U.S. Automotive Outlook

Detroit Assn. of Business Economists/Wards Intelligence Conference

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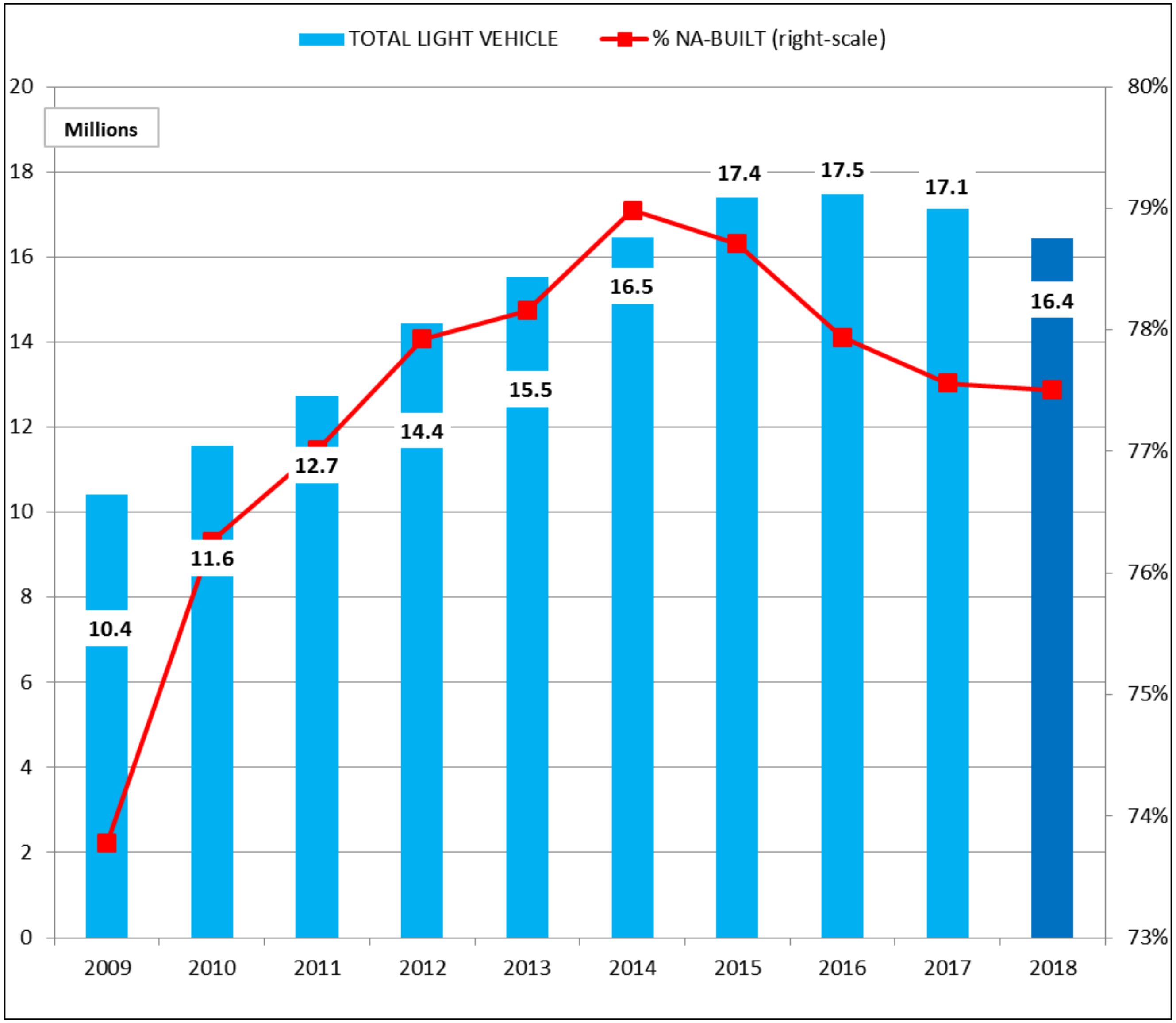
Short-Term U.S. Sales Outlook (2018)

U.S. Light-Vehicle Sales

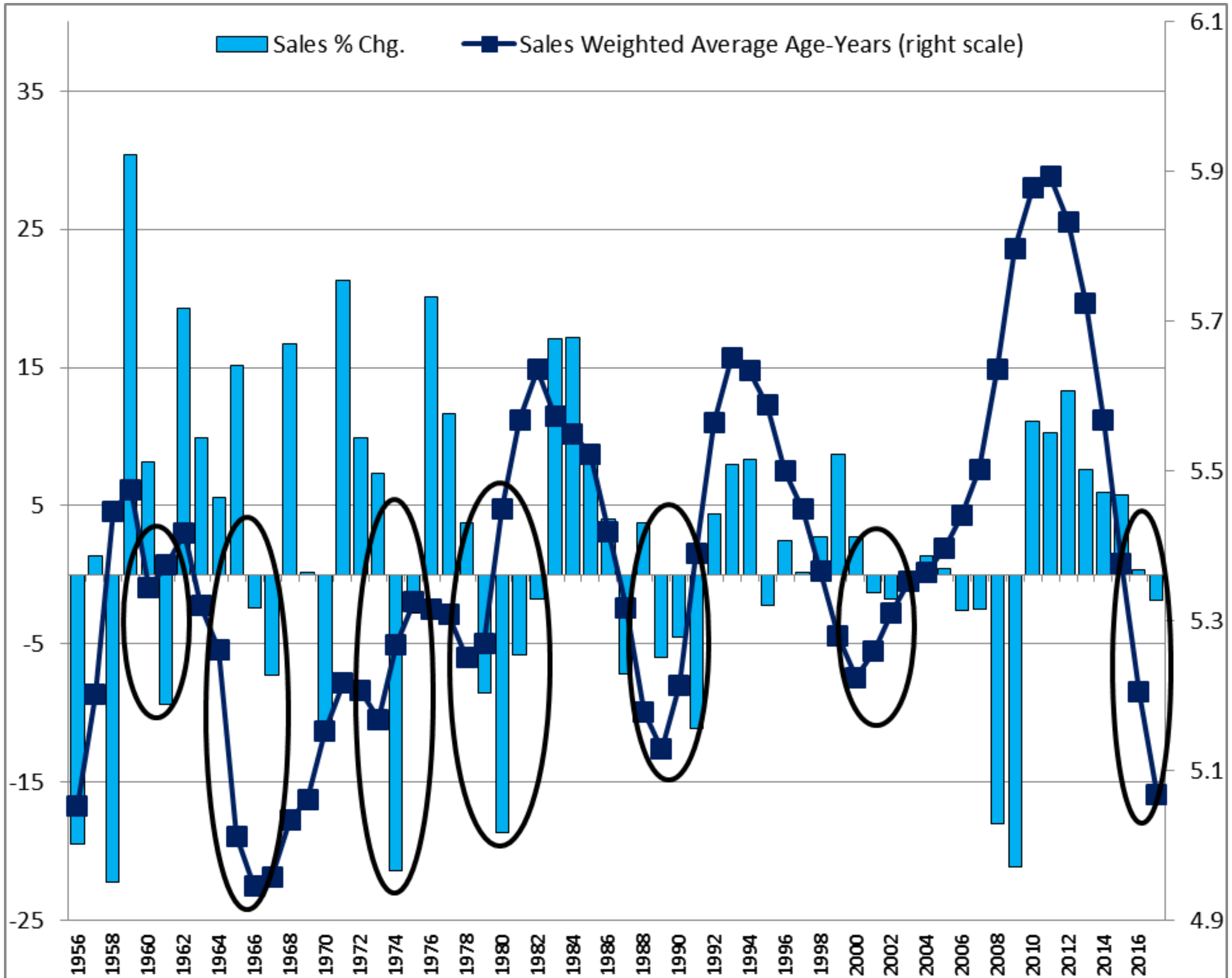


After seven straight years of growth through 2016, the industry is in a cyclical downturn

- Excess replacement demand created by the 2008/09 recession was filled by late-2015/early-2016
- Sales still rose in 2016 due to the typical acceleration in incentives that occurs when the market shows signs of weakness
- Demand slid in 2017, with the downturn expected to accelerate in 2018

Estimated Annual Age Per Year of Vehicles Sold Within Past 10 Years

(Based on rolling 10-year sales weighted averages per year)



Excess, or pent-up, demand is dried up for now

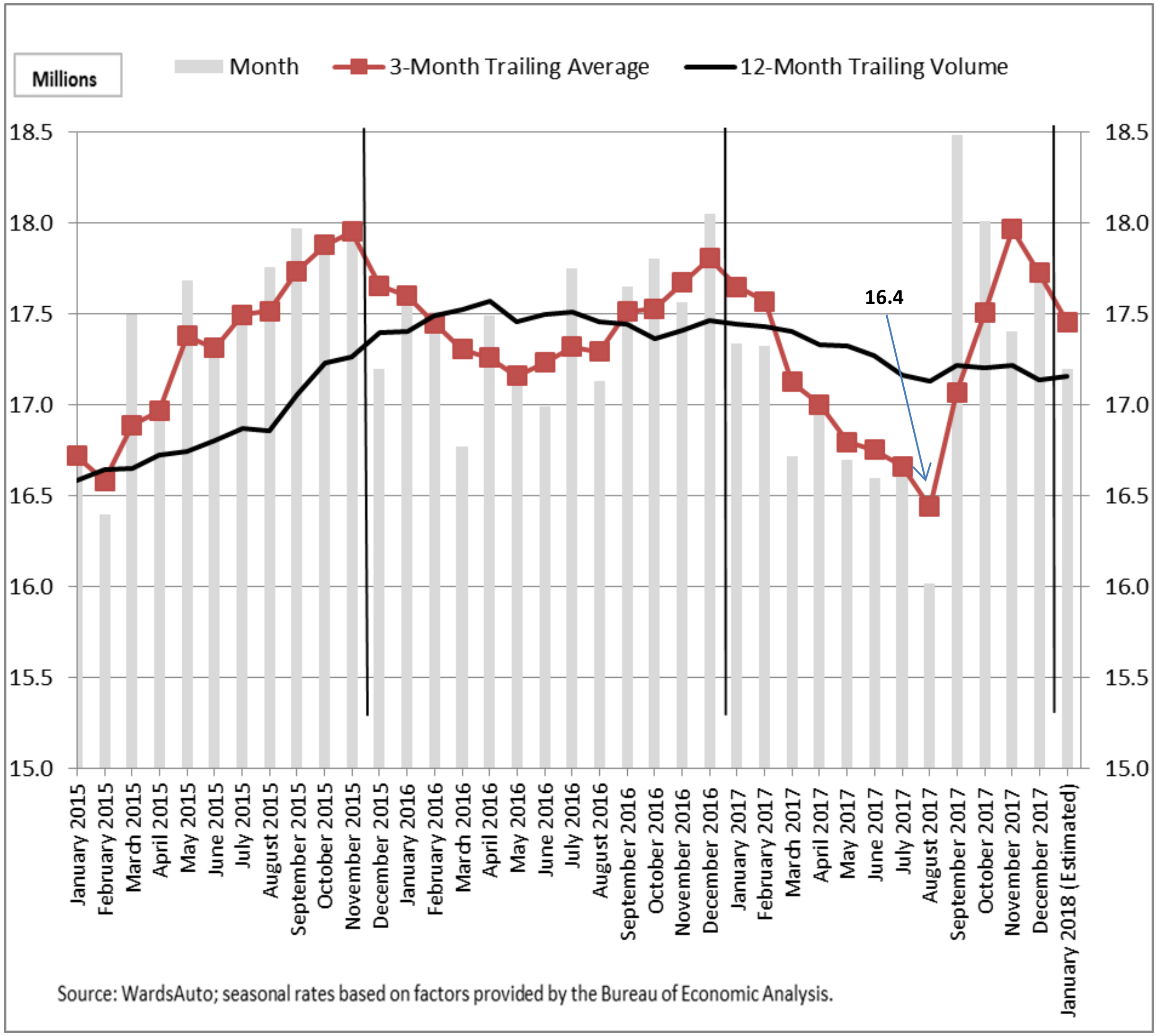
- The average age of vehicles sold within the past 10 years in 2017 has bottomed out or is close to it
- When sales decline yr/yr for the first time after a growth period, the age usually either bottoms out that year or did the year before
- On average, takes three years for demand to resume growth after a trough in age
  - ➢ The severity of the last recession, combined with the industry's self-induced sales bubble in the years leading up it, threw off the pattern

Why a Sharp Decline from 2017 to 2018

- Expect an evening out after three straight years of 17 million-plus sales
- Inventory heading into 2018 relatively in line with demand; not as much pressure to unload unwanted stocks, and expect most automakers to keep inventory in balance throughout the year
- Automakers and dealers can focus better on selling higher priced CUVs and pickups; dealers have fewer tough-to-sell cars to unload
- Fresh product at a low point
- Unloading excess ‘17-model inventory in final four months of 2017 likely pulled some demand from 2018
- Used-vehicle prices not expected to rise much – probably below inflation - meaning they will be even more affordable while trade-in values suffer
- Pursuant to the above, a rash of good late-model off-lease vehicles to compete with, including a rising mix of more popular trucks/CUVs coming in 2018

Why a Sharp Decline from 2017 to 2018 - continued

U.S. Sales by Month – Seasonally Adjusted 2015-2018



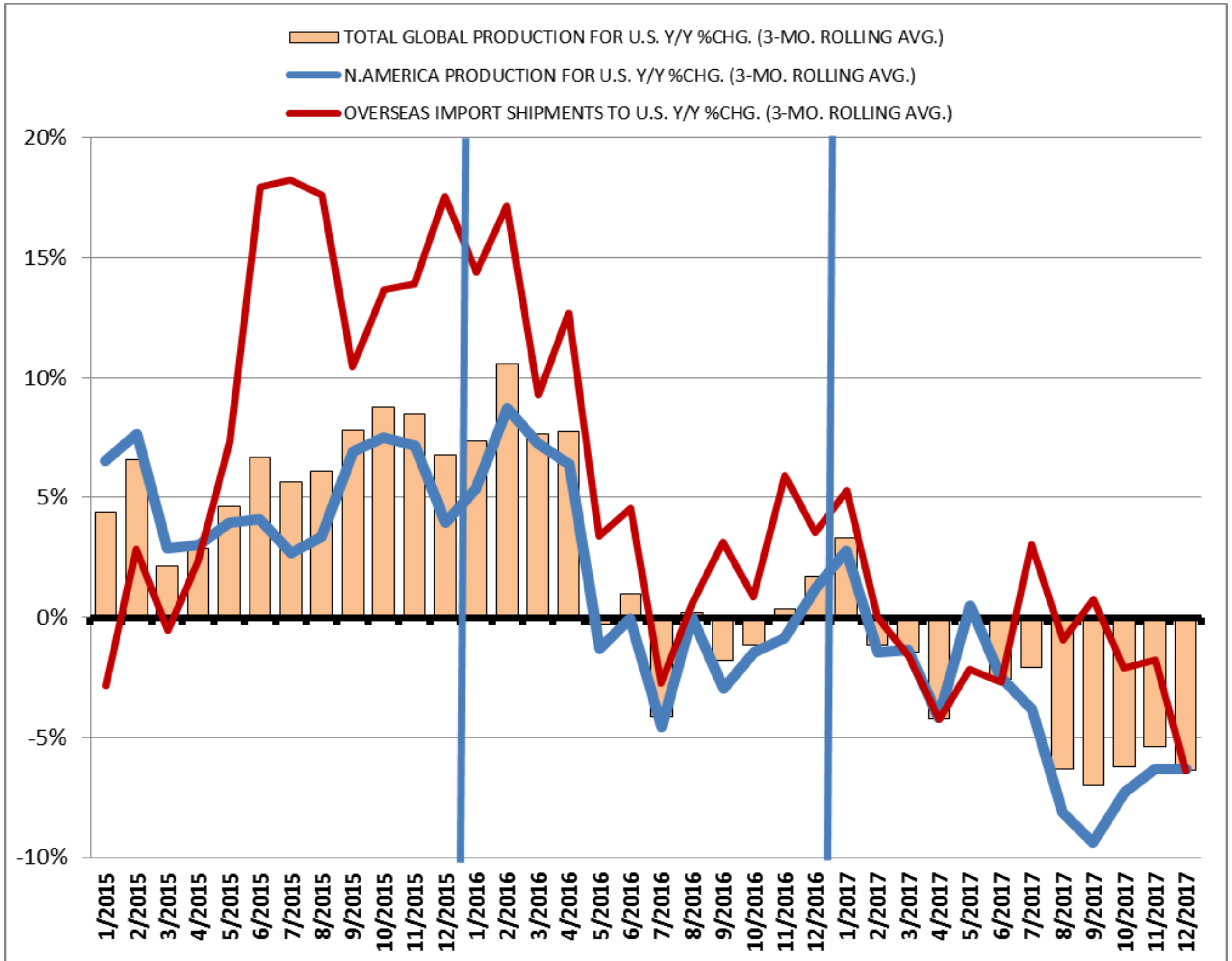
Sales in 2017 should have ended at 16.8 million or less (and still continued a cyclical downturn from there in 2018)

- Prior to September, 2017 YTD sales were running at a 16.8 million annual rate and were trending down - in fact, had been trending down the entire year to a 3-Mo SAAR of 16.4 million

- Hurricane-replacement volume, combined with dealers unloading excess '17-model inventory, revitalized sales in September-December (17.9 million SAAR), and the year ended at 17.1 million

Why a Sharp Decline from 2017 to 2018 – cont.

Production for the U.S. Market – Year/Year % Change



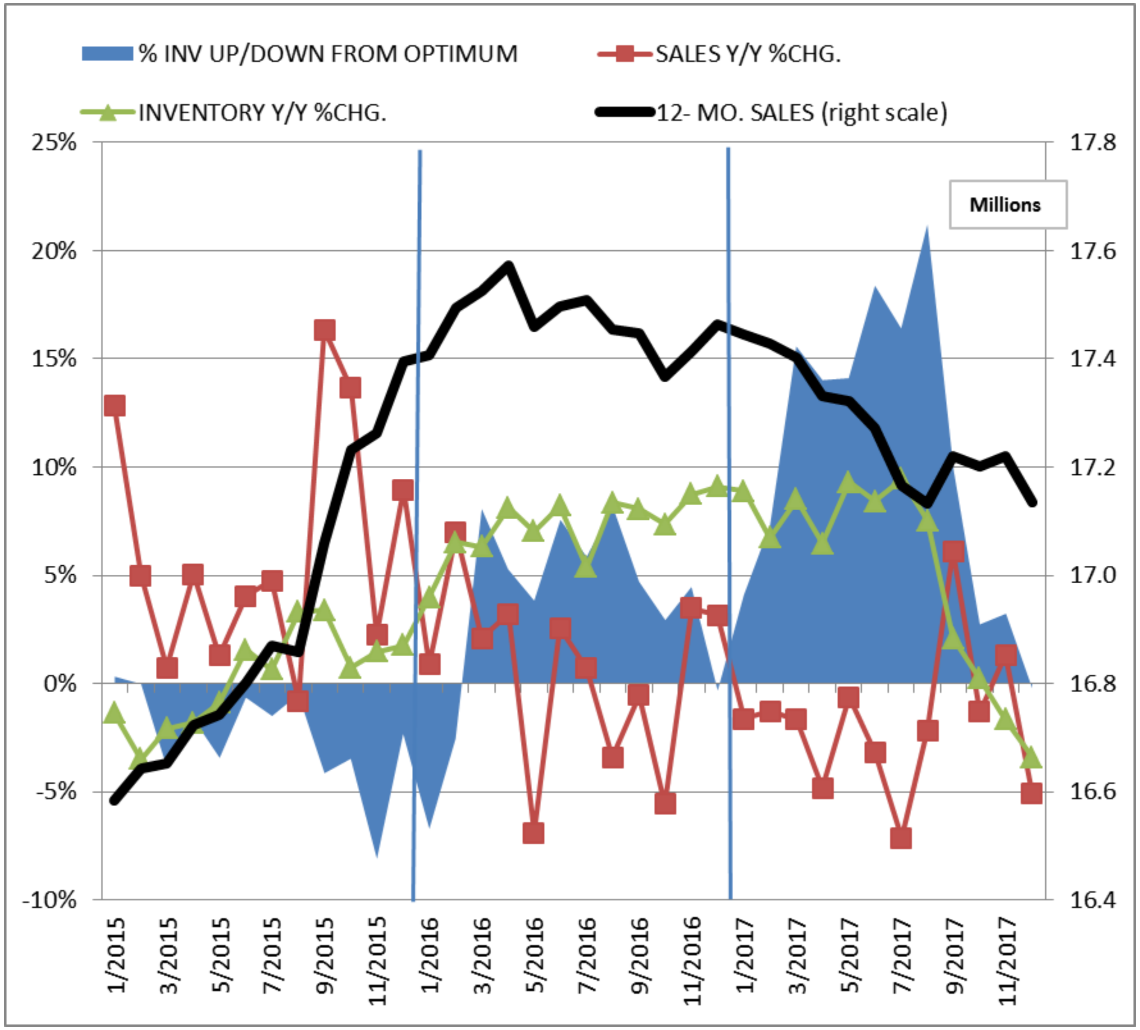
Data is Wards Intelligence estimates.

Automakers getting more serious about keeping inventory under control and selling a higher mix of more profitable vehicles

- Manufacturers did begin adjusting production levels almost simultaneously when the market started showing weakness
- In mid-2016, manufacturers starting curbing local production for the U.S. – although some of that had to do with rising import penetration
- Import shipments also slowed, though not as fast as local output due to rising sales penetration

Why a Sharp Decline from 2017 to 2018 – cont.

U.S. Inventory vs. Sales – Light Vehicles



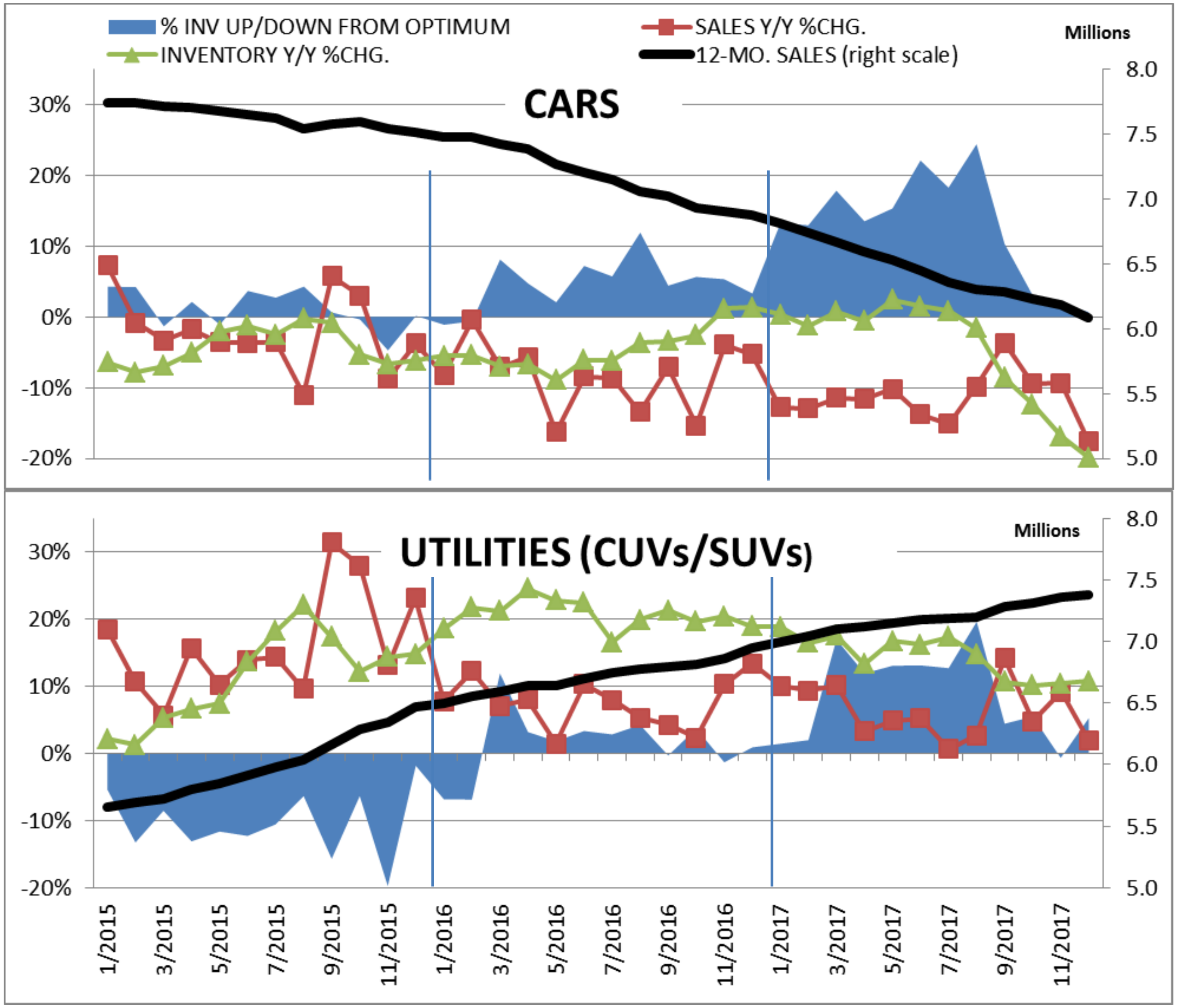
Industry heading into 2018 with 3.4% (yr/yr) less inventory

- Despite the production slowdowns that began the previous year, demand in 2017 slid faster than the industry anticipated and dealers still got overloaded with inventory
- In the latter part of 2017, stronger sales and heftier production cuts finally brought inventory closely in line with demand at the end of the year
- Expect the yr/yr inventory decline to continue widening through first-half 2018 – if not, then sales likely to finish higher than forecast due to more '18-model inventory to unload later in the year
- If January-February sales don't average at least close to a 17-million SAAR, inventory could start becoming a burden by Q2

Haig Stoddard, Industry Analyst, WardsAuto

Why a Sharp Decline from 2017 to 2018 – cont.

U.S. Inventory vs. Sales – Light Vehicles



Automakers have gotten rid of most of the excess in the weakest sector: Cars

- The inventory mix by vehicle type – car and truck – and by segment is more in line with the mix for demand than a year ago
- New-vehicle volume will decline but pricing power will be helped as dealers can better concentrate on moving the stronger selling vehicles, mainly the still-growing CUV segment group

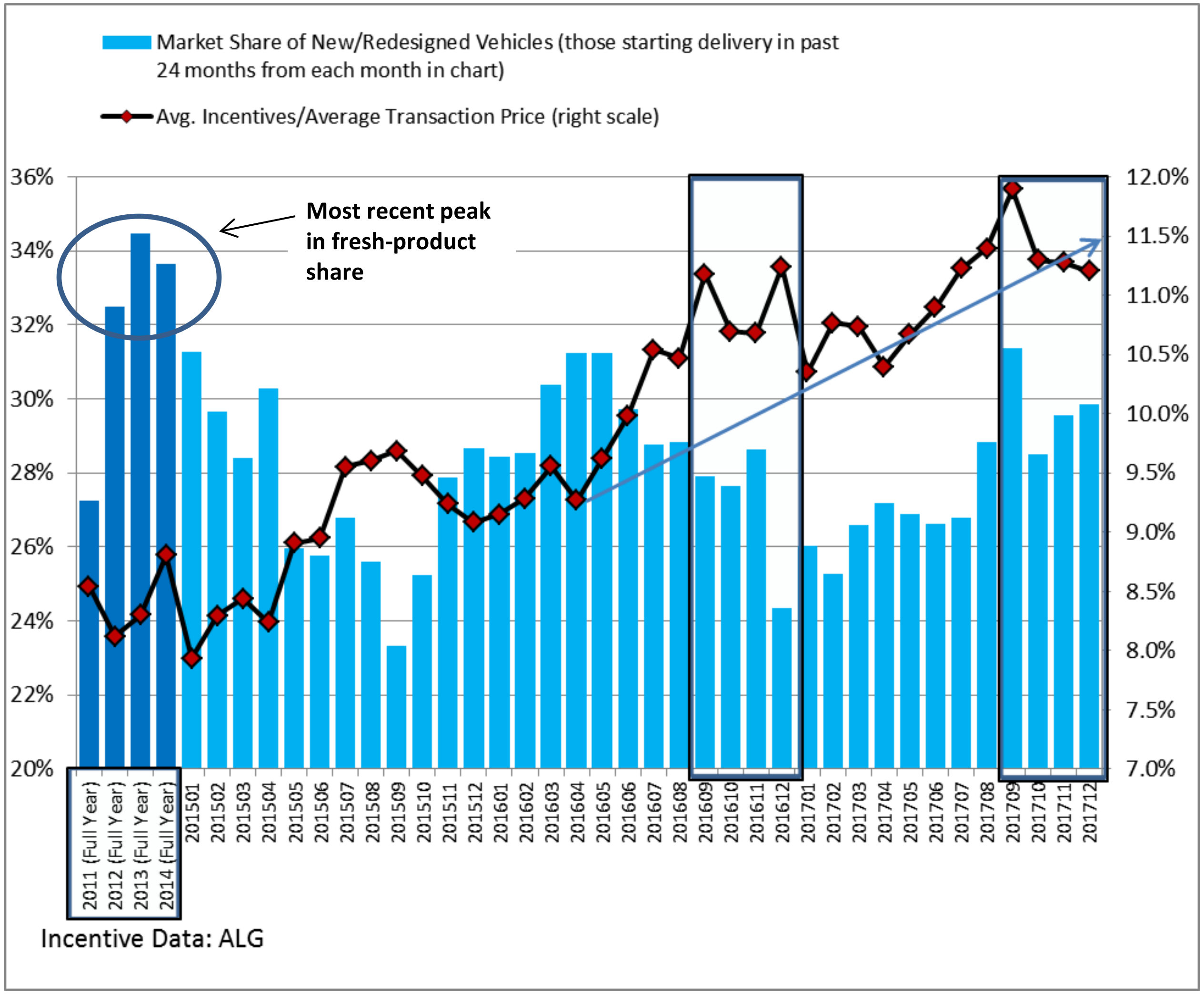
➢ Keeping car inventory in balance still will be a challenge as penetration for those vehicles continues to decline – to control car stocks, automakers will be more inclined to use production cuts than for trucks

➢ Another potential challenge to keeping a balance: Oversaturation of CUVs as OEMS build more and new products continue coming into the sector

Haig Stoddard, Industry Analyst, WardsAuto

Why a Sharp Decline from 2017 to 2018 – cont.

Incentives and "New" Vehicle Share

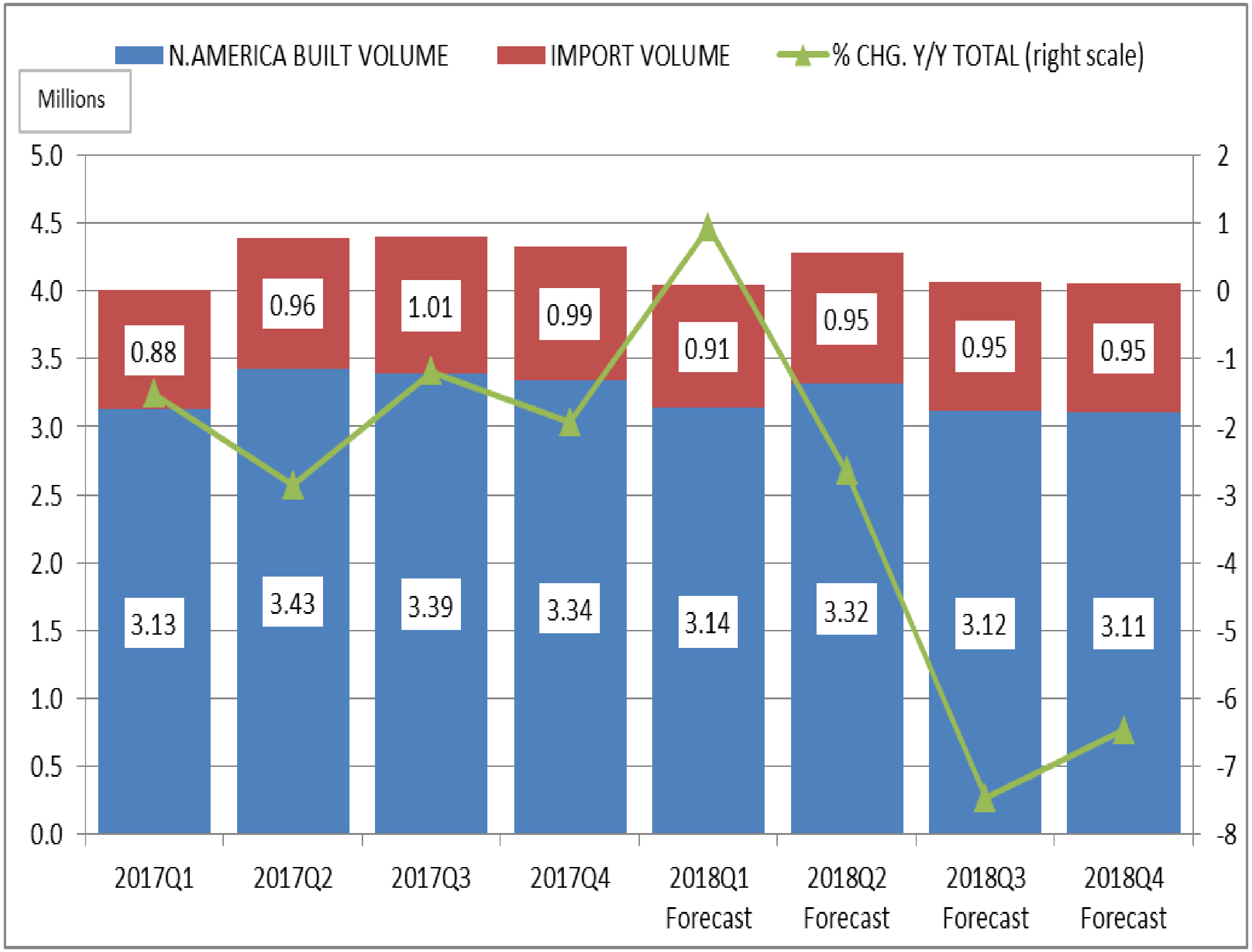


Lower inventory, especially of slower sellers, should reduce the pressure to incentivize.

- Incentives always will rise when growth stops, even in what could be termed a cyclical downturn
- Less fresh product, a trend that will continue well into 2018, also encourages discounting
- However, a possible early indicator that less excess inventory will lead to a slowdown in incentive growth: unlike in 2016, incentives did not rise in December from November, with a likely reason being dealer inventory headed into the month below the year-ago total for the first time since May 2015 – if incentives had risen in December, the SAAR would have topped 18 million

➢ If incentives continue the upward trajectory that started in May 2016, the ratio will be averaging 12.5% by December – how high is too high?

U.S. Sales – How 2018 Expected to Play Out

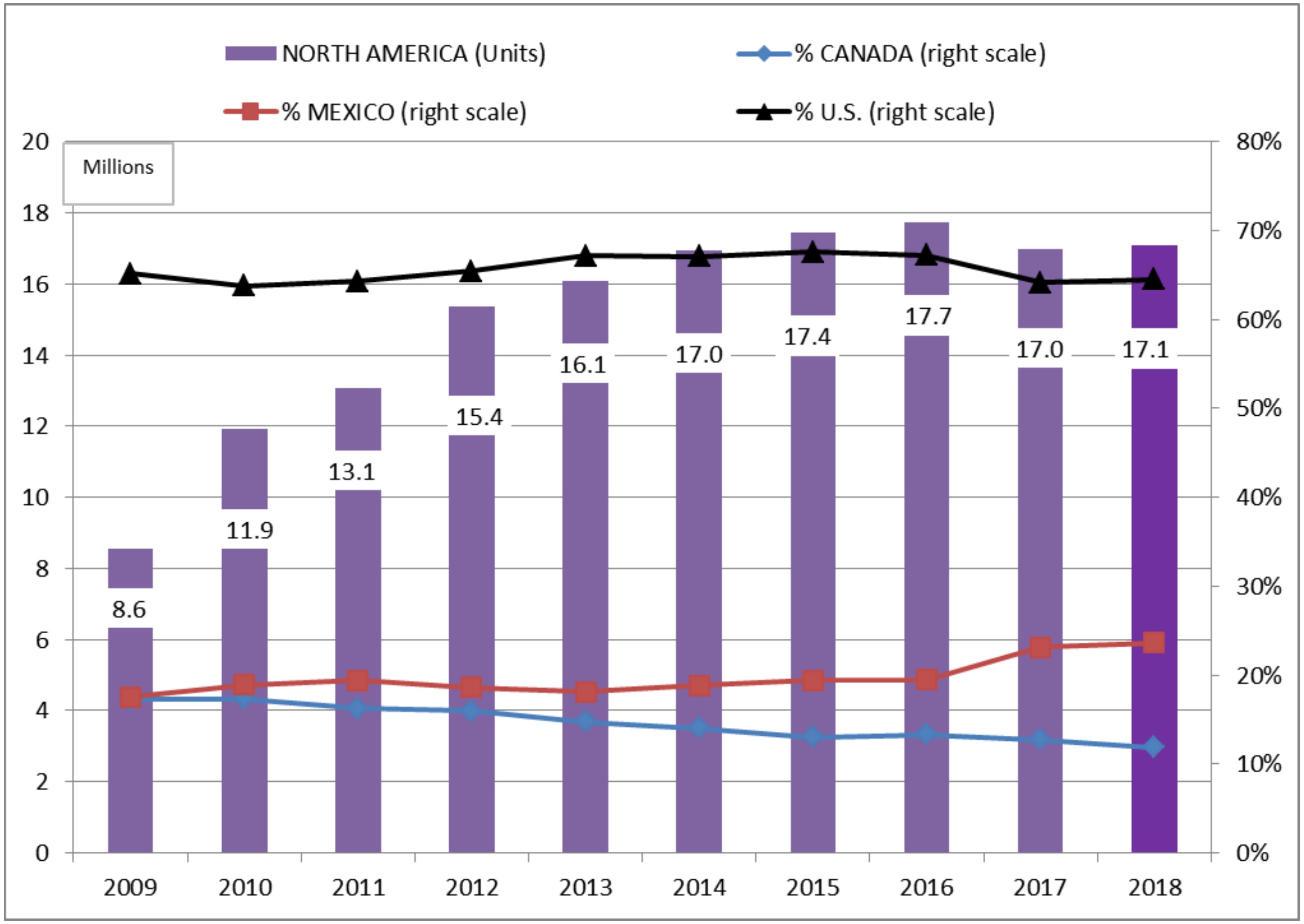


Raw sales volume in 2018 will be front-loaded – more in the first half vs. second half

- Sales have been back-loaded in most years since the recession due to progressively rising demand throughout the period
- Yr/yr volume declines get more severe in Q3/Q4 – going against artificially high year-ago totals (and assuming inventory remains in line with demand than in 2017)
  - Q1 volume is forecast to increase 1% yr/yr
  - But expect the Q1 SAAR to finish below year-ago's 17.1 million
  - An extra selling day in January, and an additional weekend in March, will make Q1 yr/yr volume comparisons better looking than SAAR comparisons

Short-Term Production Outlook

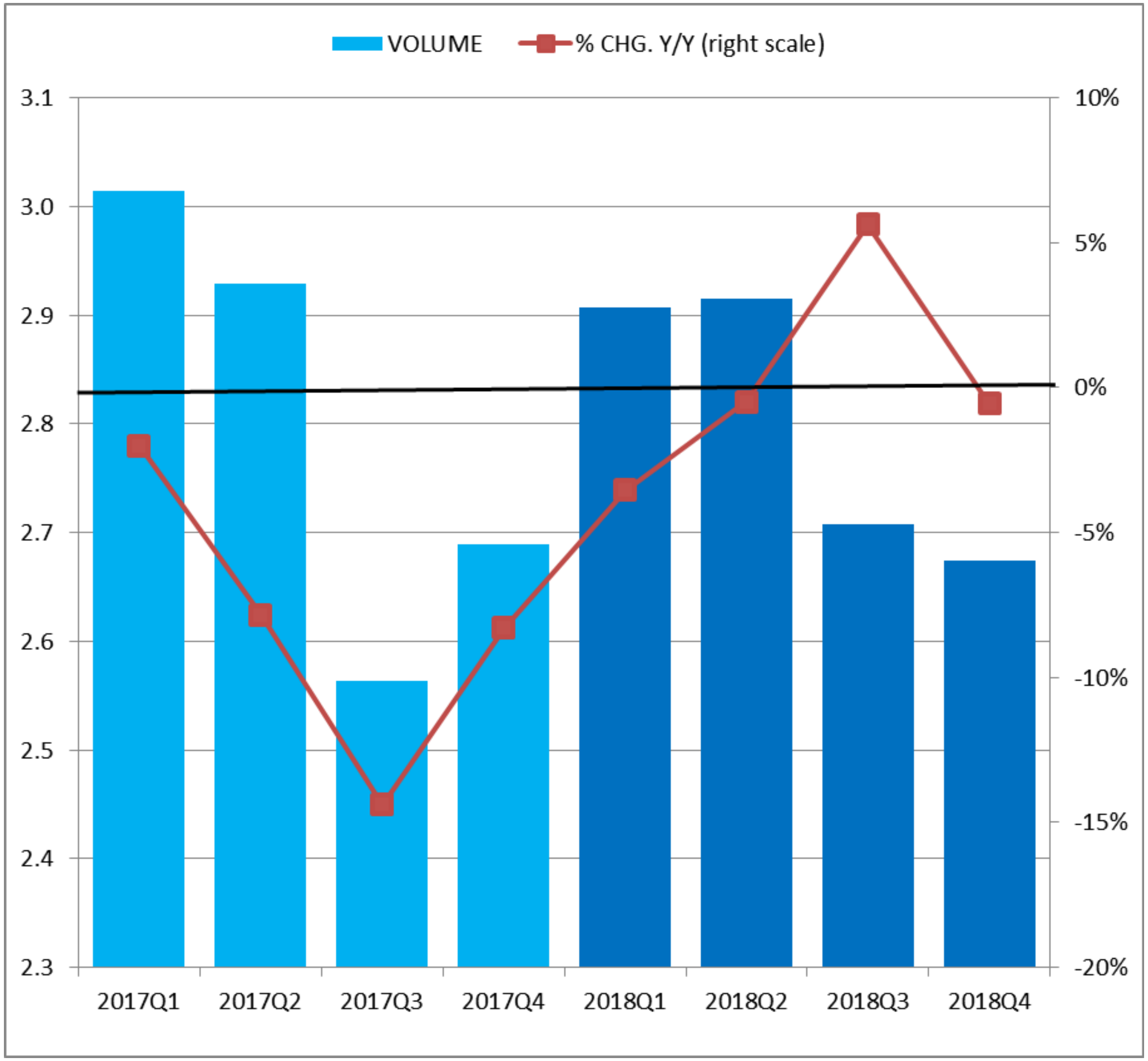
North American Light-Vehicle Production Outlook



Despite decline in demand, production expected to rebound slightly in 2018

- Excess dealer inventory wiped clean = fewer production cuts for inventory control
- Increased capacity and import replacement, and more export volume

U.S. Production Outlook

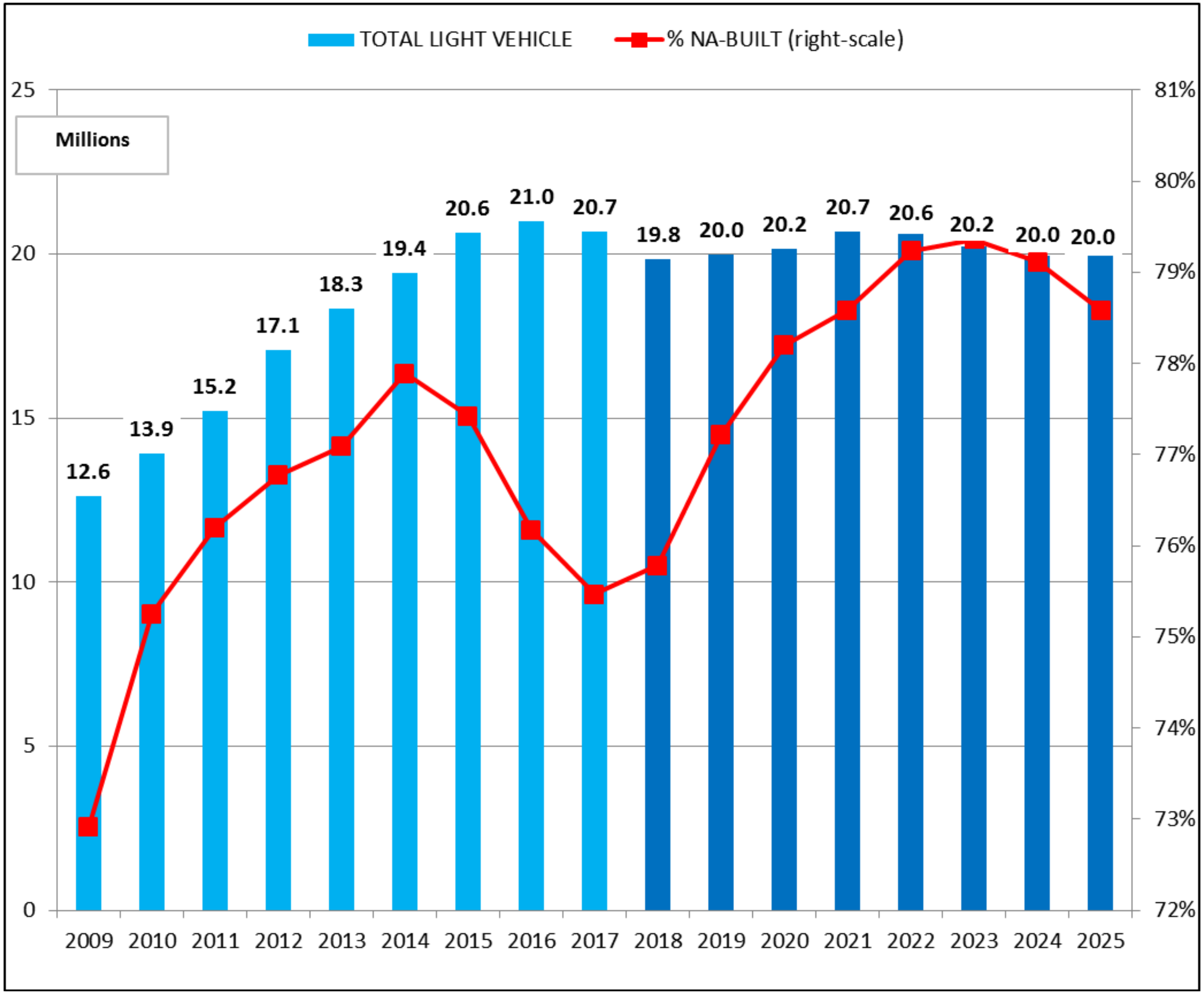


U.S. production forecast to increase 1% in 2018 to 11.0 million from 10.9 million in 2017

- FCA plants down for changeover much of 2017 online entire-2018
- Production ramp-up of some new products help prop output, and some added capacity

U.S. Sales Long-Term Outlook

North America Light-Vehicle Sales Forecast



- Sales forecast to decline in each of Canada, Mexico and U.S. in 2018
- Volume rebounds slightly in 2019, and continues to largely follow the year-to-year path of U.S. demand
- Penetration of N.A.-built vehicles turns up in 2018, due to added capacity and import-replacement

U.S. Road Map to 2025

	2018	2019	2020	2021	2022	2023	2024	2025

Product Trends

- 3-year surge in new and redesigned vehicles prior to the acceleration of fuel economy standards
- Expect a lot of adjustments and modifications to existing products as automakers come closer to finalizing 2025-plus strategies
- Another surge in product turnover begins
- **Expect more product consolidation beyond those already known; perhaps among some brands too**

Electrification

- Automakers significantly increase hybrid and electric-vehicle offerings, but sales of those vehicles increase only slightly
- Annual mandated increases in fuel efficiency standards accelerate leading into 2025 target year - sales accelerate for hybrid and electric vehicles

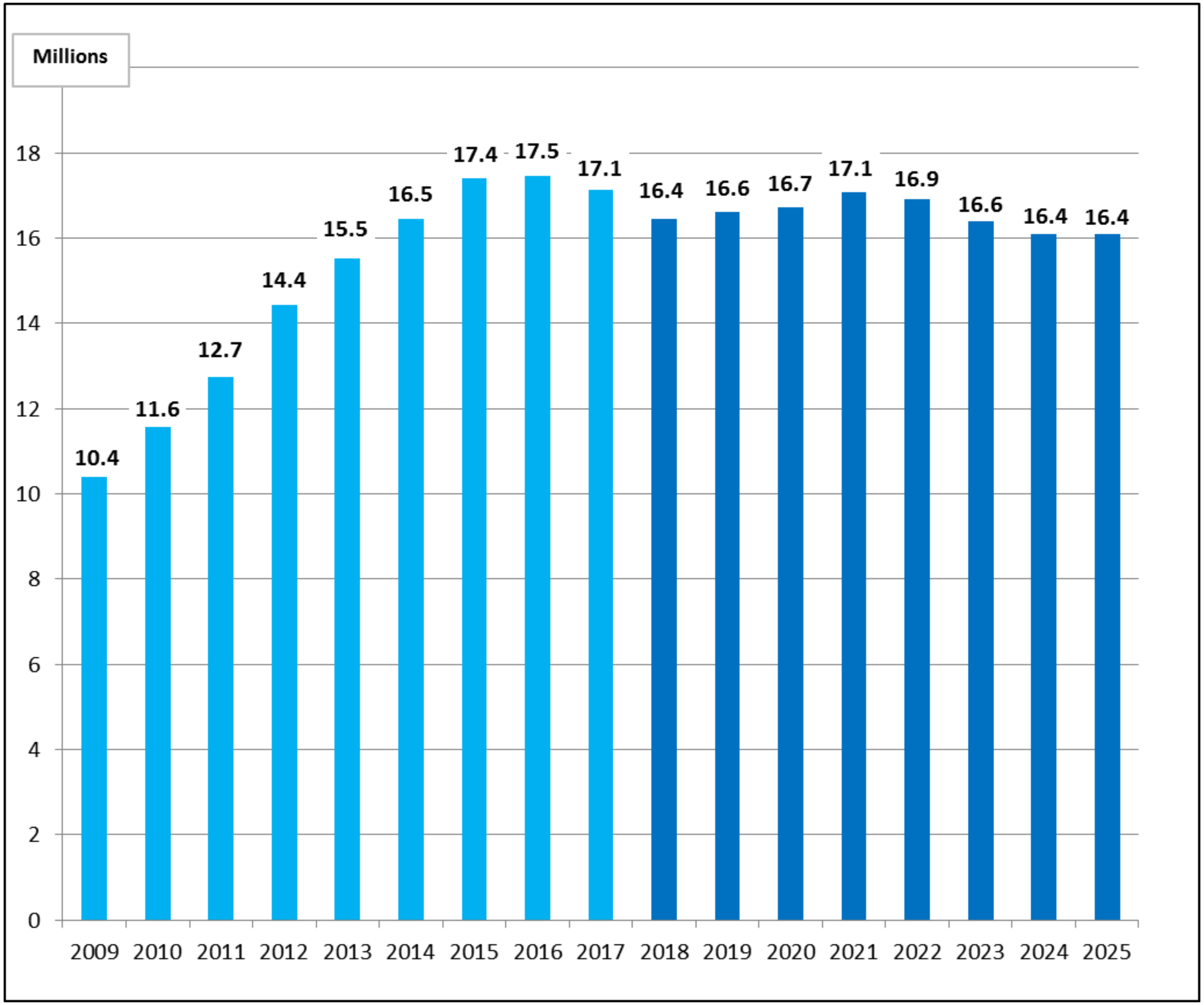
Mobility Services

- Impact of mobility services on total sales volumes gets more noticeable, though major impact will be post-2025
- Fleet volume begins to pick up as mobility services increase and start utilizing more hybrid and battery-electric vehicles - **growth speeds up post-2025**

Autonomous

- Gradual increases, but still limited, deployment of autonomous vehicles to fleets for testing and controlled real-world use - not a major impact on new-vehicle demand or segment mix

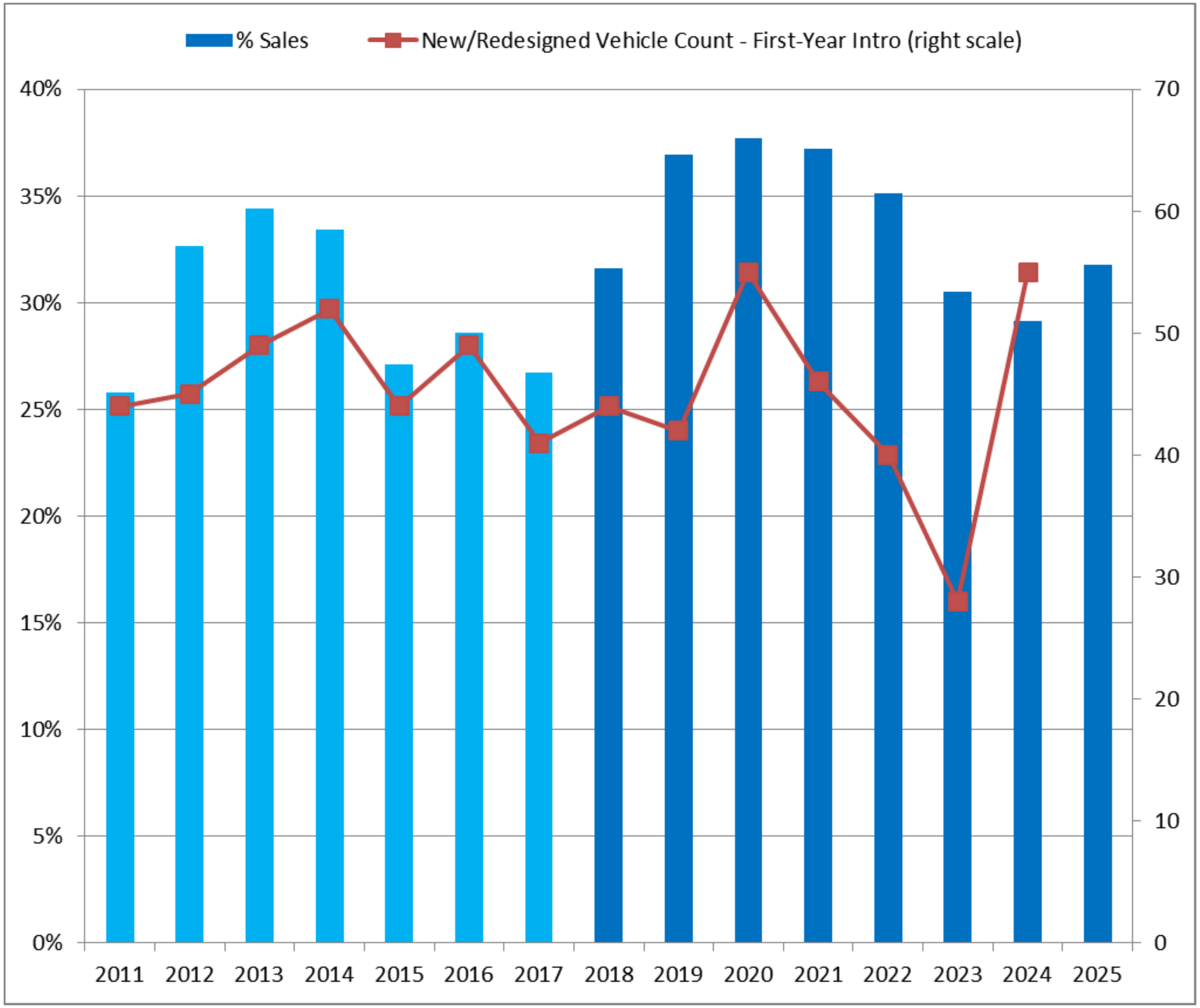
U.S. Light-Vehicle Sales Forecast



Underlying demographics keep demand at historically high levels, though no new record highs expected through 2025

- Sales rebound slightly in 2019, peaking again in 2021, in part due to an influx of fresh products
- Sales slide again in 2022-2025
  - Fuel efficiency (and costlier technological) requirements ratchet up faster in that period
  - Increased use of mobility services weigh more heavily on new-vehicle demand
  - Quality of used vehicles, including the "10-year-old" models, greatly improved – like the human population, they'll age slower and live longer

Forecast Market Share of New/Redesigned Vehicles



Rejuvenated product mix will help support a quick rebound in sales (2019) in a still-healthy economy

Headwinds and Tailwinds to Watch

Upside:

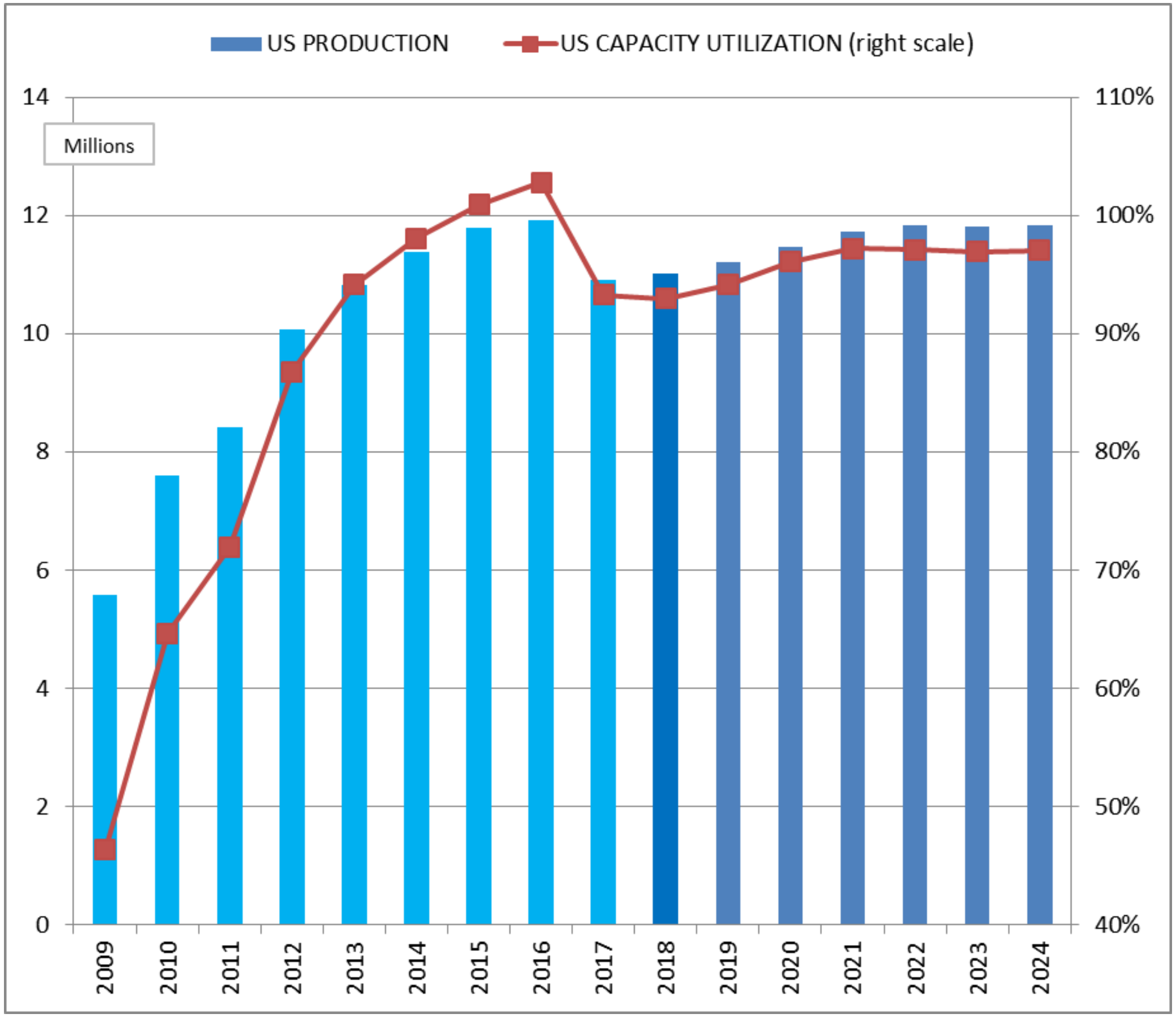
- Could be underestimating the economy – job and income growth is ongoing
  - More younger people entering the workforce or getting better paying jobs
  - Greater availability of lower-cost vehicles (small CUVs and sporty small-car hatchbacks), and automakers could "de-content" larger vehicles
- Leasing could remain a positive: most consumers coming off a lease will want a new vehicle and mainstream brands might want to continue strong programs as a way to create loyalty among first-time and younger buyers by keeping prices more affordable
- Could be overestimating how serious automakers are in keeping inventory (or pricing) under control

Downside (excluding recession)

- Underestimating impact of mobility services
- Bigger negative impact from used vehicles: infusion of off-lease cannibalize new vehicles; lower prices hurt trade-in value; vehicles of all ages have better quality
- Underestimating effect of delayed purchases due to long-term loan contracts (new and used)
- Rising interest rates have bigger-than-expected negative impact
- Lack of excess pent-up demand could be a stronger drain than expected
- Consolidation: possibly lead to higher prices
- More telecommuting

U.S. Production Outlook

WardsAuto/AFS U.S. Light-Vehicle Production Forecast

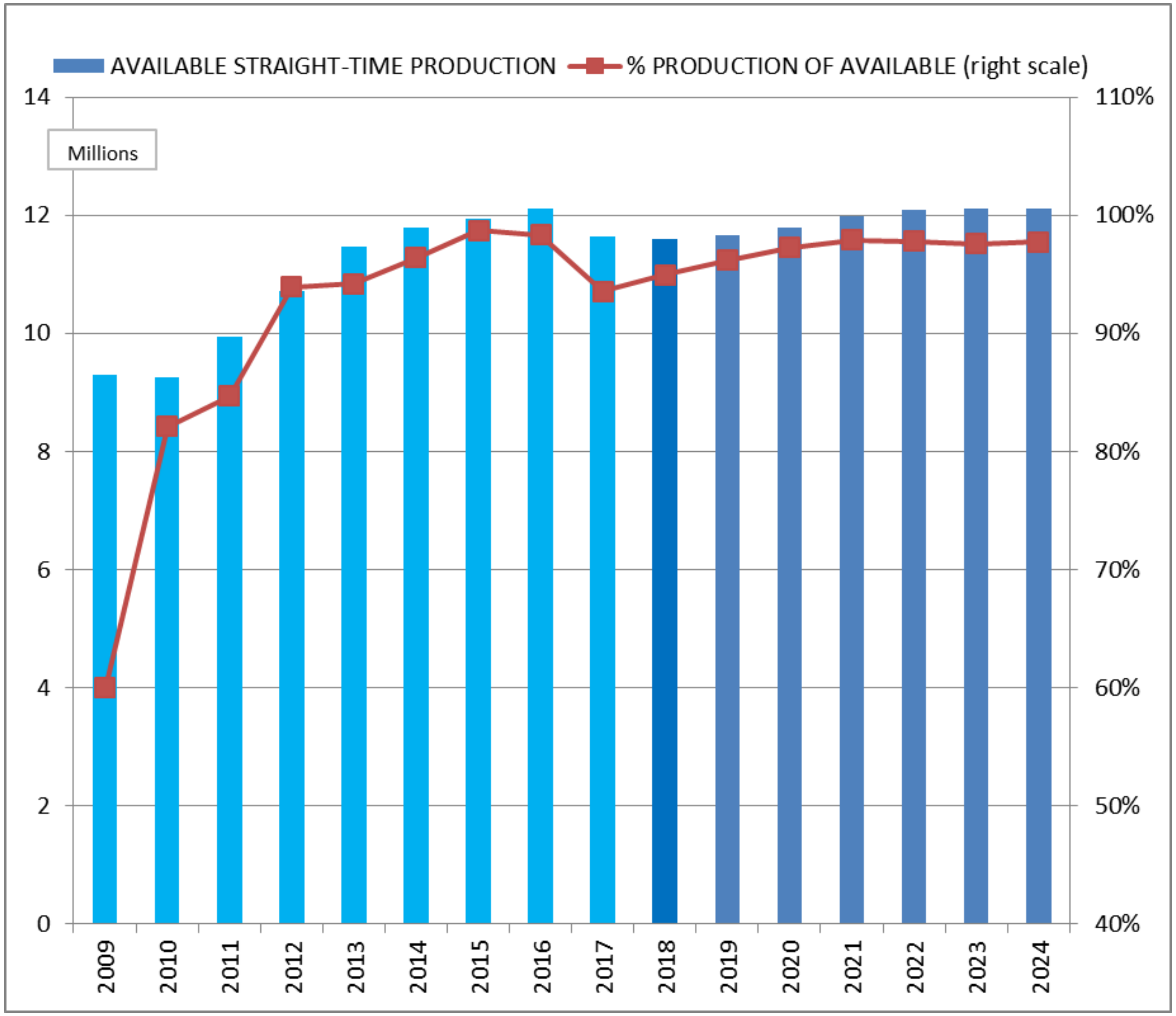


Capacity utilization is production as a percent of estimated straight-time capacity. Capacity is calculated based on what each plant can build on a typical 5-day per week schedule, two 8-hour shifts daily, 52 weeks per year.

U.S. production remains relatively stable for the long term

- Bounces back in the near term after the completion of some major plant re-tooling downtime
- The advent of new capacity and products continues mild growth
- Capacity utilization normalizes

WardsAuto/AFS North American Available Light-Vehicle Production



Available production is estimated straight-time output based on the number of days per week and daily schedule (1 or 2 shifts; 3-crew; 4 days-10hour shifts, etc.) each plant is slated for, less holidays and typical vacation downtime – also deducts extended downtime for retooling.

Following some re-allocation of products and shift reductions, available production begins to rise after a bottoming out in 2018

- New products at Volkswagen, Subaru and Honda
- New plants at Volvo (2018) and Toyota-Mazda (2020)
- Resumption of production at FCA plants down for much of 2017 retooling for product reallocation
- In North America, U.S. becomes even more entrenched for capacity of midsize and large trucks, while Mexico operations have more emphasis on smaller vehicles
- Also within North America, U.S. the primary choice to build hybrid and electric vehicles, plus autonomous

REPORT: The Future of the Electric-Vehicle Market

WARDS INTELLIGENCE

- WardsAuto forecast of global EV sales to 2024
- Detailed roundup of automakers' emerging EV strategies
- Close-up look at key battery suppliers and their new Li-ion capacity initiatives
- The state of EV battery technology
- Verbatim interviews with select battery executives, market analysts, developers

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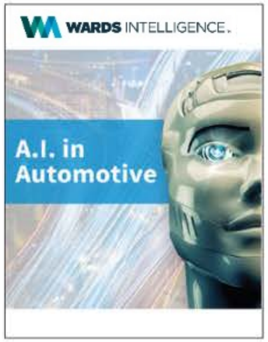

How AI technologies such as deep learning and natural language processing are impacting the automotive industry.

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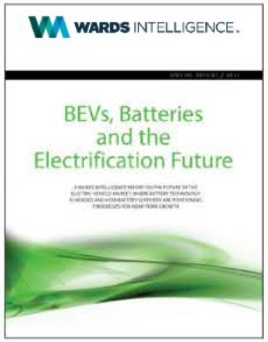
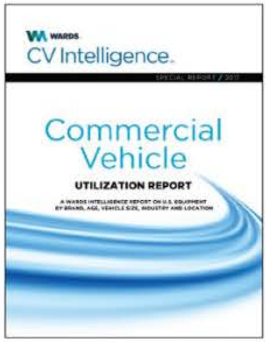


Infrastructure requirements in key global markets, impact on the grid, advances in charging technology and related future business strategies.

The Connected Car market in detail: key trends, enablers, players as well as data monetization and aftermarket opportunities.

From Ovum, presented by WardsAuto Intelligence



Detailed business intelligence on who buys and operates commercial vehicles, for which industries and in which regions.

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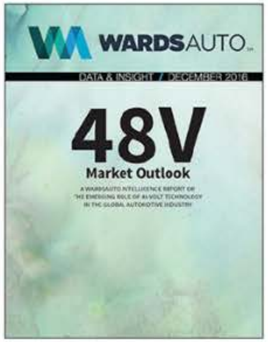

System technologies, the value equation of cost and benefit, current activities by OEMs and suppliers, obstacles and opportunities, and forecasts.

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Thank You,

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