

Zero-Emission Class 8 Truck Pricing Comparisons - EU & US

As part of CARB's efforts to support clean trucks in California, this fact sheet explores the differences between zero-emission truck (ZET) pricing in the European Union (EU) and the United States (US) and the reasons for it. To better understand the current market situation, these findings are based on a preliminary assessment of pricing focused on battery electric Class 8 truck in the US/California and equivalent models (Class 5 LH) in the EU.

The assessment's primary finding is that, based on the incremental price difference between zero-emission and diesel trucks, ZETs in the EU have a roughly \$57,000 less incremental price difference than similar ZETs in the US.

Process Used

Pricing data in California was pulled directly from purchase orders submitted as part of the HVIP voucher request process. Pricing in the EU came from EU industry sources.

There are many differences between European and American truck designs and regulations that make direct comparisons on pricing difficult. The standard approach to address this is to determine "incremental pricing"-the difference between the base diesel truck price and the battery electric truck price. This roughly reveals the added price of the electric powertrain (including batteries).

This assessment determined incremental pricing by finding the difference between the base diesel truck price in each region and the base ZET price, using equivalent models. Diesel truck pricing is quite different in each region, but the battery electric powertrains are essentially the same. This enables a more direct "apples-to-apples" comparison.

Findings

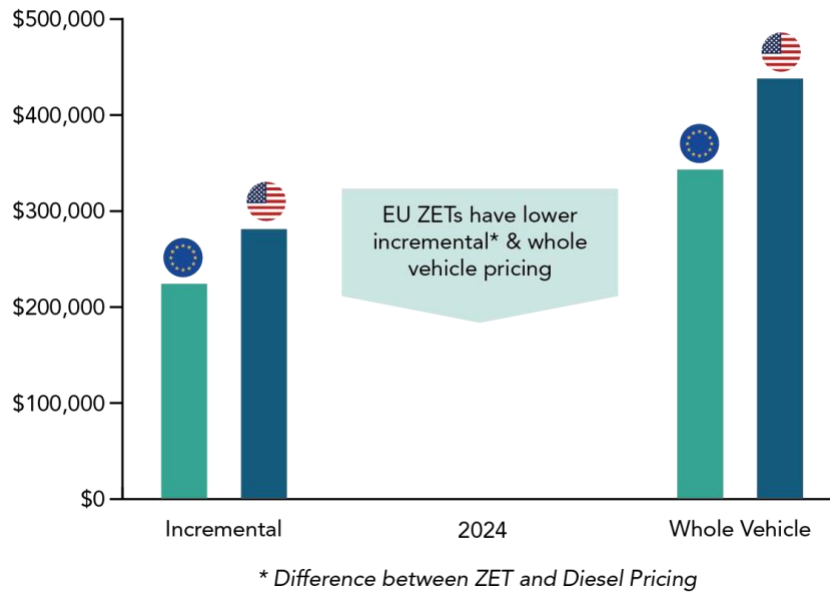
EU ZETs have lower incremental pricing than ZETs in the US/California.

- The incremental ZE powertrain price for US/California Class 8 ZETs in 2024 averages \$279,937.
- The incremental ZE powertrain price for European Class 5 LH ZETs averages roughly \$223,000.
- **US incremental ZE powertrain price is around \$57,000 more than EU incremental ZE powertrain price** even when accounting for lower base truck pricing in the EU.

EU ZETs have lower whole-vehicle prices compared to equivalent US/California ZETs.

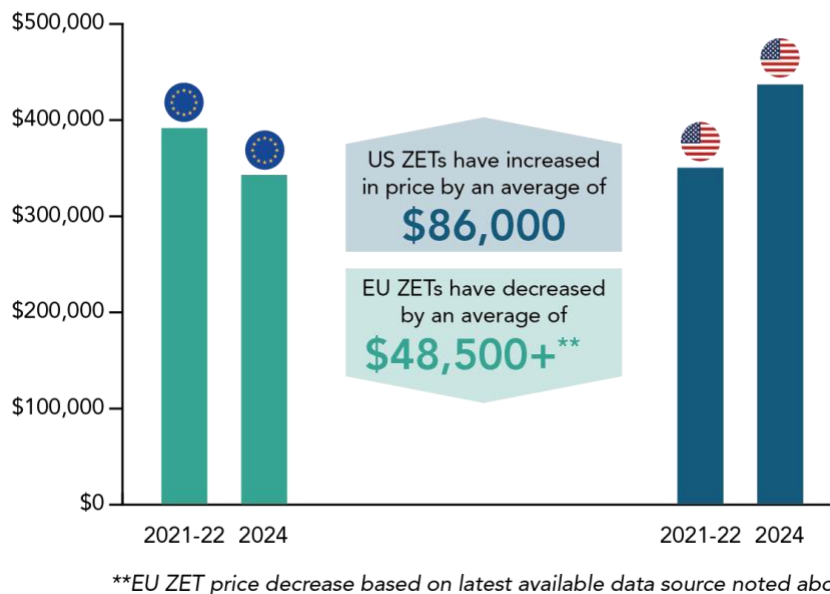
- The average US/California zero-emission Class 8 truck in 2024 was priced at \$435,839.
- The average EU zero-emission truck of similar capability to US trucks (Class 5 LH in Europe) in 2024 was priced at roughly \$342,000.
- **US zero-emission trucks averaged nearly \$94,000 more to purchase than in Europe.**

ZET vs. Diesel Truck Pricing (EU vs. US)



Total ZET sales volumes are roughly comparable between each regionⁱⁱⁱ. Some European industry observers noted that as battery prices edge lower European vehicle makers have increased capability (increased battery size, range) while holding prices steady. Observers also note some OEM price competition in Europe in advance of the VECTOⁱⁱⁱ CO₂ model reporting deadline in 2025.

Zero-Emission Tractor Pricing (EU vs. US)



Aggregate HVIP Invoice Data by Year

HVIP Voucher Order Year	Average HVIP Purchase Order	Number of Orders	Average Diesel Equivalent Price	Average Incremental Cost
2021	\$332,757	30	-	-
2022	\$365,898	27	-	-
2023	\$401,479	12	-	-
2024	\$435,839	32	\$155,902	\$279,937

Truck Price Data Sources

- **US/California ZET Prices 2024 (Class 8 truck - day cab): \$435,839**
 - Source: Purchase orders from HVIP voucher request documents; averaged across 32 orders
- **US/California ZET Prices 2021-22 (Class 8 truck - day cab): \$349,328**
 - Source: Purchase orders from HVIP request documents 2021-2022; averaged across 57 orders
- **US Diesel Truck Prices (Class 8 truck - day cab): \$155,902**
 - Source: Truckpaper.com retail sales site; based on retail prices for several hundred-day cab truck models that match models used for ZETs; prices averaged by OEM then roughly weighted by OEM market share
- **EU ZET Prices 2024 (Class 5 LH - day cab): \$341,954**
 - Source: Nijenhuis Truck Solutions; average of the aggregated average price of multiple OEM models
- **EU ZET Prices 2021-22 (Class 5 LH - day cab): \$390,550**
 - Source: Nijenhuis Truck Solutions; average of the aggregated average price of multiple OEM models
- **EU Diesel Truck Prices (Class 5 - LH - day cab): \$118,858**
 - Sources: Truckpaper.com Global European retail sales site; average price of multiple OEM day cabs in models used for BETs; blended with Nijenhuis Truck Solutions aggregated price

*** Exchange rate between Euro and USD used for price conversions: 1 Euro = 1.07 USD

ⁱ Zeroing in on Zero Emission Trucks, May 2024 Market Update, CALSTART;

https://issuu.com/calstart/docs/zio_zet_may_2024_market_update_final

ⁱⁱ Race to Zero European Heavy-Duty Vehicle Market Development Quarterly, March 19, 2024, ICCT;

<https://theicct.org/publication/race-to-zero-eu-hdv-market-development-q4-2023-mar24/#:~:text=Summary,and%200.9%25%20of%20heavy%20trucks.>

ⁱⁱⁱ Vehicle Energy Consumption Calculation Tool (VECTO) - common method to measure and compare HD vehicle performance in the EU market; <https://www.infineuminsight.com/en-gb/articles/vecto-drives-efficiency-gains/>