MAPP
MANUFACTURERS ASSOCIATION FOR PLASTICS PROCESSORS

Future of Mobility: Disruptive Technologies Create New Realities

October 5, 2023

Plante Moran: A Century in the Making

1924

Our firm was founded in Detroit, Michigan nearly 100 years ago.

We're proud of our roots as a local firm and the mission that got us to where we are today. Since then, we've grown a lot.

1930s – 1970s

Over the first 50 years of our firm's history:

We deepened our reputation as one of the most trusted **audit and tax firms** in our office footprint. But we didn't stop there.

1977

We formed Plante Moran Financial Advisors to fulfill our founders' dream of meeting all our clients' financial advisory needs.

1970s – 2020s

Over the next 50 years:

We continued to grow our audit and tax practices while building a significant our management consulting practice to drive additional value to our clients, including:

- Transaction advisory services
- Interim finance/accounting services
- IT Consulting
- Strategy and operations
- Forensic and Valuation Services
- Talent and organizational development
- Wealth management
- Real estate consulting
- Investment banking

Today

Plante Moran is the 12th largest largest firms in the United States.

Solutions: Audit, tax, consulting, and wealth management services to support our clients at all stages of the business lifecycle

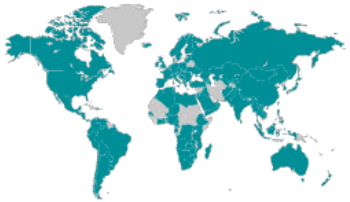
Industries served: 25+, spanning clients across the commercial, not-for-profit, and public sectors

Staff count: 3,500+, including 360+ partners

Global office footprint: 24 offices across Michigan, Illinois, Ohio, Colorado, China, Japan, Mexico, and India.

U.S. client presence: All 50 states

Countries where we've served clients: 150



Plante Moran's Automotive Experience

Plante Moran leverages proprietary knowledge, technical expertise, and deep relationships within the automotive industry, bringing high value solutions to automotive suppliers

500+

Automotive clients including passenger and commercial vehicle OEMs, Tier-suppliers and aftermarket suppliers

40+

Countries in which our automotive clients operate

20+

Average years of automotive industry experience for our senior automotive professionals

Plante Moran Proprietary Data **Mobility Intelligence Center**	Value Delivered for Suppliers
Vehicle make, model, production plant, powertrain (2023-2030); weekly and monthly build through AFS relationship	• Production forecasting (S&OP) • Due diligence • Customer targeting • Vehicle and technology direction and impact
Working Relations Index® Study: data with over 2,000 suppliers (2000-2023)	• Vendor, supply and operations management • Strong relationships with participating OEM executives: GM, Ford, FCA, Nissan, Honda, Toyota, growing with VW, Hyundai, others
Vehicle forecasting model data (to 2050) for electrified vehicles, autonomous vehicles, shared technologies	• Sales and growth strategies, including M&A • Product volume and cost analysis • Commercial due diligence
Plastics manufacturer benchmark metrics on financials, operations, sales (North America)	• Strategic and customer planning • Operational and cost improvement • Due diligence
Metal forming benchmark metrics on sales, financials, operations (through PMA)	• Strategic and customer planning • Operational and cost improvement • Due diligence
Advanced technology product research: e.g. electric drive suppliers and components	• Product strategies and planning • M&A for technology growth

Transition to Electric

“It’s happening gradually, then suddenly”

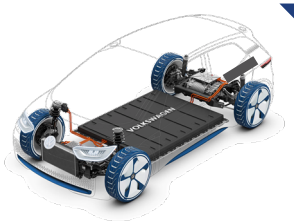
Future Mobility - *A Lot has Changed in 5 Years*

2018

1. Autonomy

2. Mobility

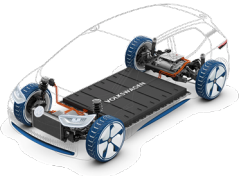
3. Electrification



4. Manufacturing the vehicle

2023

1. Electrification



2. Connectivity

3. Mobility

4. Autonomy

5. Manufacturing Simplification

Automotive Manufacturing Value Chain
Transition Across Automotive Industry

To make the transition to electric vehicles the automotive industry has to change both product and production approaches that require new investment, manufacturing simplification and flexible business approaches

1. Product Transition

ICE Vehicles

Product Development & Engineering → Vehicle-Powertrain (Engine | Transmission) → Vehicle-Assembly → Distribution (dealers)

Electric Vehicle

Product Development & Engineering → Vehicle-Powertrain (E- Driveline | Battery) → Vehicle-Assembly → Distribution (dealers)

2. Production Transition

- Product Development & Engineering focused on EV technologies—reduced development for ICE vehicles
- Retrofit of current facilities (engine, transmission, assembly, dealerships)
- Greenfield construction of new required facilities (traction motor, e-axle, assembly)
- Transition of equipment and production techniques to take advantage of technology enablers and combined with the opportunity to reduce carbon emissions
- Creation of new supply chains
- Nearshoring / Geographic Shift
- Impact of IRA on USMCA investment decisions/business cases

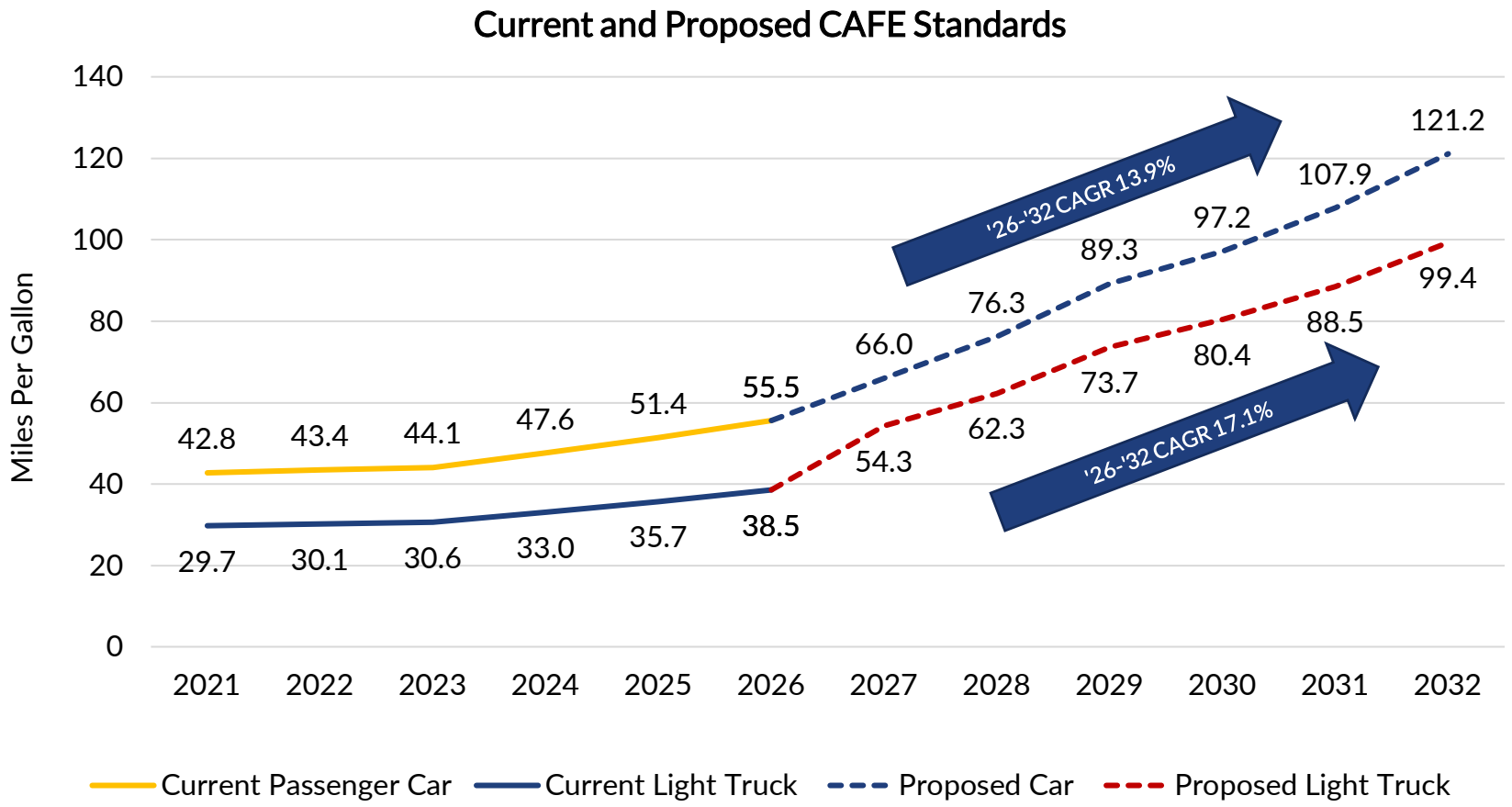
Manufacturing Simplification

3. Industry Sustainability

Increased focus on carbon reduction for both product and production

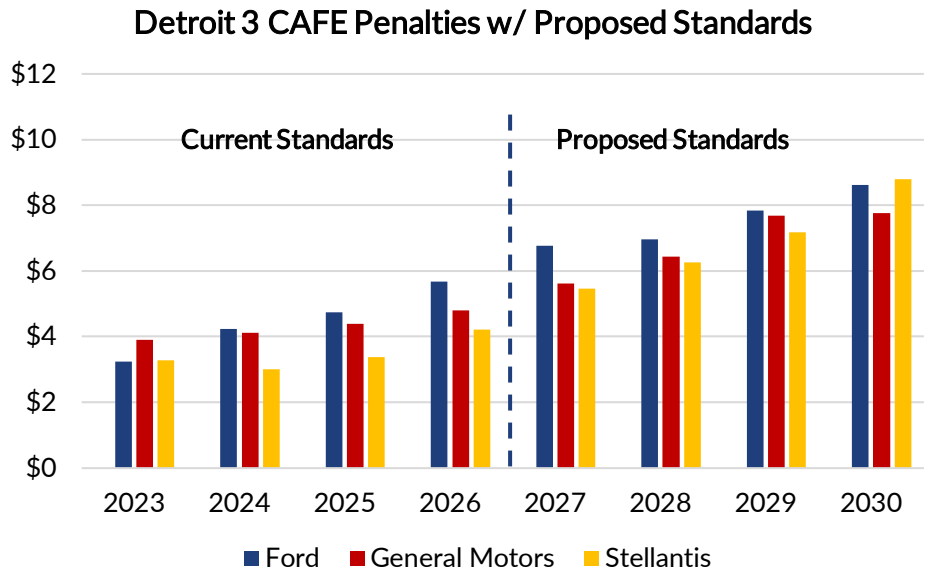
Proposed CAFE Standards

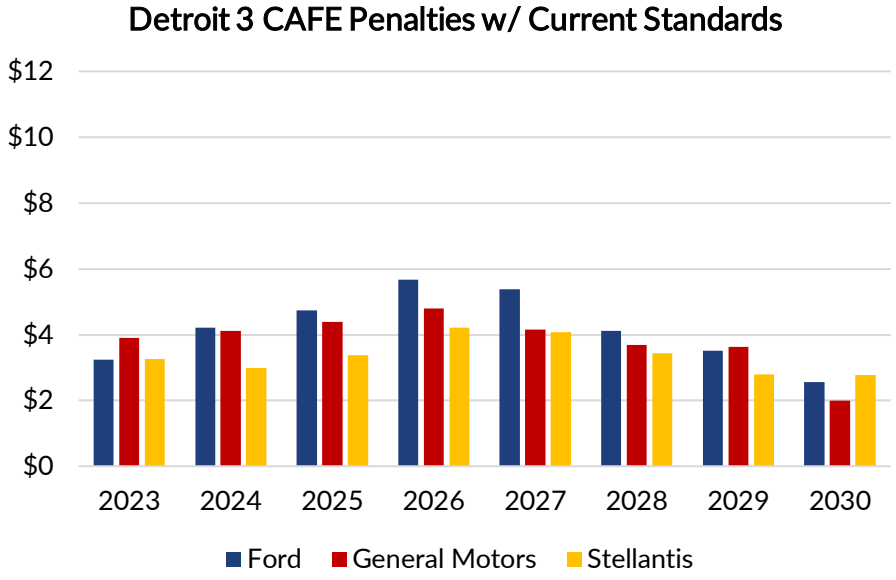
Accelerated industry shift towards electrified vehicles driven by new Administration's strengthened policies related to fuel economy, EV purchasing incentives, infrastructure, and continued industry cost reductions



OEM CAFE Calculation—Detroit 3 OEMs
Baseline Penalties

The Detroit 3 OEMs (GM, Ford, Stellantis), due to concentration of large sized vehicle production, will be subject to CAFE penalties. The CAFE penalty forecast analysis illustrated below incorporates proposed CAFE standards through MY2030, as well as using current standards through MY2026





Incremental Impact due to Proposed Standards	
OEM	Cumulative $
Ford	~$11B
General Motors	~$14B
Stellantis	~$15B

Inflation Reduction Act
Summary Profile

The Inflation Reduction Act (IRA), signed into law in August 2022, includes nearly $370 billion in investments for projects that repurpose retired fossil fuel infrastructure and employ displaced workers, setting the U.S. on a course for an economic clean energy transition

What did this create?

- An ecosystem of credits and incentives supporting green energy, broadly defined
- Combination of 10 new and 12 modified tax credits and incentives
  - Tax credits can be used directly (general business credit), sold for cash payment, or used to generate tax refunds
  - Applicable in some form to all types of taxpayers (businesses, individuals, non-profits, etc.)
- $90 billion in additional funding for grants and loans to support the adoption of technologies and retrofit existing operations

Expected impact

- We expect a transformational impact given the scope of interrelated credits and incentives
- The integration of both supply-side and demand-side programs is expected to impact the market on a long- term basis

IRA Tax Credits
Opportunities Across Transportation and Mobility Value Chain

Critical Mineral Production → Cell Production → Module Production → End Product → Infrastructure

Advanced Manufacturing Production Credit (45x)

- Tax credit **10% of the cost of production** for battery critical minerals
- Includes: cathode materials, anode materials, anode foils, and electrochemically active materials, including solvents, additives, and electrolyte salts that contribute to the electrochemical processes necessary for energy storage

Advanced Manufacturing Production Credit (45x)

- Credit for **battery cells is $35/kWh**
- Phase out of Credit begins in 2030
  - 2030 – 75%
  - 2031 – 50%
  - 2032 – 25%
  - 2033 – 0%

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  - 2033 – 0%

Clean Vehicle Credit (30D)

- **$7,500 Consumer tax credit for new light vehicle EVs**
  - $3,750 if critical mineral requirement met
  - $3,750 for battery components requirement met

Qualified Commercial Clean Vehicles (45W)

- **Up to $40,000 for Electric Medium/Heavy Duty Trucks** (>14,000 GVWR)
- **Up to $7,500 light vehicle EVs** (<14,000 GVWR) **leased for business use**

Previously-Owned Clean Vehicles (25E)

- **$4,000 tax credit for used light vehicle EVs**

Alternative Fuel Vehicle Refueling Property (30C)

- **Provides 30% of the cost per electric vehicle charger, up to $100,000.**
- Companies that install multiple chargers can claim tax credits for each separate charger they install, significantly reducing the cost of electrifying the fleet

US Department of Energy
Funding to Support EV Transition

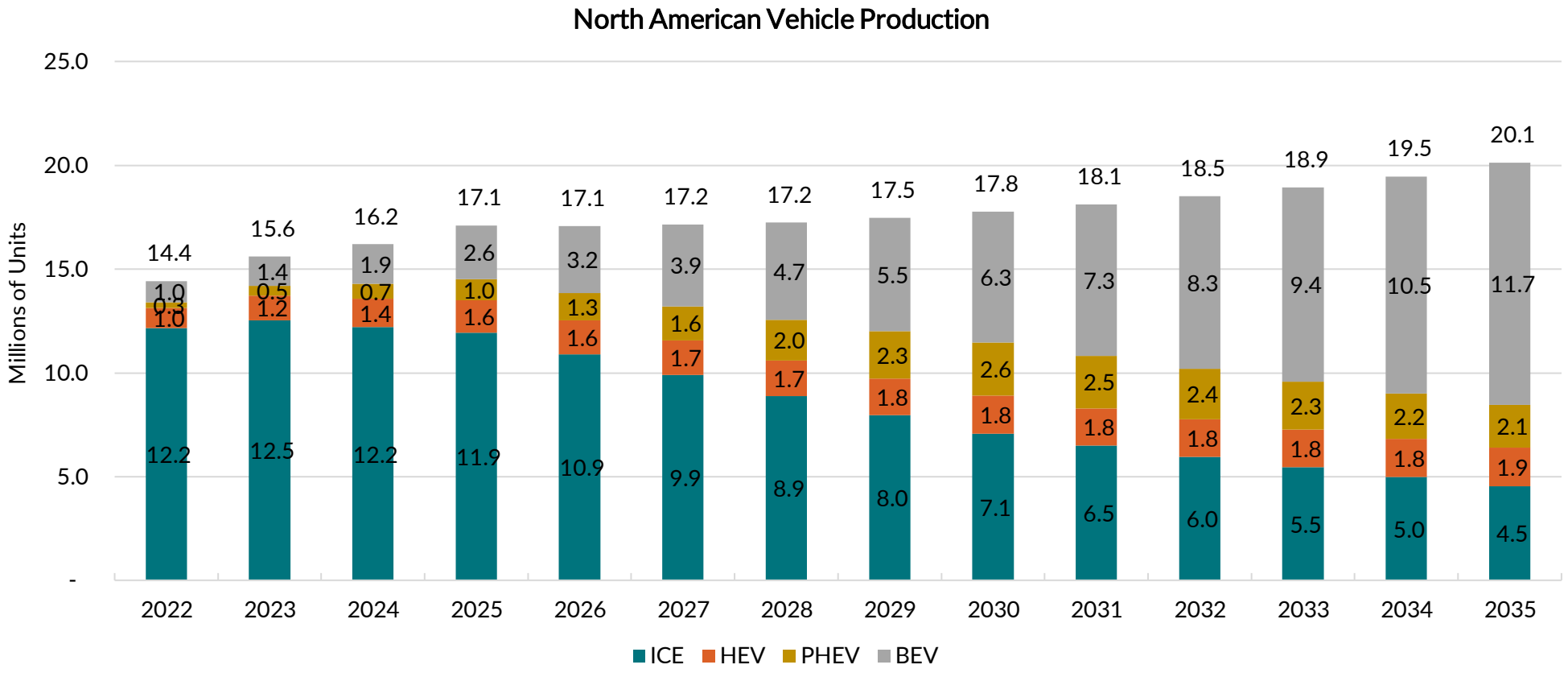
The $15.5B package of loans and grants, announced in August, will focus on retooling existing factories and building out of domestic battery value chain to support the transition to EVs in communities with existing ties to the automotive industry.

Automotive Manufacturing Conversion Projects - Loans	Bolstering American Battery Manufacturing - Loans	Domestic Manufacturing Conversion Grants
$10B	$3.5B	$2B
• Funding available through the Advanced Technology Vehicles Manufacturing Loan Programs Office for automotive conversion projects • Focused on providing support to communities with long histories in automotive manufacturing • Projects that include building new facilities, retooling, modernizing or expanding existing facilities, and/or engineering integration performed in the US related to EV production	• Goal to boost production of domestic batteries and battery critical materials • Focused on providing support to communities with long histories in automotive manufacturing • Funding available for creation of new facilities, retrofit of existing facilities or expansion of commercial facilities to be used for battery manufacturing	• Funding to ignite the conversion of existing facilities to support EV manufacturing • Focused on providing support to communities with long histories in automotive manufacturing • Funding available for production of BEVs, hybrids and hydrogen fuel cell vehicles • Supports efforts to expand manufacturing of light, medium, heavy, and commercial vehicles and components

Source: US Department of Energy

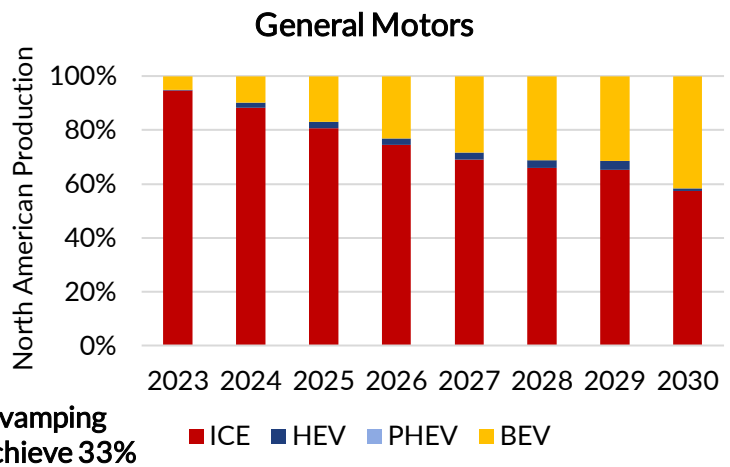
Electrified Vehicle Production
North America

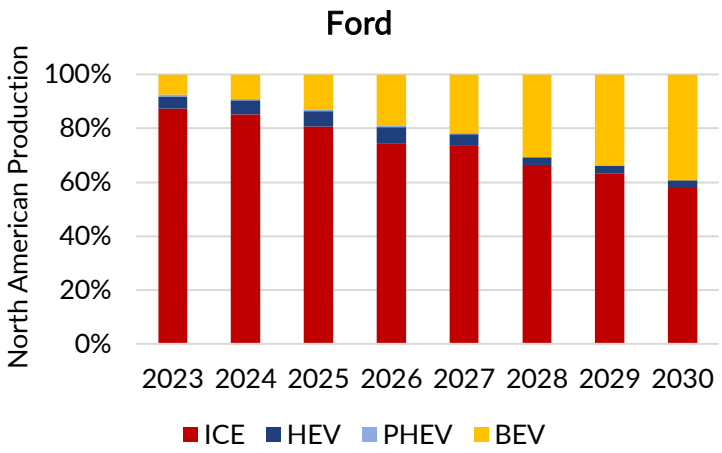
The transition to electrified powertrains is becoming more certain. North American EV volume is projected to grow to 35% of production by 2030 and continues to grow to 58% of production by 2035

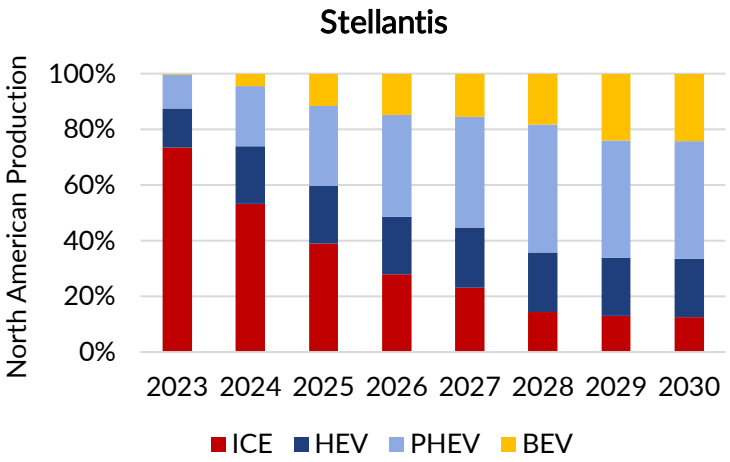


ICE, EV, and Hybrid North American Production
Detroit 3, Toyota, Honda, Nissan

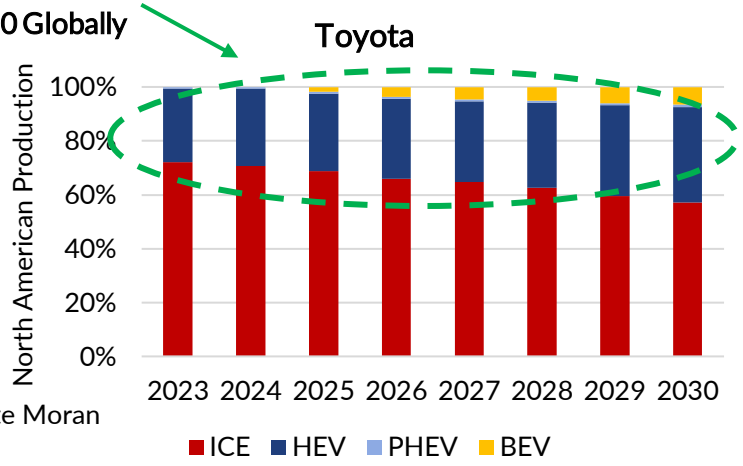
OEMs have timing variances in their transition plans to electrified vehicles. GM and Honda have the most aggressive EV plans, with a little focus on hybrid offerings - Toyota and Stellantis focusing on diversification of their product portfolio

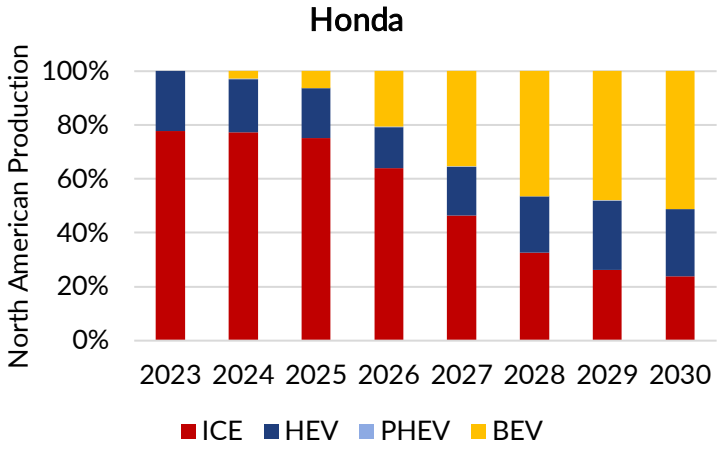


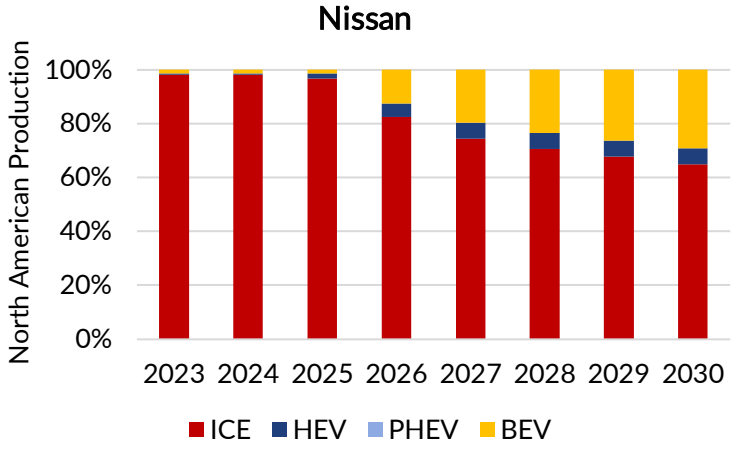




Toyota is revamping efforts to achieve 33% BEV by 2030 Globally







Source: Plante Moran Model, AFS

Transition to Electric

“It’s happening gradually, then suddenly”

Vehicle Technology - Electrification

Radical Powertrain Shift in Supplier Components for EVs

Electrification will greatly impact vehicle and component manufacturing – financial investment in new EV powertrain component manufacturing will be required from the supply base

ICE Powertrain Components

Internal combustion engine

Turbocharger

Fuel system

Transmission

Exhaust system

Air intake system

Market Shifts

EV Powertrain Components

Battery pack

Traction motor

Inverter

DC/DC converter

Gearbox

Onboard charging module

Propulsion Technologies
Revenue Content will Change Dramatically

Current EV bill of material is ~41% larger than the ICE equivalent—new vehicle components and systems comprise ~48% of the EV bill of material

Vehicle Segment	Component	ICE ($000's)	EV ($000's)	EV▲%
Body & Structural	BIW	$4.16	$4.89	17%
	Body Glass	$0.20	$0.20	-1%
Chassis	Braking	$0.66	$1.00	52%
	Suspension	$0.81	$0.80	-2%
	Steering	$0.53	$0.53	-2%
	Wheels and Tires	$0.45	$0.44	-3%
Driveline	Axles, Driveshafts, Components	$1.35	$0.99	-26%
Electrical	Electronics & Electrical	$3.08	$3.02	-2%
	EV Electrical Architecture	$0.00	$1.30	-
ICE Propulsion	Transmission	$2.13	$0.00	-100%
	Fuel System	$0.52	$0.00	-100%
	Engine	$4.26	$0.00	-100%
	Exhaust	$0.43	$0.00	-100%
Interior	Interior	$1.90	$1.86	-2%
	Audio & Telematics	$0.53	$0.73	37%
	Passenger Restraints	$0.49	$0.49	-2%
Thermal	Climate Control and Powertrain Cooling	$1.10	$1.51	37%
EV Propulsion	Battery Pack	$0.00	$10.96	-
	Power Electronics	$0.00	$1.78	-
	Electric Motor/Drive	$0.00	$1.40	-
	Total	**$22.60**	**$31.85**	**41%**

New component / system

Source: Bank of America

Shifts to EV technologies will provide opportunities and change:

- New component opportunities for electric motors and gearbox, power electronics, and battery packs
- Declining market opportunities for engines, transmissions, fuel systems, and exhaust
- Shifting customized component needs for electrical & electronics, climate control, thermal management, body & structural, interior, axles/drive

Overtime EV value per vehicle will fall as:

- Increased production volumes provide economies of scale (1.7M BEV built in 2019 vs 7.3M in 2022est)
- Proliferation of EVs models into mass market applications and lower price points
- Expansion of capable supply base and increased competitive bidding processes
- Technology innovations (i.e. battery chemistries, manufacturing processes)

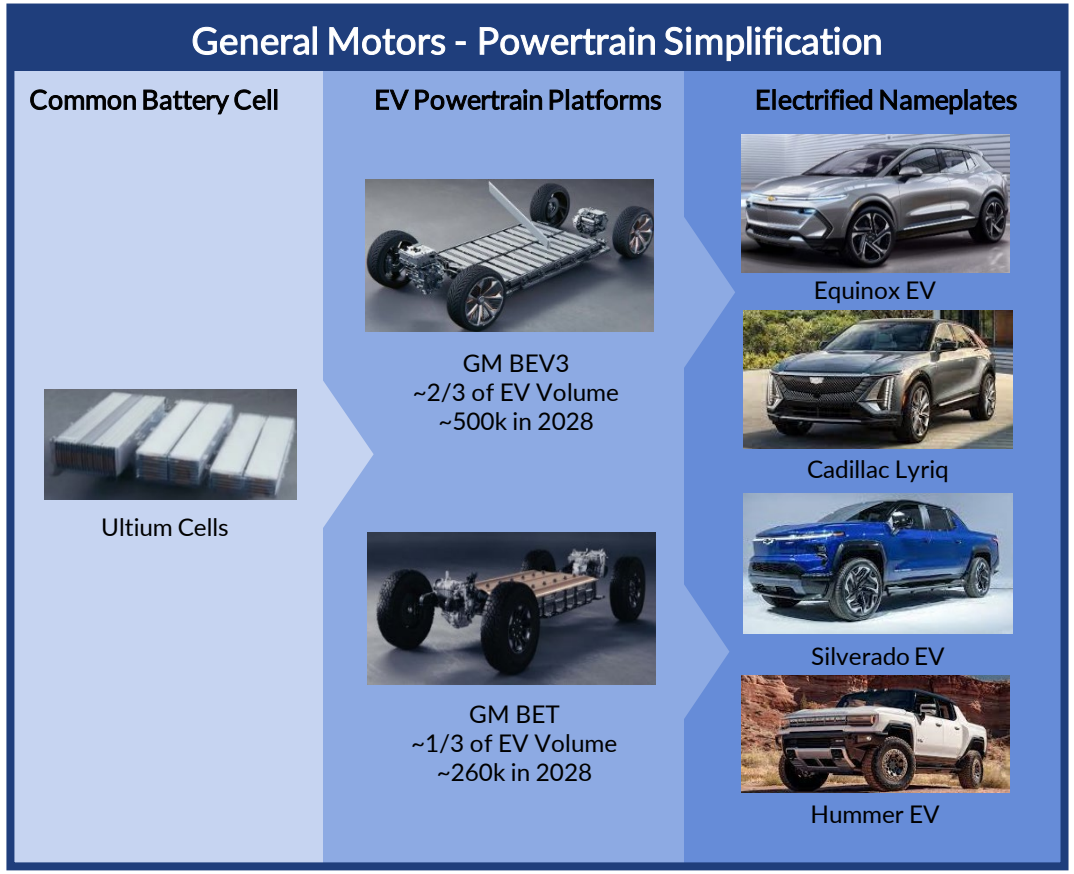
ICE costs will rise as market share and volumes decline

Note: EV cost estimates impacted by lower initial volumes, and expected to reach cost parity with ICE by 2025-2027

Case Study – General Motors
Reducing Vehicle Architecture Complexity

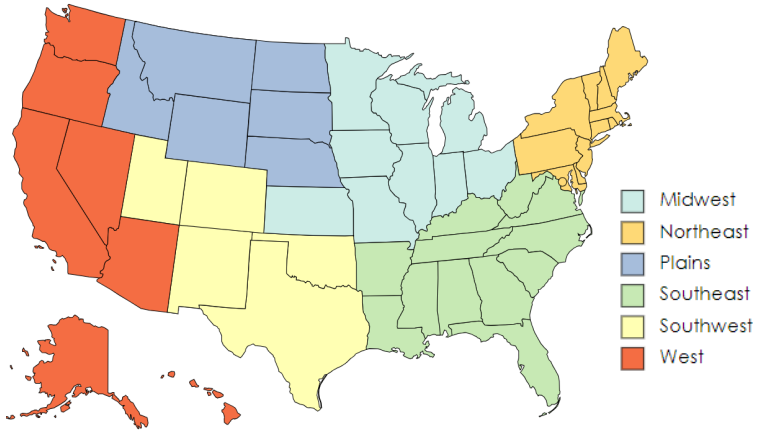
GM's Ultium platform is a large-scale skateboard architecture used for their EV offerings. All OEMs are developing vehicle architectures to utilize the same battery and drivetrain components over multiple vehicle "top hats". Standardization is critical to reduce complexity and drive down costs.

- Battery manufacturers and OEMs to utilize common components for different battery packs
  - Higher volumes to drive down costs – **minimize unique components**
  - Simplify components, supply chain, and assembly
  - GM is targeting **19 different battery and drive configurations**, compared with **550 ICE drivetrain configurations**
- Commonization of cells has the most significant impact on pack costs
  - GM and LG Energy targeting cost below **$100/kWh** with Ultium battery pack
- Flexibility in design is required to meet demands for different vehicle types (sedan, trucks, SUVs, etc.)
  - Differences in pack sizes ranging from **50 to 200kWh**



Automotive Value Chain
Regional Implications

Investment in the Southeast, Midwest and Canada are leading the new wave of automotive construction opportunities—the establishment of the battery value chain expected to follow OEM investment, seeking reduced electricity and labor costs cost and presence of critical battery raw minerals



- The presence of large renewable energy sources and critical minerals make Canada attractive to downstream battery value chain investment
- Southeast US attracting OEM investment due to reduced labor costs combined with the lack of strong union presence
- Midwest investment focused on expansion and transition of current vehicle production capabilities

Driving Factor	Southeast	Midwest	West	Southwest	Northeast	Plains
OEM Investment	$40B	$21B	$14B	$0.35B	-	-
EV Production Growth 23-30	44%	37%	(1%)	18%	0%	0%
Electricity Cost	Low	Moderate	High	Low	High	Low
Union Presence	Low	High	High	Low	High	High
Concentration of Critical Minerals	Low	Low	High	Moderate	Moderate	Low

Facility Transition
Case Study: Assembly and Powertrain Facilities

Facility transitions are taking place across the entire automotive value chain and at every OEM – Honda is using product and plant consolidation to create an EV hub in Ohio, GM is leveraging dual manufacturing within their existing transmission facility in OH

Honda Vehicle Assembly Facilities

- **EV Hub, OH** – transforming Marysville, East Liberty and Anna plants to lead EV production – proximity to the new JV battery plant with LGES
- **Marysville, OH** – consolidation of production lines from two to one, training workforce for skills needed for EV production
- **Indiana** – gain production of Accord from Marysville, in addition to current production of Civic Hatchback and CRV-V

Honda Powertrain Facilities

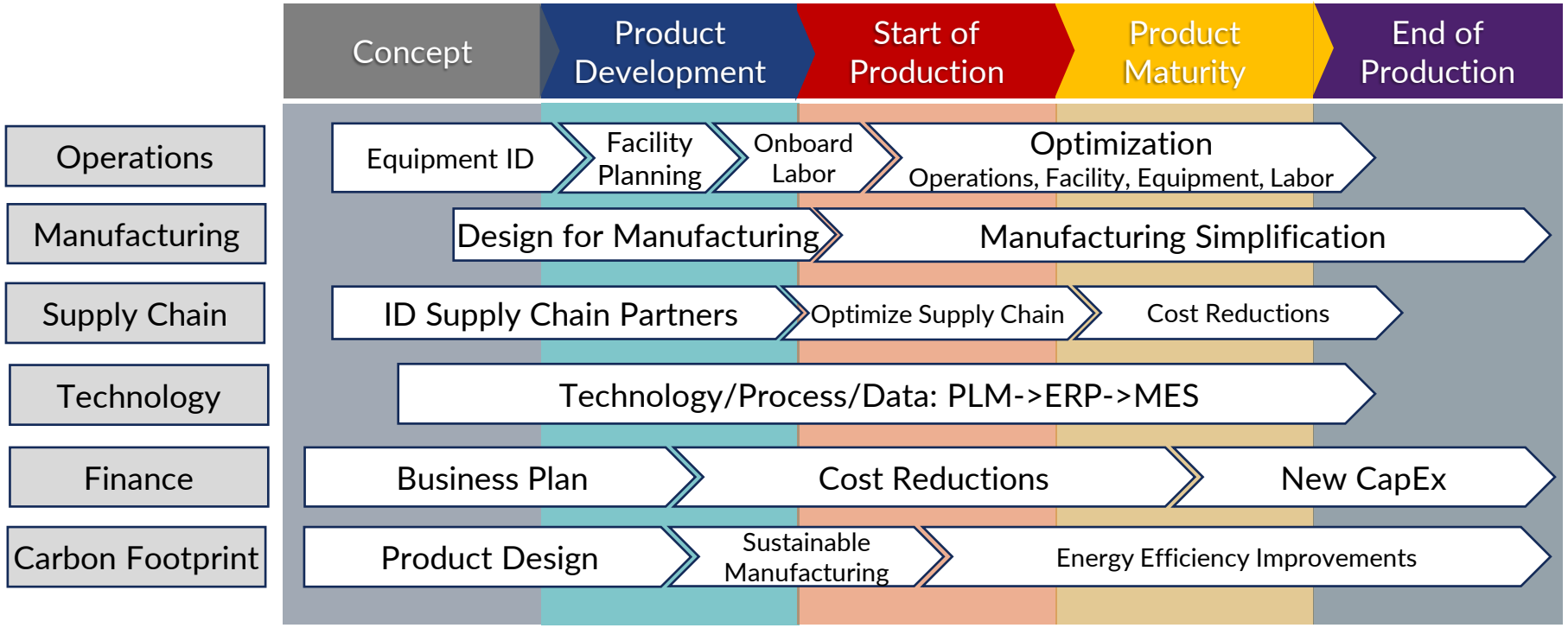
- **Anna, OH** – transferring engine production, engine head machining, and block casting to Alabama to reallocate space for battery casing production
- **Tallapoosa, GA** – filling non-operational transmission space through partnership with supplier to install a new line to build e-axles, the supplier will install, own, and operate the new e-axle facility

GM Transmission Facility

- **Toledo, OH –** retrofitting a dedicated portion of Toledo transmission facility to produce a family of EV drivetrain units. The facility will maintain production of 6-spd., 8-spd., 10 spd. RWD and 9 spd. FWD transmissions

Facility Transition
Managing Across the Manufacturing Lifecycle

To manage the industry transitions significant activity in all stages of the manufacturing lifecycle will be required with producers having to manage multiple integrated activities, all while remaining profitable.

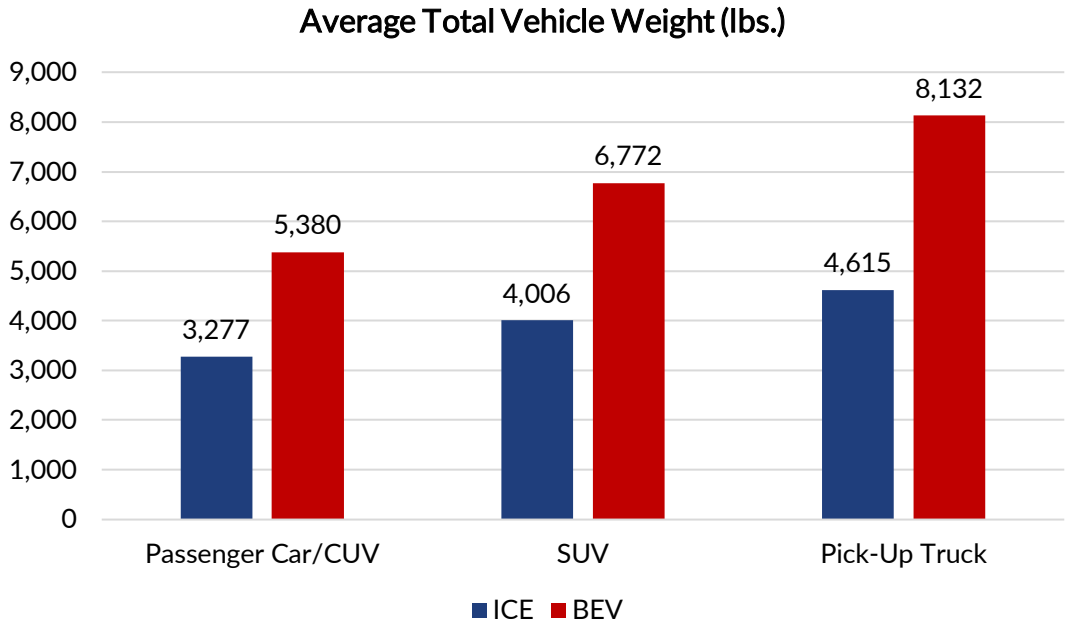


Transition to Electric

Materials, Manufacturing, Engineering Impact

Average Total Vehicle Weight
Transition from ICE to BEV

Average vehicle weight increases from ICE to BEV – driven by introduction of new components, material changes, and increased safety standards surrounding electric drivetrains



- Average passenger car/CUV weight change of ~2,100 lbs. primary driven by addition of battery, e-drive system, and other body/chassis updates
- 24% increase in body and chassis weight due to added materials to support battery and increase vehicle safety
- 15% increase in BEV transmission system weight due to higher content of steel

Passenger Car/CUV

Honda Accord

Tesla Model S

SUV

Kia Telluride

Rivian R1S

Pick-Up Truck

Ford F-150

Ford Lightning

* Source Argonne Laboratory, PM Research

Market Disruption
Factors Driving Material Change

Material transition in ICE vehicles and EV vehicles is focused on light weighting—considerations for light weighting include energy consumption, emissions, safety, affordability, and performance

ICE Vehicles

Government Regulations

- CAFE revisions resulting in an increase to the estimated fleetwide average by 12+ miles per gallon for MY2026, relative to MY2021
- Light weighting of ICE vehicles will be required to improve efficiency to comply with updated CAFE requirements

Estimated 6-8% Fuel Economy Improvement

~10% Mass Reduction

Electric Vehicles

New Components

- Electrification creates new components such as a battery enclosure
- Battery enclosure adds additional weight—typical electrical vehicle GVW is 125% of an equivalent ICE
- Crash protection achieved either through the battery enclosure or body structure

Design Simplification

- Battery enclosure at the bottom of the vehicle vs. a large engine bay creates new vehicle architecture
- Vehicle OEMs desire to simplify architecture and leverage one platform for multiple EV programs

Estimated 10-13% Range Improvement

~10% Mass Reduction

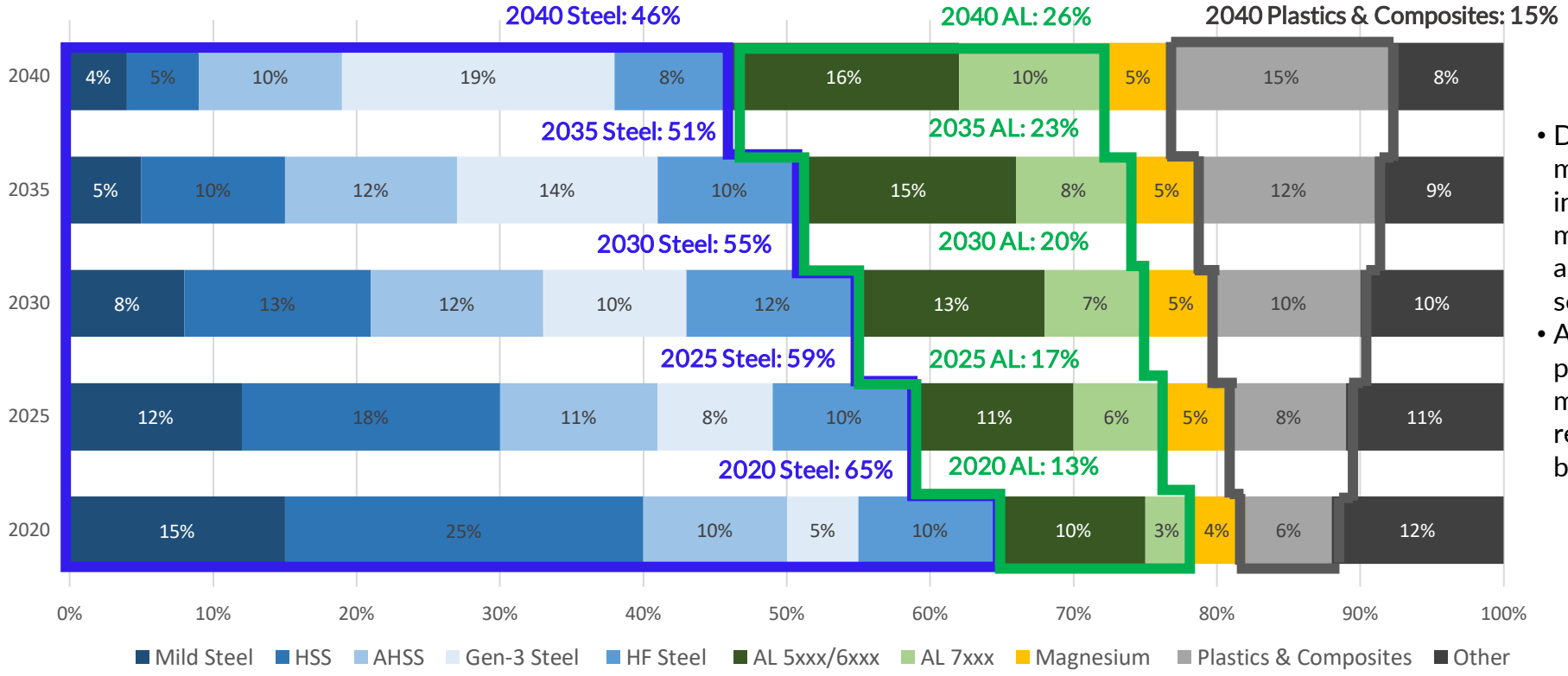
Consumer Perception

- Consumer perception of performance and reliability will largely affect the adoption rate of electric vehicles
- Range anxiety is on top of mind for consumers when evaluating the viability of purchasing an EV

Automotive Vehicle Light Weighting

Fuel economy regulations are a major driver of material changes – increased utilization of higher strength steel, aluminum, and plastics help to mitigate mass increase of EVs, comply with safety regulations, and increase range

Material percentage distribution of an average vehicle 2020-2040

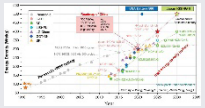
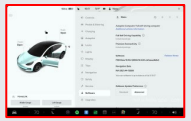
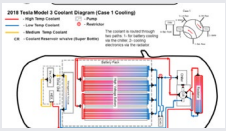
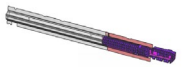


- Due to the higher strength manufacturing these material cause increased stress/wear on manufacturing equipment, creating a greater need for proactive MRO services
- Analysis of new equipment and presses to create components made from these materials will be required throughout the supply base

High strength steels include: HSS, AHSS , Gen 3 steel, and HF steel
Other materials include dampeners, static sealers, adhesives, and glass
Source: Center for Automotive Research

Innovations in the Automotive Market

Innovations are occurring throughout the automotive value chain by OEMs and suppliers – product & component, material & process, and technology & software innovations are driving efficiencies and moving the industry forward

Innovations in the Automotive Market		
Product/Component	Material/Process	Technology/Software
 Rising Battery Energy Density	 Giga Castings	 OTA Updates
 SiC Inverters	 Thermoplastic Seats/ Pultrusion	 Connectivity
 Tesla Thermal Systems	 Composite Rocker Reinforcement	 Autonomous

Manufacturing Processes Innovation
Case Study: Toyota Seating

Toyota partnered with several suppliers on a 2nd row thermoplastic seat back with pultrusion and cushion pans to greatly reduce manufacturing complexity and cost – allowing Toyota to pass the cost benefit onto their customer

Previous Generation Tundra

Current Generation Tundra

# of Parts

60

Steel Parts

4

Molded Parts

Benefits of Conversion

Simplified Supply Chain

- Reduced # of components needed on vehicle and # of suppliers Toyota is dependent on for production

Reduced Cost and Weight

- Both Cost and Mass Achieved Toyota's 20%Reduction Target

Simplified Production

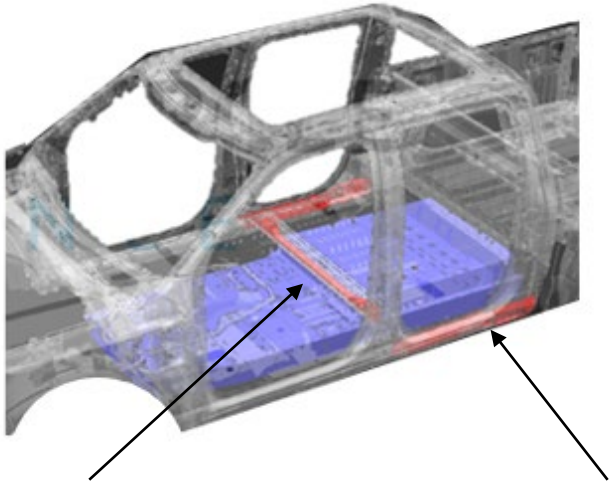
- From 16 steel weld stations and >100 welds to 4 simple shoot and ship parts.
- Significant quality control improvement.
- Saved engineering resources during SOP launch.

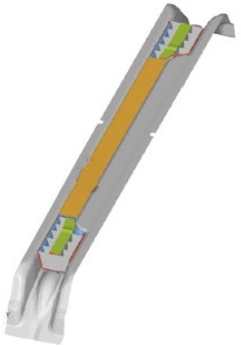
Customer Benefits

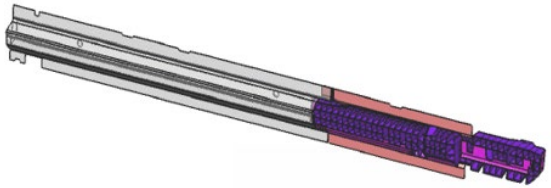
- Added under seat storage fixtures and ability to seat fold down for load floor

Manufacturing Processes Innovation
Case Study: Ford Crossmember and Rocker Reinforcement

Addition of a battery enclosure to a vehicle requires reinforcement for added protection in the case of an impact event—focus is on managing energy absorption while maintaining strength







Benefits of Composite

High Strength to Weight Ratio

NVH Performance

- Global Stiffness
- Local Stiffness
- Durability

Safety Performance

- Intrusion
- Energy Absorption
- Load Path Management

Simplified Assembly

- Composite reinforcement installed in body shop
- Compatible with e-coat
- Bonds with body structure after bake (e.g., steel, aluminum, magnesium, carbon fiber, etc.)

UAW Strike

Current Activity, Impact Across Supply Chain

UAW Negotiations
Fast Facts

Strength in vehicle manufacturer earnings, recent union negotiations in adjacent industries, and EV transition has set-up an unprecedented UAW negotiation

Negotiation Drivers

OEM Profits—Ford, GM, and Stellantis recorded record profits during COVID recovery (~$75B, 2020-2022)

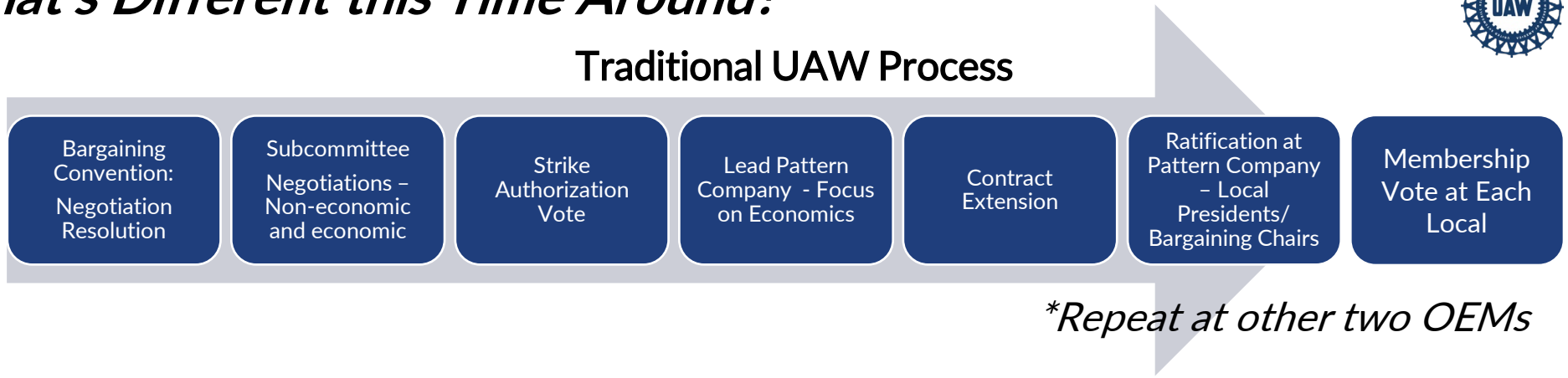
Labor Unions Double Down—Recent negotiations with UPS and John Deere illustrate new level of ask for employees

OEM Transition to Electrification—Threatening existing labor due to vehicle component simplification and manufacturing strategy

UAW Demands
Wage increases: 20% upon signing, 5% year 1, 2, 3, and 4
Eliminate tier wage structure: current 8 years
Eliminate temporary workers
COLA
Vacation: current 40 to 200 hours plus 16/17 vacation days
Defined benefit pension: post 2007, 6.4% contribution to defined contribution plan
Re-establish retiree healthcare benefits: pre-2007 hires in VEBA; post $1/hour to buy insurance in retirement
Retiree pension: Last increased to $54.30/year work/month in 2007
32-hour work week
Working family protection
End extended use of temporary workers
Right to strike over plant closures

Traditional UAW Process
What's Different this Time Around?

Traditional UAW Process



**Repeat at other two OEMs*

What's Different This Time?

- Selective strike (Ford's Michigan Assembly & Chicago Assembly, Stellantis' Toledo Assembly, GM's Wentzville Assembly & Lansing Assembly)
- Potential to strike at additional targeted OEM facilities (e.g. powertrain, stamping, flagship vehicle assembly, etc.)
- Likely to force simultaneous negotiation
- OEMs protecting the transition to electric
- Unifor in Canada has ratified a new contract with Ford—C$10,000 ratification bonus, 15% in general wage increase over the 3 yr. contract
- Unclear how ratification will work at the OEM level – simultaneous or in sequence?

Facility Wave
Fast Facts

Currently ~20,000 UAW employees on strike at Michigan Assembly, Chicago Assembly, Toledo Assembly, Wentzville Assembly, and Lansing Assembly—additional 2,600 employees will be laid off at Ford and GM due to operational impact of the strike

	September 15th Strike Deadline	September 22th Strike Deadline	September 29th Strike Deadline
Ford	**Michigan Assembly Plant – Wayne, MI** **Vehicles:** Bronco, Ranger **Vehicle Production:** ~6,000 weekly (~300,000/yr.) **Employees on strike:** ~3,300 • Additional ~600 non-striking employees temporarily laid off due to strike impact of down-stream operations		**Chicago Assembly – Chicago, IL** **Vehicles:** Explorer, Aviator **Vehicle Production:** ~5,200 weekly (~260,000/yr.) **Employees on strike:** ~4,600
gm	**Wentzville Assembly – Wentzville, MO** **Vehicles:** Canyon, Colorado, Express, Savana **Vehicle Production:** ~4,000 weekly (~200,000/yr.) **Employees on strike:** ~3,600 • Fairfax assembly will be idled (~2,000 employees) due to lack of parts from Wentzville	**18 Distribution Facilities Nationwide** **Vehicles:** Multiple **Employees on strike:** ~3,000	**Lansing Delta Township – Lansing, MI** **Vehicles:** Traverse, Enclave **Vehicle Production:** ~3,200 weekly (~160,000/yr.) **Employees on strike:** ~2,400
STELLANTIS	**Toledo Assembly – Toledo, OH** **Vehicles:** Gladiator, Wrangler **Vehicle Production:** ~7,000 weekly (~350,000/yr.) **Employees on strike:** ~5,800	**20 Distribution Facilities Nationwide** **Vehicles:** Multiple **Employees on strike:** ~2,600	

Ancillary Impact

Fast Facts

Despite the UAW only striking 5 vehicle assembly facilities and 38 parts and distribution centers, additional impacts have been seen across the industry

CIE Newcor

FIRST AUTO SUPPLIER PLANS LAYOFFS RELATED TO UAW STRIKE

A Michigan contract manufacturing supplier is planning to lay off 293 employees due to the UAW strike against the Detroit 3 automakers.

- Crain's Detroit Business

LM MANUFACTURING

FORD BRONCO SEATING SUPPLIER LAYS OFF 650 IN DETROIT DUE TO UAW STRIKE

The joint venture between Magna International and minority-owned LAN Manufacturing made the move in response to the UAW strike that has halted production of the Ford Bronco in nearby Wayne, Mich.

- Crain's Detroit Business

ZF

UAW STRIKES ZF PLANT THAT SUPPLIES AXLES TO MERCEDES IN ALABAMA

If the strike against ZF forces vehicle assembly to be shut down or reduced at Mercedes, it would create a historic situation in which UAW actions caused production to be impacted at four automakers simultaneously.

- Automotive News

USS United States Steel

WIDER UAW STRIKES WILL SPILL OVER BEYOND DETROIT 3 TO STEELMAKERS

Steelmakers are in the crosshairs of the UAW strikes, with U.S. Steel Corp. already idling a blast furnace in Illinois in response to the walkout

- Bloomberg

UAW Negotiations

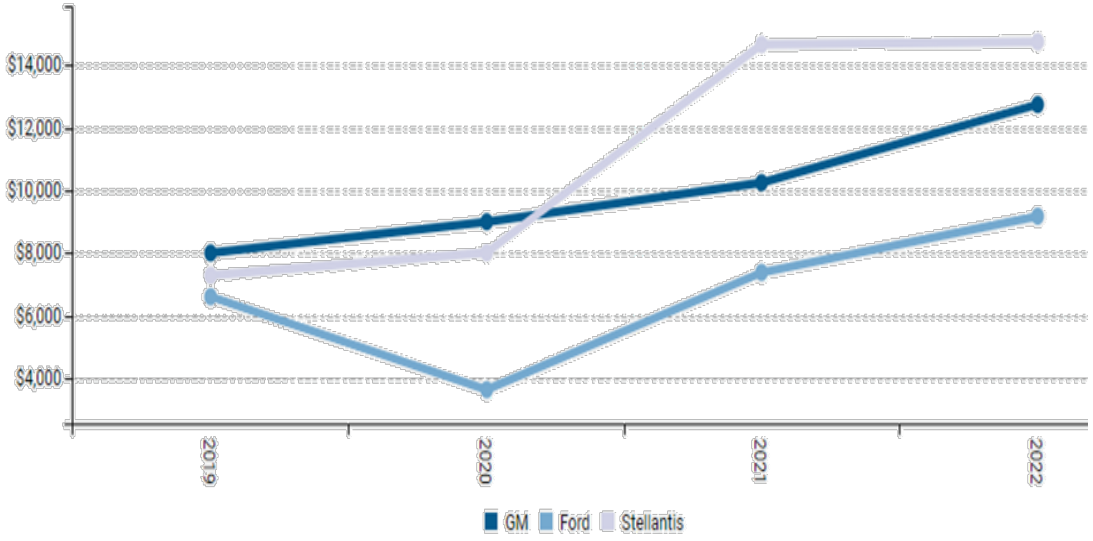
Fast Facts

UAW Negotiations

Fast Facts

Since 2019 the UAW has received an increase in profit-sharing payouts from the Detroit 3 OEMs growing at a 19% CAGR from '19-'22—Stellantis UAW employees have seen the largest increase growing at a 27% CAGR '19-'22

Profit Sharing payouts by OEM



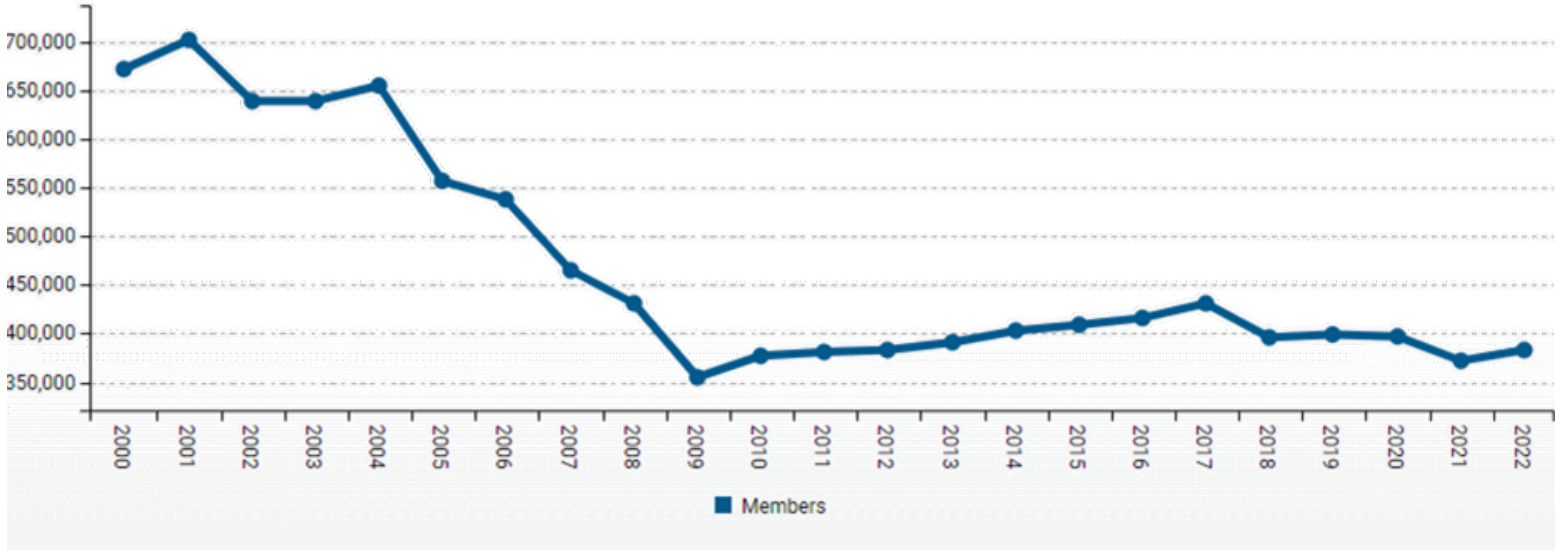
OEM	2019	2022	'19-'22 CAGR
Stellantis	$7,280	$14,760	27%
General Motors	$8,000	$12,750	17%
Ford	$6,600	$9,176	12%

UAW Negotiations

Fast Facts

UAW membership has moderately recovered since the great recession decline—future automotive membership decline likely as transition to electrification drives manufacturing simplicity

UAW Membership 2000-2022



Economic Positioning

UAW vs. Detroit 3 Automakers

Both the UAW and Detroit 3 Automakers are well funded going into negotiations—potential for an extended strike period as both parties work to reach a resolution

- Estimated strike fund for the UAW is $825M—cash on hand will last 11 weeks if all employees strike
- Vehicle OEMs well positioned in terms of liquidity and current vehicle inventory levels
  - 2019 GM strike lasted 40 days impacting GM earnings by (~$3B)—(~$500M) weekly

UAW

UAW Strike Bank Estimates	
Strike Bank ($)	**$0.825B**
Active workers	150,000
Typical weekly strike pay	$500
Weekly strike pay	$75MM
Duration of bank if all employees strike	**11 weeks**

Detroit 3 Automakers

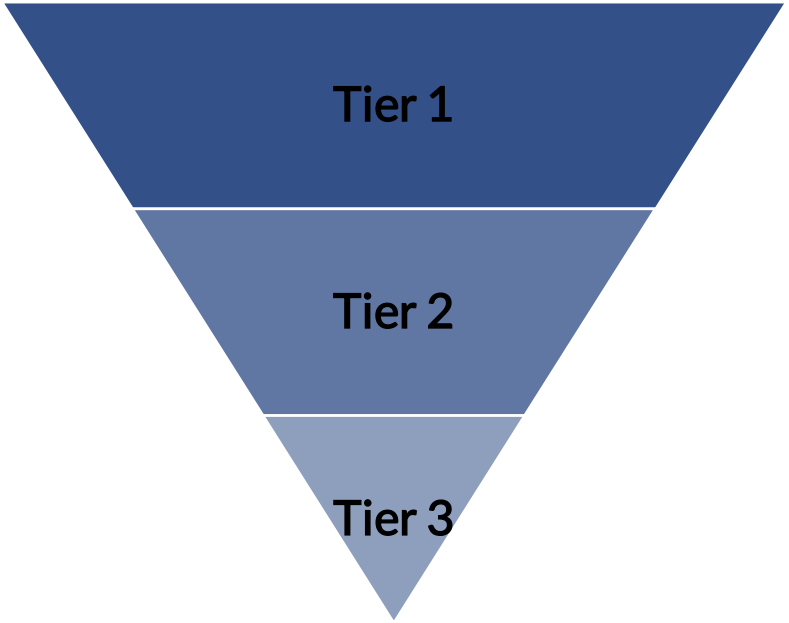
OEM Liquidity (6/30)	
Stellantis	~$70B
Ford	~$50B
General Motors	~$40B
Total	**~$160B**

OEM Inventory	
Stellantis	~111-119 days
General Motors	~46-94 days
Ford	~77 days

Source: Automotive News, COX Automotive

Economic Positioning
Tiered Suppliers

Tiered suppliers face greater risk than OEMs as they recover from recent supply chain challenges such as material economics, wage inflation, transportation costs, supply chain interruptions and COVID—continued monitoring of the strikes will be key as contingency plans are assessed in order to be proactive



- Tiered supply base experienced increased demand as both OEMs and suppliers prepare inventory to hedge against strike
- Larger tiered supplier's diversified customer portfolios allow for continued production during Detroit 3 stand-up strike
- Smaller tiered suppliers at greater risk during strike due to focused customer base and vehicle programs
- Continued OEM strikes will likely require supplier lay-offs further extending the labor challenges the industry is facing

Compensation Analysis

Executive (Union vs. Non-Union)

Total compensation of Detroit 3 CEOs reach all time highs in 2022, while compensation of top executives from leading industries experience similar growth

	Company	CEO Compensation 2022 ($M)	Unionized Workforce
OEM	Ford	$18	✓
	General Motors	$34	✓
	Stellantis	$26	✓
	Toyota	$5	-
Technology	NVIDIA	$506	-
	Alphabet	$226	-
	Apple	$99	-
	Microsoft	$55	-
Supplier	Eaton	$26	-
	Aptiv	$17	-
	BorgWarner	$16	-
	American Axle	$14	-
	Novelis	$12	-

- In 2022, the average salary of a Detroit 3 automotive CEO was nearly $26M
- The average UAW hourly rate in 2022 was $33/hour
- Technology CEOs top the market with an average compensation of nearly $45M a year
- Annual compensation for CEOs of top automotive suppliers are aligned with automotive OEMs

Hourly Compensation Analysis

Union vs. Non-Union and Non-Automotive

Hourly Wages by OEM		
Company	$/hr. (Union)	$/hr. (Non-Union)
General Motors	$32.32	N/A
Ford	$32.00	
Stellantis	$31.77	
Rivian	N/A	$20.25
Nissan		$25.24
Toyota		$24.27

- Current UAW proposal, unionized workers will make nearly twice the amount of non-union hourly automotive workers
- Greater wage gap between union and non-union employees increases Detroit 3 labor cost competitiveness with their competitors

Union	Current/ Pre-Strike	Proposed Increase	Ratified Rate
Teamsters	$38.75	26%	$49.00*
Writers Guild of America	$40.00	14%	TBD
United Auto Workers (UAW)	$33.00	40%	TBD
United Steel Workers (USW)	$31.00		
Unite Here	$22.14		
American Postal Workers Union	$19.31		

- Historic negotiations between UPS and Teamsters create nearly $30B in wage increases and other benefits while avoiding strike
- UAW represents automotive, aerospace, and agriculture workers—only 40% of UAW laborers are automotive
- Writers Guild of America has been on strike since May 2, 2023—concerns over streaming rights and use of artificial intelligence driving union demands for increase pay and benefits

Supplier Challenges

What Should I Consider?

The inevitable strike is upon the automotive industry and is continuing to evolve—Suppliers must consider the following as negotiations progress

1. **Initial Impacts are Focused—**initial strikes have limited walkouts resulting in production impacts—some suppliers will be able to manage with limited damage
2. **This May Take Time—** result of these labor discussions are critical for OEMs long-term health as they pivot their business—suppliers need to be ready for a prolonged negotiation
3. **Agility**—organize operations over the short to mid-term to provide the greatest amount of flexibility
4. **Cash Management**—conserve cash and prepare liquidity scenario analysis to better understand liquidity or covenant concerns
5. **Monitor Closely**—selective strikes of key facilities can quickly shut down the entire industry given the intersecting supply chain
6. **Opportunity**—labor strikes may change OEM in-sourcing plans if business case no longer exists due to heightened labor costs
7. **Trickle-down Impact—**suppliers may face pressure on compensation from their own workers once the strike is settled. In addition, increased cost pressures will be seen as the OEMs push cost challenges down
8. **Delayed Damage—** Michigan will see the most significant economic impact due to the largest share of unionized workers—for the rest of the U.S. economy increased Detroit 3 inventory at dealerships of 60 days on average will protect for an extended strike

Contact Us

Questions or Comments? Please Reach Out to Us!

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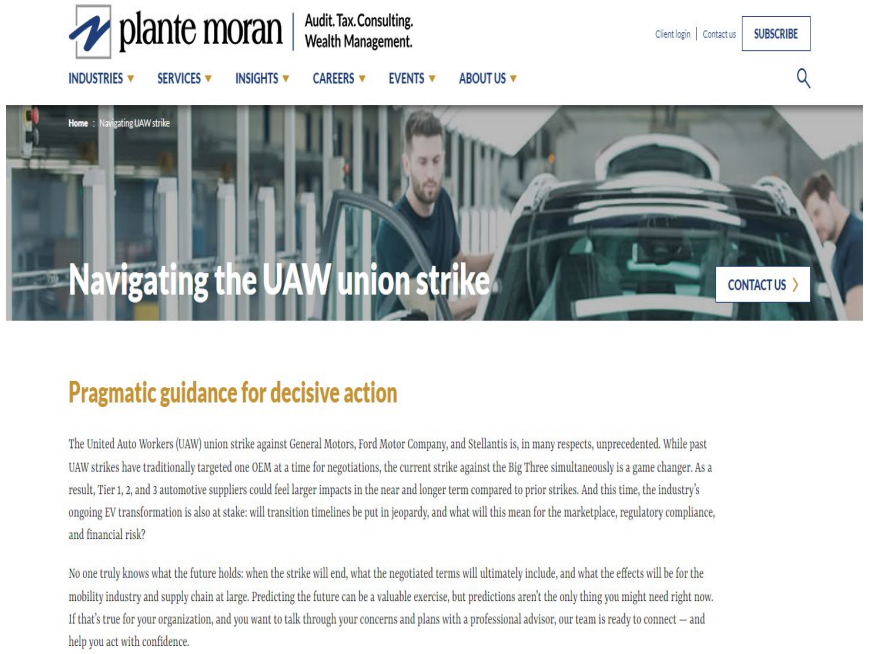

https://www.plantemoran.com/campaigns/industry/manufacturing/automotive/navigating-uaw-strike