#3: TRUCK MANUFACTURERS AND THE ZERO EMISSION TRANSITION

Producer supply, consumer demand, and overall business case

Berkeley Law | Center for Law, Energy, & the Environment

Zero-Emission Trucks:
A Factsheet Series

STRONG COMMITMENTS

Zero emission truck models are becoming more available and growing, while sales are just starting out and need to increase rapidly. This need requires automakers (OEMs) to introduce more models and actively promote sales.

Many internal combustion engine truck manufacturers have committed to zero emission transition targets. However, these voluntary announcements often use unclear language. For example, all of the "100%" targets in the table at right have committed to being "fossil-free" or "net-zero"— wording which allows for non-zero-emission technologies. Notably these commitments are geographically limited to regions that have, or are developing, supply-side regulations or binding targets that accelerate zero emission trucks (ZETs). This includes the US (with states that have adopted the Advanced Clean Truck (ACT) Rule and the national Phase 3 HDV GHG Standards), the European Union (EU) (with CO_2 HDV Standards), and China (with central and city-level mandates).

ZERO-EMISSION TARGET			
MANUFACTURER	**REGION**	**2030**	**2040**
Mack	US & Canada	35%	100% *
MAN	EU & EFTA	44%	100%
IVECO	EU & EFTA	50%	100% *
Renault Trucks	EU & EFTA	50%	100% *
Volvo Trucks	US & Canada	50%	100% *
Scania	EU & EFTA	50%	100%
Navistar	US & Canada	50%	100%
Foton	China	50%	
Mercedes-Benz	EU & EFTA	60%	100%
Volvo Trucks	EU & EFTA	70%	100% *
DAF	EU & EFTA		100% *
Dongfeng	China		100%
Freightliner	US & Canada		100%
Tata	Inda	100% by 2045	

Table 1 : Zero Emission Targets
Source : Transport and Environment 2023

MODEL AVAILABILITY & SALES ARE STILL LIMITED

Manufacturers are developing the technology - there are over 450 ZET models worldwide for a wide range of truck applications. However, once again, the availability of these models is mostly limited to those regions with binding regulations or strong policy support. Over 90% of ZETs sold in 2022 were in China. Excluding buses, fewer than 4,000 ZETs were sold outside of China (<1% of new commercial truck sales) and these sales were almost entirely in the EU and North America.

DEMAND OUTPACES SUPPLY

Manufacturers are not meeting the demand for ZETs. Many ZET models have had extensive waiting lists. Analyses by McKinsey & Company have demonstrated significant demand in the US and EU, along with company frustration at the lack of supply and resulting challenges around ordering the ZET models required for specific operations and geographies.

Increasing the production and sales of ZET will reduce costs through economies of scale and eventually achieve total cost of ownership (TCO) parity. According to a recent ICCT study, by 2030 the TCO for ZET's is projected to be lower than that of their diesel counterparts in all representative states across the US. ZET regulations can ensure that sales continue to grow in line with government pollution and climate targets.

REGULATION DESIGN TO IMPROVE SUPPLY

California has a long history of developing vehicle regulations to help reduce air pollution and address climate change. The state originally planned to develop a regulation to accelerate the deployment of ZETs in last-mile delivery. However, stakeholder engagement revealed that large delivery companies who wanted to purchase ZETs had trouble finding available models and were concerned that manufacturers would not be able to support increased demand. Manufacturers were making ZETs, but not always offering them in the California market. California ended up developing the Advanced Clean Trucks (ACT) Rule, requiring manufacturers to gradually improve ZET sales in California. The rule increases the supply and diversity of ZETs at a pace that reflects technology improvements, declining costs, and infrastructure expansion requirements, while letting the market decide which zero emission technologies and truck models are best.

LOBBYING AGAINST REGULATIONS THAT ALIGN WITH STATED GOALS

Despite public support for decarbonization, manufacturers continue to lobby against regulations with emissions or sales requirements, even when these requirements track with their own zero emission goals. In the EU, truck makers that set a 100% zero emission (or "fossil free") by 2040 goal, including MAN Truck & Bus, Scania, Volvo, and DAF, still actively opposed the EU adopting similar timelines for a 100% heavy-duty CO_2 emission reduction target. Similarly, major European industry associations have advocated to weaken the EU Commission's proposed CO_2 HDV Standards.

TRANSITION TO ZERO EMISSION IS CHALLENGING BUT SMART BUSINESS

Legacy truck makers need major modifications to assembly lines as well as workforce composition and training. Battery technology requires significant R&D investment as well as securing critical mineral and component sources from across a global network. Supply bottlenecks and cost spikes can arise as this new supply chain expands. However, these are likely temporary hurdles that reflect similar growing pains associated with previous technological and market transformations in other sectors. Analysis shows that US truck manufacturers have the capacity to produce enough ZETs to accommodate the gradually increasing sales requirements of the ACT Rule. Overall, truck manufacturer profits are expected to grow, with zero emission opportunities as a major source of new revenue. Incumbents will likely need to evolve if they are to avoid losing market share and remain competitive with new entrants. Economic modeling predicts that vehicle manufacturers can achieve the most future profitability and retain the most market share by rapidly transitioning to electrification, while avoiding the risk of both profits and market standing if they move too slowly.

HIGH PROFITS, SLOW TRANSITION

Legacy internal combustion engine manufacturers such as Daimler, Volvo, GM, Navistar have announced record profits. Evidence suggests a good portion of those profits are going towards growing CEO pay, shareholder dividends, and stock buy-backs (chart at right from analysis of US automakers, see also this report on EU carmakers). Global rankings for truck and car companies have found that the majority of traditional manufacturers are lagging when it comes to industrial strategy and investments for transitioning to zero emission. All together, it appears that traditional manufacturers have the profits to invest, yet are still far from aligning their products and marketing with their stated goals.