TRUCK MANUFACTURERS: BUSINESS MODEL RISKS FROM ALTERNATIVE DRIVETRAINS

THE ROAD TOWARDS EMISSIONS REDUCTION

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European initiatives to reduce emissions are pushing truckmakers to explore a range of alternative powertrains. The alternative technologies will erode manufacturers' extant competitive advantages and disrupt downstream revenues, with up to 10 percent of OEM revenues at stake. Consequently, OEMs need to be proactive in adapting their business models and rethinking technology investments, aftersales, and remarketing.

Commercial vehicles account for about 26 percent of all European greenhouse gas (GHG) emissions, with long-haul and regional distribution segments accounting for more than 90 percent of total freight-transport distance in Europe and significantly contributing to these emissions. While NOx and particulate-matter emissions have decreased drastically with EURO 6 implementation, there has been no explicit focus on decreasing fuel consumption and capping CO_2 emissions.

That, however, is about to change, with the European Commission's recent proposal for setting CO_2 standards for heavy-duty vehicles. Based on 2019 reference levels, the aim is to reduce the emissions by 15 percent by 2025 and 30 percent by 2030. Concurrently, regional and national governments are stepping up pressures on conventional vehicles with a slew of measures such as city bans and restrictions in the midterm and complete exit from fossil fuels eventually. Given such trends, it is time for truck OEMs to become proactive in the face of these pressures.

WHAT NOW? DIVERSE EMISSIONS-REDUCTION STRATEGIES

Because incremental innovations are capable of reducing emissions by just 20 percent even under the most optimistic scenarios, alternative propulsion technologies are being explored. Long-term zero emission freight would likely entail battery and fuel-cell electric trucks, and nearly all European OEMs have announced battery-electric eTruck model launches, focusing on regional distribution, despite battery cost and weight concerns. Fuel-cell trucks have longer ranges, but the current outlook on their total cost of ownership (TCO) is also dysfunctional. Dynamic charging is currently being tested in some pilot stretches. Other interim solutions include gas-powered (CNG/LNG) trucks and dynamic charging. CNG and LNG technologies are easier to implement but are limited by fuel infrastructure and the inability to comprehensively solve CO_2 concerns.

Each solution differs in technology maturity and requires infrastructure, though their emission reduction impact, scalability, and commercialization potential remain uncertain. However, it is clear that the solutions will be region-specific and case dependent. In Europe, it is reasonable to expect significant adoption of CNG and eTrucks for urban distribution and more LNG trucks in the long-haul segment in the next decade.

IMPACT: BUSINESS MODEL RISKS FOR EUROPEAN OEMS

With OEMs pushing eTrucks aggressively, it is important to explore their implications on extant business models. Conventional powertrains are a key source of competitive advantage and differentiation. Historically, they have been a key driver of TCO and in determining vehicle performance. A switch to eTrucks brings a significant risk of losing this advantage, since the performance is mainly driven by battery weight, cost, and reach. Batteries are the biggest cost drivers in electric vehicles. However, the battery manufacturing space is dominated by Asian companies. Over 90 percent of battery production capacity is located outside Europe, meaning European OEMs will have little control over this core differentiator. Individual OEMs must thus seek alternatives to mitigate further product commoditization and associated price pressures.

Additionally, conventional powertrains contribute significantly to aftersales. With powertrain-related spare parts becoming redundant, a major source of today's aftersales revenues and profits will disappear. Furthermore, with powertrain technology diversification, used-truck remarketing will also be disrupted. Currently, used trucks find a second and third life in Eastern Europe, the Middle East, and Africa. With fragmented markets for each alternative solution, remarketing will be limited to markets where technology, emission standards, and infrastructure are supportive, hindering used-vehicle sales abroad and limiting residual values. These exports have already seen a decline due to existing technology gaps; rapid adoption of eTrucks will further aggravate these pressures. Given the transportation sector's razor-thin margins, it is difficult to pass on additional investments to customer without more favorable TCO arguments. The more OEMs are forced to switch to alternative technologies by emission regulation in first-life markets, the greater the share of margins will be at risk.

-30%

is the EU Proposal for CO2 reduction for heavy-duty vehicles by 2030 (compared to 2019)

APPROACH LEVERS FOR OEMS

European OEMs can proactively address these issues through four levers spanning the truck lifecycle.

Firstly, an agile approach and rigorous investment prioritization in the technology portfolio, with consideration for customer acceptance and differentiation criteria, will help OEMs manage R&D effectively. This entails strategic decisions on whether to build innovation leadership, be a fast follower, or hedge investments. A key enabler is to build collaborative ecosystems and partnerships with diverse stakeholders.

Secondly, OEMs need new sources of downstream revenues. This means advanced connectivity features, with over-the-air updates, uptime offers, and freight mobility packages built around risk-based pricing and truck-as-a-service offers to balance the erosion in spare parts sales.

Thirdly, successful remarketing requires rethinking the vehicle architecture and processes around modular lifecycle concepts, including retrofitting and strategies for revitalizing batteries, electronics, and software. Remarketing chains must be adapted to the local technology opportunities.

Finally, to develop new sources of differentiation, OEMs must fundamentally overhaul their business models, recasting and reconfiguring themselves as providers of integrated transport solutions. This will require a shift in focus from truck sales and individual aspects of business to integrated service offers.

The shift to alternative powertrain technologies will not happen overnight. (See Exhibit 1.) However, OEMs must act now, not only to deal with the associated technical and commercial challenges, but also to proactively turn the disruption into opportunity and to reposition their business models transportation strategically to capture a fair share of future profit pools.

Exhibit 1: 2030 forecast of alternative powertrain
In thousands of trucks

25%

OF THE TRUCKS SOLD IN 2030 IN GERMANY WILL BE POWERED WITH ALTERNATIVE DRIVETRAIN SOLUTIONS

Source: Oliver Wyman analysis

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