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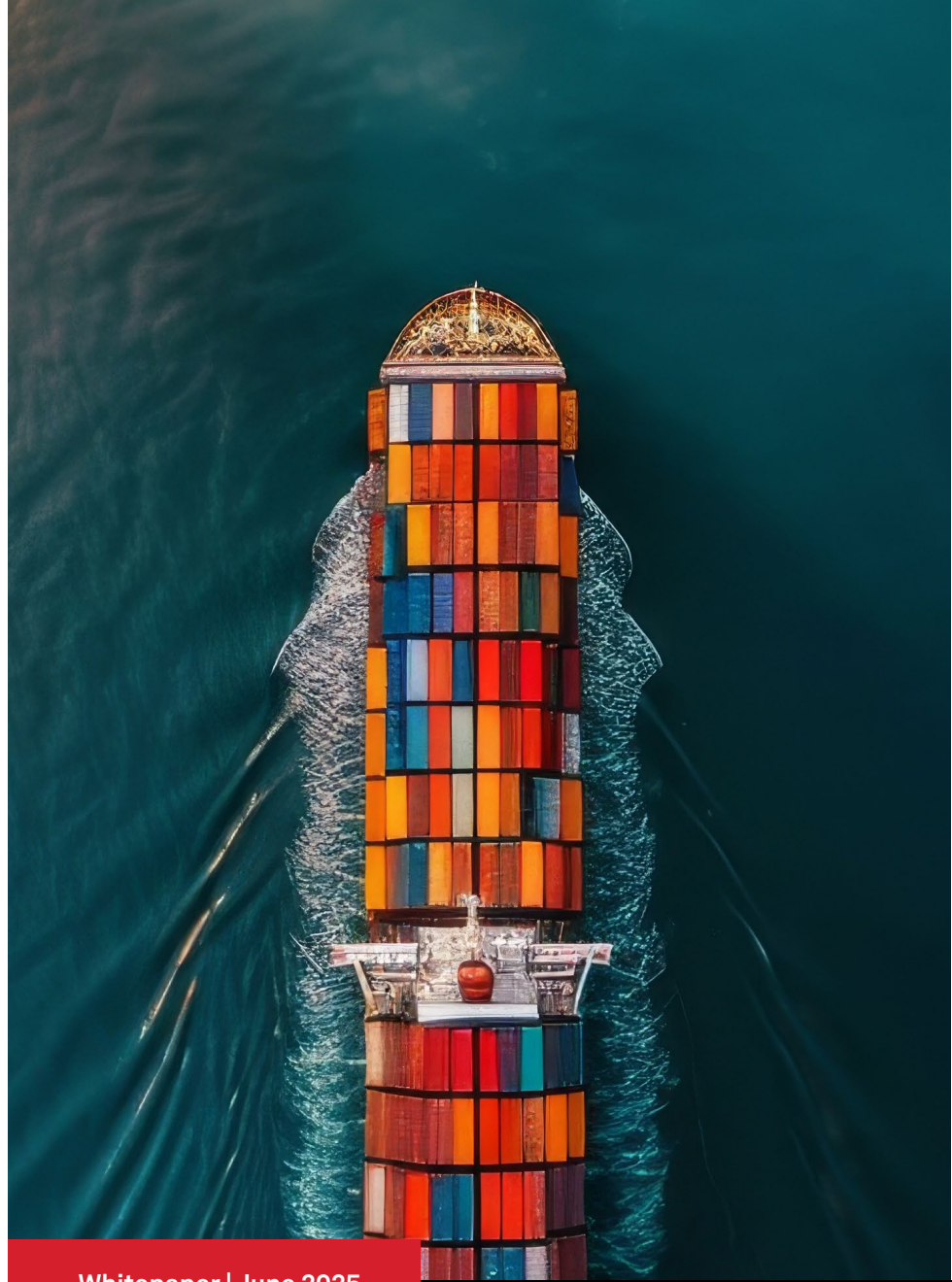
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Innovative Strategies for Supply Chain Resilience in the Automotive Industry

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Empowering the “why” behind your business decisions

Tariffs and supply chain disruptions are reshaping the automotive industry, presenting both challenges and opportunities for supply chain leaders and original equipment manufacturers (OEMs). As global trade dynamics evolve, these factors are increasingly critical in determining market behavior.

Whether you're in procurement, supply chain management, or any supporting role, you understand the issues at hand and the impact they have on your work better than anyone else. You also know that navigating this bumpy terrain can feel overwhelming.

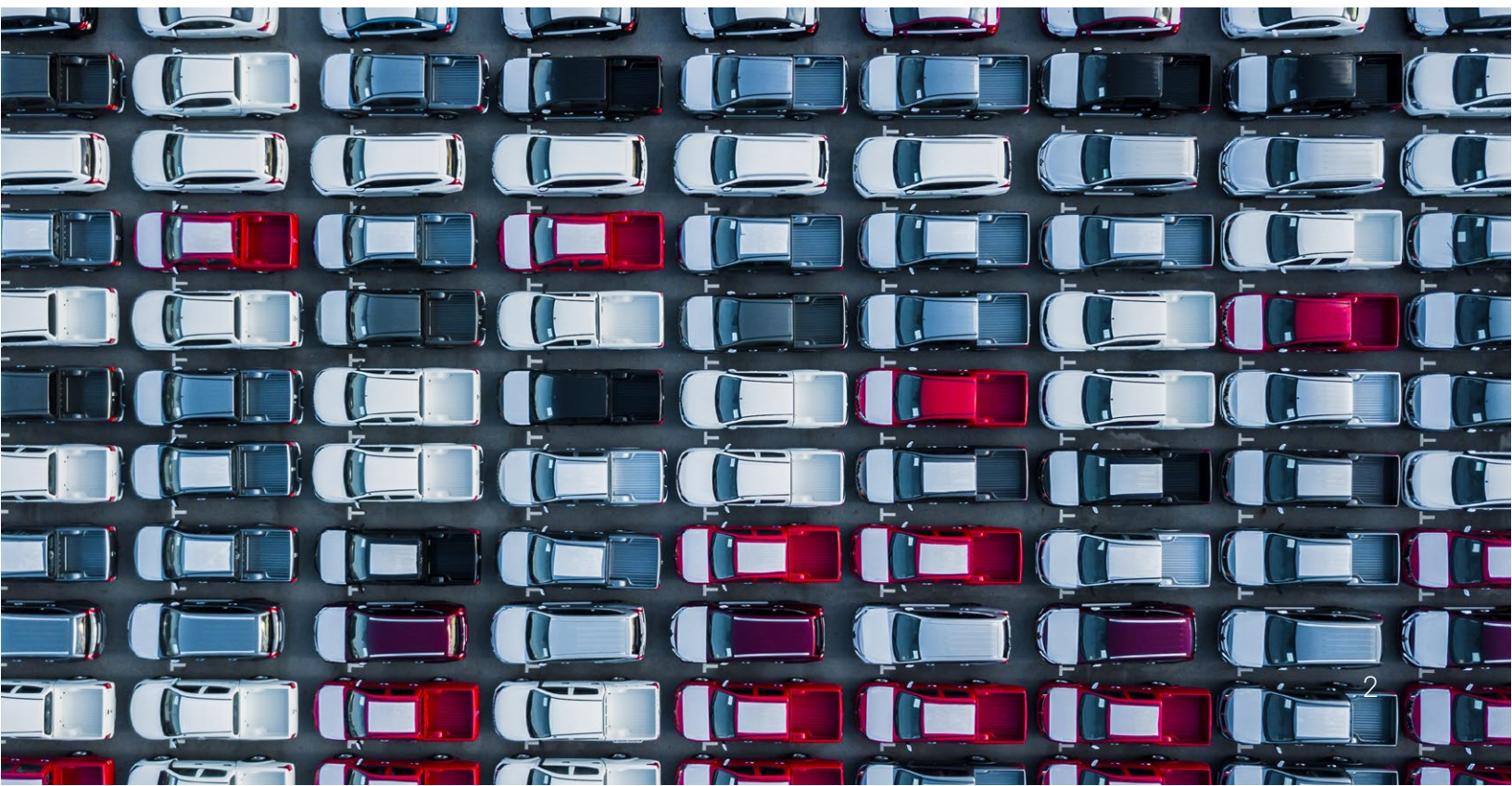
But what if you didn't have to tackle these challenges alone?

This whitepaper is designed not to dictate your next steps or tell you how to do your job, but to empower your 'why.' Our goal is to equip you with the insights, data and potential pathways you need to make informed business decisions with confidence.

We'll examine the current state of the automotive industry. Drawing insights from our webinar, [An Integrated View of the Auto Supply Chain](#), we'll focus on the **impact of tariffs, supply chain issues, and the strategic responses from OEMs**. By examining recent data and trends, you will gain insights into how these elements are influencing vehicle production and sales.

To stimulate critical thinking, our experts have identified and highlighted 'Reflection Starters' and data solutions that can serve as the foundational bricks for your decision-making processes.

Read on to turn challenges into opportunities and ensure that you're making the best business decisions, even amidst tariffs uncertainty.



Impact of Tariffs on Vehicle Sales and OEM Strategies

The first quarter of the year demonstrated robust global vehicle sales, particularly in March. The introduction of new tariffs has begun to affect the market, bringing volatility and uncertainty.

Debbie Capell, Executive Director, S&P Global Mobility, highlights the volatility and complexity of tariffs:

International Market Reporting – Q1 Figures by Top 5 Sales Brands

Q1 - Top 5 Sales Brands	Import Indication % (prev. quarter)	Previous Tariff	Change in imports %	Total Vehicle Volume	Average Vehicle Price
Toyota	11.80%	0.00%	11.79%	501.10K	\$37,275
Ford	5.03%	0.03%	4.99%	430.70K	\$50,500
Chevrolet	14.01%	0.00%	14.01%	390.72K	\$45,054
Honda	10.16%	0.00%	10.16%	318.96K	\$35,600
Nissan	11.90%	0.00%	11.99%	213.00K	\$31,723

United States

Brand	Segment A+B	Segment C	Segment D	Segment E	Segment F
Toyota	47%	53%			
Ford	29%	60%			
Chevrolet	56%	44%			
Honda	41%	59%			
Nissan	48%	52%			

Top 5 brands represent 49% of Q1 Sales volumes

MSRP avg. pricing: Nissan \$32K, Toyota and Honda \$36-37K & Ford \$50K (pre-tariffs)

Drill down to brand/model/country of origin and simulate risk exposure based on "import volumes."

Size matters: Small segments and Luxury vehicles are largely imports:

- Segment A+B: 99%
- Segment C: 65%
- Segment D: 28%
- Segment E: 37%
- Segment F: 96%

Note: The import indication reflects the latest import % but is not the final tariff, as vehicle content influences the landed cost.

It's important to clarify that we focus specifically on the impact of import tariffs on complete vehicles—meaning we look at cars that are fully built domestically in the US or overseas and sold in the US market.

This analysis includes:

- **When and where vehicles are produced and sold:** We track how these timelines affect sales, pricing and production changes.
- **The effects of new tariffs:** We examine how changes in tariffs influence vehicle prices and sales volumes.
- However, we **do not include tariffs on auto parts** in our analysis because it's too complex for the scope of this webinar sample. We also don't cover any USMCA exemptions.
- Please note: The graphs displayed in the following section are based on example European Luxury Brands for **demonstration purposes only**.

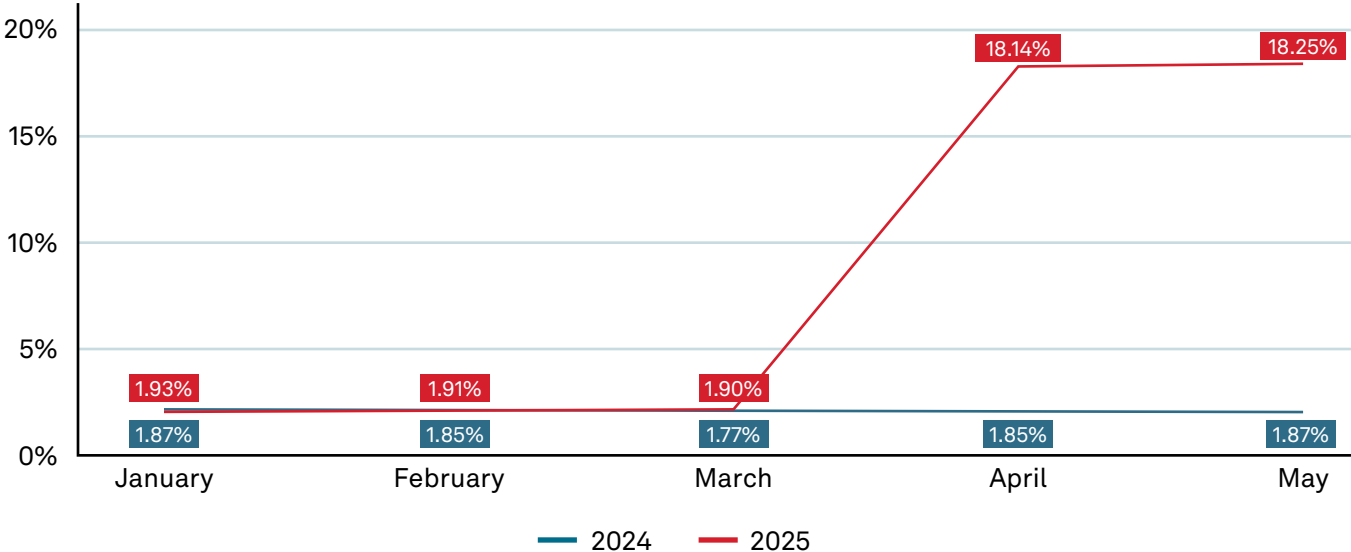
OEMs are challenged to adapt to these changes while maintaining their competitive edge. The correlation between strong sales performance in March and the implementation of tariffs is evident: OEMs increased stock and inventory in anticipation of these changes, and customers bought new vehicles earlier due to a fear of rising car prices. Moving forward, the impact of tariffs on pricing, volumes, and consumer behavior will become more pronounced, especially as inventory levels adjust. OEMs are employing various strategies to mitigate the effects of tariffs.

Short-term initiatives include keeping prices steady and running advertising campaigns to reassure consumers. These measures are temporary and primarily driven by current inventory levels. Long-term strategies are expected to be more strategic, such as tighter inventory management, limits on exports of certain vehicles to the US, and adjustments in production volumes.

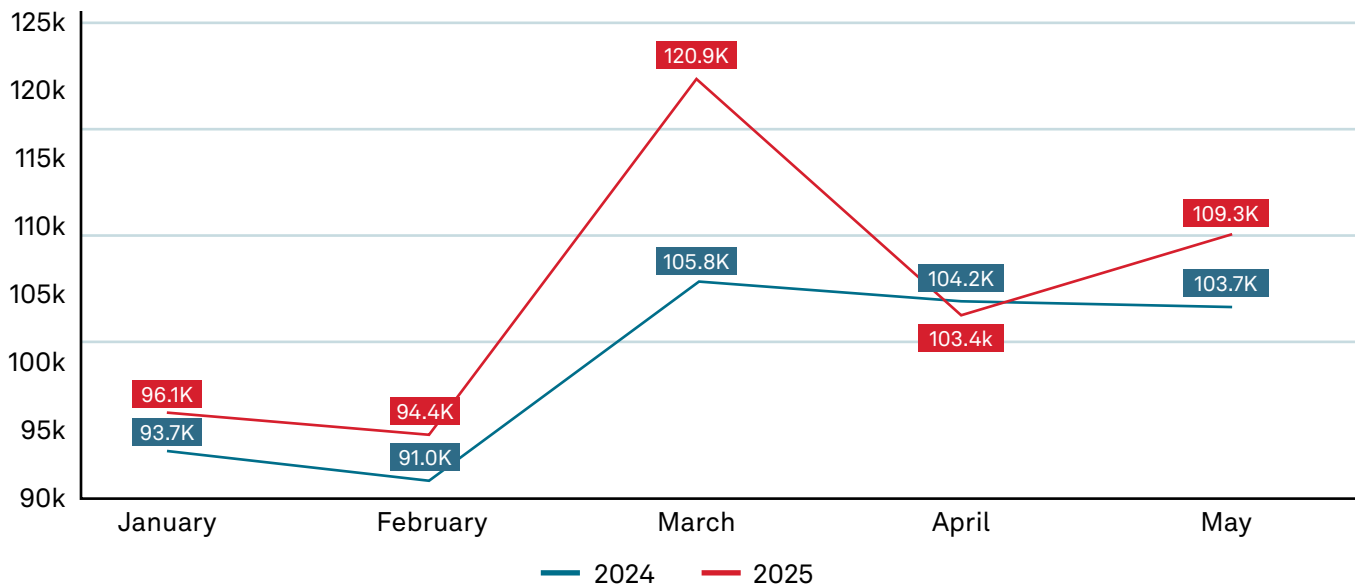
The goal is to protect margins and remain agile in response to changing tariff scenarios. This will likely result in a shift in the types of vehicles being pushed onto the market, with a focus on models that can better absorb the cost increases associated with tariffs.

The impact of tariffs varies significantly across different vehicle segments and models. Smaller vehicles and luxury brands are highly affected, with exposure levels reaching up to 99%. If we look for instance at the European Premium brands, we can observe the weighted tariff rate has increased from 1.7% in May 2024 to 18.2% in the same month in 2025 seeing a significant increase in tariffs which will impact margins once inventory is depleted.

US Weighted Average Tariff Rate Trend based on CBU tariffs: 2024 vs. 2025 (Jan-May) - European Luxury Brands



US Sales Volumes: Jan-May 2024 vs. 2025 - European Luxury Brands



This second graph shows the comparison between the sales period of January to May in 2024 versus the same period in 2025 for the European Premium Brands. This example highlights the importance of understanding the specific risks affecting different brands and models, depending on country of production as a key factor which will influence OEMs new pricing strategies. The erosion of margins and competitiveness due to tariffs is a critical concern. It requires careful planning and strategic decision making from OEMs to maintain their market position and profitability.

Reflection starters

To navigate the impact of tariffs, consider these reflective questions to assess your strategies and identify actionable steps to mitigate disruption. Engaging with these questions will help you uncover insights and approaches that can enhance your operational effectiveness.

- What short-term initiatives can you implement to mitigate the impact of tariffs on your pricing strategy?
- How can you enhance your inventory management to prepare for future tariff changes?
- How can you track pricing and volumes changes to ensure competitiveness?
- Which vehicle segments are most vulnerable to tariffs in your portfolio, and how can you address these vulnerabilities?

Access [S&P Global Mobility Scenario Planning](#). With 100+ years of automotive industry expertise, we offer tailored, ongoing advisory services to help clients navigate auto tariffs and determine the best approach to maintain competitiveness.

To dive deeper into navigating auto tariffs, explore our **Tariff Impact Navigator** tool within the **Global Auto Demand Tracker**, and gain the insights you need to stay ahead in the market.

[Request a Live Demo Today >](#)

Enhancing Production Resilience in Response to Supply Chain Challenges

The automotive industry is poised for ongoing shifts in consumer demand and sales volumes. Tariffs will impact consumer choices, potentially altering vehicle types and trim levels purchased.

Inflation and disposable income will also shape consumer behavior. OEMs need to adjust forecasts and strategies to stay aligned with these trends. Monitoring and responding to changes in registration data is essential for navigating tariff challenges and maintaining market stability.

Top 10 Risks to EV Production output	April 2025	May 2025	In base case forecast
Recession risk, interest rates	▼	▼	▼
US threat of tariffs on Mexico/Canada	▼	▼	▼
Commodity price pressures	▲	▲	▲
Geopolitical tensions	▼	▼	▼
Supply chain disruptions	▼	▼	▼
Trade restrictions	▼	▼	▼
Production disruptions from the overseas	▼	▼	▼
Price of electricity in the near term	▼	▼	▼

Understanding the risks helps make better informed decisions
S&P Global Mobility Risk Tracker* - May 2025

Risk Matrix:

Significance	Upside	Downside	Neutral
L	▲	▼	●
M	▲	▼	●
H	▲	▼	●

Regularly updated forecasts offer valuable insights into industry trends, enabling stakeholders to anticipate changes and adapt. Mark Fulthorpe, Executive Director, Global Light Vehicle Production Forecast at S&P Global Mobility emphasized that monthly updates facilitate a responsive approach to emerging challenges and disruptions, especially during significant upheavals like the COVID-19 pandemic, semiconductor shortages, and geopolitical tensions. Revisiting assumptions and integrating new data helps businesses maintain accurate outlooks, better preparing them to manage uncertainties and seize new opportunities.

Additionally, understanding peripheral risks is crucial. Factors such as raw material availability, trade restrictions, and tariff changes significantly impact production and supply chains. Identifying and monitoring these risks allows companies to develop contingency plans and mitigate disruptions.

For example, extended tariff wars and trade restrictions necessitate careful evaluation of sourcing strategies and manufacturing locations. Companies must weigh the benefits of relocating production against the costs and time required to establish new facilities, considering both short-term and long-term implications.

Flexibility in sourcing and production is vital in the current environment. Automakers and suppliers must be agile, leveraging existing capacities and making pragmatic adjustments to operations.

As highlighted in the webinar, Debbie Capell, Executive Director, S&P Global Mobility, shares that OEMs are expected to run tighter inventory levels, moving from a standard 90-day stock to a more responsive inventory model.

This includes optimizing plant utilization and exploring opportunities for reallocating production to more favorable locations. Nissan Rogue's repatriation to the US demonstrates how companies can adapt by utilizing spare capacity and responding to market demands. Flexibility varies by company, requiring assessment of unique situations and capabilities.

Reflection starters

As you adapt to the shifting dynamics of consumer demand and market conditions, reflect on these questions to refine your strategies and ensure your organization remains agile and responsive.

- What changes in consumer demand have you observed, and how can your strategies adapt to these shifts?
- How often do you review and update your forecasts to reflect current market conditions?
- What contingency plans do you have in place to address potential disruptions in your supply chain?

Use our [Light Vehicle Production Forecast](#) to understand the potential impact of US auto tariffs on consumer demand across global markets with over 7 years of sales forecast data.

The Transition to Electric Vehicles

The transition to electric vehicles is now experiencing increased uncertainty with regulatory pressure expected to ease while consumer incentives in the United States face headwinds. Consumer adoption rates differ across regions, influenced by infrastructure development, government policies, incentive structures, and regulations.

As Eric Anderson, Associate Director, Light Vehicle Powertrain Forecasting, S&P Global Mobility highlighted, understanding these regional nuances is critical, as consumer readiness to adopt EVs varies significantly between North America, Europe, and Greater China. Understanding these nuances is essential for effective EV production and sales strategies.

Electrification impacts the entire powertrain ecosystem, from engines and transmissions to electrified propulsion systems. Companies must stay informed on technological advancements, consumer trends, and the impact of supply chain disruptions in order to meet future demand and avoid risks.

Managing a wide-ranging powertrain portfolio, including internal combustion engine (ICE) vehicles, hybrids, and battery electric vehicles (BEVs), is a critical challenge. At times, this is also an expensive challenge to ensure market competitive powertrain offerings among different levels of electrification. The adoption of full hybrids is expected to grow significantly, as they offer a cost-effective solution with material impacts on emissions and fuel efficiency.

Automakers also need to address vehicle range anxiety and pricing concerns to support broader BEV adoption. One powertrain option gaining interest is range-extended electric-vehicles (REEVs) that utilize an ICE engine as an on-board generator. In doing so, the vehicles are propelled entirely by electric motors, though range is significantly increased due to the on-board generator. This may alleviate range anxiety among buyers while also allowing for smaller battery packs, which may help in managing vehicle pricing.

Mobility

Eric Anderson

OEMs and suppliers may delay decisions but cannot halt decision making
The uncertainties will result in a sharper and more informed automotive environment

BEV transition

- Incremental new investments
- BEV platform vs Multi-energy platform
- Platform utilization headwinds
- Balancing dual powertrain portfolios
- REEVs as a solution?

S&P Global Mobility



With new leadership at the Environmental Protection Agency, it is only a matter of time before the new EPA emissions framework is laid out, and this is likely to deviate significantly compared to current regulations. Automakers must incorporate these factors into forecasts and strategies to meet current and future regulatory requirements while maintaining profitability. The current target for US light vehicle fleet-wide emissions is set at 85 grams of CO2 per mile, but this number is likely to change, potentially moving north of 140g pending future regulatory adjustments. This significant shift is forcing OEMs to revisit their long-term portfolio planning to ensure the right vehicle and propulsion option to meet consumer needs.

The United States is not alone in working to manage this transition. As was confirmed earlier this year, the European Commission has allowed for a bit of leniency in meeting 2025 regulations. This three-year transition period allows OEMs a bit more time to meet the 2025 targets. In addition, this may result in reviewing 2030 and 2035 targets along the way.

As the market evolves, understanding the dynamics of each powertrain option, including plug-in hybrids and range extenders, will be crucial. And while the BEV rate has slowed, there is still significant interest in REEVs particularly in markets like China, where they are gaining popularity. In summary, the transition to electric vehicles requires automakers to remain agile, adapting their strategies to align with consumer expectations, regulatory changes, and market conditions.

Reflection starters

The shift to electric vehicles is certain to be uneven. The pace of transition will be influenced by varying consumer adoption rates and regulatory changes. Consider the following questions to assess your strategies for enhancing EV adoption and aligning product development with market demands.

- What strategies can you implement to enhance consumer adoption of electric vehicles?
- How can you better align your product development with emerging trends in electrification?
- What partnerships can you explore to improve infrastructure and support BEV adoption?

Keep up to date with [Electric Vehicle Industry news](#), insights on the EV market, sales and production trends to identify effective strategies that encourage consumer adoption, address concerns, and ensure your offerings align with market demands and regulatory requirements.

Impact of Tariffs and Supply Chain Disruptions on BEV Transition

Tariffs are inducing supply chain disruption which is further complicating the transition to battery electric vehicles (BEVs). The automotive industry relies heavily on rare earth elements for electric motors. Recent export bans from China have exposed vulnerabilities in the supply chain. These elements are crucial for producing permanent magnet synchronous motors, which are used in propulsion applications for most electrified vehicles, as well as in more general applications across all vehicles, such as windshield wiper or power window applications.

A shortage of these materials can cause production delays and increased costs, hindering the adoption rate of BEVs. Automakers must seek alternative solutions and diversify their supply chains to mitigate these risks.

Graham Evans, Director, Auto Supply Chain & Technology, dives into the potential for significant supply chain disruption:

The video player shows a presentation slide with the following content:

Rare Earth Elements: a supply chain crisis in the making

Critical business decision making for E-Motor sourcing strategies

- Every electric and hybrid vehicle **requires at least one electric motor** for propulsion purposes. There are many other smaller, low power motors on the vehicle for other applications.
- **Vast majority** of electric motors are synchronous motors, which contain permanent magnets. These permanent magnets contain **rare earth elements**. Asynchronous motors without permanent magnets, such as asynchronous induction motors (IM), come with notable performance compromises.
- In 2025, China's Ministry of Commerce and the General Administration of Customs jointly issued an announcement to implement export controls on neodymium and heavy rare earth magnets containing strategic elements such as **yttrium, dysprosium and terbium**.
- **Some shipments of rare earths to Europe have resumed** as of last week after the approval of export licenses by Beijing.
- Lack of inventory (typically 2-3 months max), opaque supply chains and an absence of viable alternatives create the **potential for significant supply chain disruption**.

Source: S&P Global Mobility

The diagram on the right compares two motor types:

- Synchronous (permanent magnet) motor:** Shows a cross-section with a central rotor (labeled 'Magnets') and an outer stator (labeled 'Stator').
- Asynchronous (induction) motor:** Shows a cross-section with a central rotor and an outer stator.

Despite these challenges, the forecast for electrification remains positive, with growth expected across various levels of electrification. Full hybrids, plug-in hybrids, and range extenders are gaining traction, especially in regions like China where they are already popular. These technologies offer cost-effective solutions with significant positive impacts on emissions and fuel efficiency, making them attractive to consumers and automakers. The industry must continue to innovate and adapt to changing market conditions to meet the growing demand for electrified vehicles.

Currently, about 44% of vehicles require an electric motor, a figure expected to rise to 76% by 2032. This growth is driven by the global push towards electrification and the need for more efficient and environmentally friendly transportation solutions. The demand for electric motors in propulsion applications is projected to reach approximately 117 million units by 2032, with many hybrid and electric vehicles requiring more than one electric motor depending on the technology used and the number of driven axles.

One key consideration in electric motor development is the use of rare earth elements. Induction motors, which do not require rare earth elements, represent a small part of the market and come with performance compromises. Promising alternative technologies, such as externally excited synchronous motors (EESM), offer rare earth-free technology and have the potential to de-risk the supply chain while providing more sustainable solutions. Despite this, the permanent magnet motor, particularly the interior permanent magnet motor, remains the industry's preferred technology for various hybrid and EV applications due to its efficiency and performance.

The supply chain for electric motors is evolving, with more suppliers entering the market. Currently, there are about 32 suppliers of rare earth-free motor applications, with the top two suppliers covering almost half of the market. By 2030, an additional 16 suppliers are expected to emerge, contributing to a more diverse and competitive supply chain with less risk to similar geopolitical shocks.

This shift towards rare earth-free technology is driven by the need to reduce dependency on specific materials and enhance supply chain resilience. In tandem, original equipment manufacturers (OEMs) are increasingly taking motor development in-house, leading to greater vertical integration and technology ownership.

Market conditions and supply chain dynamics are subject to change, and forward-looking data must be interpreted carefully. China's dominance in electric motor production remains, particularly in permanent magnet synchronous motors. By 2030, China is still expected to produce about 45% of the market's electric motors.

That said, the market for rare earth-free motors is growing fastest outside of China, with Europe projected to produce 17% of rare earth-free motors by 2030. This trend is indicative of the shift towards a more sustainable, secure and diversified supply chain for electric motor technologies.

Reflection starters

Tariffs and supply chain vulnerabilities complicate the transition to battery electric vehicles (BEVs). For further reading to inform your planning, explore [How Electric Vehicles are Reshaping Components Sourcing for OEMs](#).

Reflect on the questions below to explore how your organization can diversify its supply chain and innovate its offerings to effectively navigate these challenges.

- How can you diversify your supply chain to mitigate risks associated with rare earth elements?
- What innovative technologies can you explore to enhance your electric motor offerings?
- How can you leverage partnerships to improve your access to critical materials for BEV production?

Leverage the [S&P Global Mobility Components Forecast](#) to track shifts in sourcing strategy. With forecasts for over 150 components, updated monthly, you can strategically adapt your supply chain and enhance your electric vehicle offerings.

Are you ready to turn intelligence into action?

The automotive industry faces critical challenges from tariffs and supply chain disruptions, requiring OEMs to adopt strategic measures to protect margins and maintain competitiveness. Monitoring market data and trends is essential for informed decision-making.

Regularly updated forecasts, awareness of risks, and flexibility in sourcing and production are vital. With the transition to electric vehicles, understanding regional variations and consumer preferences becomes crucial. Strategic planning and investments in electrified powertrains must balance regulatory requirements, consumer preferences, and supply chain constraints. The development of rare earth-free motor technologies and supply chain diversification will enhance efficiency and sustainability.

Now is the time for automotive leaders to take decisive action. Don't let uncertainty hold you back. **Contact our Supply Chain experts** today to explore tailored strategies that will empower your organization to thrive amidst these challenges. Together, we can pave the way for a resilient and innovative future in the automotive industry.

[Contact a Supply Chain Expert >](#)

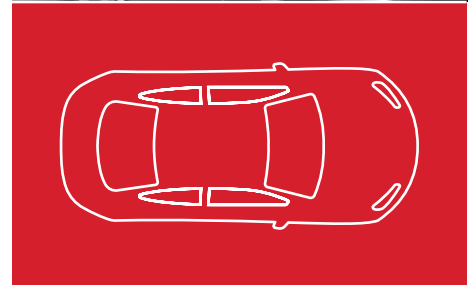


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