



AutoPacific

State of the Industry

Finished Vehicle Logistics: North America
Wednesday April 24, 2019



George Peterson
President, AutoPacific, Inc.



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Topics

- U.S. Economy
- Auto Industry Environment
- Atomization
- Autonomous Driving
- Electric Vehicle Developments



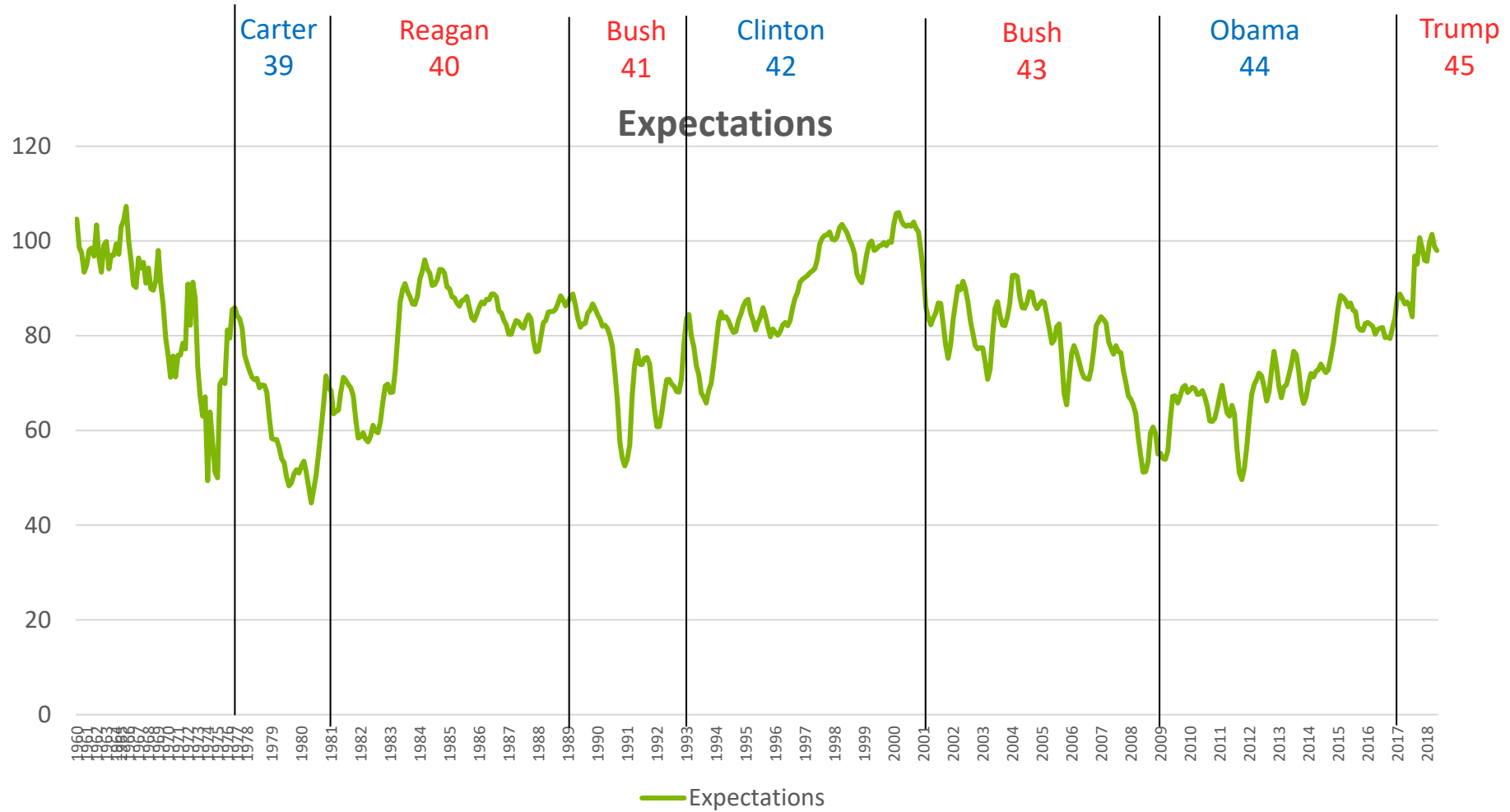
USA Economy

What Does the USA Economy Look Like Historically and Today?



Index of Consumer Expectations

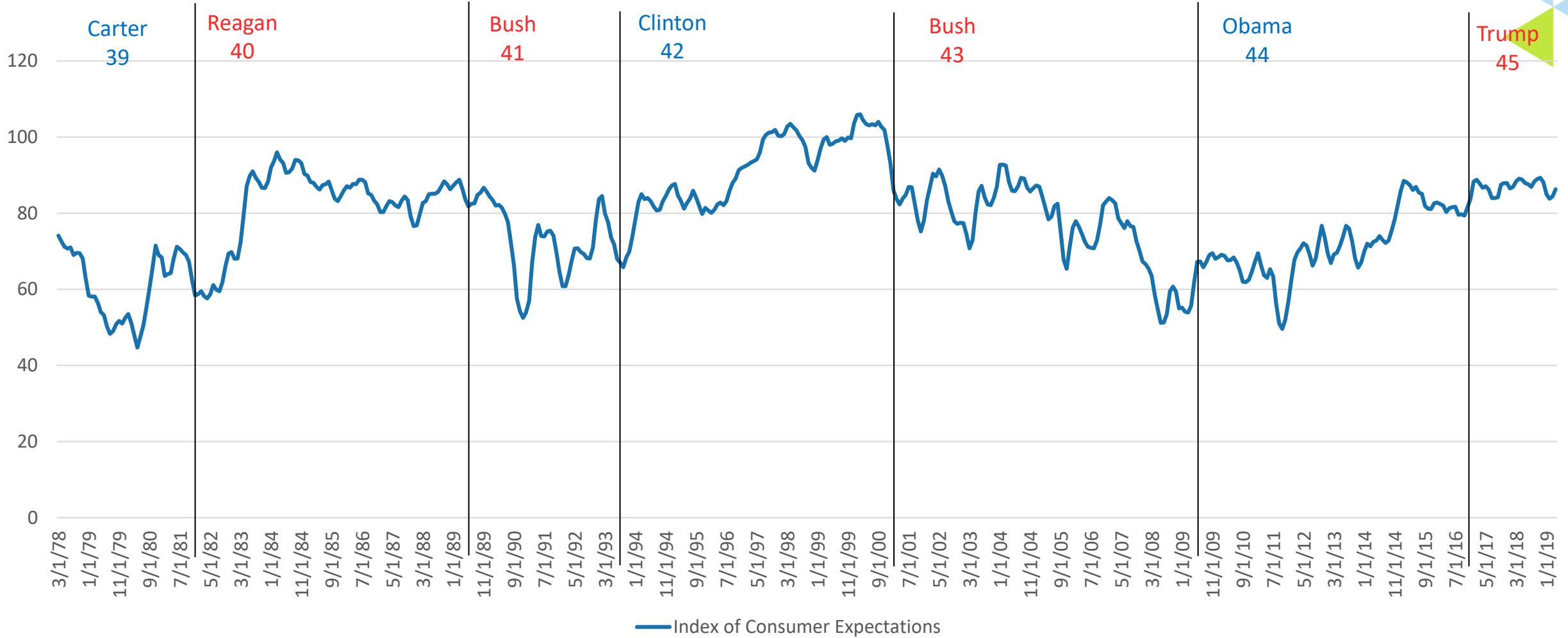
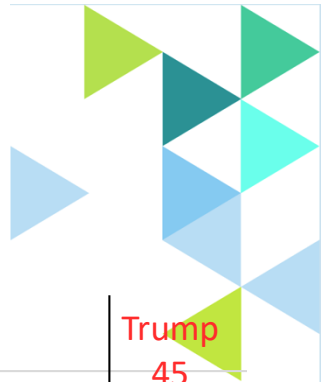
1960 to 2018



Source: University of Michigan

Index of Consumer Expectations

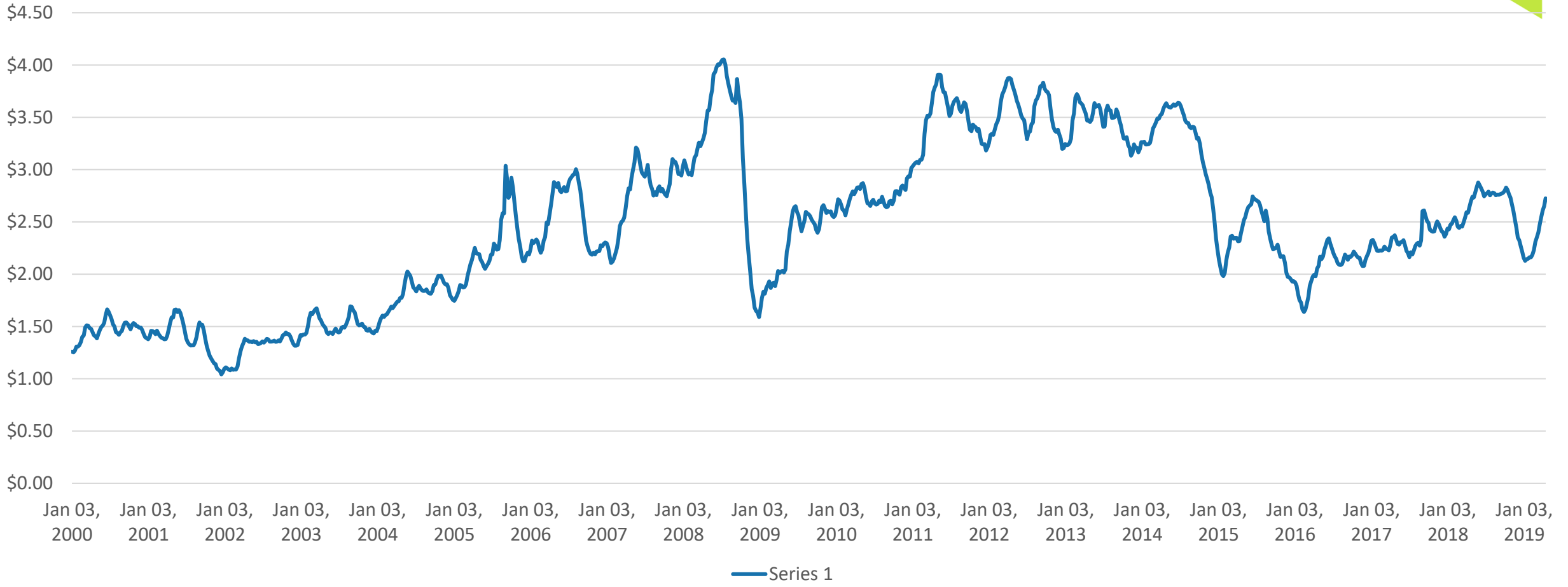
1978 – 2019 CYTD



— Index of Consumer Expectations

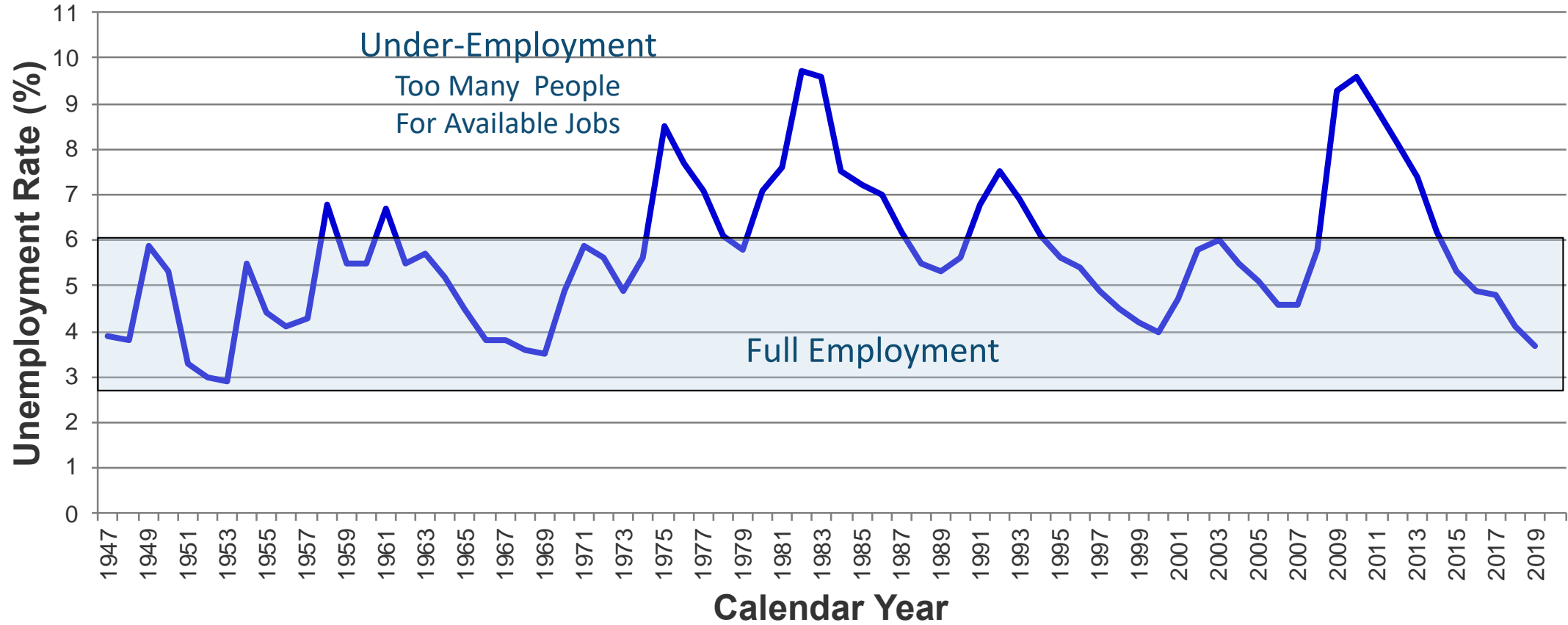
USA Price of Gasoline

2000 – 2019 CYTD



National Unemployment Rate

1947 – 2019CYTD



USA Economic Environment Looks Pretty Good

- Consumer Expectations on the Upswing
- Gasoline Prices Still Relatively Low
- Unemployment in the “Full Employment” Band





Industry Environment Uncertain

Uncertainty and Chaos – Issues Facing the Industry



- Volumes Expected to Decline Through 2024
- Impact of Ride Hailing and Car Sharing Uncertain
- Impact of Autonomous Vehicle Technology Uncertain
- Threat of Chinese Carmakers Entering USA Market
- Changes in Demographics
- Changes in Purchase Dynamics
- Changes in Purchase and Delivery Process

Volume Decline is Expected



- Steady volume decline already in progress, following strong growth up to 2016 and 2017.
 - Growth was due to pent-up demand and economic recovery following the Great Recession.
 - Volume decline is not a sign of a troubled economy; the market is returning to “normal”.

Impact of Ride Hailing Services on Volume



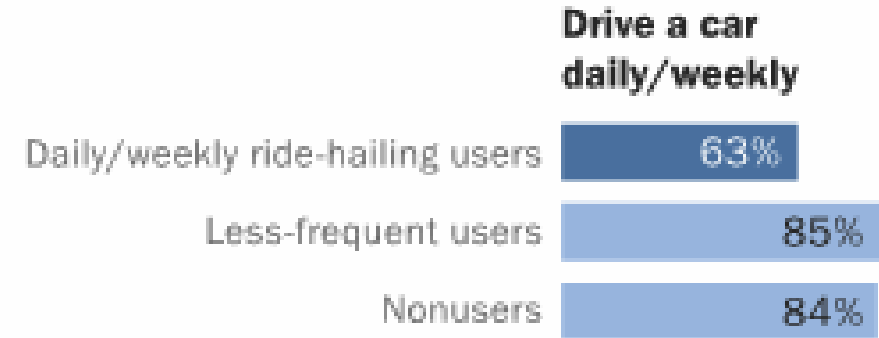
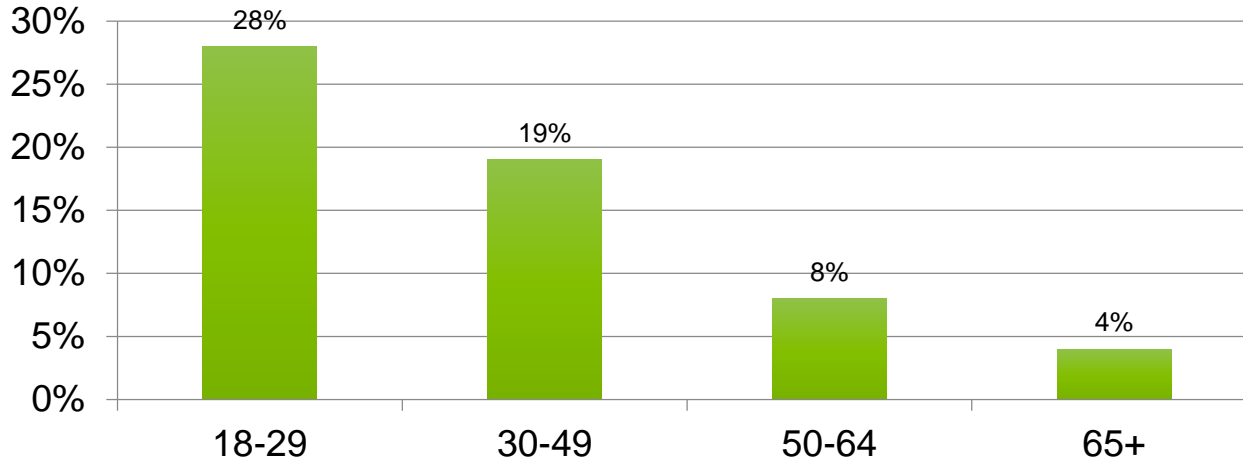
- Ride hailing (with human drivers) will continue to have a strong and impact on the industry.
 - In some ways, ride hailing stimulates demand for smaller, fuel efficient cars and SUVs
- In dense urban centers, ride hailing services can be cheaper and more convenient than car ownership.
 - No parking, fuel, insurance, maintenance, or car payments.



Attitudes Towards Private Car Ownership Are Changing



% US Adults Who Have Used Ride Sharing



- Young adults are significantly more likely to use ride hailing (Uber or Lyft).
- Those who frequently use ride hailing are significantly less likely to drive a vehicle.
- Reuters/Ipsos poll (May 2017) suggests that 9% of Americans who disposed of a vehicle recently turned to Uber or Lyft as their primary source of transportation.

Media Darlings: Autonomous Vehicles



- **Autonomous vehicle proliferation** will parallel growing deployment by ride hailing services.
- However, the proliferation of autonomous ride hailing vehicles will take quite some time.
 - Time Frame – 2025 - 2030
- Privately owned, self-driven vehicles are not going away anytime soon, and industry sales volumes will not feel a negative impact from autonomous ride hailing vehicles in the near or mid term.

Minimal Impact from China, For Now

- The **trade war** between the U.S. and China has impacted automakers' plans to import Chinese-built vehicles.
 - Ford Focus Active, Buick Envision, Volvo XC60
- **Temporarily has shut out** Chinese newcomers from the U.S. market until the trade war ends
 - Or Chinese automakers source U.S.-bound production from somewhere else.
- **Chinese brands will not likely have an impact** on U.S. total light vehicle volume in the next few years.



Demographic Shifts Also Contribute to the Overall Decline of Industry Volume

- Young adults have finally become a major force in the new vehicle market.
 - But they have entered at a later age.
 - A tough job market in the years following the recession made new vehicles unaffordable to many young adults until recently.
 - Alternatives to vehicle ownership are more compelling and feasible than ever, further delaying their entry into the new vehicle marketplace.
- The oldest Baby Boomers are retiring, getting onto fixed incomes, and will be acquiring new vehicles less frequently.



Purchase Dynamics Create New Challenges



- **Interest rates have risen**, ultimately reducing consumers' purchasing power.
- **Higher vehicle transaction prices** mean **longer loans** for those who finance –
 - Consumers are upside down on their loans longer and cannot replace their vehicles as frequently.
 - Today, **three-quarters of all new vehicle loans are more than five years.**
 - 72 months is the most common loan term (24% of market vs. 10% in 2008).
 - 84 and 96 month loans are continuing to become more and more common.
 - AutoPacific's latest data show that the **median price** of a new vehicle today is **\$36,000!**

Delivery Dynamics Evolving

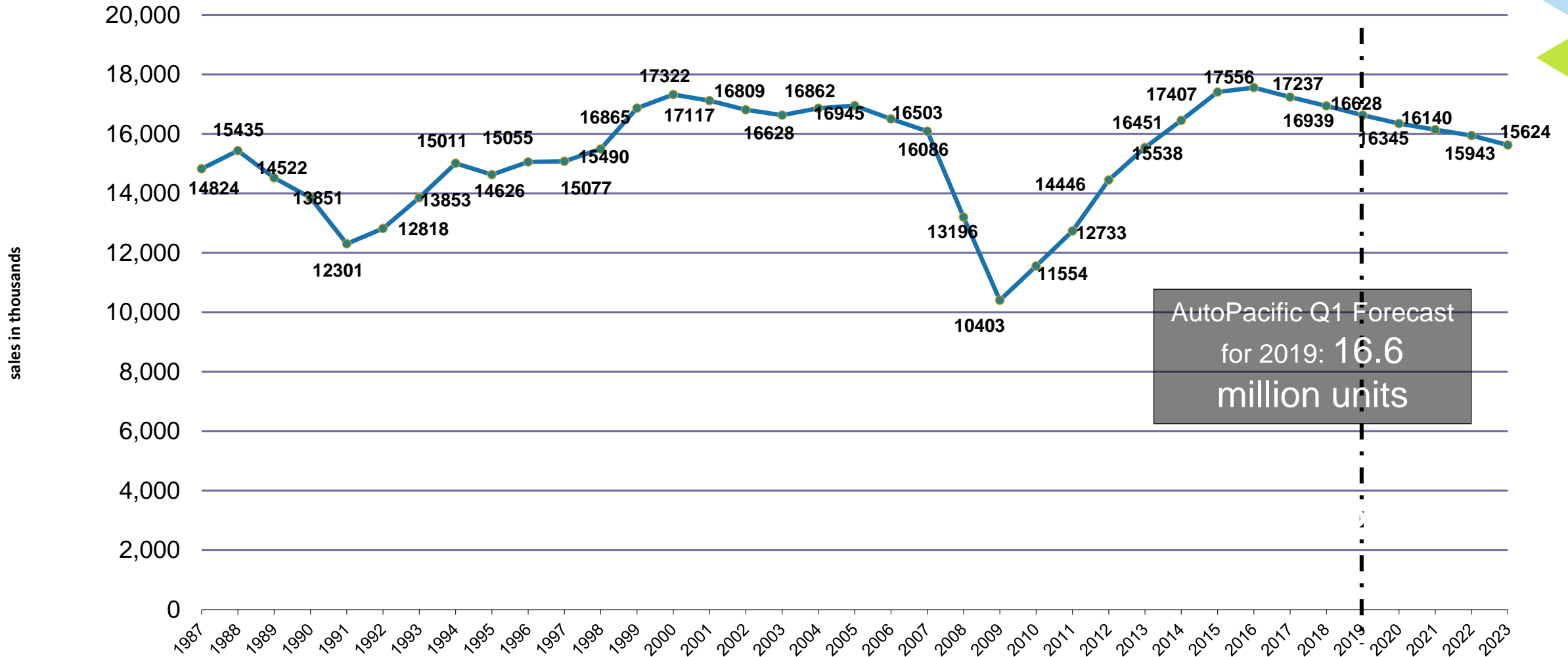
Build, Price & Deliver



- More of the purchase process will be done on line.
 - Researching the vehicle
 - Deciding what to buy.
- Eventually, automaker's Build and Price websites will match the buyer up with the exact vehicle they want.
- Dealer may become a conduit to prep the vehicle and deliver it to the buyer.

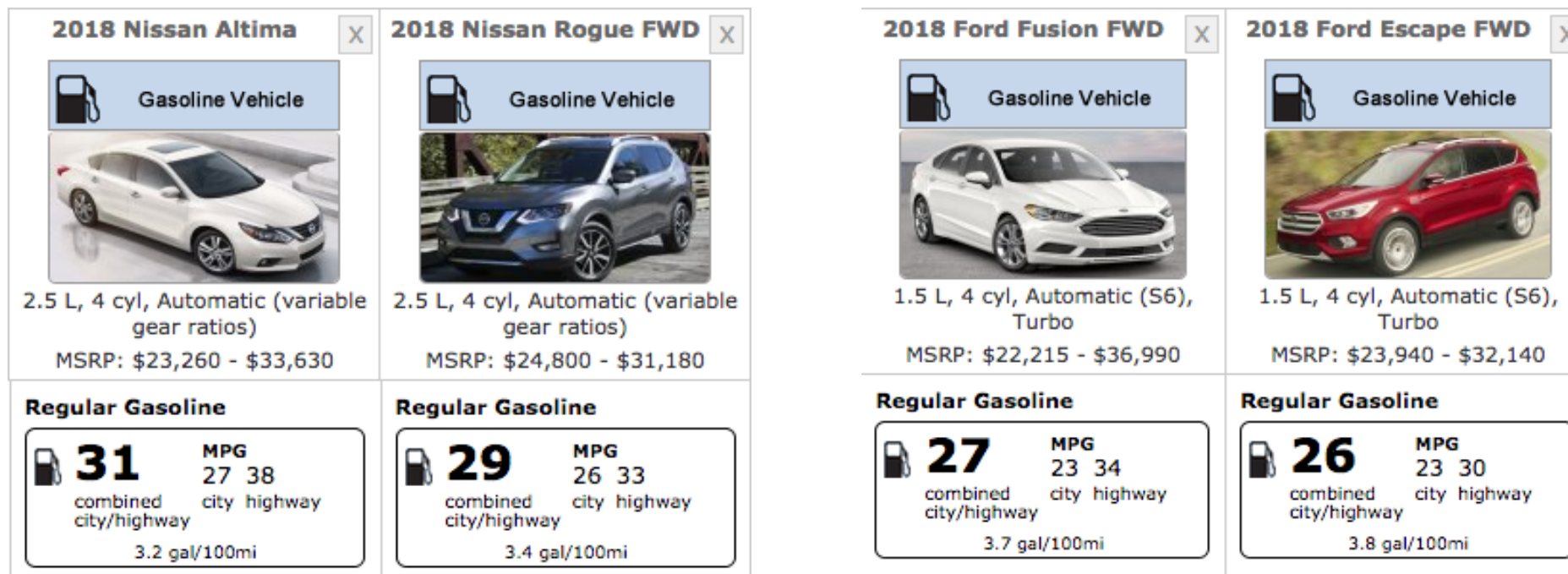
AutoPacific Sales Forecast Through 2023

Q1 2019 AutoPacific Sales Forecast



AutoPacific Q1 Forecast
for 2019: 16.6
million units

Technology Has Enabled SUVs to Thrive



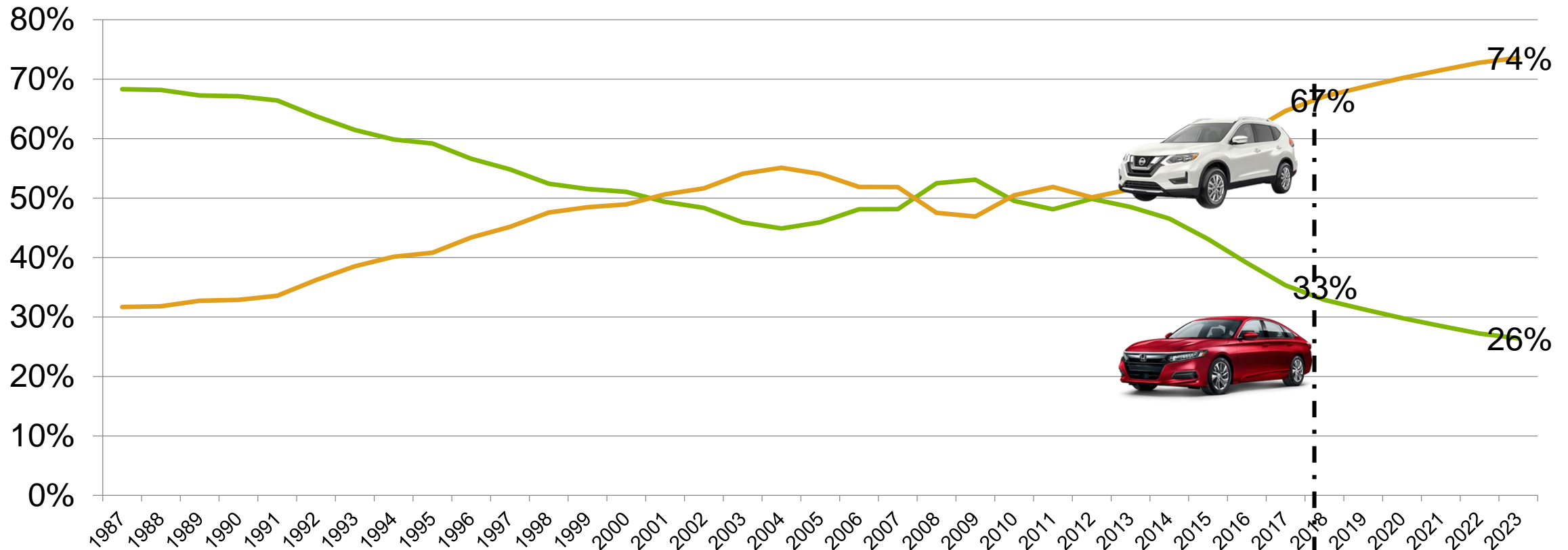
- Earlier this decade, unstable fuel prices caused SUV sales to crash while passenger car mix soared.
- Could this happen again?
- Not likely, because:
 - Fuel prices are rising, but slowly this time. Consumers change buying behavior when fuel prices are unstable.
 - Technology has brought SUV fuel economy closer to parity with passenger cars.



Trucks Will Continue to Gain at Cars' Expense

- Migration to trucks shows no sign of ending; **today's most popular "cars" are classified as trucks.**
- For the majority of new vehicle consumers today, trucks are better cars than cars.
- Especially in the high volume lower mid-size SUV category, there is little to no fuel economy penalty for choosing the SUV over the sedan.

Passenger Car vs. Truck Mix

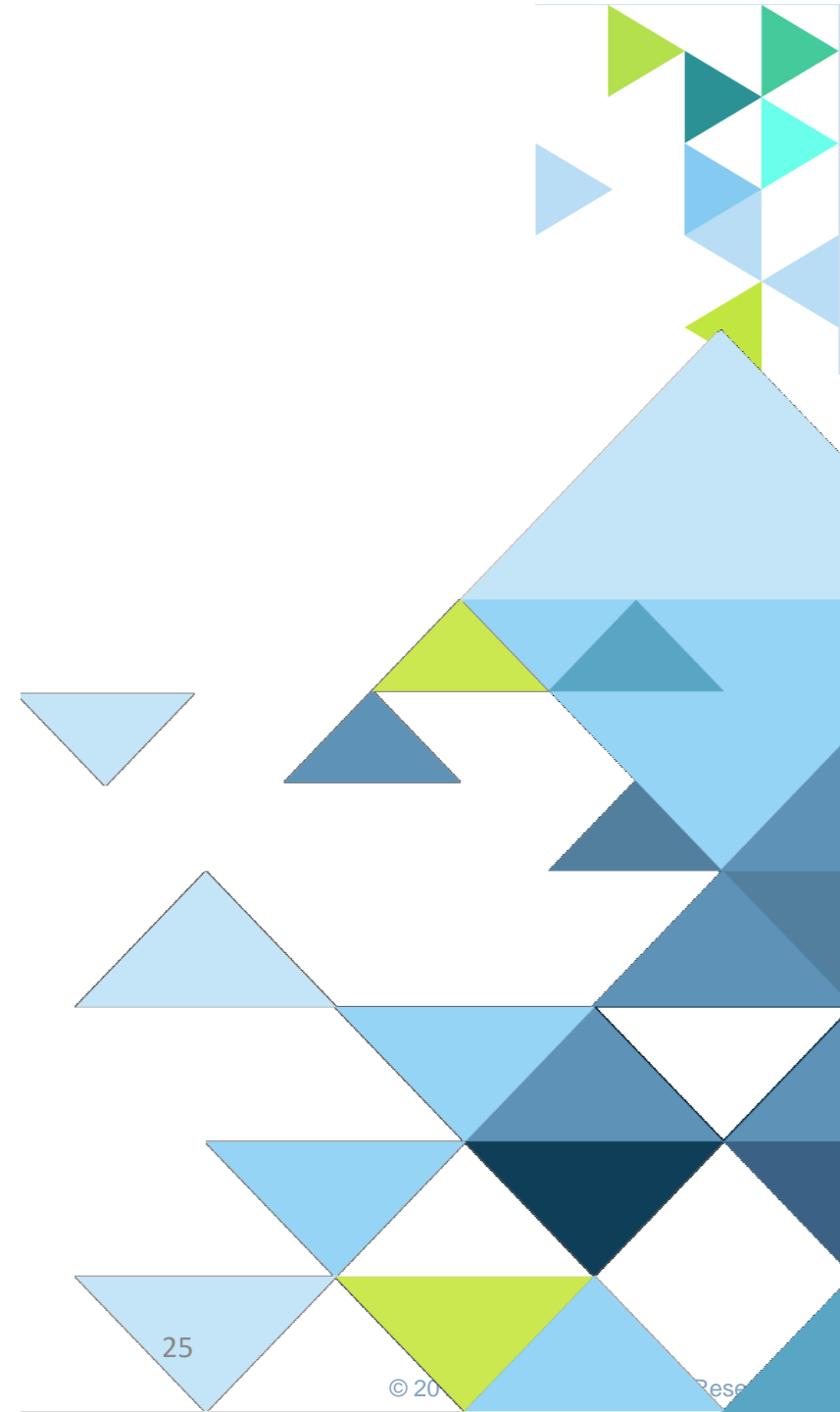


Chaos!

Atomization

The Rapid Addition of New Car and Truck Nameplates to the American Market

Counting New Nameplates

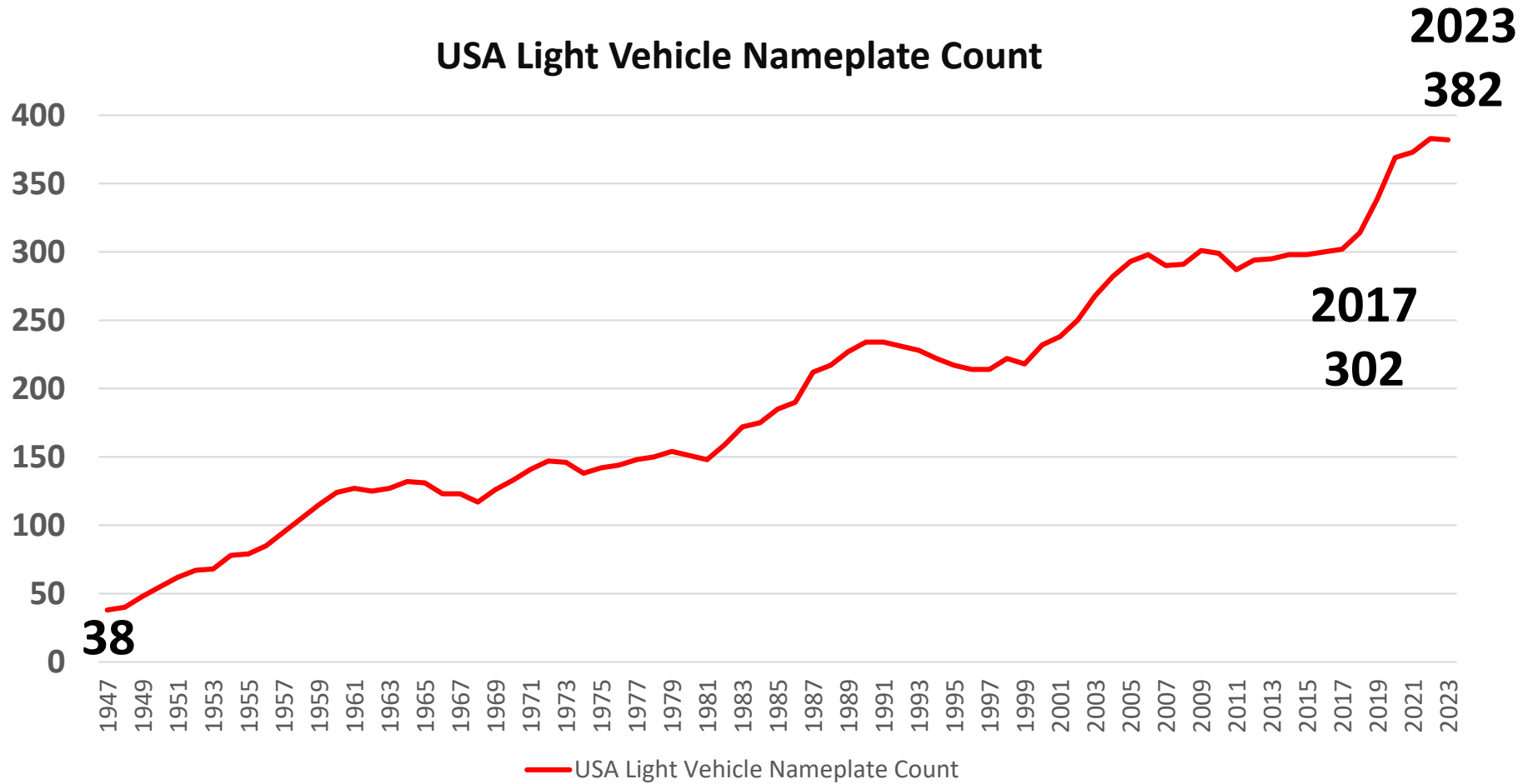


Why an Atomizing Market?

- Combination of Manufacturer Push and Customer Pull
- More Models/Nameplates Introduced
 - Trying to Fill Underutilized Plant Capacity
 - Targeting Customers More Narrowly
- More Models Developed Because **Technology Reduces Product Development Costs**
 - Derivatives are Less Expensive to Create
- **Manufacturers Take More Rather Than Less Risks** With Product Definition
 - Trying to Hit the New Product Homerun
- As Product Development Accelerates Pressure is Placed on Marketing
- Let's Look at the Sheer Numbers...

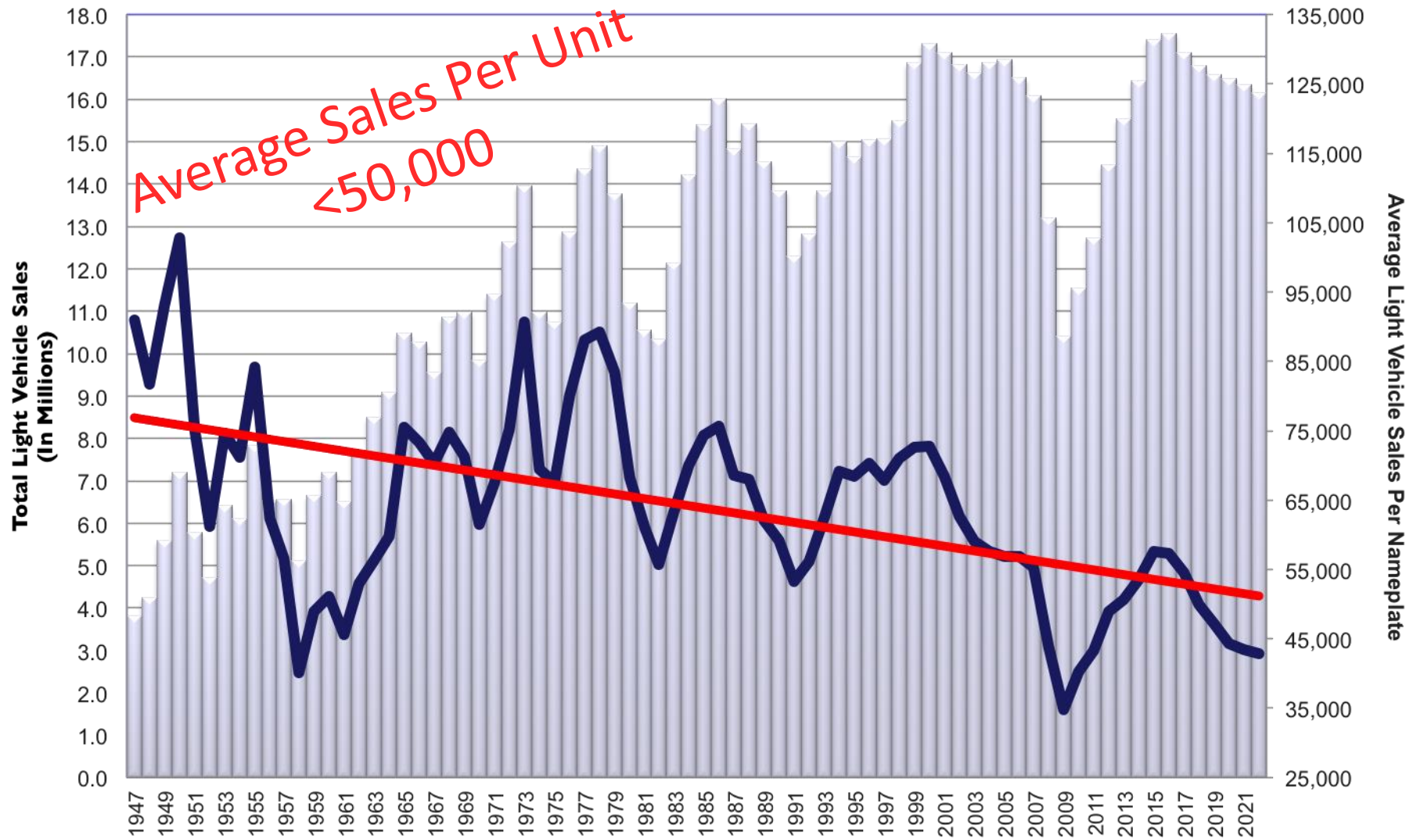


Total Car and Light Truck Nameplate Count – 1947 - 2023



Atomization Of the U.S. Light Vehicle Market

Must Be Able to Make a Profit at Much Lower Average Volumes



Scary Numbers



- In the 2009 Downturn Year of 10.4 million units
 - There were 301 Nameplates on the Market
 - Average Unit Sales Were 34,500 units per nameplate
- In 2017, About 17.3 million units were sold.
 - There were 302 Nameplates on the Market
 - Selling, on Average, About 57,000 units each
- The 2023 Forecast is 15.7 million units
 - There may be 80 Additional Nameplates
 - For a Total of 382 Nameplates on the Market
 - Average Unit Sales of 41,000 units per nameplate

Top Ten Sellers in 2018

About 25% of Sales are From Top Ten Sellers

3% of Nameplates Represent 26% of Sales

Vehicle Line	2018CY Sales Volume (000)
Ford F-Series	909.3
Chevrolet Silverado	585.6
Ram Pickup	537.0
Toyota RAV4	427.2
Honda CR-V	379.0
Nissan Rogue	370.9
Toyota Camry	343.4
Honda Civic	325.8
Toyota Corolla	303.7
Honda Accord	291.1
Total	4,473.0



Even Scarier Numbers

31,500 units per nameplate



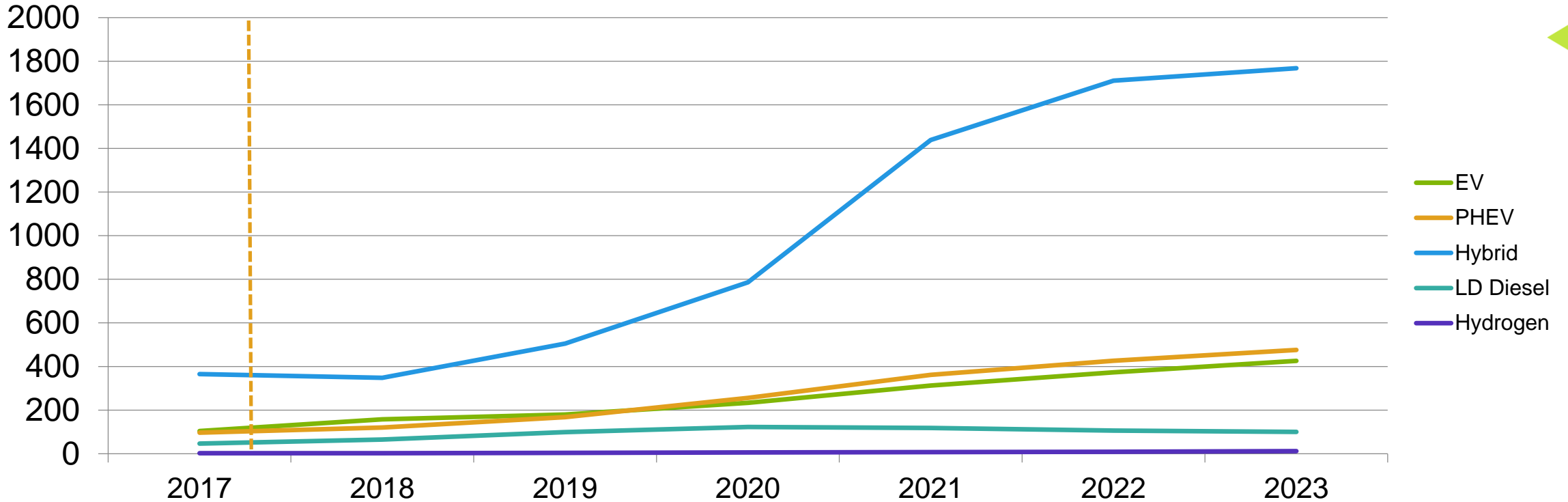
- Taking the Volume of the 2018CY Top Ten Selling Vehicles Out of the Equation or 4.47 million units
 - The Remaining 292 Nameplates in 2017 Sell 42,000 units on average in a 17 million unit year
- In our 2023 forecast year the volume is 15.7 million units sold by 382 nameplates
 - Removing the 25% of the forecast volume assumed by the top 10 vehicles, you get about 12 million units shared with 372 nameplates or **31,500** units per nameplate on average
- This Puts Huge Pressure on Marketing and Product Development to Achieve Profitability at Lower Unit Volumes



EV Developments

Electrified Vehicles Will Become More Commonplace

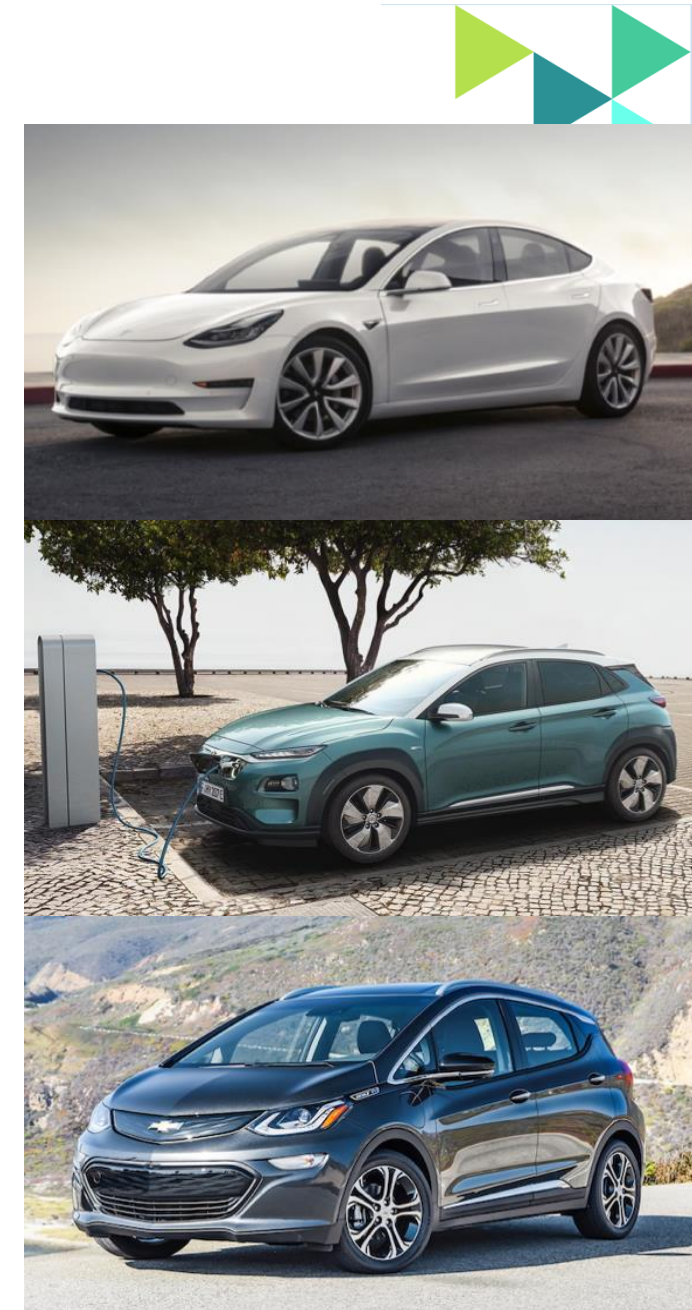
Q4 2018 Alternative Powertrain Forecast



- Despite an overall decline in industry volume, sales of electrified vehicles are forecast to grow dramatically, especially as mild hybrids make a big comeback. Manufacturers continue to plan hybrids even as regulations are in question.
- Plug-in hybrid sales are expected to grow as well, while diesels flounder.

Range Improvements are Making BEVs More Ready for the Mainstream

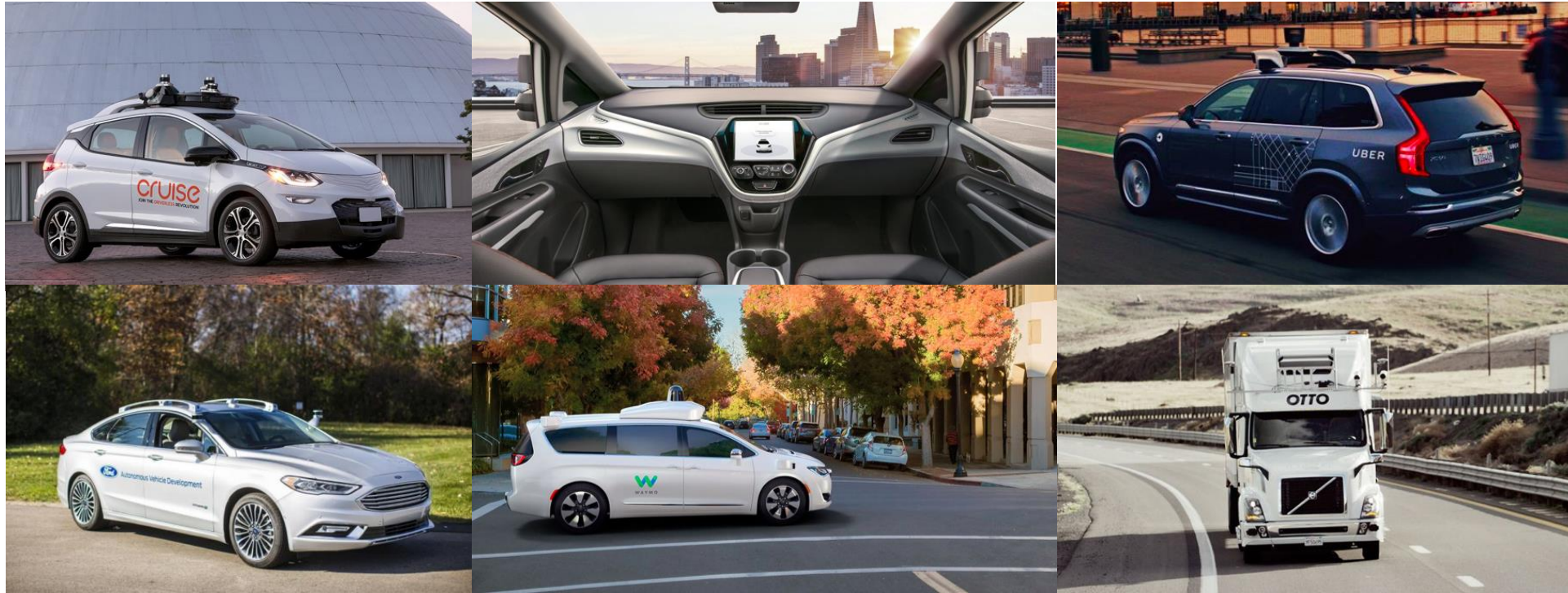
- Range improvements reduce range anxiety – one of the primary reasons people reject BEVs
- Makes driving an BEV a more “normal” experience.
 - This was critical in the early success of hybrids; hybrids were seamless in operation and did not require drivers to make big changes in routine
- 200+ mile range is becoming the cost of entry, and many subsequent BEV introductions are greatly exceeding that benchmark.





Autonomous Driving

Autonomous Driving Closer to Reality Than Ever



- Autonomous driving is **no longer the stuff of science fiction** or fanciful science experiments.
- Real fleets are testing on roads today, promising to radically alter driving, the business model for automobiles, and how consumers pay for transportation.

Autonomous Drive Technology Will Shake Up Transportation

- The very idea of giving up the wheel to a computer is radical, though long imagined.
- Autonomous drive tech is developing in lockstep with the ride hailing industry, which needs autonomous vehicles to make their businesses viable long term.
- **Will reduce consumer need for private cars...and probably replace them altogether in the long term.**



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