



How the Electric Vehicle Industry Can Balance Supply Chain and Sustainability





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How the Electric Vehicle Industry Can Balance Supply Chain and Sustainability

An influx of electric vehicle startups is changing how the auto industry imagines its sustainable future. By disrupting the status quo, startups are speeding up a historically plodding industry, driving quicker change and forcing companies and regulators to meet challenges sooner.

In 2020, sales of ICE, or internal-combustion engine, cars plummeted while EV sales jumped significantly. In fact, EV sales are predicted to reach **66 million by 2040**. Auto manufacturers are showing the world that they mean business — Volkswagen, for example, has planned a \$100 billion **investment in electric vehicles**.

At the same time, we're still in the nascent days of the conversation around getting to net-zero emissions. EVs' overall impact on the auto industry is unclear in a commercial world where supply chains are in absolute turmoil. And as new automotive builders enter the space by the thousands, supply chains, battery part availability, and resources will be stretched.

But we're about to enter a post-pandemic period in which we might see supply chain issues easing. Plus, the developing infrastructure of EV manufacturing will need to get ready to support the growth we're seeing.

Continued growth will depend on the ability to innovate and produce better parts. High-performing and lower-cost batteries will be critical, and innovation almost requires a whole other industry to work in conjunction with the **EV vehicle supply chain**. We need factories that can create at scale, **batteries** that can serve a diversity of vehicle types, and material sourcing that is sustainable in itself.



What Challenges Do EV Businesses Face When Balancing Sustainability and Profit?

Commercial auto EV manufacturers will face a barrage of challenges as they figure out how to maintain sustainability while ensuring profits. Many of those challenges have yet to be uncovered, but here are several we do know about:

Essential tests include:



Strained Supply Chains: Supply chains have been unprepared for the onslaught of demand from the EV space. Long wait times, unavailable materials, and shortages of resources like nickel mean that EV production has slowed and faltered.



Rising Metal Costs: Shortages have caused prices of in-demand resources to soar. Metals and chemicals — **from palladium to aluminium** — hit record prices in March 2022, and considering that 40% of palladium is Russian-sourced, complex forces keep the auto industry wanting.



Battery Challenges: Manufacturers face the mammoth task of optimising EV batteries so that degradation isn't a pressing concern. We don't yet have a clear understanding of the potential lifespan of these batteries and, consequently, how to deal with the vast waste "dead" batteries will produce. Will manufacturers strip them for materials and reuse the elements? Could OEMs **lease batteries separately** to consumers who would rather pay a monthly fee and avoid risk?



Turning Profits: Profitability weighs heavily on EV manufacturers' minds. Higher costs of elementary materials, the unavailability of cost-effective batteries, and the unstable nature of supply chains have increased the cost of building an EV vehicle to \$12,000 more than a similar-scale ICE vehicle.



Maintaining Sustainability: Sustainability is not an end goal: It's part of the process. To create a net-zero emissions industry, every part of the supply chain must strive for sustainability in turn. Now, however, the urgency companies feel to source materials and allow production to continue could lead to less-than-sustainable routes to obtain stock.

The sustainability of the whole EV industry will depend on the sustainability of its individual parts, and to be able to innovate ways to lower emissions, we'll need to figure out profitability at the same time. There are many interconnecting, moving pieces in this puzzle.

How Could Fasteners Impact Commercial EV Profitability?

Performance is everything in the EV space. The current state of performance is sub-optimal — EV vehicles are bulky with batteries, for a start. Parts could be optimised to make lighter vehicles. In turn, lightness would improve range and performance and encourage consumers to buy.

According to one survey, **61% of potential EV buyers** expressed concerns about range and 43% about charging infrastructure. Focusing on manufacturing lighter parts and fasteners could aid these concerns and help buyers make their investment decisions.

On top of this, there are financial implications for startups struggling with part proliferation. Compete with more experienced companies by understanding and refining BoMs, or bills of materials, across multiple production stations and assembly lines. This can reduce the number of necessary parts along with overall complexity and cost.

Low-quality fasteners have a knock-on impact on the quality of the whole vehicle, and for auto builders, ensuring high quality right down to the smallest detail will be key to making an EV fleet that can be both sustainable and profitable.



Are We on Track to Meet Emissions Goals?

Various countries are rolling out legislation to help industries attain low carbon emission targets. In the U.K., the [standards for manufacturers](#) set out a “15% reduction for cars and vans by 2025, and a 37.5% reduction for cars and a 31% reduction for vans by 2030 ...”

In the U.S., the Biden administration is laying out a [\\$174 billion package](#) with grants, incentives, and initiatives to encourage EV production. This plan creates a vision of an EV future in the U.S. that includes 500,000 charging stations. Another federal proposal includes a Department of Energy-supported lithium battery supply chain.

If commercial EV companies can't reach these targets, they will need to invest in greater innovation. More development time and an increased understanding of the limits of technology must lead to better infrastructure and supply chain viability.

The way we develop the vehicles themselves will ensure their ability to fulfil targets. If we can lower the total cost of ownership for [EVs compared to ICE vehicles](#) by increasing their range and longevity, the EV industry will be able to become more profitable and dominate ICEs.

Onshoring and nearshoring will also have a big impact on whether the EV industry can meet emissions targets. If we can achieve sustainability in the way we source materials and operate supply chains, we'll be able to make drastic emissions cuts (transportation is second only to the power sector in terms of emissions, accounting for [17% of global greenhouse gas](#) emitted).




If we can source from our own shores and lower the cost of our materials and supply chains, we can cut out many of the processes that increase our carbon footprint.





How to Guard EV Supply Chains Against Unforeseen Challenges

Global events will continue to knock and push the industry in certain directions, and EV businesses need to shore themselves and their supply chains up against the winds of change. How can they do this?

-  **Improving internal systems.** If businesses can make their internal systems as efficient as possible, they'll be far more resilient to outside forces. Inventory management systems should be highly data-driven, for example, so businesses can make decisions based on real-time intelligence and follow the waves of supply and demand. Use **demand forecasting to predict** where customers will go next and ensure product supply.
-  **Partnering with global networks.** If businesses can partner with distributors who have access to a **vast global network of suppliers**, they can see that stock isn't sourced from just one location. It gives the supply chain a better chance of withstanding shocks like natural disasters and local resource shortages.
-  **Nearshoring as much as possible.** Partnering with onshore or nearshore manufacturers of critical components and goods will help lower costs, keep your supply chain nimble, and guarantee high quality without the risks posed by foreign taxing and lost-in-translation processes.

It is possible for the EV industry to reinforce its supply chains to lower risk, lower cost, and increase resilience for an unknown future.

Where Does the EV Industry Go From Here?

To make sustainability a reality and for decision makers to ensure they have the stability and access they need to actually be sustainable, we need to define what sustainability means. Countries and their regulatory bodies will be piecing and puzzling together their vehicle emissions standards, and EVs will likely form the main thrust of their approach to sustainability as they cut vehicle emissions. This move will be supported by financial incentives like tax exemptions and manufacturer mandates to make a defined portion of their profits sustainably. But we need to be clear about what “net zero” means.

To make this revolution work for everyone, we'll need to make each step in the transition to sustainability cost effective. The incentives will need to be large and helpful enough, with enough government support so that manufacturers don't feel alone. Businesses will need to be sure that they're getting everything they're entitled to. Right now, for example, companies can get a [35% grant on a low-emission small van](#) if the van weighs less than 2,500 kilograms and can travel a certain distance causing no emissions at all.

Beyond understanding government standards and incentives to survive and remain viable, businesses will need to have extra support and financing available to innovate new solutions to the new challenges that emerge. Innovation will help the whole industry thrive.

Even Elon Musk wants to [create battery technology](#) to lower the cost of a Tesla. He recognises that no one in the industry is going to make it alone. Businesses will need to partner with collaborators who understand sustainable principles. They'll need to find sources of products and parts that are themselves produced through low-emission processes.

By working together to [establish green-sourcing](#) and solve innovation challenges, startups will lead progress in the developing EV industry.

Optimas Solutions can be an accessible, reliable fastener supplier for interested EV startups. Check out [our website](#) to learn more.

