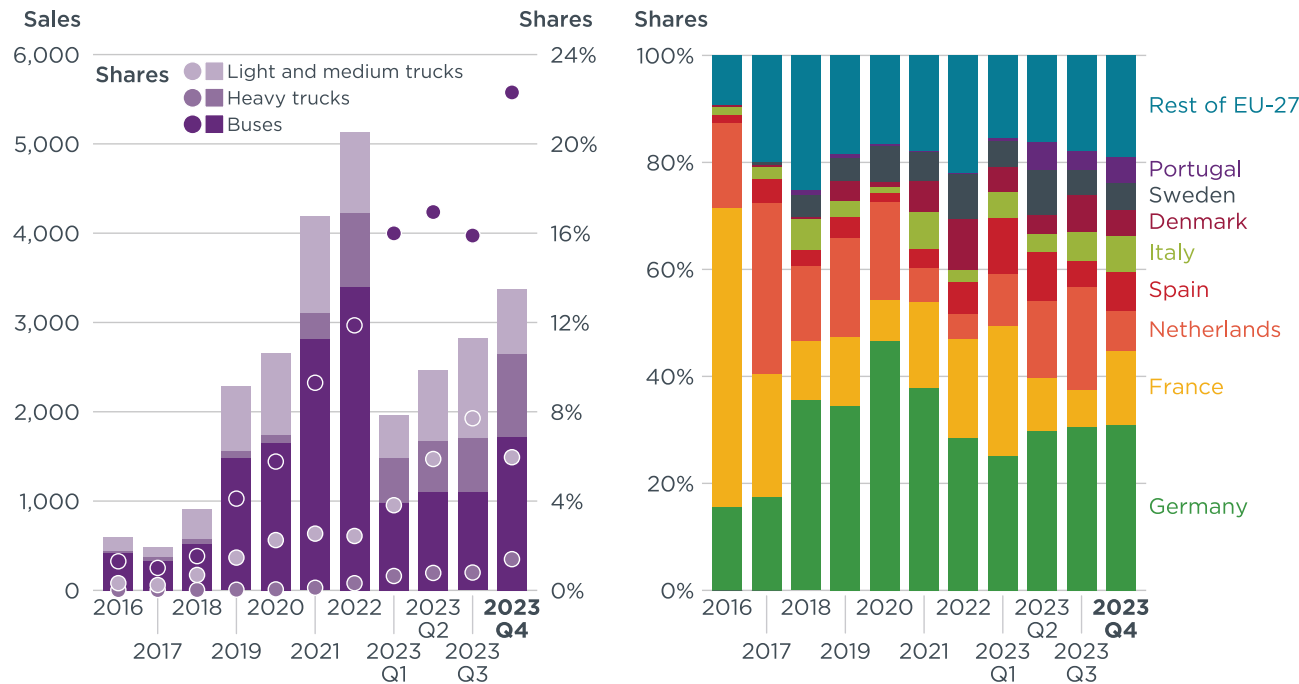


# EUROPEAN HEAVY-DUTY VEHICLE MARKET DEVELOPMENT QUARTERLY (JANUARY-DECEMBER 2023)

SATHVIKA ANANDA, EAMONN MULHOLLAND, ALESSIA MUSA



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## SUMMARY

In 2023, 11,000 new zero-emission heavy-duty vehicles were sold in the EU-27—more than double the 5,000 sold in 2022. Zero-emission vehicles were 18% of all buses and coaches sold, 5% of light and medium trucks, and 0.9% of heavy trucks. The majority of zero-emission heavy-duty vehicle sales occurred in three countries: Germany (30%), France (15%), and the Netherlands (15%). Portugal experienced the most rapid growth, as sales increased from 4 zero-emission heavy-duty vehicles in 2022 to 400 in 2023; almost all of these were buses, and they were a nearly 4% share of all zero-emission heavy-duty vehicle sales in the EU-27.

In the fourth quarter of 2023, just over 3,300 new zero-emission heavy-duty vehicles were sold in the EU-27—a 19% increase from the third quarter. Of these, 1,700 were buses and coaches, 700 were light and medium trucks, and 900 were heavy trucks. The sales share of zero-emission vehicles in the heavy truck segment exceeded 1% for the first time, up from 0.8% in the third quarter. Shares of zero-emission buses and coaches in total sales of that segment increased from 16% to 22% over the same period, while zero-emission light and medium trucks dipped from 8% to 6%. In France, sales of zero-emission vehicles doubled from 200 units in the third quarter to 460 units in the fourth quarter of 2023.

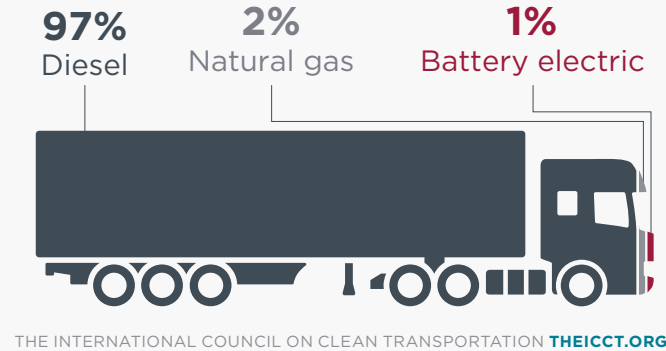
# HEAVY TRUCKS

## TRUCKS WITH A GROSS VEHICLE WEIGHT ABOVE 12 TONNES

In 2023, zero-emission heavy truck sales in the EU-27 were 2,600 (0.9% share of all new heavy trucks sold), an increase of over three-fold from the 820 sold in 2022 (0.3% share). Sales in Germany were the highest and was where 29% of the zero-emission vehicles were sold; France was home to 21% of sales, half of these in the fourth quarter of 2023. Mercedes-Benz sold the most conventional heavy-trucks of any manufacturer, enough for a 20% share, and sold 12% of the zero-emission heavy trucks sold in 2023. Volvo Trucks sold the most zero-emission heavy trucks, a 42% share, and only 17% of conventional heavy trucks. Renault Trucks, which sold 24% of the zero-emission heavy trucks, manufacturers the most popular model, the Renault 4x2 D cab, of which 200 were sold in 2023.

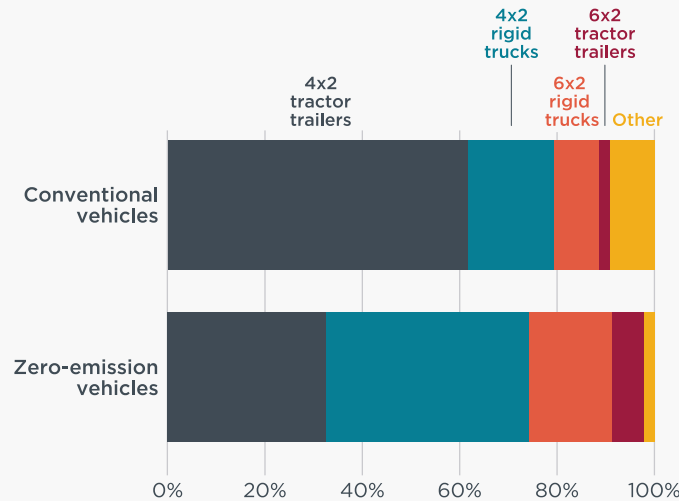
In the fourth quarter of 2023, heavy trucks were 77% of all heavy-duty vehicle sales. Of the 86,000 heavy trucks sold in the fourth quarter, 920 were zero-emission vehicles, a 1.4% share. Volvo Group, which consists of Volvo Trucks and Renault Trucks, produced 70% of all zero-emission heavy trucks—up from 63% in the third quarter of 2023—while accounting for less than a quarter of conventional vehicle sales.

**FIGURE 1.1**  
Sales of heavy trucks by powertrain



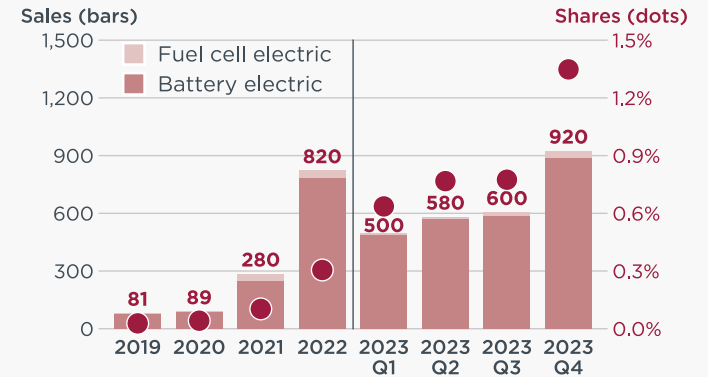
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**FIGURE 1.3**  
Sales of zero-emission heavy trucks by configuration and powertrain



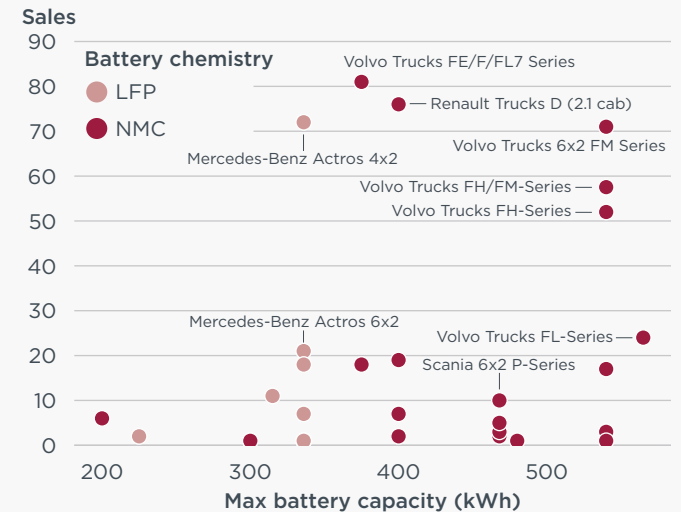
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**FIGURE 1.2**  
Sales of zero-emission heavy trucks



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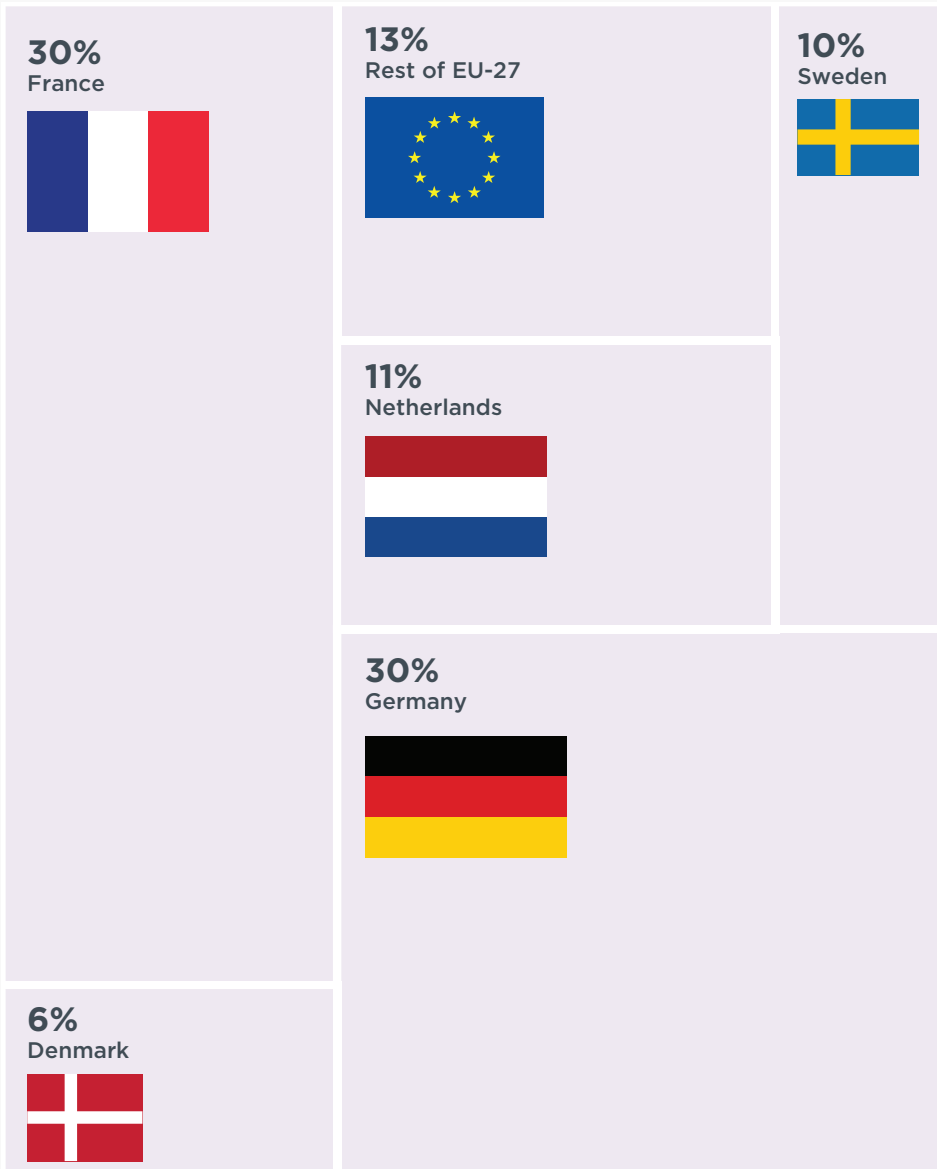
**FIGURE 1.4**  
Sales of zero-emission heavy trucks by model and battery capacity



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**FIGURE 1.5**

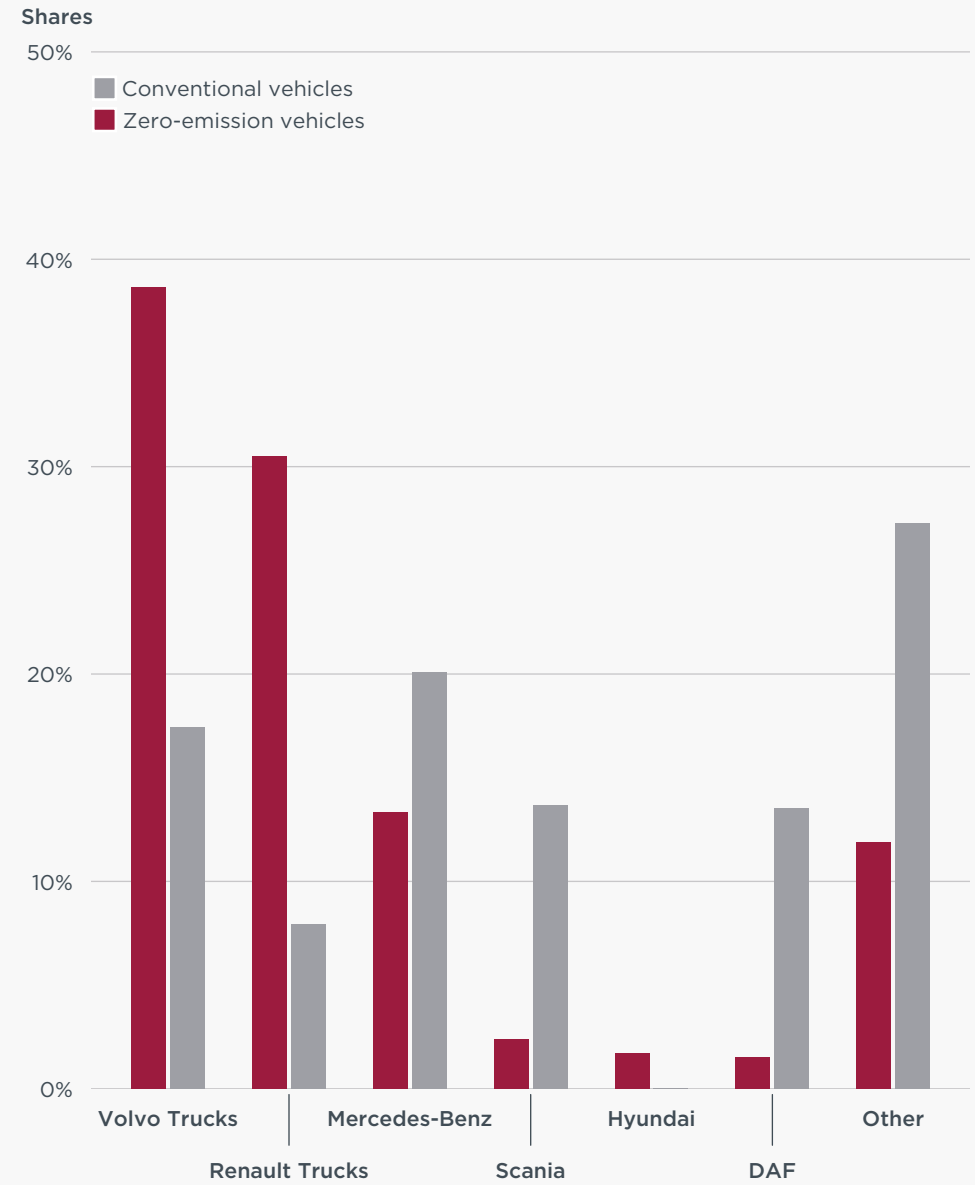
**Sales of zero-emission heavy trucks by Member State**



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**FIGURE 1.6**

**Shares of heavy trucks by powertrain and manufacturer**



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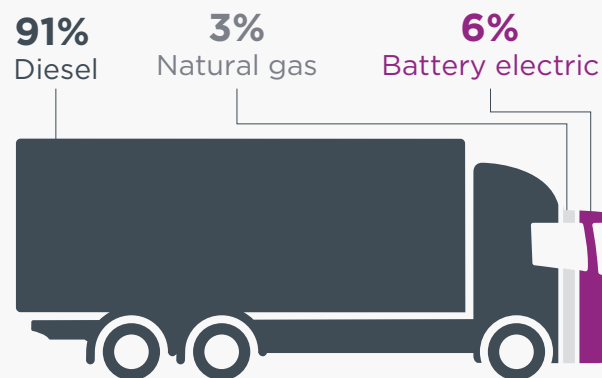
## LIGHT AND MEDIUM TRUCKS

### TRUCKS WITH A GROSS VEHICLE WEIGHT BETWEEN 3.5 TONNES AND 12 TONNES

In 2023, light and medium trucks achieved a 28% growth in sales compared with 2022—the largest year-on-year growth of the three segments. Zero-emission vehicle sales increased by 200%, from 910 in 2022 (2.1% share) to 3,100 in 2023 (4.8% share). The leading zero-emission vehicle model was the Ford E-Transit, which made up 60% of zero-emission vehicle sales in this segment in 2023. IVECO and Mercedes-Benz each represented a quarter of the total sales across conventional light and medium trucks but combined only made 7% of the zero-emission vehicles sold. Nearly 1,600 zero-emission vehicles were sold in Germany—a share of over 50% in the segment.

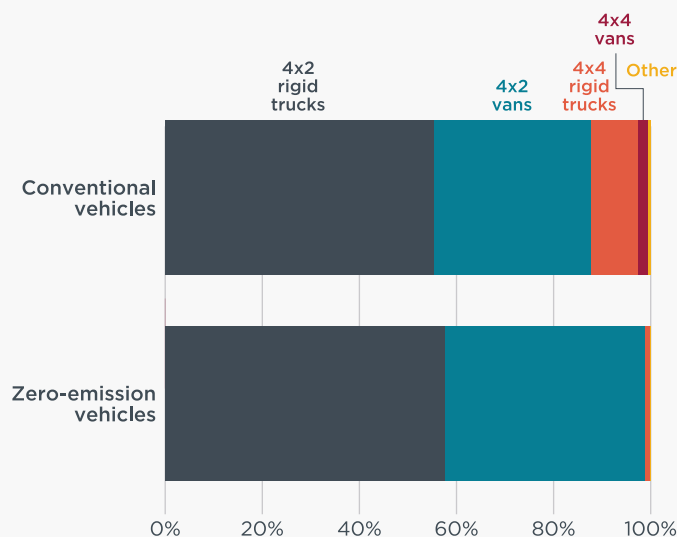
In the fourth quarter of 2023, light and medium trucks were 15% of the 12,000 heavy-duty vehicles sold during this period; 730 of these were zero-emission vehicles, representing a decrease in the zero-emission sales share from 8% in the third quarter to 6% in the fourth quarter of 2023. Ford remained the largest supplier of zero-emission light and medium trucks; 270 Ford E-Transit vehicles were sold in the fourth quarter of 2023, down from 770 in the third quarter. In the fourth quarter, 150 Fiat E-Ducatos were sold.

**FIGURE 2.1**  
Sales of light and medium trucks by powertrain



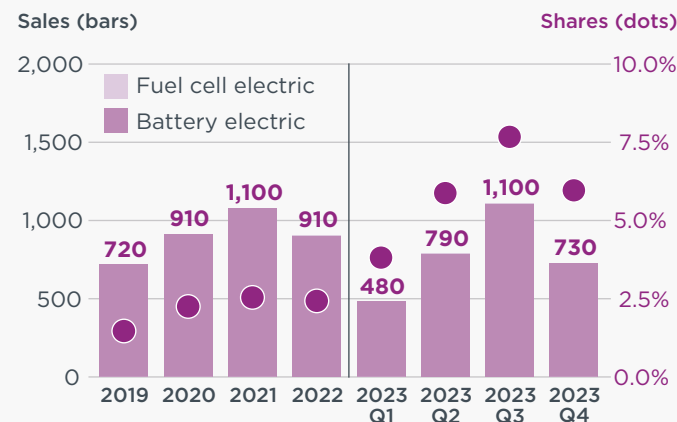
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**FIGURE 2.3**  
Sales of zero-emission light and medium trucks by configuration and powertrain



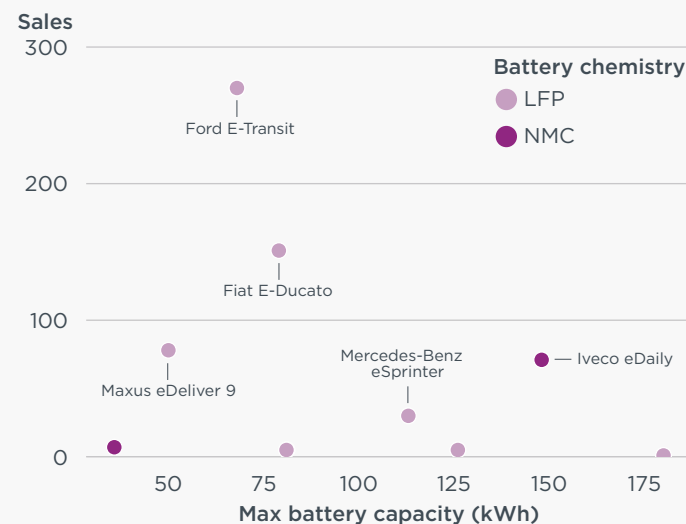
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**FIGURE 2.2**  
Historic sales of zero-emission light and medium trucks



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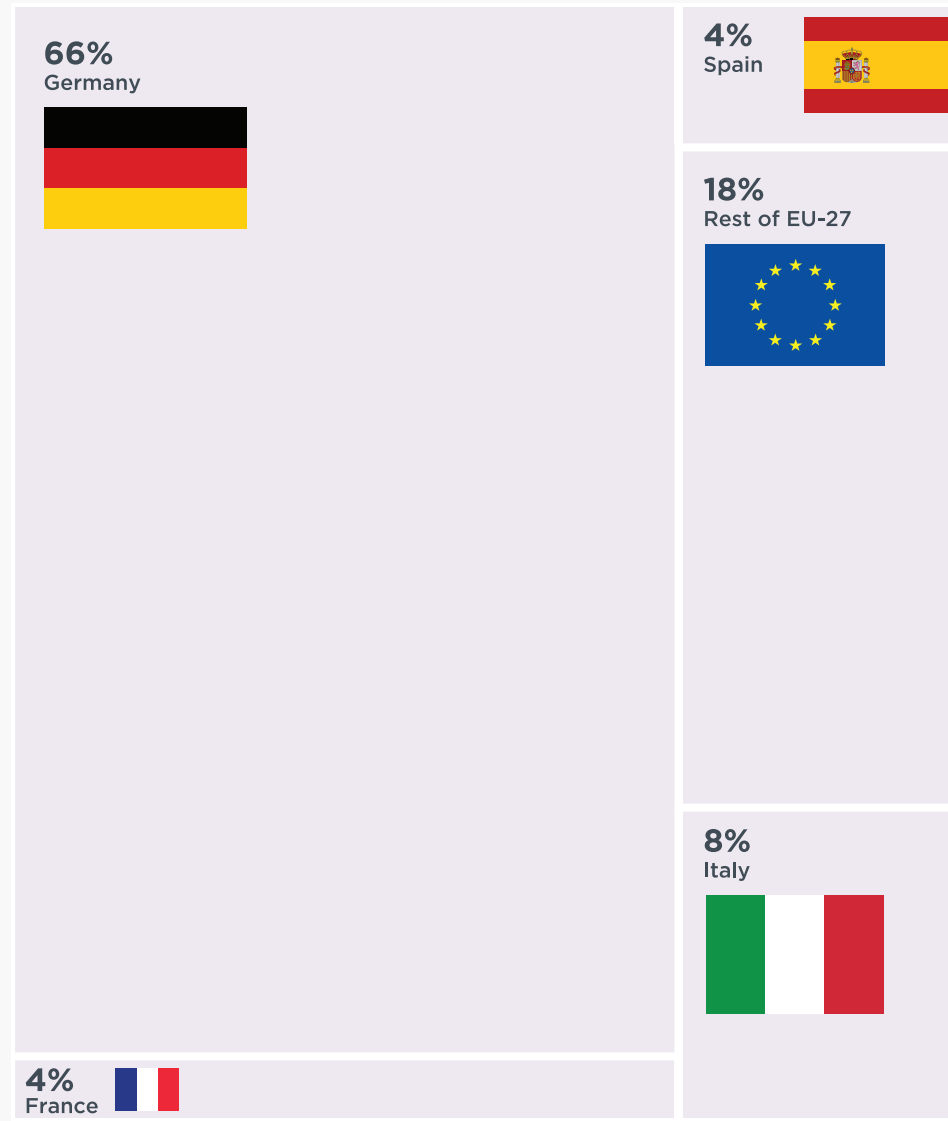
**FIGURE 2.4**  
Sales of zero-emission light and medium trucks by model and battery capacity



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**FIGURE 2.5**

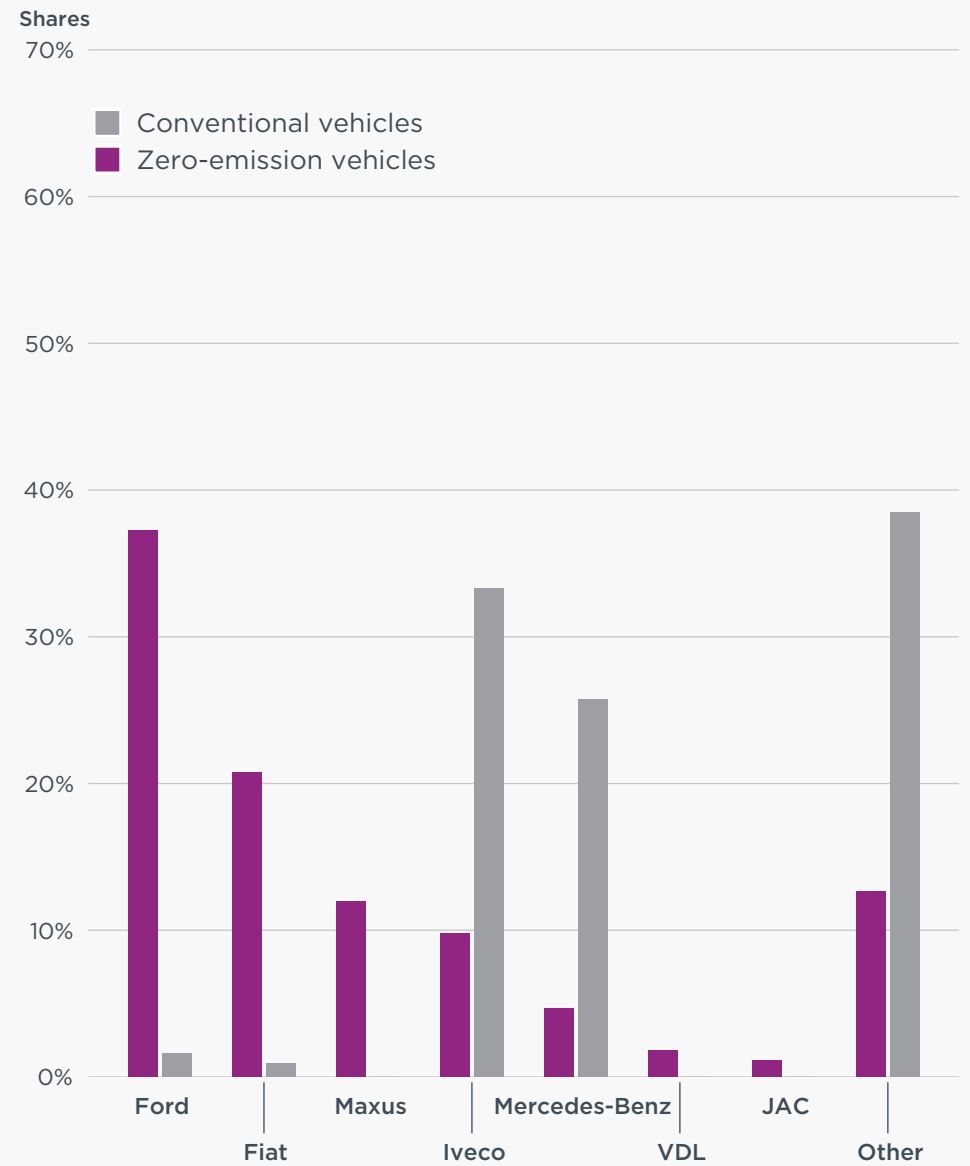
**Sales of zero-emission light and medium trucks by Member State**



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**FIGURE 2.6**

**Shares of light and medium trucks by powertrain and manufacturer**



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## BUSES AND COACHES

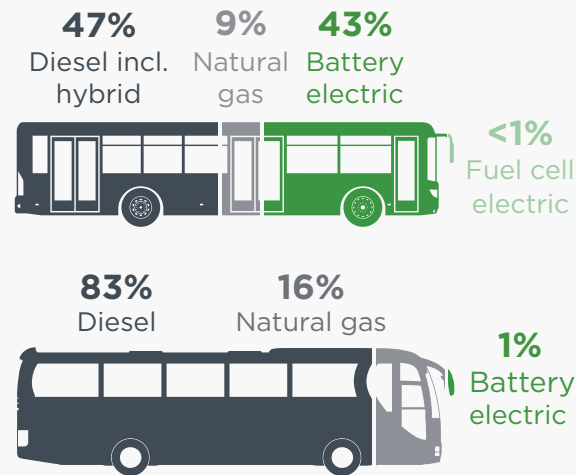
### WITH A GROSS VEHICLE WEIGHT ABOVE 3.5 TONNES

In 2023, the EU-27 had a 16% increase in bus and coach sales. Zero-emission buses accounted for 18% of sales in the segment in 2023, a 4% increase over 2022. France had the largest share of all bus and coach sales in the EU-27 in 2023 with 20%, while Germany led in zero-emission bus and coach sales with a 17% share. Manufacturers leading the segment in zero-emission vehicle sales were MAN, Solaris, and Karsan, which each had 12% of sales.

In the fourth quarter of 2023, buses and coaches were 9% of the sales of all heavy-duty vehicles. Of the 7,700 vehicles sold during this time, 1,700 were zero-emission vehicles, a 22% share and a significant increase from the 16% share in the third quarter. The sales share of battery electric city buses increased to 43% in the fourth quarter of 2023, up from 36% in the third and second quarter. MAN and Solaris tied in delivering the greatest share of zero-emission buses in the fourth quarter at 14% of sales each, while capturing 15% and 2%, respectively, of the conventional vehicle market.

FIGURE 3.1

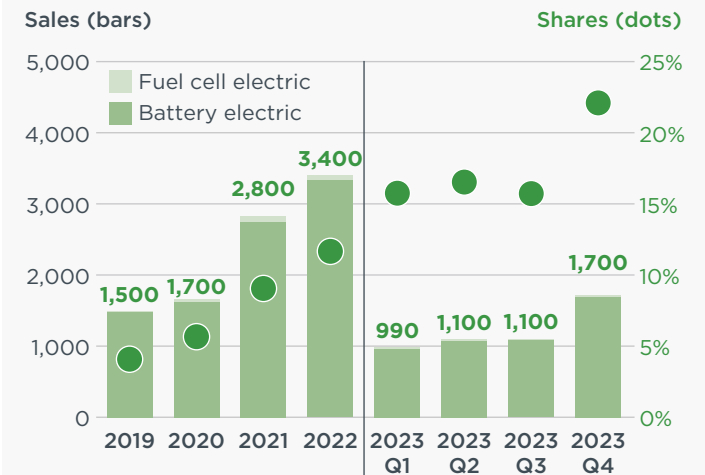
Sales of city buses (top) and interurban/coaches (bottom) by powertrain



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FIGURE 3.2

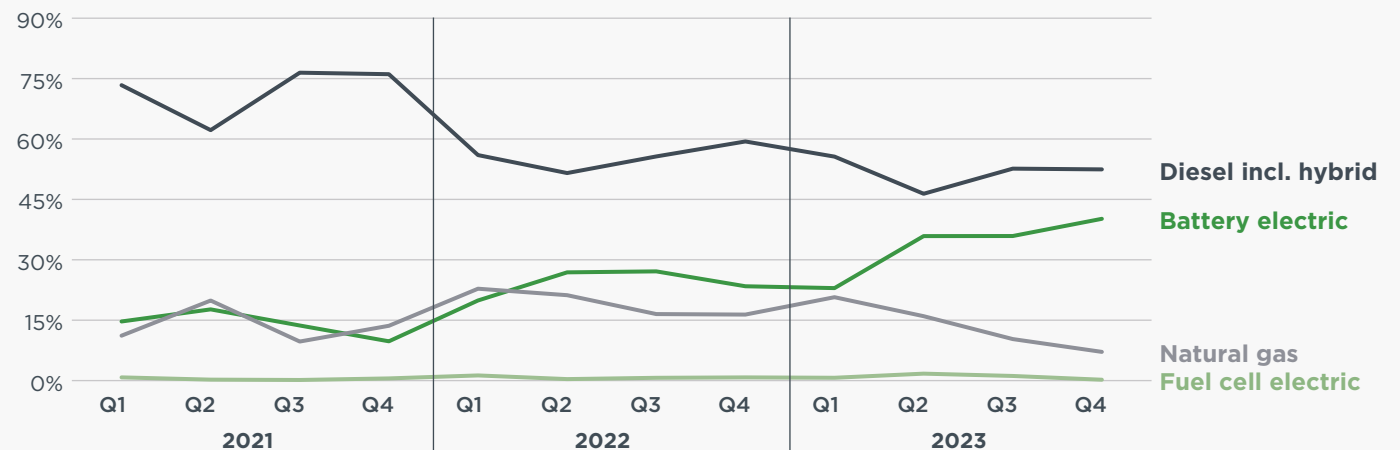
Historic sales of all zero-emission buses



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FIGURE 3.3

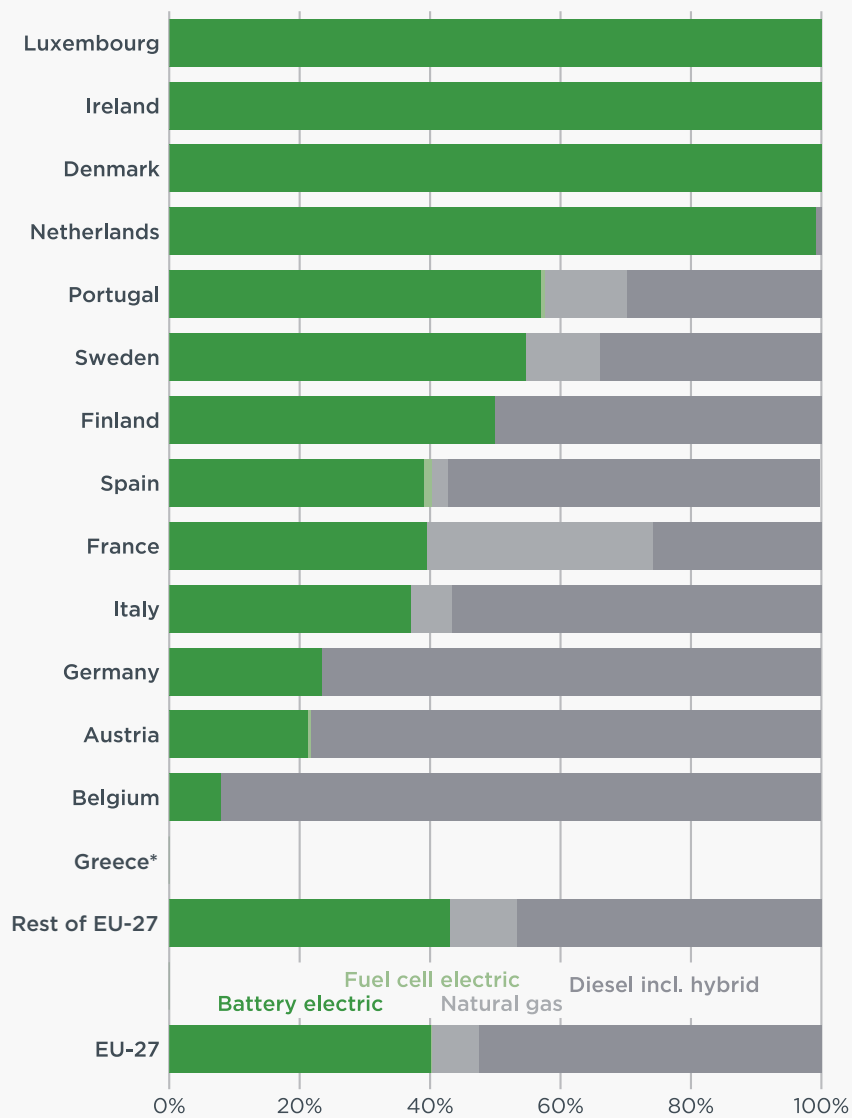
Sales of city buses by Member State and powertrain



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**FIGURE 3.4**

**Sales of city buses by powertrain and Member State**

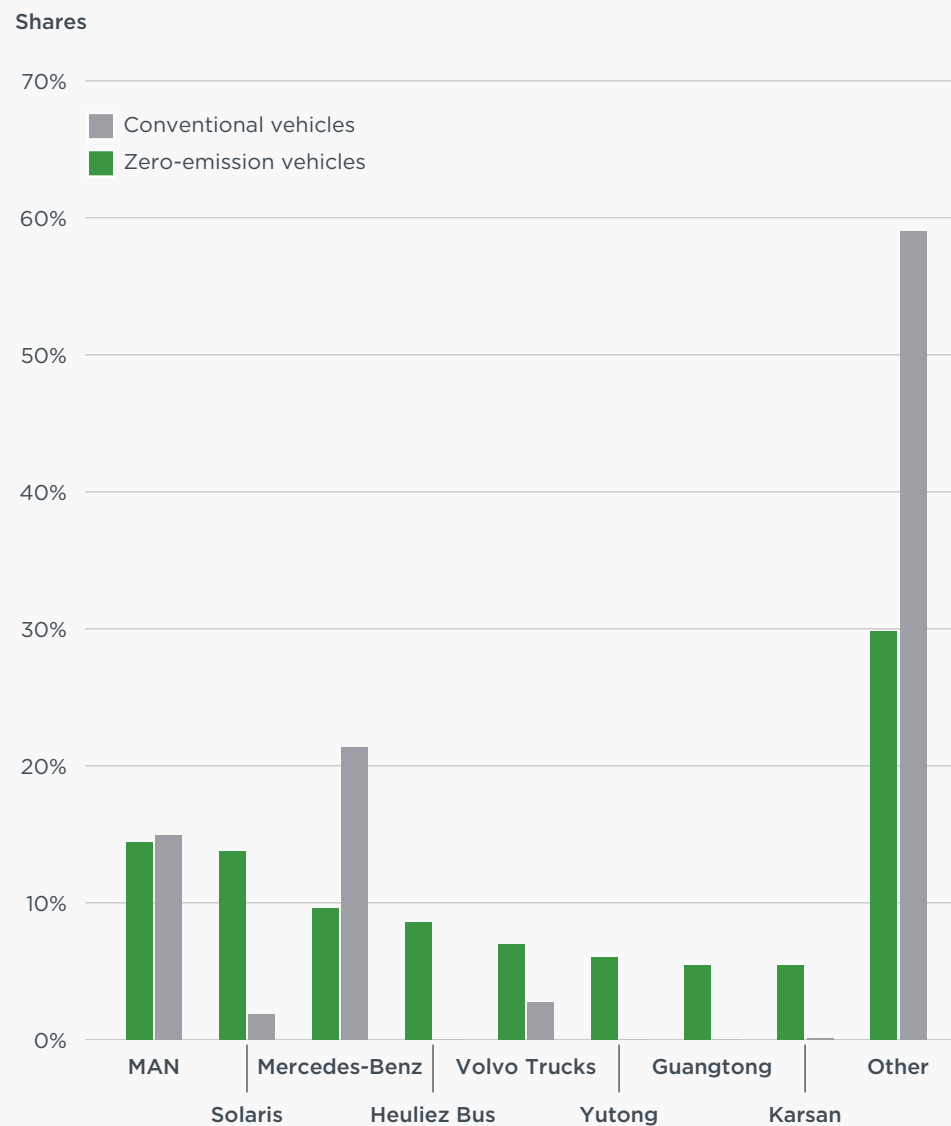


\*Greece had no sales of buses in the fourth quarter of 2023

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**FIGURE 3.5**

**Shares of all buses by powertrain and manufacturer**



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## TECHNOLOGY FOCUS: ZERO-EMISSION VEHICLE MANUFACTURERS BY REGION

### LOOKING BEYOND QUARTERLY SALES

Manufacturers headquartered in the EU-27 have historically been the dominant suppliers of conventional diesel- and natural gas-powered heavy-duty vehicles to the bloc: Between 2013 and 2023, EU-27-based manufacturers produced 98% of the conventional heavy trucks, 80% of light and medium trucks sold, and 90% of buses sold. With the rising demand for zero-emission powertrains, this market dynamic is beginning to shift and foreign manufacturers are stepping in to supply increasing numbers of vehicles.

The bus segment has seen the fastest rate of growth in zero-emission vehicles. Zero-emission buses

surpassed a 1% share of all bus sales for the first time in 2017 and achieved an 18% share in 2023. Over the same period, the share of zero-emission buses produced by manufacturers headquartered in China and sold in the EU-27 increased from 10% to 30%; most of these were sold by BYD and Yutong and, more recently, there have been sales by new entrants such as Guangtong and Zhong Tong.

The light and medium truck segment has seen the most fluctuations of the heavy-duty segments, and few zero-emission models have led the market. The StreetScooter WORK XL, made by the German company StreetScooter, was 22% of zero-emission sales in this segment in 2022, and that fell to 6% in 2023. On the other hand, the E-Transit

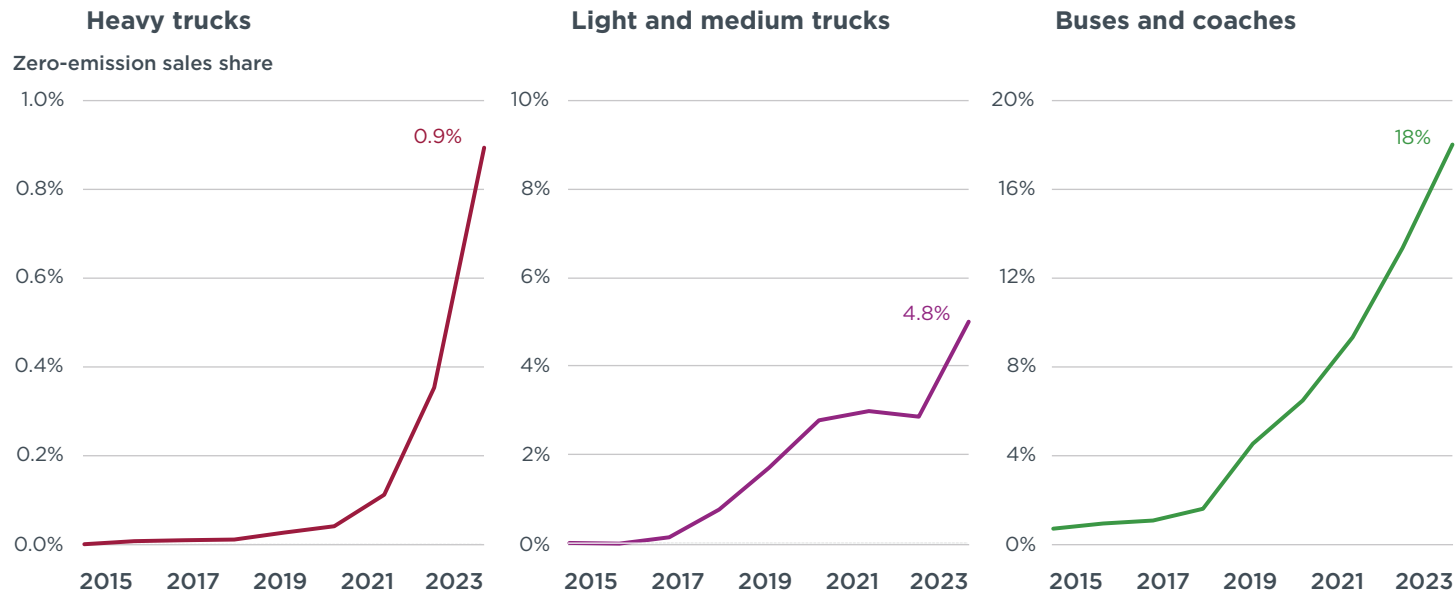
produced by Ford Otosan in Turkey was 60% of all zero-emission light and medium truck sales in 2023, up from 17% in 2022.

The heavy truck segment is the only segment for which nearly all production of zero-emission trucks remains within the EU-27. In 2023, 97% of all zero-emission heavy trucks were manufactured within the bloc, with Volvo Group responsible for over half of those. The heavy truck segment is also the least mature market of the three, and as demand for zero-emission long-haul trucks continues to rise, there may be growing international competition for manufacturers based in the EU-27, threatening their leading position.

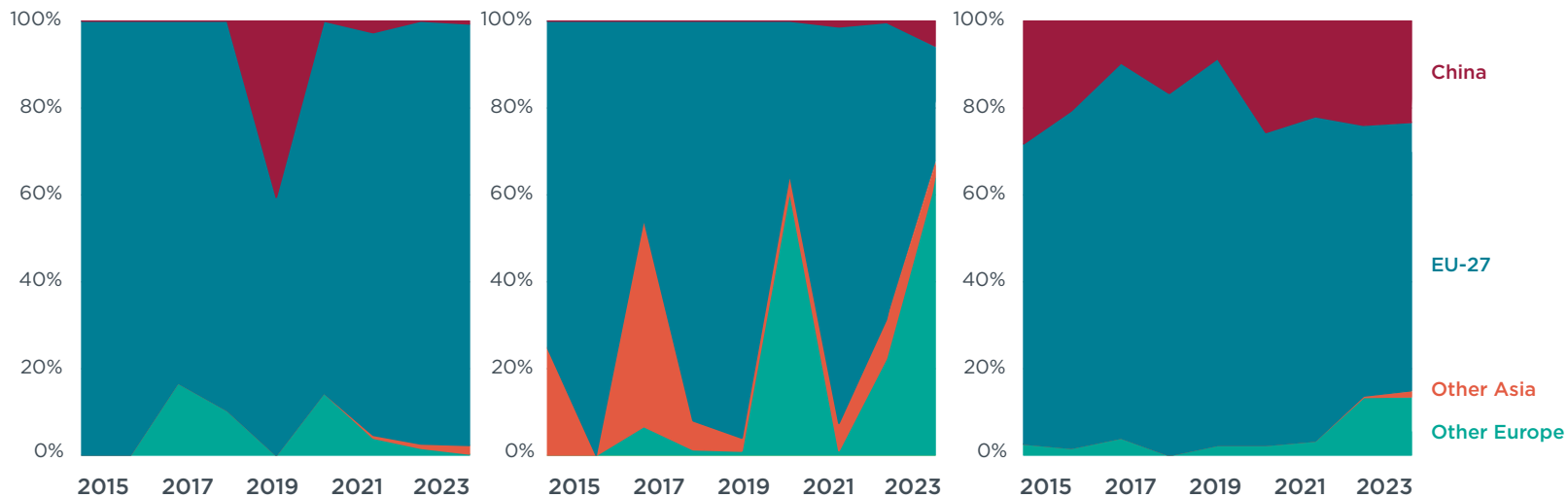


**FIGURE 4.1**

**Zero-emission sales share by vehicle type and region of manufacturer**



**Share of zero-emission vehicles by region of manufacturer**



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## DEFINITIONS, DATA SOURCES, METHODOLOGY, AND ASSUMPTIONS

A **zero-emission vehicle** is any vehicle whose propulsion system produces zero combustion emissions, such as a dedicated battery-electric, fuel cell-electric, or other motor that is not driven by combustion.

A **heavy-duty vehicle** is a commercial vehicle, intended for the transport of passengers or freight, with a gross vehicle weight above 3.5 tonnes.

A **heavy truck** is a truck with a gross vehicle weight above 12 tonnes.

A **light and medium truck** is a truck or van with a gross vehicle weight between 3.5 tonnes and 12 tonnes.

A **city bus** is a passenger vehicle with a gross vehicle weight above 3.5 tonnes that is used exclusively in urban environments.

An **interurban bus** is a passenger vehicle with a gross vehicle weight above 3.5 tonnes that is used in both urban and regional environments.

A **coach** is a passenger vehicle with a gross vehicle weight above 3.5 tonnes that is used exclusively in regional environments.

All data for heavy trucks, light and medium trucks, buses and coaches, and the technology focus on zero-emission vehicle manufacturers by region were supplied by IHS Markit; Copyright © IHS Markit, 2024. The exception is the battery size and chemistries in Figures 1.4 and 2.4, which were derived from manufacturer websites and press releases. All countries in the EU-27, except Bulgaria, are covered here.

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