



2020 North American Market Perspective

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2020 North America Market Perspective



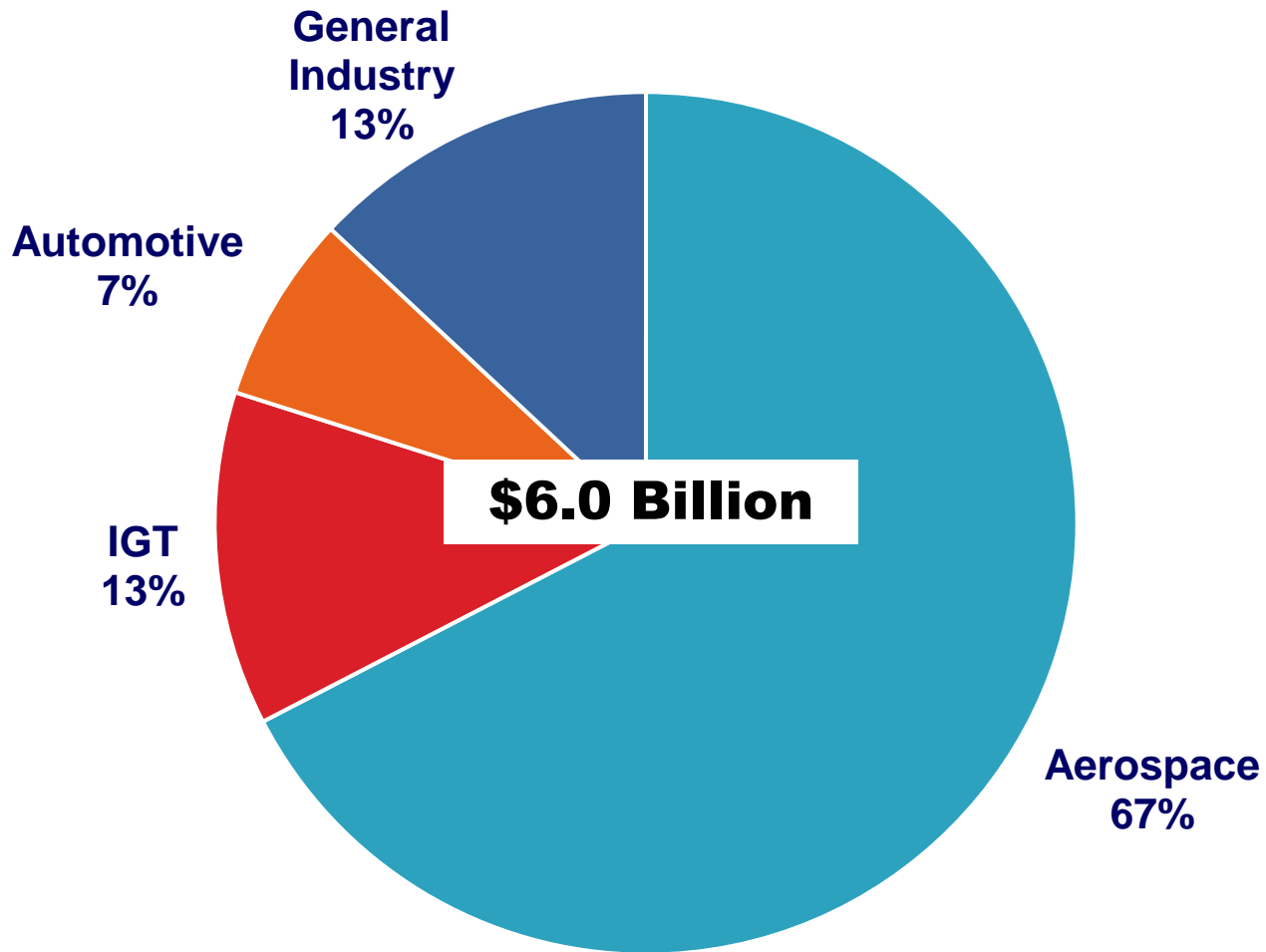
- **This perspective of the investment casting industry is based on the collective input of ICI Members, government agencies, related trade associations, industry publications, customers and individual contributors**
- **Sales numbers, market segment breakdown, and forecasts are ‘Best Estimates’**
- **Neither the Institute nor its officers accept any legal responsibility for information, advice given or opinions expressed**

Market Segments



- **Aerospace & Defense**
- **Industrial Gas Turbines**
- **Automotive**
- **General Industry**

2019 North American Investment Casting Sales



Investment Casting Trends North America – 2019



- **In 2019, sales of investment castings produced in North America achieved a record high of approximately \$6.04 Billion**
- **Growth was realized in Aerospace (4.4%), IGT (8.0%) and in General Industry (2.3%), with a 1.2% decline in Automotive**
- **In general, feelings about the economy were good**
- **All indications in December 2019 were that there would be minor declines in Commercial Aerospace and Automotive and continued moderate growth in IGT and General Industry**
- **The outlook at that time was that total North American investment casting sales would remain relatively flat for 2020.**

Then there was COVID



- **“Shelter in Place” and “Social Distancing” became the norm**
- **Travel by road and air showed major declines**
- **Business travelers became “Virtually Savvy”**
- **Consumer spending patterns changed dramatically**
- **Oil prices plummeted, going negative in April 2020**
- **Elective surgery came to a screeching halt**
- **There was a “run” on firearms and ammunition**
- **Restaurants and public meeting places suffered closures**



Aerospace

North American Aerospace Factors Affecting 2020 (Before COVID)



- **2020 Market Correction was anticipated**
 - **Deliveries in a “Super Cycle” – 14 Years of Growth**
 - **2019 Global Airline Traffic Showing Minor Decline**
 - **Large Jet Orders and Deliveries in Decline**
 - **Emerging Market Deliveries Dropped by Nearly 50% in 2019**

- **Boeing 737 Max Grounding**
 - **450+ Aircraft Manufactured in 2019**
 - **Boeing Halted Production in December 2019**

North American Aerospace Factors Affecting 2020 (Before COVID)



- **Factors Driving Commercial Airframe Purchases were Weak**
 - **Favorable Interest Rates**
 - **Low Fuel Prices pose little need for more efficient platforms**
 - **Global Fleet with Surplus Capacity**
- **Global Defense Spending on the Rise**
 - **US – World’s Largest Spend**
 - **China – Most Rapidly Growing Spend**

Flattening or declines in Commercial Aerospace were thought to be offset by Growth in the Military sector

Then there was COVID



- **Supply Chain interruptions**
 - **Plant temporary closures (some permanent)**
 - **Slow adaptation to “Socially Distant” manufacturing**
 - **Supply chain for imported direct materials shut down**

- **Airlines Severely Impacted**
 - **US Business and International Travel at a Virtual Halt**
 - **Recently seeing steady progression in leisure travel**
 - **Last Sunday saw 1 Million US travelers for the first time since March CDC announcement**
 - **2020 Airline Traffic estimated to be down 63% from 2019**

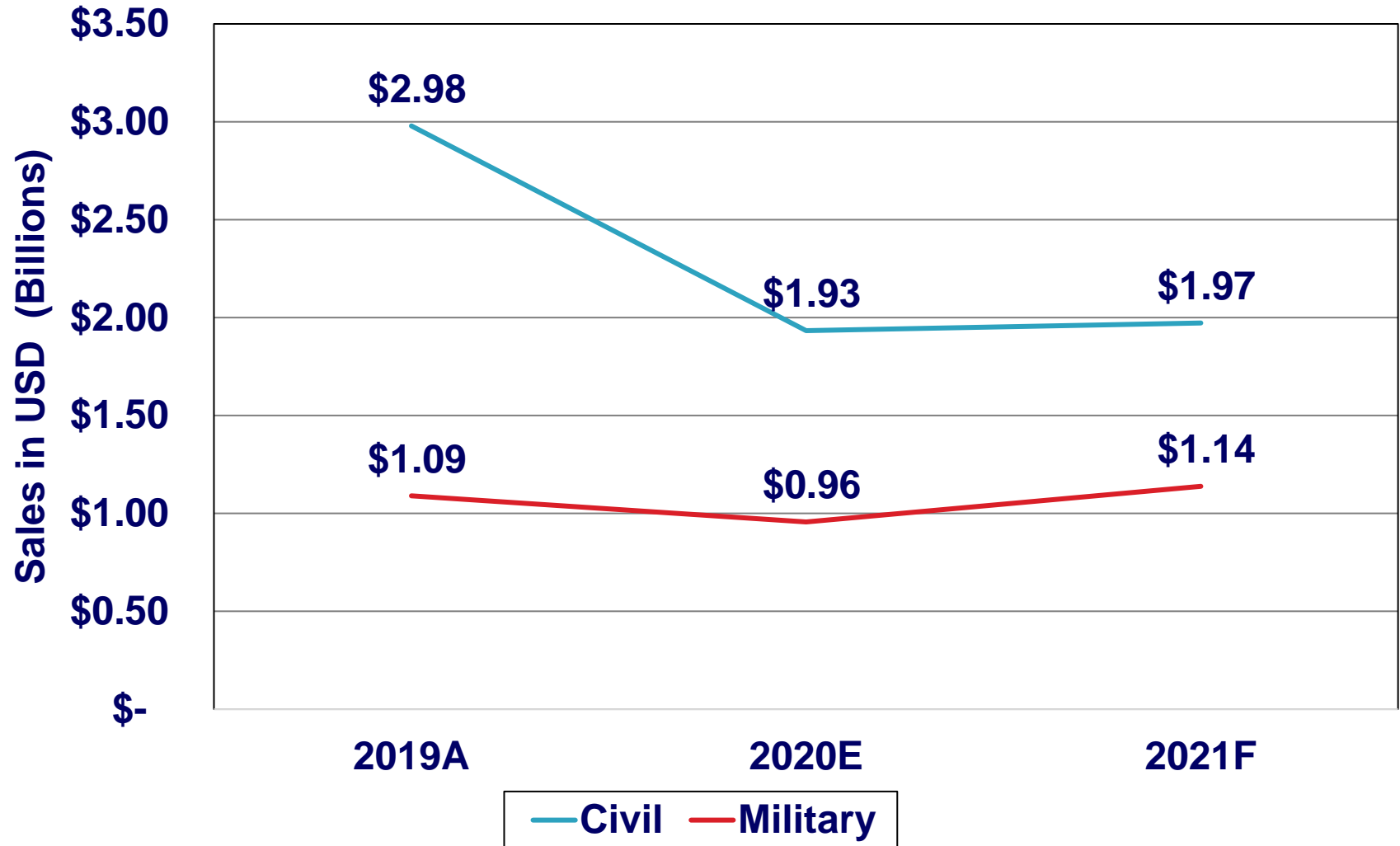
- **Military Sales off due to Supply Chain interruptions**

Aerospace Sales Recovery



- **Commercial Aerospace**
 - Not expected to resume 2019 levels until 2023/2024
 - Business Travel will increase, but offset by virtual meetings
 - Many Leisure Travelers reluctant to travel in confined spaces
 - Unlike the 2008 recession, key factors are absent
 - Weak Emerging Market Orders/Deliveries
 - Interest Rate / Fuel Price Bifurcation
 - 450+ Boeing 737 Max awaiting shipment
- **Military Aerospace**
 - Exceed 2019 level next year as supply chains normalize
 - Due to Chinese build up, election results expected to have no effect in 2021-2022 time frame
- **2020 Aerospace Sales estimated at \$2.89B (2010 Level)**
 - Recovery to 2019 level anticipated in 2023/2024

NA Aerospace Investment Casting Sales Trends





Industrial Gas Turbine

Industrial Gas Turbine



- In 2019, investment casting sales of IGT components were showing signs of recovery
 - \$760 Million, up from the 2018 10-year low of \$700 Million
- In December 2019, the outlook for 2020 was optimistic with continued recovery fueled by new programs on the horizon
- The COVID Effect
 - Retail Electricity Consumption down 6.4%
 - Commercial Consumption down 6.0%
 - Supply Chain interruptions affecting builds and installations
- 2020 Casting Sales estimated at \$690 Million
 - Return to 2019 level by 2021/2022



Automotive

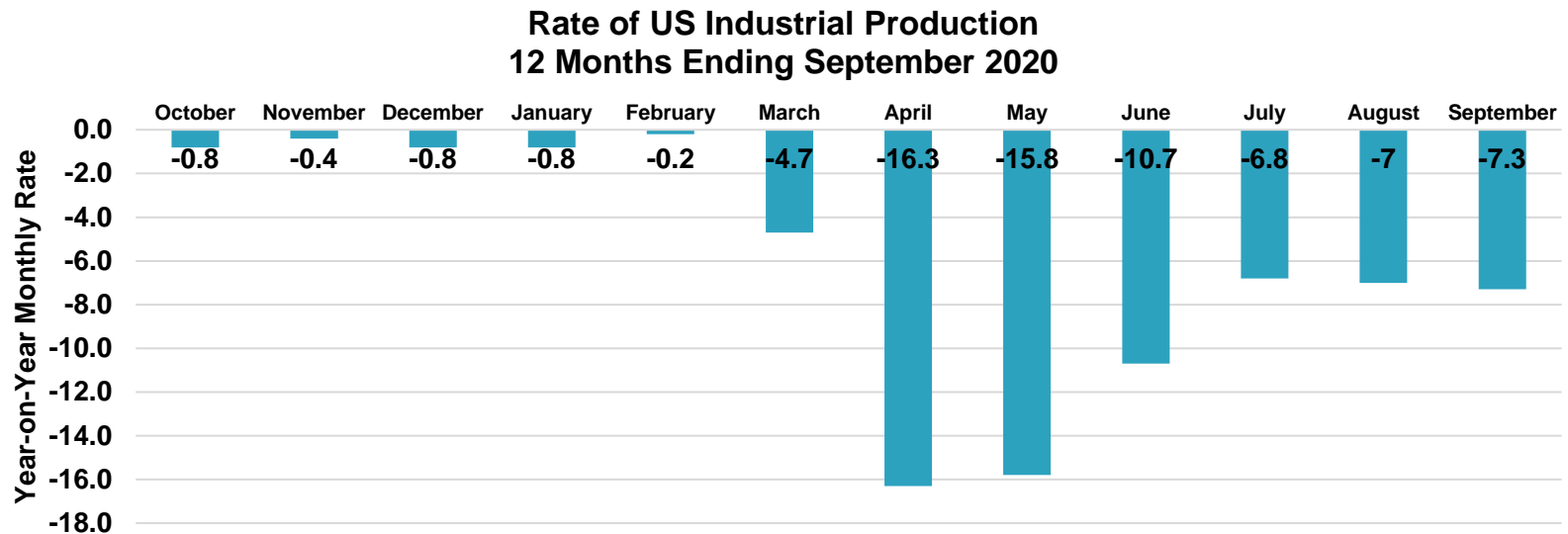
Automotive



- In 2019, investment casting sales were off by approximately 1%, finishing the year at \$430 Million
- In December 2019, the outlook for 2020 anticipated further declines of 1 or 2%
- January-March GM strike
- Then there was COVID
 - Late March to mid-May Production Shutdowns
 - Slow startup through July due to PPE and Social Distancing
 - New product launches deferred 1-3 years
 - 2020 Vehicle Production down 20-25%
- 2020 Casting Sales estimated at \$338 Million (at 2012 level)
 - Return to 2019 level by 2025



- Overall market sector generally tracks to the US rate of industrial production, though subsectors may vary



- With COVID resurgence, expectations place 2020 down 7.5% from 2019
- Recovery to 2019 levels anticipated in 2021/2022

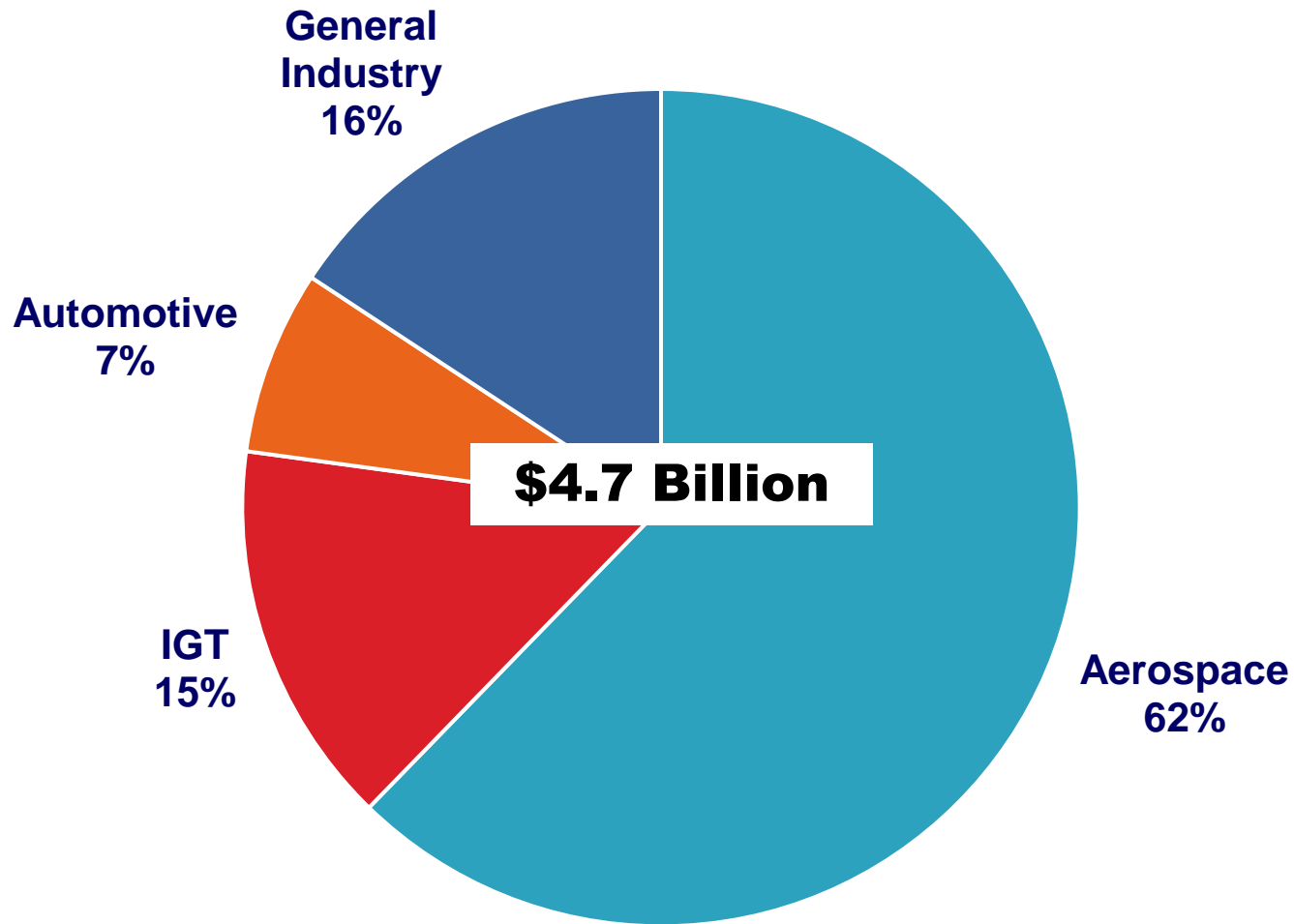
Not All Subsectors Negatively Affected



- **Most subsectors down with declines ranging from 5% to 20%**
 - **Orthopedics**
 - **Medical Equipment**
 - **Marine**
 - **Oil & Gas**
 - **Pump & Valve**
 - **Construction**
 - **Farm and Mining**
 - **Recreational Vehicles**

- **Few have surged with gains ranging from 50% to 100% (or more)**
 - **Food & Beverage**
 - **Recreation Firearms**

2020 NA Investment Casting Sales Estimate



North American Investment Casting 2017 Sales and 2019 Forecast (\$ Billion)

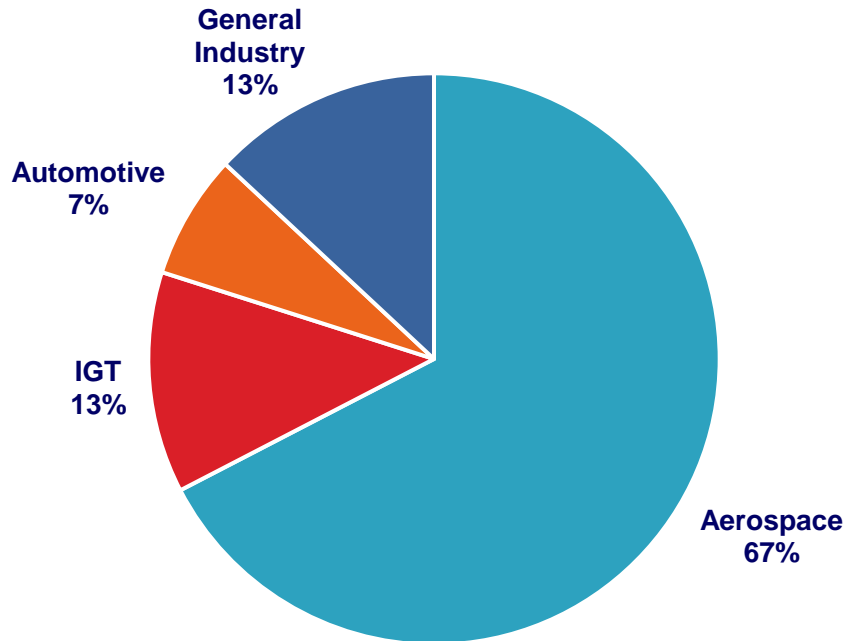


	2019	2020E	
Aerospace	4.07	2.89	
IGT	0.76	0.69	
Automotive	0.43	0.33	
General Industry	0.79	0.73	
	\$ 6.04B	\$ 4.64B	-23.2%

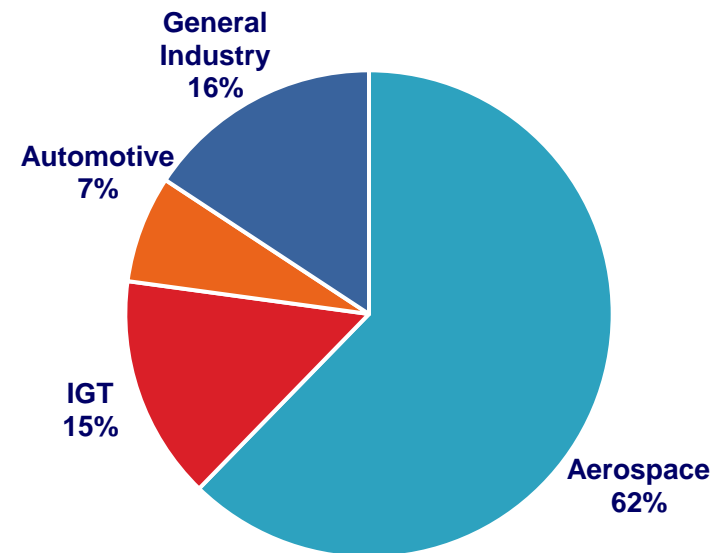
2019 vs. 2020E NA Investment Casting Sales



2019
\$6.04 Billion



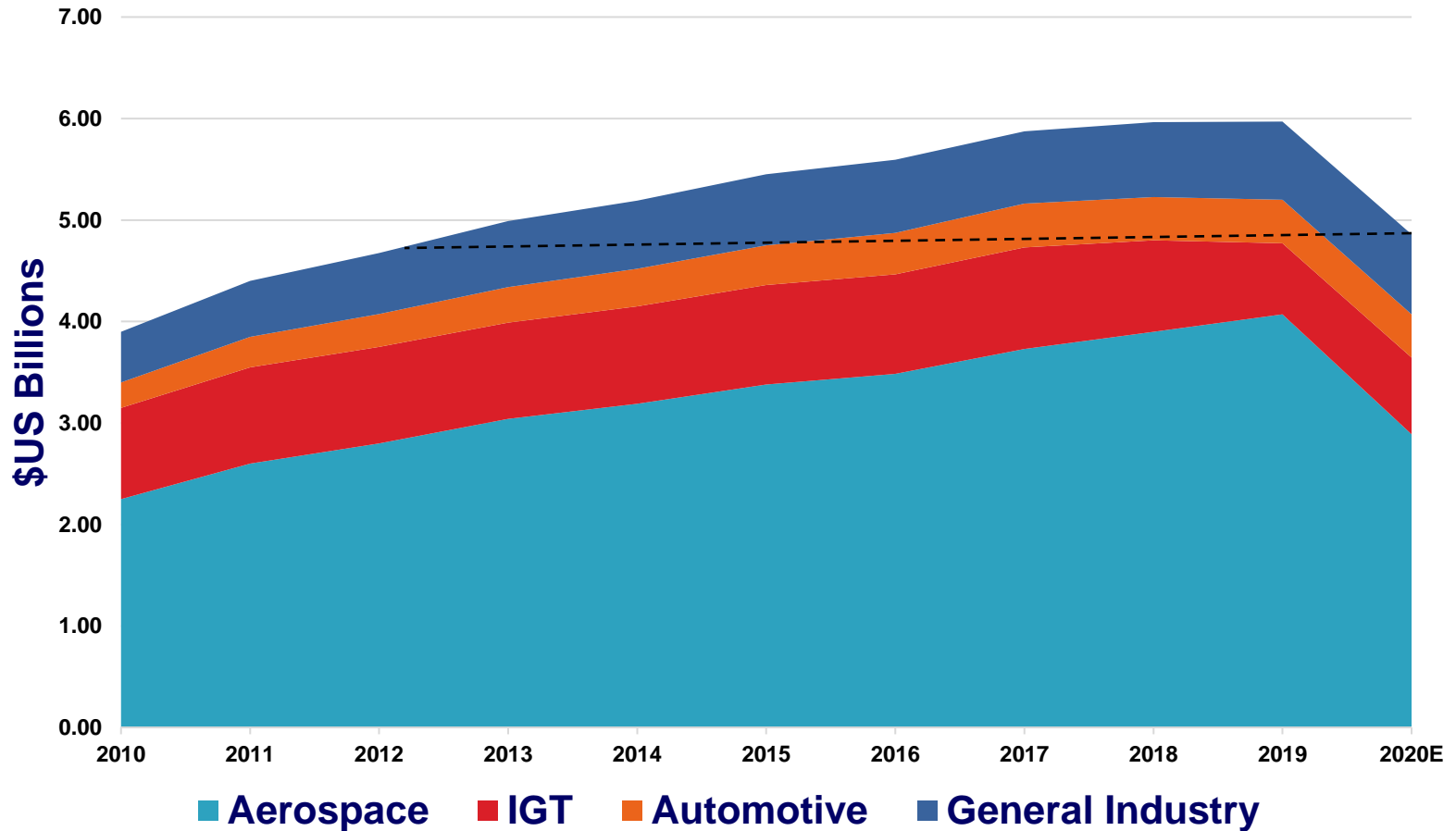
2020E
\$4.64 Billion



Decline Puts Overall Industry at 2012 Level



North American Investment Casting Sales





Thank you!