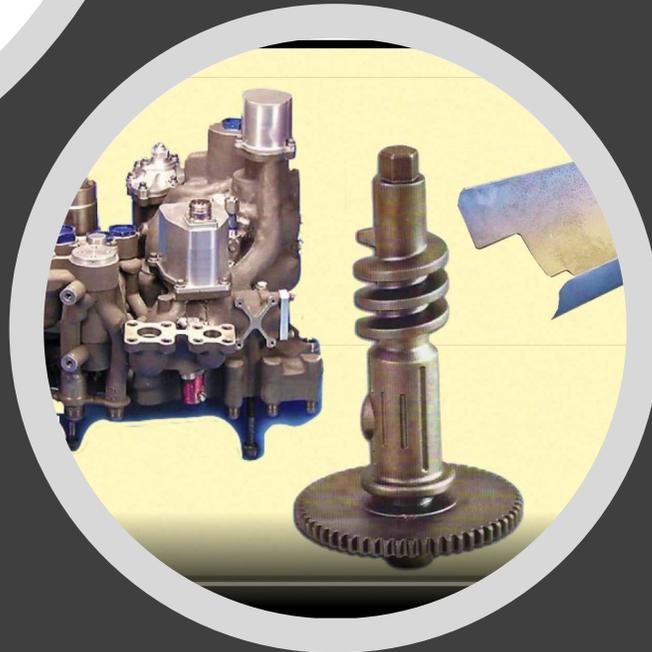
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Forecast Process

- Segmented primary markets
- Identified key customers and users in each market
- Analyze customer top line sales
- Market survey to members
- Leverage customer associations
  - Pumps, Valves, Rail, Equip. Mfg.
- Review analyst reports

STEEL CASTING MARKETS

- Other Markets, 20%
- Railroad, 27%
- Industrial Furnaces and Ovens, 3%
- Industrial Equipment, 9%
- Military, 2%
- Oil Field, 3%
- Valves & Pumps, 8%
- Trucks Class 8, 2%
- Construction, 7%
- Mining, 21%
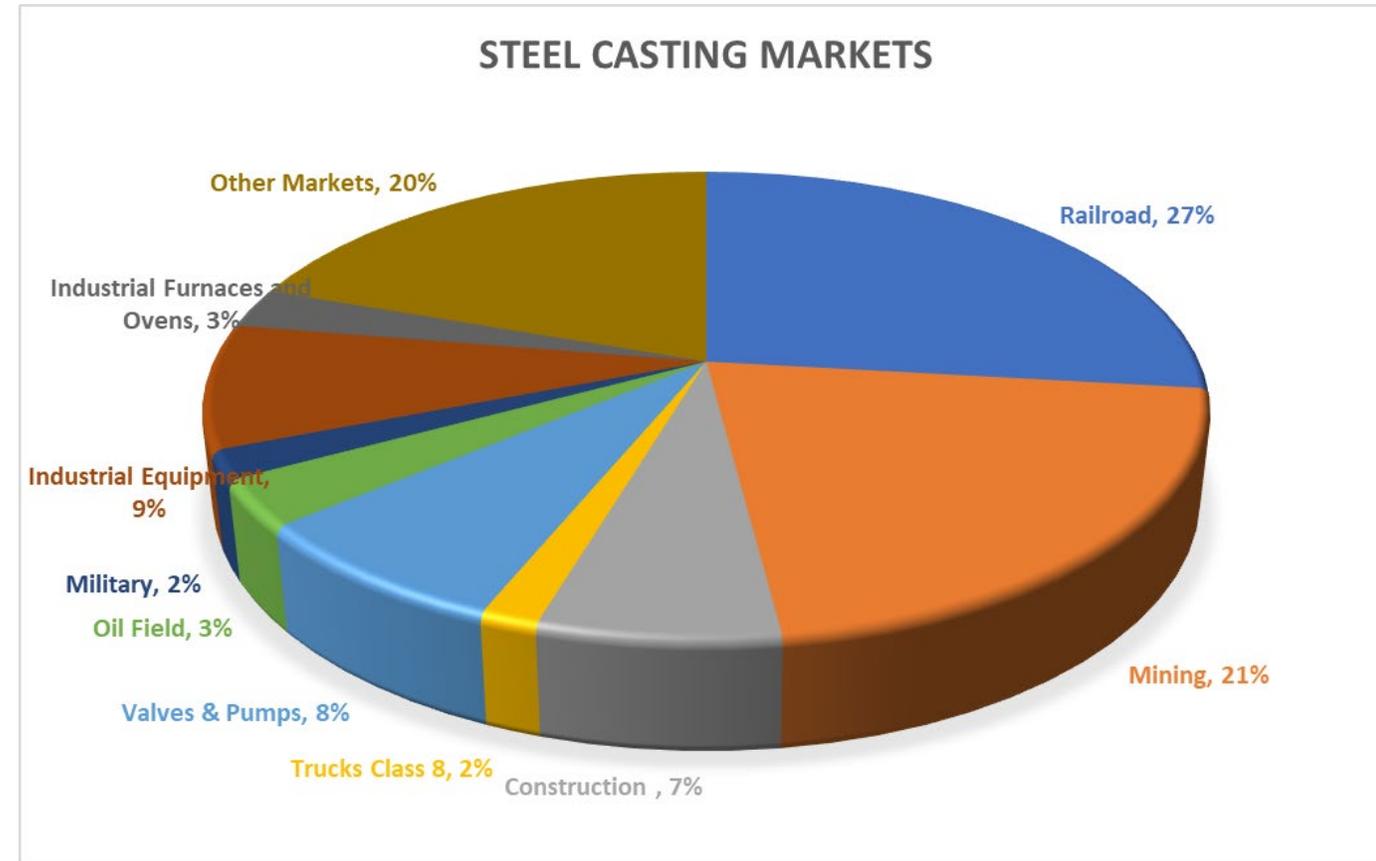
Steel Markets Survey

SFSA Markets	Steel Casting Examples
Rail/Transit	frames, couplings, bolsters, track components
Mining - Equipment	axle housing, frame components, suspension, gear case
Mining - Consumables	G.E.T., liners, hammers, grate plates, cement and aggregate components
Construction Equipment	axle components, sprocket, end caps, transmission housing
Truck - Class 8	suspension brackets, brake components, axle spindles, fifth wheels
Pump	housing, impeller, covers, bowls
Valve	strainer bodies, bonnets, butterfly valves
Oil & Gas	port adapters, brackets, levers, slip linkages
Military	ground vehicle and maritime components
Industrial Furnace and Oven Mfg.	Furnace, heat treat, steel mill components - rollers, links, baskets
Industrial Machinery	Industrial equipment parts - pulp & paper, food, shotblast - plates, wheels, sprockets, flanges
OTHER MARKETS	
Agricultural Implement Manufacturing	Agricultural Products - Hitch Links, Sprockets
Electric Power Generation	Power Generation - Coreforms, deflector blocks
Aerospace Product and Parts Manufacturing	Aerospace bearing supports, combustor cases, compressor cases, exhaust diffusers, stationary inlet guides, swirlers
Engine, Turbine, and Power Transmission Equipment	Turbine engine - compressor cases, combustor basket
Special Die and Tool Manufacturing	Dies, Tooling, fixtures

Market Segments – Annual Production

Market	Industry	% of total market prod.	SFSA Members	% of Industry Production
Railroad	267,000	27%	53,400	20%
Mining	243,900	24%	147,000	60%
Valve and Pump	82,700	8%	45,700	55%
Oil & Gas	31,700	3%	18,800	59%
Construction	69,600	7%	14,500	21%
Trucks	16,000	2%	3,700	23%
Military	21,900	2%	15,000	68%
Industrial Equip.	95,200	9%	35,600	37%
Industrial Furn.	23,400	2%	14,000	59%
Other Industrial	152,000	15%	79,700	52%
Total	1,003,400		427,400	43%

Total Steel Castings Market
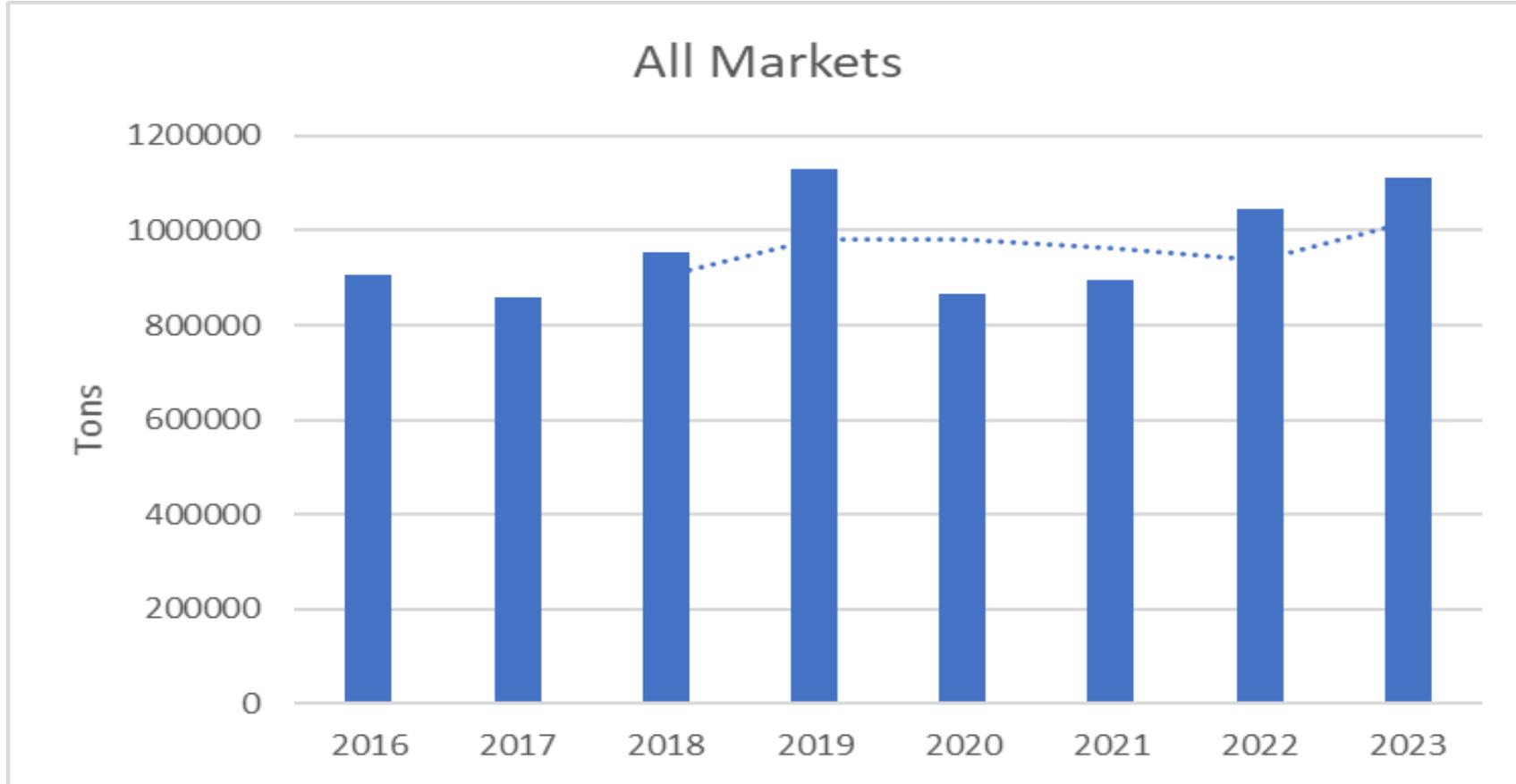
All Markets

	2022		2023	
Total Market	Excluding Rail	Total Market	Excluding Rail
17%	13.5%	6%	7%

Rail Forecast
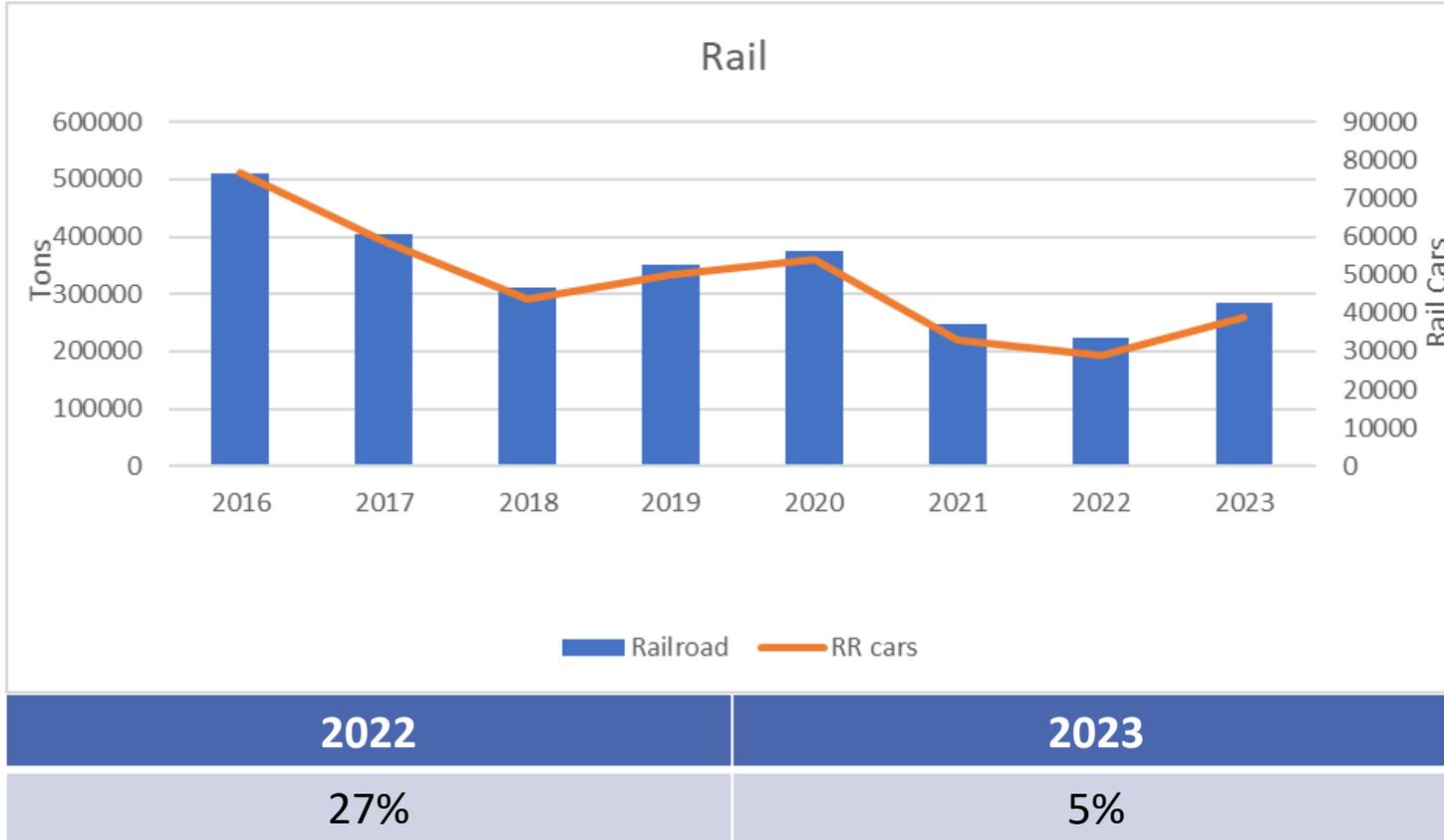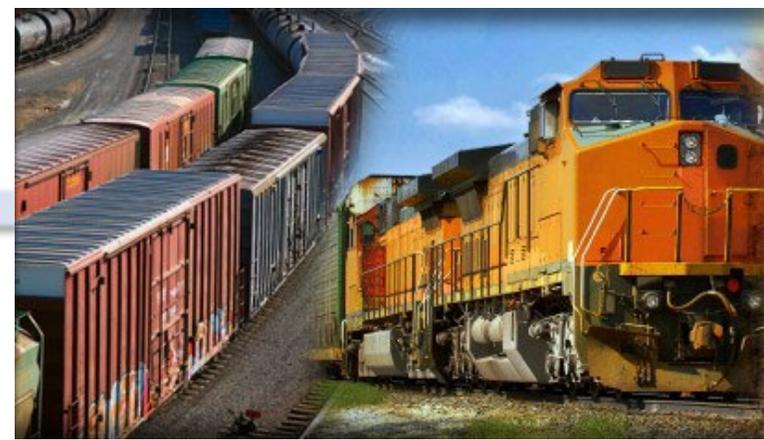
Rail

	2022	2023
	27%	5%

Projected Car Deliveries
2022 – 39,000
2023 – 41,000
2024 – 37,000

Customer Market Sales Forecast

% change from prior year

Railroad	2020	2021	2022	2023
Railroads (sales)	-9.2%	11.9%	14.4%	2.6%
Equipment (sales)	-21.5%	-2.8%	57.5%	12.2%
SFSA Forecast (tonnage)	-41%	15%	27%	5%

Note: Customer market data is percentage change in sales, SFSA forecast is percentage change in tonnage.

Mining Forecast

MINING

Chart legend: Mining (blue bars), Equipment (orange line), Consumables (red line)
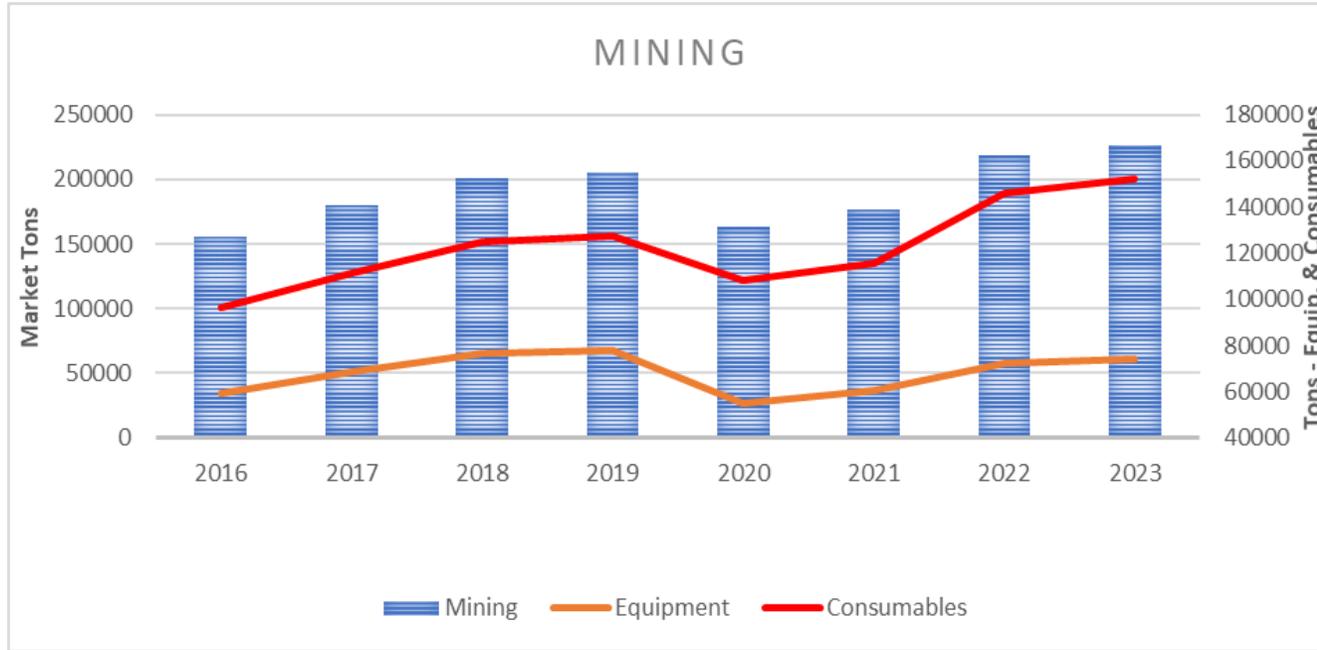
2022	2023
24%	3%

Equipment

- 2022 Projection – up 20%

Consumables

- 2022 Projection – up 26%

- Strong aggregate and mining environment, slowing growth into 2023

- Commodity price stability

Customer Market Sales Forecast

% change from prior year

Mining	2020	2021	2022	2023
Mines (sales)	3.4%	38%	-7.1%	-4.1%
Equipment (sales)	-13.1%	9.9%	19.8%	6%
SFSA Consumables (tonnage)	-15%	6%	26%	4%
SFSA Equipment (tonnage)	-30%	10%	20%	2%

Construction Forecast

Construction

Chart showing Tons by year:

Year	Tons (approx)
2015	51,500
2016	47,500
2017	52,000
2018	59,500
2019	74,000
2020	55,500
2021	64,000
2022	67,000
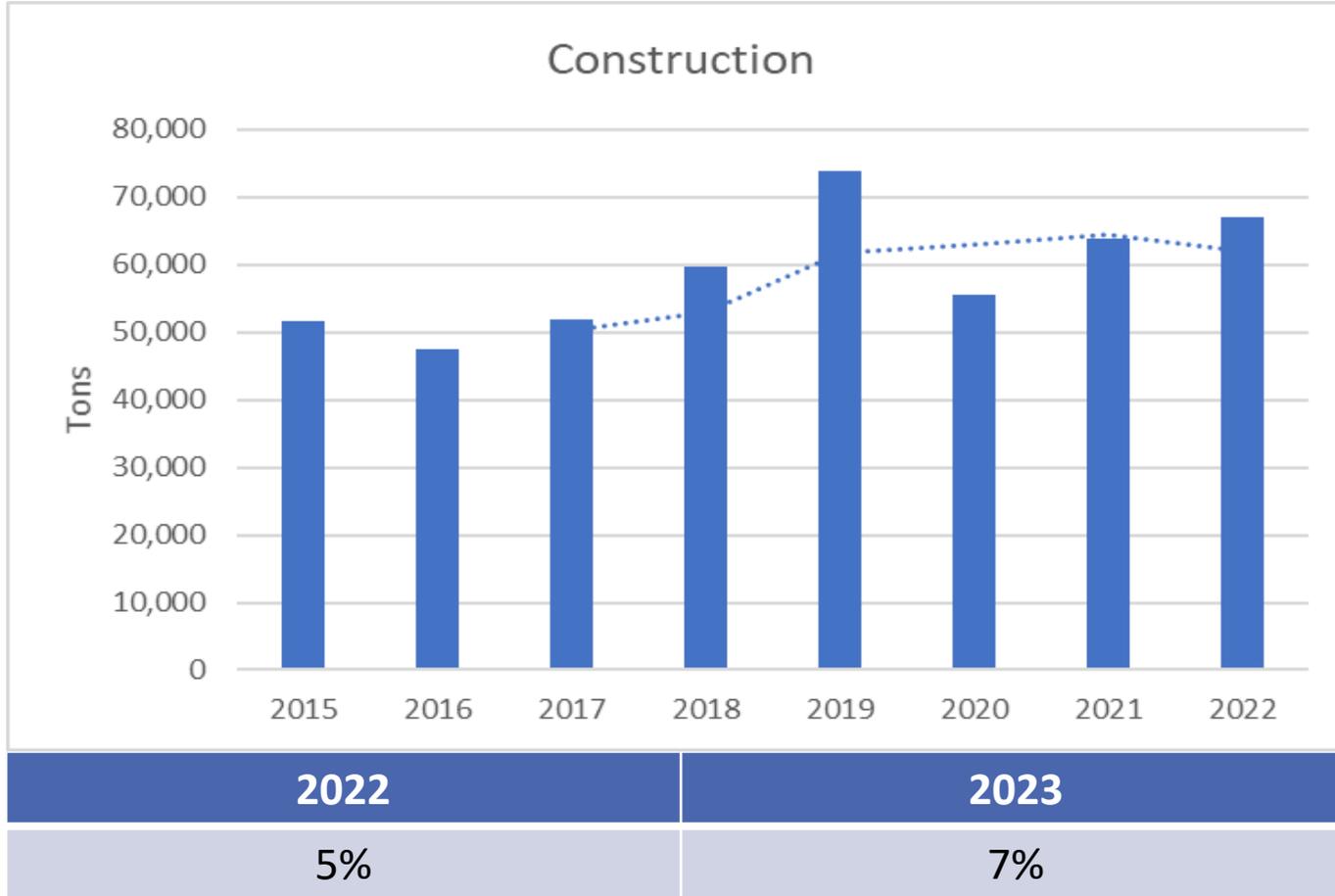
2022	2023
5%	7%

- OEM Forecasts

- Interest-rate sensitive market

- 2023 new order decline due to pullback in residential construction.

Customer Market Sales Forecast

% change from prior year

Construction	2020	2021	2022	2023
Equipment (sales)	-13.1%	16.9%	15.7%	5%
SFSA Forecast (tonnage)	-25%	15%	5%	7%

Truck Forecast

Trucks Class 8

Year	Tons
2016	~18500
2017	~17500
2018	~20000
2019	~21500
2020	~12500
2021	~14500
2022	~16500
2023	~17500
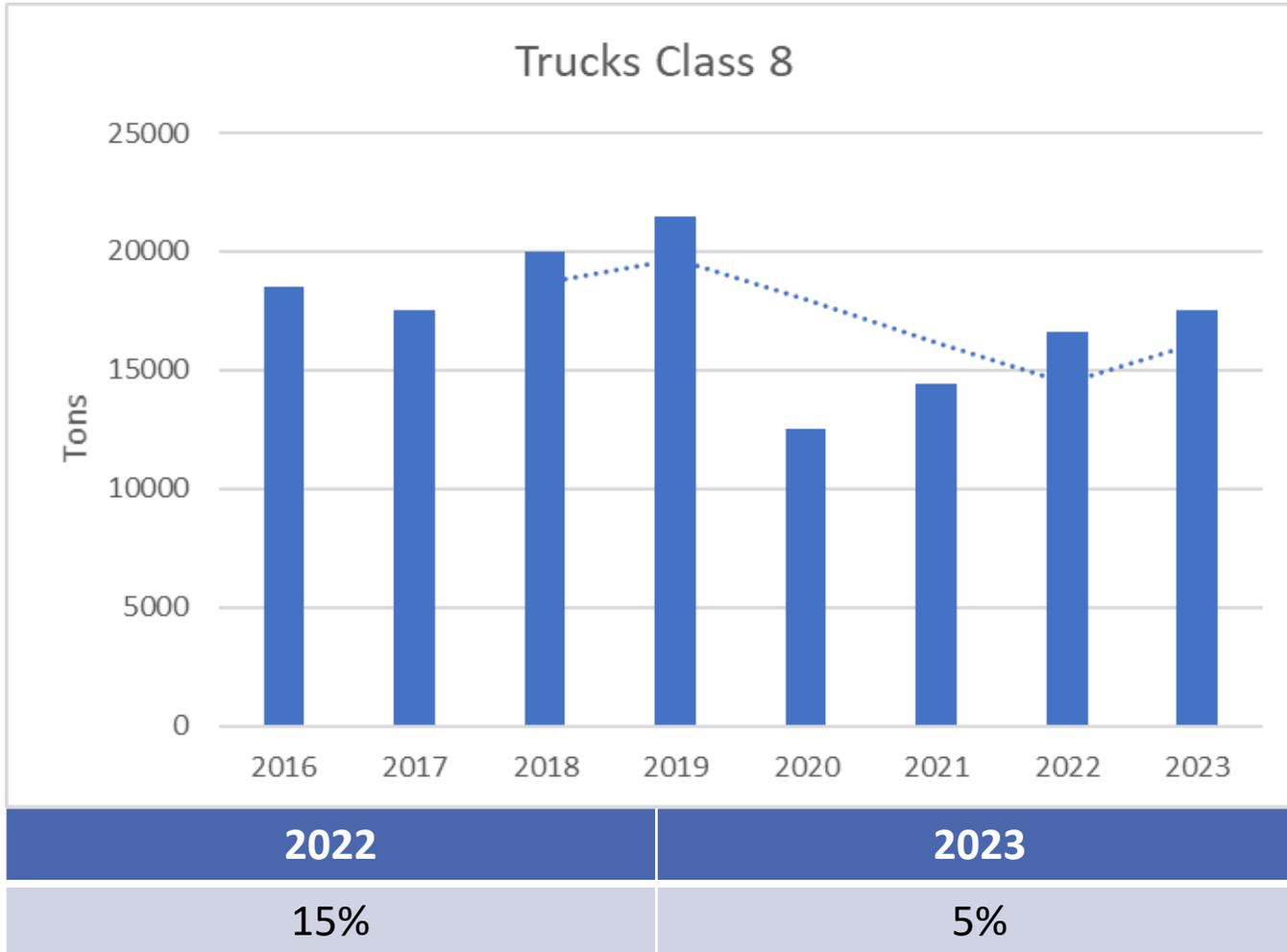
2022	2023
15%	5%

Class 8 Production Forecast
- '21 – 260,500
- '22 – 296,000
- '23 – 310,000

- Pent-up demand due to OEM supply issues

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Customer Market Sales Forecast

% change from prior year

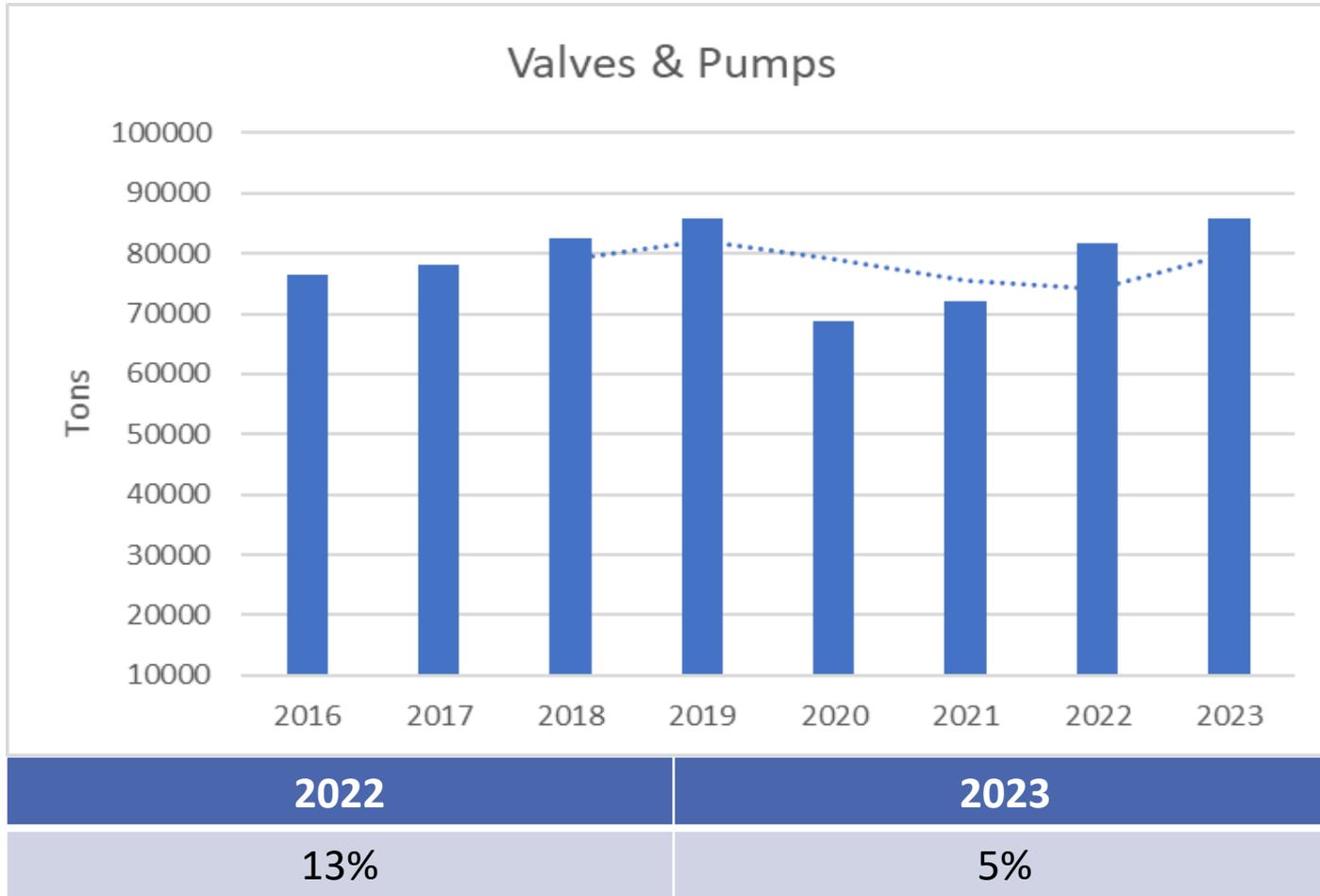| Trucks	2020	2021	2022	2023
Manufacturers (sales)	-22%	21.6%	23.1%	1.3%
SFSA Forecast (tonnage)	-42%	30%	15%	5%

Pump and Valve Forecast

Valves & Pumps

Chart: Tons by year

Year	
2016	~76000
2017	~78000
2018	~82000
2019	~86000
2020	~69000
2021	~72000
2022	~81000
2023	~86000

2022	2023
13%	5%

Projected 2022 vs. 2021 Tonnage
- Pumps – 5%
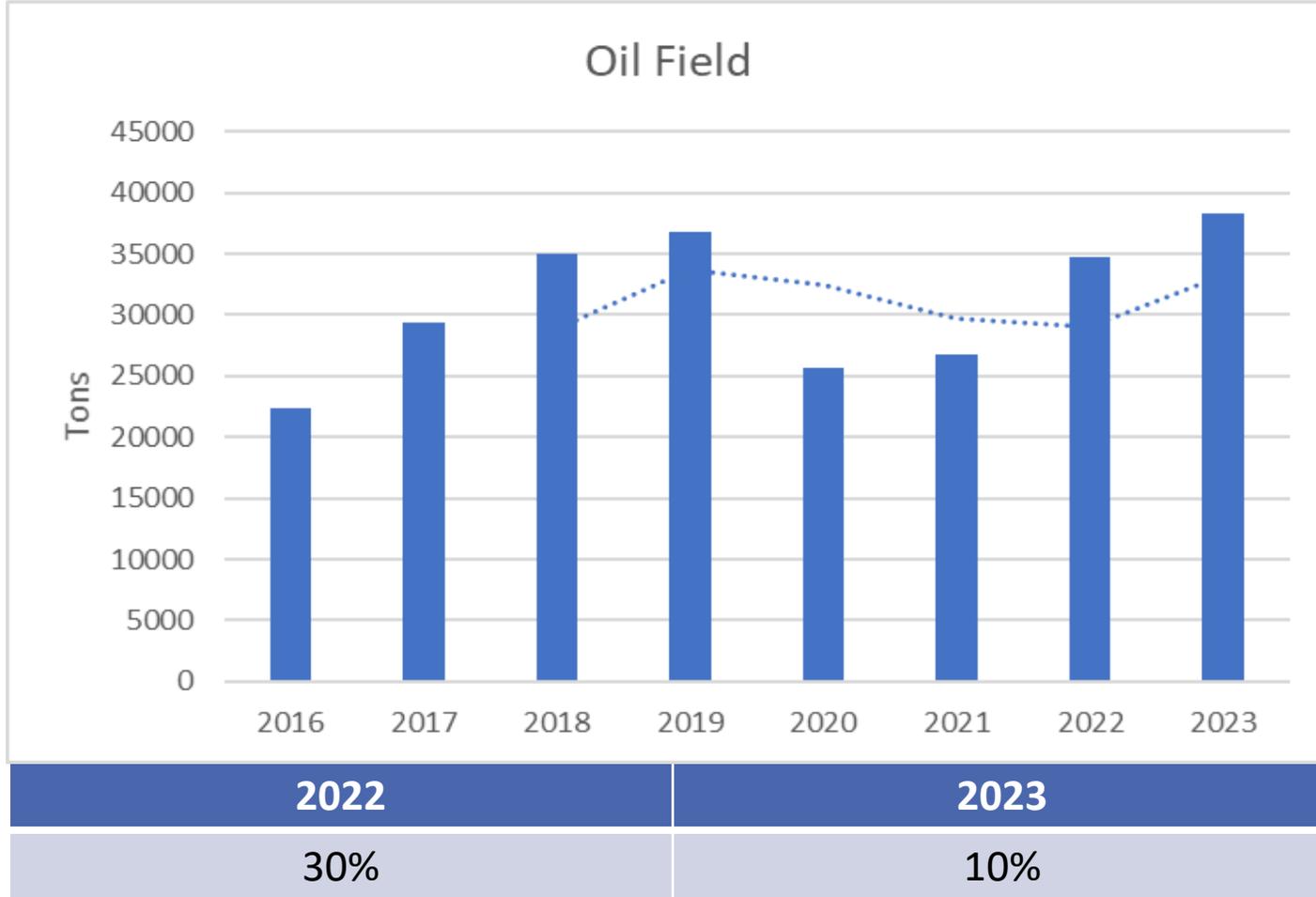- Valves – 22%

- Softening Demand

- Extended Lead Times

- Baird Process Control Survey
  - 0%-5% Growth in '23

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Customer Market Sales Forecast

% change from prior year

Pumps and Valves	2020	2021	2022	2023
Manufacturers (sales)	-10.5%	8.3%	11.5%	6.3%
SFSA Forecast (tonnage)	-20%	5%	13%	5%

Oil Field Forecast

Oil Field

2022	2023
30%	10%

- Push for refining capacity increase
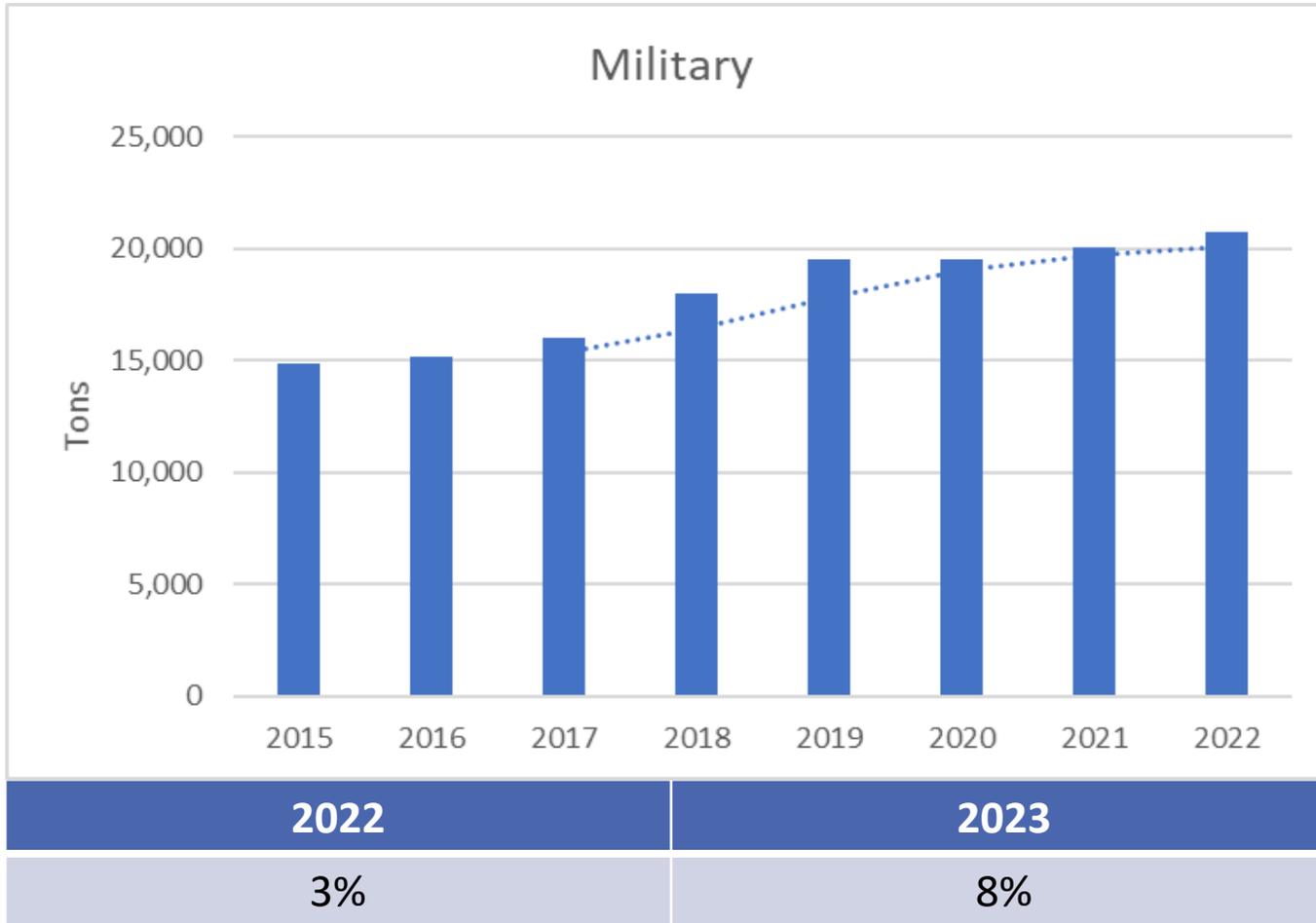
- Regulatory environment and price volatility are concerns for limiting investment

- ITR - 12MMA rise will persist through at least end of 2024

Customer Market Sales Forecast

% change from prior year

Oil Field	2020	2021	2022	2023
Manufacturers (sales)	-21%	-11%	20.8%	11.1%
SFSA Forecast (tonnage)	-30%	7%	30%	10%

Steel Founders' Society of America

Military

A bar chart showing Tons on the y-axis (0 to 25,000) and years 2015 through 2022 on the x-axis, with values rising from about 14,800 in 2015 to about 20,700 in 2022, with a dotted trend line.

2022	2023
3%	8%

|	Ground Systems	Maritime Systems
FY22	$12.3B	$34.6B
FY23	$12.6B	$40.8B

- Defense Spending Increase

- Navy Build Demand

- Military Assistance to Ukraine

Customer Market Sales Forecast

% change from prior year

Military	2020	2021	2022	2023
Ground Systems (sales)	-3.6%	2.1%	3.9%	5.9%
Naval Systems (sales)	1%	1.6%	6.5%	5.3%
SFSA Forecast (tonnage)	0%	10%	3%	8%

Industrial Equipment Forecast

Industrial Equipment
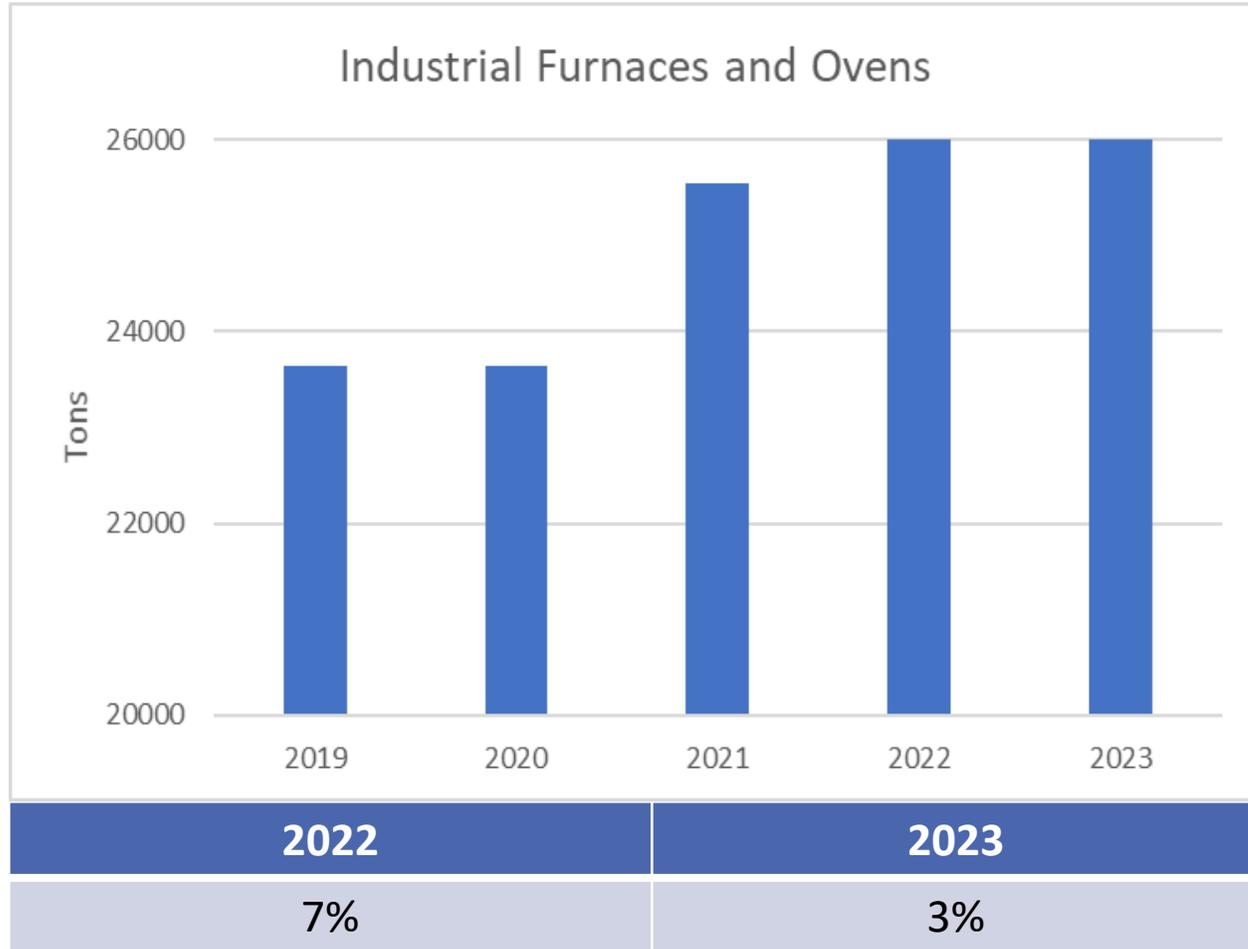

2022	2023
12%	4%
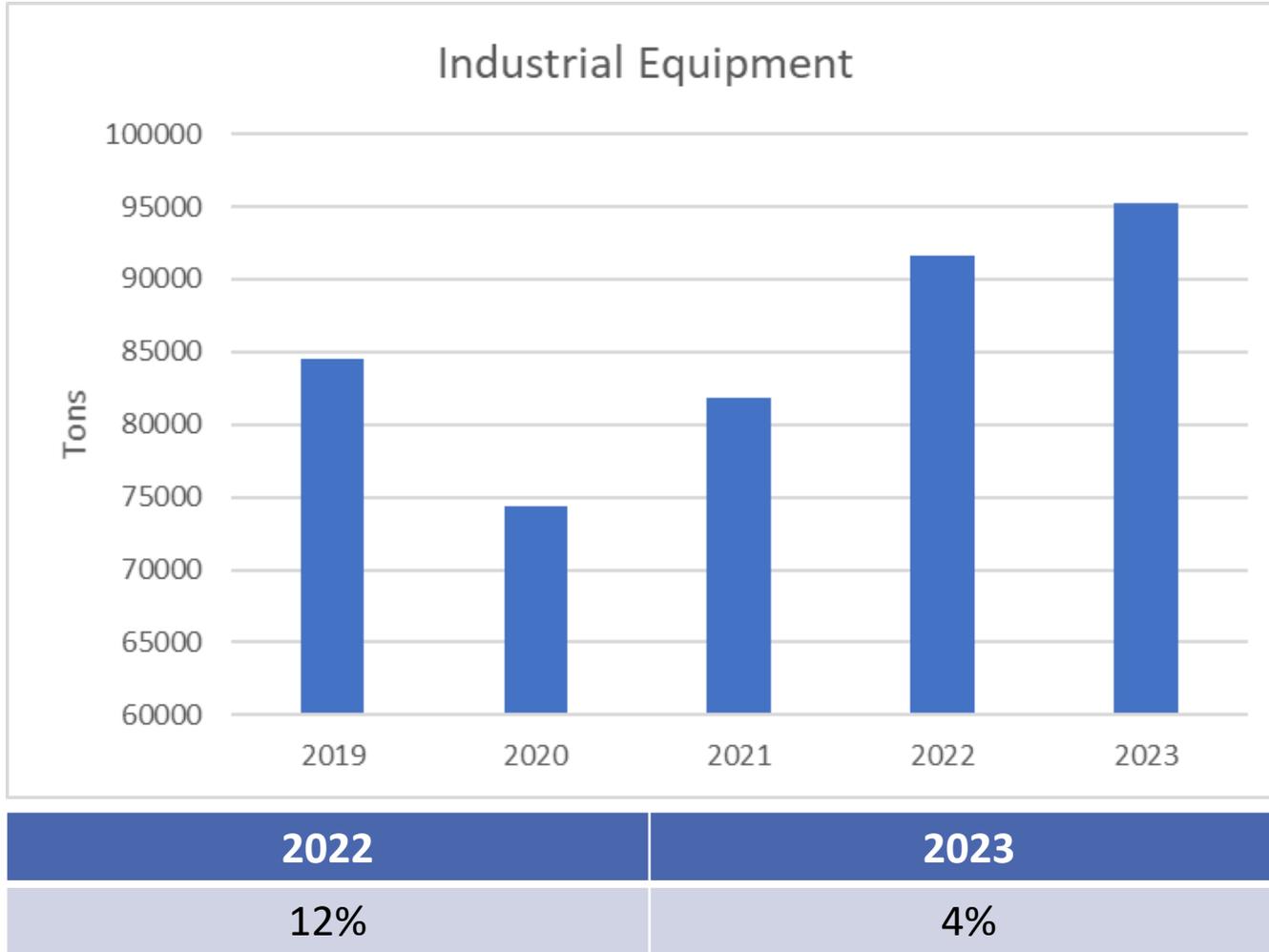
Industrial equipment parts - pulp & paper, food, shotblast - plates, wheels, sprockets, flanges

ITR Forecast – US Machinery New Orders
- '22 – 9%
- '23 – 3.5%

- Labor Shortage Driving Automation

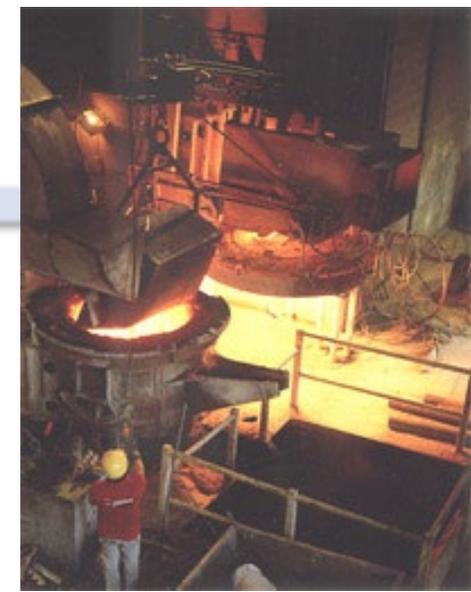- Softening Economy Tempers Demand

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Industrial Furnace and Oven Mfg. Forecast

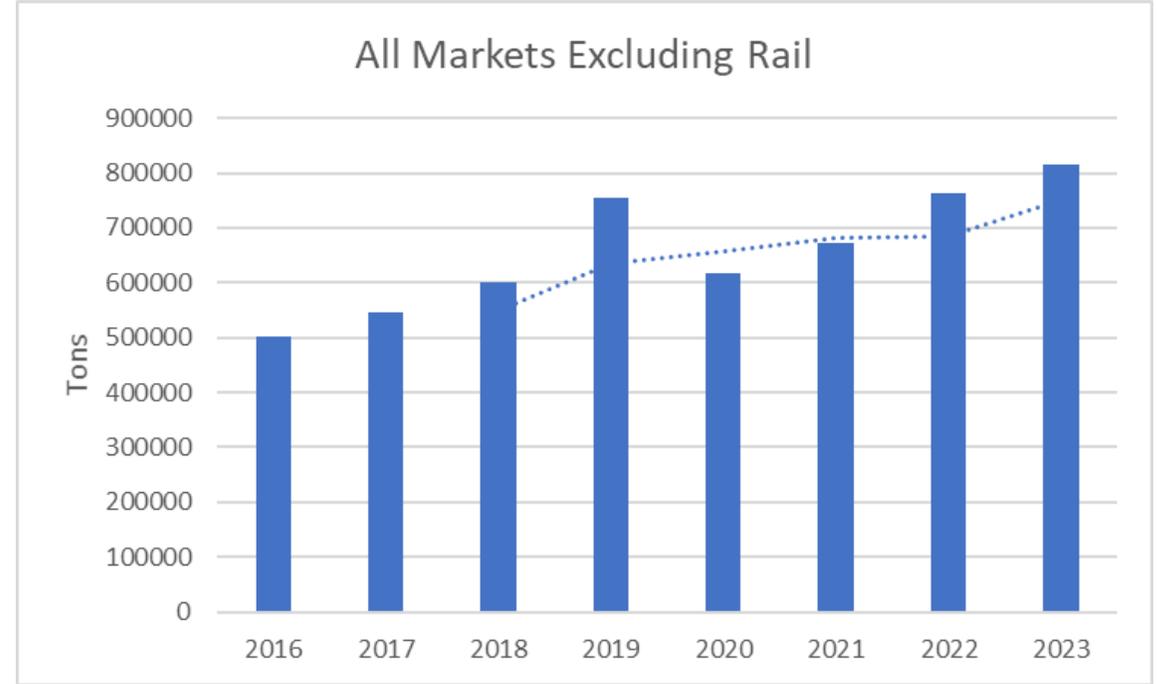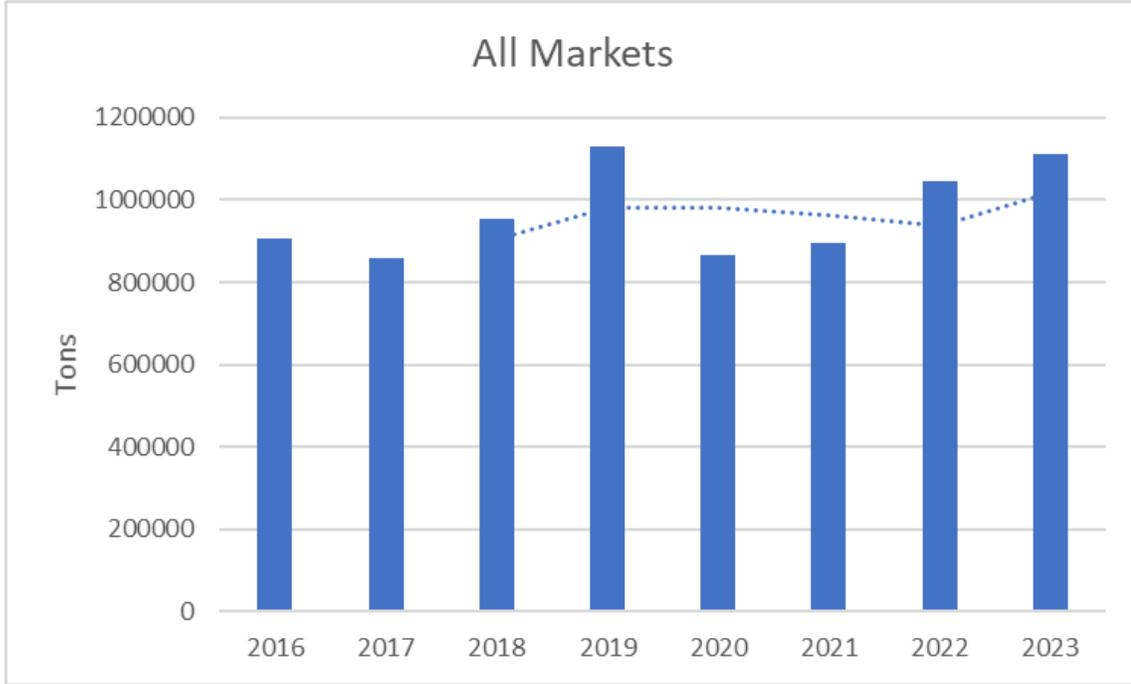Industrial Furnaces and Ovens

Industrial Process Ovens, Induction Heating, and Kilns - furnace, heat treat, steel mill components - rollers, links, baskets

- Steel Mill Expansion
- Reduced Foreign Competition

2022	2023
7%	3%

Other Markets Forecast

Other Markets

Chart showing "Tons" on the y-axis (0 to 250,000) and years 2016–2023 on the x-axis:

Year	Tons (approx.)
2016	165,000
2017	172,000
2018	185,000
2019	205,000
2020	173,000
2021	190,000
2022	205,000
2023	228,000

2022	2023
7%	12%

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Forecast Summary

All Markets

2022	2023
17%	6%

All Markets Excluding Rail

2022	2023
13.5%	7%