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| September 2022  **Carbon Dioxide Emissions Intensity for New Australian Light Vehicles 2021** |

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# Executive summary

The National Transport Commission reports each year on the carbon dioxide intensity performance of new passenger and light commercial vehicles sold in Australia. The report highlights the collective impacts on carbon dioxide emissions intensity from the range of vehicles sold to Australians.

The Carbon Dioxide Emissions Intensity for New Australian Light Vehicles Report for 2021 shows Australia is falling behind other countries when it comes to driving down emissions.

Of all new passenger cars sold in Australia last year around 45 per cent had an emissions intensity of 160 g/km or less, compared with Europe where almost 90 percent of cars sold did.

The report found that Australia recorded a 179 per cent increase in sales of battery and plug-in hybrid electric vehicles between 2020 and 2021, however the overall emissions intensity of all new cars sold in this period fell by just 2 per cent.

Transport accounts for 18 per cent of Australia’s CO2 emissions and the cars we drive are the largest contributor.

Increased sales of SUVs and utes, where there are fewer choices for cleaner vehicles, are tempering Australia’s improvement in transport emissions.

The sale of 4x4 and 4x2 utes increased by more than 43,000 between 2020 and 2021, and large SUV sales increased by around 25,000. The emissions intensity for many of these popular vehicles exceeds 210 g/km, with no option yet in Australia to purchase an electric ute.

In 2021, half of all new car sales were SUVs, up from a quarter of all sales a decade ago. Similarly, the small vehicle segment once accounted for a quarter of all sales but today is one in 10.

However, there is a strong trend towards electric vehicles, despite the price differential and more limited choice of vehicles.

Battery electric vehicles (BEV) sales nearly tripled between 2020 and 2021 and plug-in hybrid electric vehicles (PHEV) sales doubled over the same period.

EV range anxiety is reducing with significant improvement in battery range from 200 km in 2011 to a maximum of nearly 600 km in 2021. Based on trends observed in other countries, increasing investment in public recharging stations, preferential tax arrangements and other incentives, and the adoption of emissions standards can lead to significant uptake in greener vehicles.

Today in Australia, battery and plug-in hybrid electric vehicles represent just 0.23 per cent of the nation’s 18.4 million cars and light commercial vehicles.

According to the International Energy Agency (2022), 2.8 per cent of 2021 car sales in Australia were electric. Around the world, this figure was 17 per cent in Europe, 16 per cent in China, 5 per cent in the United States and 4.4 per cent in New Zealand.

The National Transport Commission continues to collaborate with governments and industry to develop the data needed to support the commitment of all jurisdictions to transition to a zero emissions fleet.

## Key findings

* Data from the Federal Chamber of Automotive Industries (FCAI) voluntary CO2 Emissions Standard shows that the 2021 average emissions intensity for passenger cars and light SUVs (MA category) was 146.5 g/km. By contrast, the average emissions intensity of heavy SUVs and light commercial vehicles (MC+NA category) was 212.5 g/km. Both figures represent a 2 per cent decrease from the previous year.
* If Australian consumers had purchased vehicles with best-in-class carbon dioxide emissions in 2021, the national average carbon dioxide emissions intensity from these new car sales would have been reduced by 91 per cent for the MA category and 47 per cent for the MC+NA category.
* There has been a large shift of sales away from passenger motor vehicles’ segments towards SUVs and light trucks.
* Sales in the small vehicle segment represented one quarter of all sales in 2011 but decreased to 11 per cent by 2021.
* Sales in the light vehicle segment decreased from 14 per cent in 2011 to 5 per cent in 2021.
* Sales of hybrid vehicles increased by 20 per cent in 2021 compared with 2020, with 70,506 hybrid vehicles sold in 2021.
* Electric vehicles are becoming more popular, although off a low base, with 20,579 battery or plug-in hybrid electric vehicles sold by FCAI members, including Tesla, in 2021 compared with 7,388 vehicles sold in 2020 – a 179 per cent increase.
* As a result of these sales the total number of electric vehicles within the estimated Australian vehicle fleet grew by 93 per cent within the year.
* Across the states and territories, the percentage increase in the estimated total electric vehicle fleet was greatest for Western Australia (136 per cent) and lowest for South Australia (46 per cent).
* The average emissions intensity for the MA category was lowest for government car fleets (129 g/km), followed by business buyers (152 g/km) and private buyers (153 g/km). For the MC+NA category, the emissions intensity was relatively similar for all buyer types, with government buyers having the lowest (214 g/km) and business buyers having the highest (217 g/km).

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# Abbreviations

**BEV** battery electric vehicle

**EEA** European Environment Agency

**FCAI**  Federal Chamber of Automotive Industries

**g/km** grams per kilometre

**GVM**  gross vehicle mass

**HEV** hybrid electric vehicle

**ICCT**  International Council on Clean Transportation

**IEA** International Energy Agency

**MA** passenger cars and light SUVs

**MC+NA** heavy SUVs and light commercial vehicles

**NTC** National Transport Commission

**PHEV** plug-in hybrid electric vehicle

**SUV**  sports utility vehicle

# Introduction

Each year since 2009, the National Transport Commission (NTC) has published a carbon dioxide emissions intensity report on new Australian light vehicles. This is the latest in this series and provides data for 2021.

Vehicle emissions intensity is a measure of vehicle efficiency, not actual vehicle emissions which depend on many real-world factors such as distance travelled, the nature of the driving, and road and traffic conditions.

The Federal Chamber of Automotive Industries (FCAI) collates carbon dioxide emissions intensity data from vehicle manufacturers. We use the FCAI data to prepare this report and we would like to thank the FCAI for making this data available for use in this report.

This report is divided into three main sections:

* Section 2
* Describes the methodology used.
* Section 3
* Presents the results of the analysis.
* Section 4
* Compares Australian data with international data.

# Methodology

This section describes the methodology used to calculate the carbon dioxide emissions intensity data for Australia.

The FCAI and its members collate data on the sales of new vehicles each year. It provided data on 2021 sales to the NTC. We entered the FCAI data into a database and analysed it. These records consisted of:

* **vehicle attributes:** make, model, vehicle generation, body style, engine capacity, number of cylinders, engine power, transmission type, gears, number of seats, gross vehicle mass (GVM), kerb mass, driven wheels, country of origin, fuel type, secondary fuel type, carbon dioxide emissions intensity, vehicle category and fuel economy
* **vehicle segment:** consistent with the classifications and definitions as described in **‎Table 1**
* **sales data:** sales by state and region and by type of buyer (that is, government, business or private).

Carbon dioxide emissions intensity for vehicles is calculated using the method described in *Vehicle Standard* (*Australian Design Rule 81/02 – fuel consumption labelling for light vehicles)* and expressed in grams of carbon dioxide per kilometre (g/km). The data in this report reflects tailpipe emissions. It does not reflect all aspects of lifecycle emissions for a vehicle, which also include those involved in manufacturing the vehicle, transporting it to the point of sale, and disposing of it.

In previous years of this report, until the report on 2019 vehicle sales, the NTC calculated a simple sales-weighted average for vehicle emissions for different vehicle attributes, categories and buyer types. A weighted average calculation is similar to an arithmetic average (the most common type of average), but instead of each data point contributing equally to the final average, some data points contribute more than others. In this case, the average was weighted to vehicle sales.

However, for the past two years of reporting the NTC has made changes to this methodology based on updates to how carbon dioxide emission data is reported in Australia by the FCAI, which provides the data to the NTC.

In early 2021, the FCAI released the inaugural results of its voluntary industry-led emissions standard (FCAI, 2021b). The results of the FCAI’s standard are reported in two categories: an MA category (comprising passenger cars and light SUVs) and an MC+NA category (comprising heavy SUVs and light commercial vehicles). The NTC’s report provides results aligned with these categories.

The FCAI’s voluntary standard is based on a number of internationally mandated practices, including from Europe and the USA. These practices include the use of super-credits, air-conditioning credits and off-cycle credits (FCAI, 2021c).

To ensure consistency with this reporting, the NTC has adopted the use of super-credits when calculating weighted average emission values. This means that while the majority of vehicle sales still have a weighting of 1 when calculating a weighted average, some low emissions vehicles will have weightings of 1.5, 2 or 3, depending on their emissions values (see details in FCAI, 2021c).[[1]](#footnote-2)

The data needed to calculate air-conditioning credits and off-cycle credits was not available to the NTC and therefore has not been included in the results reported in this document (with the exception of **Figure 4**, ‎**Figure 6**, **‎Figure 7**, **‎Figure 8**, and **‎Figure 9** and **‎Table 9**, where the NTC has used the numerical results reported by the FCAI in its standard (FCAI, 2022a) to report them in a graphical format).

A further change to the methodology in the past two years of reporting is that battery electric vehicles with no secondary engine and emissions of 0 g/km are included when calculating weighted average emissions intensity values in most tables and figures in this report.[[2]](#footnote-3) Although vehicles operating on their electric engine may have no tailpipe emissions, the electricity may produce carbon dioxide emissions depending on its source.

Given the changes to the methodology outlined in the previous paragraphs, it is not possible to report on some of the longer-term year-on-year changes in emissions intensity that were included in previous years’ reports. However, with two years of data under the new methodology available, it is again possible to do some year-on-year comparisons on a consistent basis over this time period, and various graphs and tables throughout the report and appendix provide these comparisons.

Tesla sales data and other vehicle information is not included in the FCAI database, and as a result most tables and figures in this report do not include Tesla. However, certain tables and figures in the electric vehicles section do include estimated Tesla sales (these tables and figures specifically mention Tesla).

The light vehicles are classified into three main classes by the FCAI: passenger motor vehicles, sports utility vehicles (SUVs) and light trucks. These classes are then broken down into segments. For example, the segments of SUVs are light, small, medium, large and upper large. **‎Table 1** presents the classifications and definitions.

1. FCAI motor vehicle classifications and definitions

| Passenger motor vehicles | Sports utility vehicles | Light trucks |
| --- | --- | --- |
| Passenger vehicles are classified dependent on size, specification and average retail pricing.  Selected vehicle types will be assessed on footprint\* defined as length (mm) x width (mm), rounded, as follows: | Vehicles classified as SUVs meet the FCAI criteria for classifying SUVs based on a 2/4 door wagon body style and elevated ride height. Vehicles typically will feature some form of 4WD or all-wheel drive; however, where a 2WD variant of a model is available it will be included in the appropriate segment to that model.  Selected vehicle types will be assessed on footprint\* defined as length (mm) × width (mm), rounded, as follows: | Vehicles designed principally for commercial use but may include designs intended for non-commercial applications. |
| **Micro**  Hatch, sedan or wagon with a footprint < 6.3 m2 | **Light**  ≤ 7.6 m2 | **Light Bus < 20 seats**  8+ seats, but less than 20 seats |
| **Light**  Hatch, sedan or wagon with a footprint range 6.301–7.5 m2 | **Small**  7.601–8.1 m2 | **Light Bus ≥ 20 seats**  20+ seats |
| **Small**  Hatch, sedan or wagon with a footprint range 7.501–8.3 m2 | **Medium**  8.101–8.8 m2 | **Van/Cab Chassis ≤ 2.5 t**  Blind/window vans and cab chassis ≤ 2.5 t GVM |
| **Medium**  Hatch, sedan or wagon with a footprint range 8.301–9.0 m2 | **Large**  8.801–9.8 m2 | **Van/Cab Chassis > 2.5–3.5 t**  Blind/window vans and cab chassis 2.5–3.5 t GVM |
| **Large**  Hatch, sedan or wagon with a footprint range 9.001–9.5 m2 | **Upper Large**  ≥ 9.801 m2 | **Pick-up/Chassis 4×2**  Two driven wheels, normal control (bonnet), utility, cab chassis, one and a half cab and crew cab |
| **Upper Large**  Hatch, sedan or wagon with a footprint range > 9.501 m2 |  | **Pick-up/Chassis 4×4**  Four driven wheels, normal control (bonnet), utility, cab chassis, one and a half cab and crew cab |
| **People Movers**  Wagon for passenger usage, seating capacity > 5 people |  |  |
| **Sports**  Car, coupe, convertible or roadster |  |  |

**Note:** These parameters are indicative only; exceptions do occur based on market focus and other subjective criteria. They are largely based on the specifications listed and are reflective of the volume-selling variant where crossover occurs.

\* Note the NTC has converted the footprint units to m2. The units on the FCAI website are mm2/1000.

**Source:** FCAI 2021a

Carbon dioxide emissions intensity per kilometre is directly related to vehicle fuel consumption values. **‎Table 2** provides fuel consumption figures and the corresponding carbon dioxide emissions intensity for petrol and diesel.

Another way to relate carbon dioxide emissions intensity to fuel is per litre of fuel consumed. For example, 1 litre of petrol will produce about 2.3 kg of carbon dioxide and 1 litre of diesel will produce about 2.7 kg of carbon dioxide.

1. Fuel consumption and corresponding average emissions intensity

| Fuel consumption  (litres per 100 kilometres) | Petrol average emissions intensity (g/km) | Diesel average emissions intensity (g/km) |
| --- | --- | --- |
| 3 | 68 | 80 |
| 4 | 91 | 107 |
| 5 | 114 | 134 |
| 6 | 137 | 160 |
| 7 | 160 | 187 |
| 8 | 182 | 214 |
| 9 | 205 | 240 |
| 10 | 228 | 267 |
| 11 | 251 | 294 |
| 12 | 274 | 321 |
| 13 | 297 | 347 |
| 14 | 319 | 374 |
| 15 | 342 | 401 |
| 16 | 365 | 427 |
| 17 | 388 | 454 |
| 18 | 411 | 481 |
| 19 | 433 | 508 |
| 20 | 456 | 534 |

**Source:** Department of Climate Change 2009

To help get a frame of reference for carbon dioxide emissions intensity from vehicles,   
**‎Figure 1** and **‎Figure 2** show the emissions intensity from the top 10 selling vehicle models in Australia during 2021, for the Passenger Cars and Light SUVs (MA) and the Heavy SUVs and Light Commercial Vehicle (MC+NA) categories, respectively. **‎Figure 1** and ‎**Figure 2** also contain four low emitting vehicle models[[3]](#footnote-4) and the highest emitting model in each category.

1. Average emissions intensity for top 10 selling vehicles in Australia in the MA category plus other selected models, 2021

| Make and Model | CO2 emissions (g/km) |
| --- | --- |
| MG MG ZS EV (BEV) | 0 |
| Hyundai IONIQ (PHEV) | 26 |
| Toyota YARIS HYBRID (HEV) | 76 |
| Skoda FABIA (petrol) | 104 |
| Toyota COROLLA HYBRID | 91 |
| Toyota RAV4 HYBRID | 108 |
| Mazda 300 | 147 |
| Mitsubishi OUTLANDER | 158 |
| MG MG ZS | 163 |
| Kia BD CERATO | 165 |
| Mazda CX5 | 171 |
| Hyundai I30 | 172 |
| Mitsubishi ASX | 177 |
| Hyundai TUCSON | 178 |
| Lamborghini AVENTADOR | 486 |

1. Average emissions intensity for top 10 selling vehicles in Australia in the MC+NA category plus other selected models, 2021

| Make and Model | CO2 emissions (g/km) |
| --- | --- |
| Renault KANGOO (BEV) | 0 |
| Volvo Car XC90 (PHEV) | 49 |
| Toyota KLUGER HYBRID (HEV) | 128 |
| Volkswagen CADDY VAN (diesel) | 129 |
| Nissan NAVARA | 204 |
| Mazda B30 | 206 |
| Isuzu Ute D-MAX | 207 |
| Toyota HILUX 4X4 | 210 |
| Toyota PRADO | 211 |
| Ford RANGER | 220 |
| Mitsubishi TRITON | 223 |
| Toyota HILUX 4X2 | 239 |
| Toyota LANDCRUISER (SUV Upper Large) | 253 |
| Toyota LANDCRUISER (Pick-up/Chassis 4×4) | 281 |
| Jeep GRAND CHEROKEE | 385 |

# Australian emissions intensity

This section contains Australian data about the carbon dioxide emissions intensity for new passenger vehicles and light commercial vehicles in 2021.

As noted in Chapter 2, the methodology used to report emissions intensity has recently changed in several ways from historical NTC reports. The largest changes are to report separate emissions intensity figures for the MA and MC+NA categories – rather than a single national average – and the use of super-credits when calculating sales-weighted average emissions. **Figure 4** shows the emissions intensity values for the MA and MC+NA categories, as reported by the FCAI in the results for its standard (FCAI, 2021b; FCAI, 2022a), and **Figure 3** shows the national average emissions intensity from previous NTC reports.[[4]](#footnote-5) Given the change in methodology, it is not possible to directly compare the emissions intensity results for 2020 and 2021 with those in previous years.

Under the previous methodology used by the NTC, there had been an overall reduction of 28 per cent in carbon dioxide emissions intensity between 2002 and 2019, although the annual reductions were relatively small between 2016 and 2019. The data from the FCAI’s voluntary standard shows that there was a fall in emissions intensity by around 2 per cent in both the MA and MC+NA categories between 2020 and 2021. Additional data on the annual average emissions intensity is provided in ‎**Table 9** in the appendix.

1. National average emissions intensity for new passenger and light commercial vehicles, 2002–2019

| Year | Average CO2 emissions (g/km) |
| --- | --- |
| 2002 | 252 |
| 2003 | 250 |
| 2004 | 247 |
| 2005 | 241 |
| 2006 | 230 |
| 2007 | 226 |
| 2008 | 222 |
| 2009 | 219 |
| 2010 | 213 |
| 2011 | 207 |
| 2012 | 199 |
| 2013 | 192 |
| 2014 | 188 |
| 2015 | 184 |
| 2016 | 182 |
| 2017 | 182 |
| 2018 | 181 |
| 2019 | 181 |

1. Average emissions intensity for MA and MC+NA category, 2020–2021

| Year | Average CO2 emissions - MA (g/km) | Average CO2 emissions - MC+NA (g/km) |
| --- | --- | --- |
| 2020 | 149.5 | 216.7 |
| 2021 | 146.5 | 212.5 |

**Note:** The data in this graph for 2020 and 2021 is sourced from the FCAI’s voluntary emissions standard (FCAI, 2021b; FCAI, 2022a), and therefore includes the impacts of air-conditioning credits and off-cycle credits.

|  |
| --- |
| **Over 91% of all new vehicle sales in 2021 were from 15 makes.** |

It is also possible to graph the distribution of emissions intensity for all vehicles sold in each year, when vehicle sales are ranked from lowest emitting to highest emitting, without calculating any sales-weighted average. ‎**Figure 5** includes the following:

* The red bars reflect the median emissions intensity of all vehicles sold in a particular year, with 50 per cent of vehicles sold having a lower emissions intensity value and 50 per cent a higher one.
* The thin vertical lines at the bottom and top show, respectively, the ranges for the lowest and highest emitting 5 per cent of vehicles sold in each year. These reflect a relatively wide range of emissions values comprising relatively few sales and, particularly for the line showing the range of higher emitting vehicles, will not include many of the top-selling vehicle models in a year.
* The wider shaded area in different colours reflects the range of emissions intensity values for majority of vehicles sold in a year. The range from the bottom of the green shaded area to the top of the purple shaded area reflects the ‘middle 90 per cent’ of vehicles sold in a year in terms of emissions intensity values, while the range from the bottom of the yellow shaded area to the top of the blue shaded area reflects the ‘middle 50 per cent’ of vehicles sold.

Analysing the entire time period in the graph, there is a clear downward trend in the shaded areas of the graph over time, particularly in the earlier years. In 2007, 90 per cent of vehicles sold had an emissions intensity value between 151 and 311 g/km, whereas by 2021 the corresponding range was 107 to 252 g/km. The increasing sales of electric and hybrid vehicles in the Australian market is evident by the continued decrease of the lower bound of the green shaded area, which in the past two years has reached 107 g/km (which is a lower emissions intensity than almost all petrol- or diesel-only vehicles sold). However, the bounds of the blue and purple shaded areas have had relatively little change since 2016, and this likely reflects the increasing prevalence of SUVs and utes in new vehicle sales (as discussed in more detail later in the report).

1. Distribution of emissions intensity of vehicles sold, 2007–2021

| Year | Lowest emissions | 5th percentile | 25th percentile | Median | 75th percentile | 95th percentile | Highest emissions |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2007 | 0 | 151 | 187 | 226 | 260 | 311 | 495 |
| 2008 | 0 | 152 | 182 | 222 | 258 | 309 | 495 |
| 2009 | 0 | 150 | 182 | 220 | 248 | 304 | 490 |
| 2010 | 0 | 145 | 174 | 214 | 242 | 291 | 490 |
| 2011 | 0 | 143 | 171 | 205 | 237 | 283 | 490 |
| 2012 | 0 | 139 | 162 | 198 | 229 | 273 | 450 |
| 2013 | 0 | 128 | 157 | 187 | 220 | 268 | 450 |
| 2014 | 0 | 126 | 152 | 179 | 219 | 265 | 490 |
| 2015 | 0 | 121 | 152 | 175 | 217 | 259 | 450 |
| 2016 | 0 | 125 | 150 | 175 | 212 | 253 | 398 |
| 2017 | 0 | 126 | 150 | 174 | 211 | 259 | 448 |
| 2018 | 0 | 126 | 152 | 173 | 209 | 252 | 464 |
| 2019 | 0 | 115 | 152 | 173 | 210 | 250 | 486 |
| 2020 | 0 | 107 | 152 | 173 | 212 | 252 | 486 |
| 2021 | 0 | 107 | 152 | 173 | 208 | 252 | 486 |

## Vehicle manufacturers

In 2021 there were 45 makes of new vehicles sold to Australian consumers in the MA category and 27 in the MC+NA category (with 25 of the 27 MC+NA category makes also appearing in the MA category). Around 91 per cent of all new vehicle sales were from the 15 highest selling makes in the MA category, while the corresponding figure for the MC+NA category is 95 per cent. The average carbon dioxide emissions intensity of these market-leading makes largely determines the overall average emissions intensity for each category.

‎**Figure 6** provides a graphical representation of the data released by the FCAI in its voluntary emissions standard (FCAI, 2022a). The limit curve line illustrated in the figure represents the mathematical relationship between the sales-weighted mass of a brand’s vehicles sold within Australia and its applicable emission targets. Simply put, the lower a brand’s average sales-weighted mass is, the lower its emissions target and vice versa.

Each brand is represented by a circle, with the size of each circle representing the relative number of sales (Toyota had the highest sales with 100,448). Brands shown in green achieved results below the limit curve, meaning they beat their brand-specific target, while other brands that were above the limit curve are represented in red. Thirteen brands achieved results in 2021 below the limit curve.

For the MA category, Toyota had the lowest emissions (96.7 g/km) while Mercedes-Benz Vans was furthest below its brand-specific target (beating it by 65.7 g/km), albeit with just 588 sales. Lamborghini had both the highest emissions (328.9 g/km) and the largest distance above its target (151.0 g/km), but with just 131 sales during 2021. Full details on the sales and emissions intensity of each brand can be found in the FCAI’s voluntary standard (FCAI, 2022a).

1. Average emissions intensity, average mass and limit curve for brands in the MA category, 2021

| Manufacturer | Average CO2 emissions (g/km) | Specific emissions target (g/km) | Difference between average CO2 emissions and specific target (g/km) | Number of Sales | Average mass (kg) |
| --- | --- | --- | --- | --- | --- |
| Toyota | 96.731 | 151.871 | -55.140 | 100,448 | 1,587 |
| MINI | 105.524 | 139.885 | -34.361 | 3,541 | 1,432 |
| Fiat | 115.368 | 112.697 | 2.672 | 736 | 1,079 |
| Suzuki | 125.465 | 115.582 | 9.883 | 14,612 | 1,116 |
| Volvo Car | 132.073 | 179.433 | -47.360 | 5,671 | 1,945 |
| Lexus | 135.306 | 175.271 | -39.965 | 8,990 | 1,891 |
| Porsche | 136.107 | 179.619 | -43.512 | 3,599 | 1,948 |
| Skoda | 141.168 | 147.925 | -6.757 | 9,172 | 1,536 |
| Citroen | 142.128 | 134.075 | 8.053 | 180 | 1,356 |
| MG | 143.662 | 136.392 | 7.270 | 39,534 | 1,386 |
| Peugeot | 144.096 | 141.531 | 2.565 | 2,258 | 1,453 |
| Volkswagen | 144.741 | 151.701 | -6.959 | 29,623 | 1,585 |
| Alfa Romeo | 145.554 | 153.163 | -7.609 | 617 | 1,604 |
| Alpine | 146.000 | 120.487 | 25.513 | 28 | 1,180 |
| Mazda | 155.713 | 151.803 | 3.910 | 82,711 | 1,586 |
| Audi | 157.710 | 163.355 | -5.646 | 15,810 | 1,736 |
| Mercedes-Benz Vans | 158.378 | 224.029 | -65.651 | 588 | 2,524 |
| Kia | 159.682 | 148.027 | 11.655 | 67,964 | 1,537 |
| Honda | 159.856 | 146.030 | 13.826 | 17,563 | 1,511 |
| Mitsubishi | 160.094 | 147.280 | 12.814 | 37,670 | 1,528 |
| BMW | 160.665 | 163.785 | -3.121 | 19,827 | 1,742 |
| Subaru | 162.575 | 148.656 | 13.919 | 14,679 | 1,546 |
| Hyundai | 163.696 | 145.677 | 18.018 | 69,815 | 1,507 |
| Jaguar | 164.746 | 175.244 | -10.498 | 1,221 | 1,891 |
| Mercedes-Benz Cars | 165.205 | 177.484 | -12.279 | 27,807 | 1,920 |
| Nissan | 166.354 | 151.124 | 15.230 | 22,524 | 1,578 |
| Renault | 175.398 | 151.002 | 24.396 | 2,892 | 1,576 |
| SsangYong | 177.008 | 150.131 | 26.878 | 353 | 1,565 |
| GWM | 185.493 | 150.752 | 34.742 | 9,676 | 1,573 |
| Land Rover | 191.278 | 183.806 | 7.473 | 2,409 | 2,002 |
| Ford | 192.314 | 158.428 | 33.886 | 9,718 | 1,672 |
| Jeep | 201.379 | 164.639 | 36.739 | 821 | 1,753 |
| Isuzu Ute | 209.370 | 193.538 | 15.831 | 2,789 | 2,128 |
| Genesis | 238.770 | 191.735 | 47.035 | 734 | 2,105 |
| Maserati | 240.132 | 192.710 | 47.422 | 560 | 2,118 |
| Ferrari | 254.676 | 162.219 | 92.457 | 189 | 1,722 |
| LDV | 254.944 | 200.536 | 54.408 | 1,597 | 2,219 |
| Chrysler | 300.478 | 194.817 | 105.662 | 168 | 2,145 |
| Lamborghini | 328.931 | 177.965 | 150.966 | 131 | 1,926 |

**Note:** The data in this graph is sourced from the FCAI’s voluntary emissions standard (FCAI, 2022a), and therefore includes the impacts of air-conditioning credits and off-cycle credits.

|  |
| --- |
| **The 2021 average emissions intensity for passenger cars and light SUVs was 146.5 g/km.**  **By contrast, the average emissions intensity of heavy SUVs and light commercial vehicles was 212.5 g/km.** |

With two years of data now reported by the FCAI through its voluntary standard, it is possible to compare the percentage change in emissions intensity between 2020 and 2021. **‎Figure 7** shows this information for the top 15 selling brands in the MA category in 2021,[[5]](#footnote-6) with GWM’s emissions intensity decreasing by almost 16 per cent, while Honda’s increased by around 2.6 per cent.

1. Percentage change in average emissions intensity between 2020 and 2021 for the top 15 makes by volume in the MA category (%)

| Manufacturer | % change between 2020 and 2021 |
| --- | --- |
| GWM | -15.7 |
| MG | -11.1 |
| Kia | -5.9 |
| Volkswagen | -5.3 |
| Ford | -4.8 |
| Mitsubishi | -3.6 |
| Toyota | -3.5 |
| Hyundai | -2.8 |
| Nissan | -2.2 |
| Subaru | -1.5 |
| BMW | -1.2 |
| Mazda | -0.5 |
| Suzuki | -0.3 |
| Audi | -0.1 |
| Honda | 2.6 |

**Note:** The data for this graph is sourced from the FCAI’s voluntary emissions standard (FCAI, 2021b; FCAI, 2022a), and therefore includes the impacts of air-conditioning credits and off-cycle credits.

**‎Figure 8** shows the corresponding analysis for the MC+NA category. Toyota had the highest sales of all brands (120,517), reflected by the largest circle, and its emissions intensity was 11.6 g/km above its brand-specific target. Nine brands were below the limit curve. Peugeot had the lowest average emissions (150.5 g/km) and Audi was the brand that was furthest below its brand-specific target, beating its target by 32.1 g/km. Lexus had the highest average emissions intensity (301.5 g/km) and Chevrolet was the brand furthest above its specific emissions target (exceeding it by 63.9 g/km).

1. Average emissions intensity, average mass and limit curve for brands in the MC+NA category, 2021

| Manufacturer | Average CO2 emissions (g/km) | Specific emissions target (g/km) | Difference between average CO2 emissions and specific target (g/km) | Number of Sales | Average mass (kg) |
| --- | --- | --- | --- | --- | --- |
| Peugeot | 150.456 | 159.365 | -8.909 | 516 | 1,630 |
| Suzuki | 151.996 | 124.942 | 27.054 | 2,856 | 1,178 |
| Subaru | 156.066 | 165.422 | -9.357 | 22,252 | 1,710 |
| Renault | 164.525 | 167.485 | -2.960 | 2,825 | 1,737 |
| Volvo Car | 169.435 | 179.900 | -10.465 | 3,357 | 1,901 |
| BMW | 170.970 | 174.865 | -3.896 | 5,049 | 1,834 |
| Audi | 173.682 | 205.799 | -32.117 | 192 | 2,241 |
| Mercedes-Benz Vans | 174.678 | 194.857 | -20.179 | 1,017 | 2,097 |
| Porsche | 185.960 | 202.242 | -16.282 | 833 | 2,195 |
| Mazda | 205.417 | 189.806 | 15.611 | 18,408 | 2,031 |
| Land Rover | 207.342 | 212.856 | -5.514 | 4,044 | 2,334 |
| Isuzu Ute | 207.868 | 193.980 | 13.889 | 32,927 | 2,086 |
| Ford | 211.617 | 209.358 | 2.259 | 60,234 | 2,288 |
| Toyota | 216.544 | 204.911 | 11.634 | 120,517 | 2,230 |
| Hyundai | 219.348 | 189.711 | 29.637 | 3,057 | 2,030 |
| Mitsubishi | 219.770 | 190.520 | 29.250 | 30,067 | 2,040 |
| Volkswagen | 223.061 | 188.446 | 34.615 | 10,078 | 2,013 |
| Jeep | 224.546 | 204.980 | 19.566 | 6,883 | 2,231 |
| SsangYong | 226.615 | 206.646 | 19.969 | 2,628 | 2,253 |
| Nissan | 228.443 | 206.865 | 21.578 | 18,279 | 2,255 |
| GWM | 243.756 | 193.987 | 49.769 | 8,697 | 2,086 |
| LDV | 244.053 | 191.524 | 52.529 | 11,607 | 2,054 |
| RAM | 278.683 | 239.659 | 39.023 | 3,819 | 2,687 |
| Mercedes-Benz Cars | 295.143 | 237.707 | 57.436 | 594 | 2,661 |
| Chevrolet | 297.000 | 233.134 | 63.866 | 2,108 | 2,601 |
| Lexus | 301.516 | 249.392 | 52.124 | 300 | 2,815 |

**Note:** The data in this graph is sourced from the FCAI’s voluntary emissions standard (FCAI, 2022a), and therefore includes the impacts of air-conditioning credits and off-cycle credits.

As above, it is possible to assess the percentage change in emissions intensity between 2020 and 2021 for each brand in the MC+NA category. This information is shown for the top 15 selling brands in 2021 in **‎Figure 9**.[[6]](#footnote-7) Mazda saw the largest reduction in emissions intensity (13 per cent), while RAM’s increased by around 18 per cent.

1. Percentage change in average emissions intensity between 2020 and 2021 for the top 15 makes by volume in the MC+NA category (%)

| Manufacturer | % change between 2020 and 2021 |
| --- | --- |
| Mazda | -13.0 |
| Toyota | -6.0 |
| Subaru | -4.9 |
| Hyundai | -4.2 |
| Jeep | -2.5 |
| BMW | -1.1 |
| Mitsubishi | -0.5 |
| Isuzu Ute | 0.8 |
| Ford | 0.9 |
| LDV | 1.0 |
| Volkswagen | 4.2 |
| Nissan | 6.7 |
| GWM | 9.5 |
| Land Rover | 9.6 |
| RAM | 18.1 |

**Note:** The data for this graph is sourced from the FCAI’s voluntary emissions standard (FCAI, 2021b; FCAI, 2022a), and therefore includes the impacts of air-conditioning credits and off-cycle credits.

‎**Figure 10** shows the distribution of emissions intensity for the top 5 selling manufacturers in 2021 when assessing all sales (that is, in both the MA and MC+NA categories). The height of each line in the graph can be interpreted as the share of total sales with an emissions intensity less than or equal to a given value on the horizontal axis. Approximately 28 per cent of Toyota’s vehicles sold in 2021 had an emissions intensity of 120 g/km or less; however, around 17 per cent of Toyota’s sales had an emissions intensity above 220 g/km. Some of the other major manufacturers had most of their sales in relatively narrower ranges: both Mazda and Hyundai sold over 90 per cent of their vehicles with emissions intensities in the range of 140 to 210 g/km. Almost two-thirds of Ford’s sales had an emissions intensity above 200 g/km.

1. Cumulative percentage of passenger vehicle sales relative to emissions intensity for top 5 selling manufacturers, 2021

| CO2 emissions intensity | Toyota  Cumulative percentage | Mazda  Cumulative percentage | Hyundai  Cumulative percentage | Ford  Cumulative percentage | Kia  Cumulative percentage |
| --- | --- | --- | --- | --- | --- |
| 0 | 0.0% | 0.1% | 1.4% | 0.0% | 0.3% |
| 10 | 0.0% | 0.1% | 1.4% | 0.0% | 0.3% |
| 20 | 0.0% | 0.1% | 1.4% | 0.0% | 0.3% |
| 30 | 0.0% | 0.1% | 1.5% | 0.0% | 0.4% |
| 40 | 0.0% | 0.1% | 1.5% | 0.0% | 0.4% |
| 50 | 0.0% | 0.1% | 1.5% | 0.0% | 0.4% |
| 60 | 0.0% | 0.1% | 1.5% | 0.0% | 0.4% |
| 70 | 0.0% | 0.1% | 1.5% | 0.0% | 0.4% |
| 80 | 0.3% | 0.1% | 1.6% | 0.0% | 0.4% |
| 90 | 4.3% | 0.1% | 1.6% | 0.0% | 0.7% |
| 100 | 11.7% | 0.1% | 1.6% | 0.0% | 0.7% |
| 110 | 27.4% | 0.1% | 1.6% | 0.0% | 1.7% |
| 120 | 28.4% | 0.1% | 1.6% | 0.0% | 10.8% |
| 130 | 32.0% | 4.2% | 1.6% | 4.6% | 12.8% |
| 140 | 38.2% | 4.3% | 1.6% | 4.6% | 15.3% |
| 150 | 43.8% | 28.7% | 14.2% | 5.7% | 21.1% |
| 160 | 44.4% | 48.9% | 26.6% | 5.7% | 52.5% |
| 170 | 44.5% | 58.3% | 49.0% | 6.1% | 77.3% |
| 180 | 45.7% | 69.2% | 72.0% | 8.8% | 83.6% |
| 190 | 46.0% | 73.3% | 88.1% | 18.0% | 90.6% |
| 200 | 48.4% | 84.1% | 93.0% | 35.2% | 92.6% |
| 210 | 64.9% | 97.3% | 93.1% | 40.4% | 92.9% |
| 220 | 83.1% | 100.0% | 93.9% | 52.2% | 95.6% |
| 230 | 83.3% | 100.0% | 93.9% | 74.8% | 97.7% |
| 240 | 83.8% | 100.0% | 98.0% | 96.6% | 99.7% |
| 250 | 89.4% | 100.0% | 99.1% | 96.6% | 99.7% |
| 260 | 93.5% | 100.0% | 100.0% | 96.6% | 100.0% |
| 270 | 93.5% | 100.0% | 100.0% | 96.6% | 100.0% |
| 280 | 93.6% | 100.0% | 100.0% | 96.6% | 100.0% |
| 290 | 100.0% | 100.0% | 100.0% | 99.0% | 100.0% |
| 300 | 100.0% | 100.0% | 100.0% | 99.6% | 100.0% |
| Over 300 | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

## Segment type

A segment analysis was conducted using the categories shown in **‎Table 1** and split into the MA and MC+NA categories.

‎**Figure 11** shows the average carbon dioxide emissions intensity by segment during 2021.[[7]](#footnote-8) The lowest emitting segment was ‘Micro’ (116 g/km); ‘SUV Upper Large’ in the MC+NA category (269 g/km) was the highest. Additional segment data, including the top 10 selling models for each segment, is provided in ‎**Table 10**, **‎Table 11** and **‎Table 12** in the appendix.

1. Average emissions intensity by segment, 2021

| Market Segment category | 2021 average emissions |
| --- | --- |
| Micro (MA) | 115.9 |
| Light (MA) | 132.9 |
| SUV Light (MA) | 134.7 |
| Medium (MA) | 135.6 |
| Small (MA) | 144.0 |
| Large (MA) | 145.6 |
| SUV Small (MA) | 148.4 |
| SUV Light (MC+NA) | 152.0 |
| SUV Medium (MA) | 155.9 |
| SUV Medium (MC+NA) | 168.8 |
| SUV Large (MA) | 190.2 |
| SUV Small (MC+NA) | 193.2 |
| People Movers (MA) | 196.3 |
| SUV Large (MC+NA) | 198.5 |
| Vans/Cab Chassis (MC+NA) | 203.3 |
| Upper Large (MA) | 213.9 |
| Pick-up/Chassis 4×2 (MC+NA) | 219.7 |
| Sports (MA) | 220.9 |
| Pick-up/Chassis 4×4 (MC+NA) | 224.5 |
| SUV Upper Large (MA) | 225.7 |
| SUV Upper Large (MC+NA) | 268.9 |

‎**Figure 12** shows the average and the range in carbon dioxide emissions intensity for the segments during 2021. The average emissions are represented by the horizontal bars, and the ranges are represented by the vertical lines. As noted in chapter 2, battery electric vehicles with zero emissions are included in the analysis for this report, meaning that the range reaches down to zero for seven of the segments.

1. Range and average emissions intensity by segment, 2021

| Market Segment category | Minimum | Maximum | Average |
| --- | --- | --- | --- |
| Micro (MA) | 109 | 155 | 116 |
| Light (MA) | 0 | 172 | 133 |
| SUV Light (MA) | 86 | 165 | 135 |
| Medium (MA) | 40 | 242 | 136 |
| Small (MA) | 0 | 259 | 144 |
| Large (MA) | 0 | 294 | 146 |
| SUV Small (MA) | 0 | 230 | 148 |
| SUV Light (MC+NA) | 146 | 158 | 152 |
| SUV Medium (MA) | 0 | 277 | 156 |
| SUV Medium (MC+NA) | 73 | 244 | 169 |
| SUV Large (MA) | 0 | 313 | 190 |
| SUV Small (MC+NA) | 150 | 230 | 193 |
| People Movers (MA) | 129 | 272 | 196 |
| SUV Large (MC+NA) | 49 | 385 | 198 |
| Vans/Cab Chassis (MC+NA) | 0 | 283 | 203 |
| Upper Large (MA) | 56 | 347 | 214 |
| Pick-up/Chassis 4×2 (MC+NA) | 166 | 265 | 220 |
| Sports (MA) | 120 | 486 | 221 |
| Pick-up/Chassis 4×4 (MC+NA) | 147 | 333 | 224 |
| SUV Upper Large (MA) | 64 | 377 | 226 |
| SUV Upper Large (MC+NA) | 181 | 348 | 269 |

If Australian consumers had purchased vehicles with best-in-class carbon dioxide emissions in 2021, the national average carbon dioxide emissions would have been reduced by 91 per cent for the MA category and 47 per cent for the MC+NA category. These figures reflect the fact that six of the 13 segments in the MA category had battery electric vehicles available, most of which were among the highest selling segments (in total, these six segments comprised around 82 per cent of total sales in the MA category). This shows the potential emissions reduction with currently available vehicles and technologies.

‎**Table 3** shows the best-in-class vehicles for carbon dioxide emissions intensity available for each segment. Where the best-in-class vehicle model’s primary engine is listed as electric for a segment, we have also shown the best-in-class with the primary engine listed as petrol or diesel.

1. Best-in-class vehicles for carbon dioxide emissions intensity for each segment, 2021

| Segment | Best-in-class vehicle emissions intensity (Electric) and make and model (fuel source/s)\* | Best-in-class vehicle emissions intensity (Other) and make and model (fuel source/s)\* |
| --- | --- | --- |
| Micro (MA) | *No vehicle in market at time of report* | Mitsubishi MIRAGE (petrol), 109 (g/km) |
| Light (MA) | Mini COOPER (electric), 0 (g/km) | Toyota YARIS HYBRID (petrol-electric), 76 (g/km) |
| Small (MA) | Nissan LEAF (electric)^, 0 (g/km) | Hyundai IONIQ (petrol-electric), 79 (g/km) |
| Medium (MA) | Peugeot 508 (electric-petrol), 40 (g/km) | Toyota CAMRY HYBRID (petrol-electric), 96 (g/km) |
| Large (MA) | Porsche TAY (electric)^, 0 (g/km) | BMW 530D (diesel), 134 (g/km) |
| Upper Large (MA) | Porsche 97A (electric-petrol)^, 56 (g/km) | BMW 620D GT (diesel), 122 (g/km) |
| Sports (MA) | *No vehicle in market at time of report* | Audi A3 (petrol), 120 (g/km) |
| People Movers (MA) | *No vehicle in market at time of report* | Volkswagen CADDY (diesel), 129 (g/km) |
| SUV Light (MA) | *No vehicle in market at time of report* | Toyota YARIS CROSSHV (petrol-electric), 86 (g/km) |
| SUV Small (MA) | MG MG ZS EV (electric)^, 0 (g/km) | Kia DE NIRO (petrol-electric), 88 (g/km) |
| SUV Medium (MA) | Mercedes-Benz Cars EQC 400 4M (electric)^, 0 (g/km) | Toyota RAV4 HYBRID (petrol-electric), 107 (g/km) |
| SUV Large (MA) | Audi EB (electric)^, 0 (g/km) | Lexus RX450H (petrol-electric), 131 (g/km) |
| SUV Upper Large (MA) | Land Rover RANGE ROVER (electric-petrol), 64 (g/km) | Audi Q8 (diesel), 181 (g/km) |
| SUV Light (MC+NA) | *No vehicle in market at time of report* | Suzuki JIMNY (petrol), 146 (g/km) |
| SUV Small (MC+NA) | *No vehicle in market at time of report* | Jeep COMPASS (diesel), 150 (g/km) |
| SUV Medium (MC+NA) | BMW X3 XDRIVE30E (electric-petrol), 73 (g/km) | Land Rover DISCOVERY SPORT (diesel), 148 (g/km) |
| SUV Large (MC+NA) | Volvo Car XC90 (electric-petrol), 49 (g/km) | Toyota KLUGER HYBRID (petrol-electric), 128 (g/km) |
| SUV Upper Large (MC+NA) | *No vehicle in market at time of report* | Audi Q8 (diesel), 181 (g/km) |
| Pick-up/Chassis 4×2 (MC+NA) | *No vehicle in market at time of report* | Nissan NAVARA (diesel), 166 (g/km) |
| Pick-up/Chassis 4×4 (MC+NA) | *No vehicle in market at time of report* | Nissan NAVARA (diesel), 147 (g/km) |
| Vans/Cab Chassis (MC+NA) | Renault KANGOO (electric), 0 (g/km) | Volkswagen CADDY VAN (diesel), 129 (g/km) |

^ At least two vehicle models in this segment have the equal-lowest emissions. The make and model reported in this table is the one with the highest sales.

Additional data comparing the top 10 highest selling models[[8]](#footnote-9) in each segment against best-in-class vehicles is provided in ‎**Table 12** in the appendix. Additional average emissions intensity data for all models that sold more than 1,000 vehicles is provided in ‎**Table 13** in the appendix.

|  |
| --- |
| **If people who purchased new vehicles in 2021 had chosen the best-in-class for emissions performance, Australia’s average carbon emissions intensity would have dropped by 91% for passenger cars and light SUVs, and by 47% for heavy SUVs and light commercial vehicles.** |

## Buyer type

‎**Figure 13** shows the average carbon dioxide emissions intensity by buyer type in 2021 for vehicles sold in the MA category. Vehicles bought by government buyers had the lowest average carbon dioxide emissions intensity (129 g/km), followed by business buyers (152 g/km) and private buyers (153 g/km). All three buyer types had lower emissions intensities in 2021 than the previous year, with government buyers having the largest reduction (more than 4 per cent) as shown in **‎Figure 14**. Additional data on buyer types is provided in **‎Table 14** and ‎**Table 15** in the appendix.

1. Average emissions intensity by buyer type for the MA category, 2021

| Buyer type | 2021 emissions |
| --- | --- |
| Government | 128.6 |
| Business | 152.4 |
| Private | 152.7 |

1. Percentage change in average emissions intensity by buyer type for the MA category between 2020 and 2021 (%)

| Buyer type | Percentage difference (%) |
| --- | --- |
| Government | -4.4 |
| Business | -3.3 |
| Private | -1.8 |

‎**Figure 15** shows the average carbon dioxide emissions intensity by buyer type in 2021 for vehicles sold in the MC+NA category. Overall, the average emissions intensity was relatively similar across the three buyer types, although it was lowest for government buyers and private buyers (both 214 g/km) and highest for business buyers (217 g/km). **‎Figure 16** shows that all three buyer types in the MC+NA category saw reductions in emissions intensity in 2021 relative to the previous year, with government buyers having the largest reduction (as was the case for the MA category).

The three buyer types can be broken down further:

* private: local delivery and overseas delivery
* government: federal, state and local
* business: company capitalisation, dealer demonstrator, diplomatic, fleet, large fleet, not-for-profit organisation, overseas delivery, rental, taxi and other.

1. Average emissions intensity by buyer type for the MC+NA category, 2021

| Buyer type | 2021 emissions |
| --- | --- |
| Government | 213.6 |
| Private | 214.3 |
| Business | 216.7 |

1. Percentage change in average emissions intensity by buyer type for the MC+NA category between 2020 and 2021 (%)

| Buyer type | Percentage difference (%) |
| --- | --- |
| Government | -2.3 |
| Business | -1.5 |
| Private | -0.6 |

|  |
| --- |
| **The average emissions intensity for passenger cars and light SUVs was lowest for government car fleets (129 g/km), followed by business buyers (152 g/km) and private buyers (153 g/km).** |

‎**Figure 17** shows the average carbon dioxide emissions intensity for these buyers, for vehicles sold in the MA category, while ‎**Figure 18** displays the annual percentage change in emissions intensity for each of these buyer types. Taxi buyers had the lowest average emissions intensity levels in 2021 and the three levels of government were the next three lowest.

1. Average emissions intensity by detailed buyer type for the MA category, 2021

| Buyer type | 2021 emissions |
| --- | --- |
| Taxi | 104 |
| Local government | 125 |
| State government | 129 |
| Federal government | 131 |
| Company capitalisation | 139 |
| Not-for-profit organisation | 147 |
| Diplomatic | 150 |
| Large fleet | 150 |
| Rental | 151 |
| Dealer demonstrator | 152 |
| Private – local delivery | 153 |
| Private – overseas delivery | 157 |
| Fleet | 159 |
| Business – overseas delivery | 161 |
| Other | 173 |

1. Percentage change in average emissions intensity by detailed buyer type for the MA category between 2020 and 2021 (%)

| Buyer type | Percentage difference (%) |
| --- | --- |
| Company capitalisation | -12.3 |
| Business – overseas delivery | -7.6 |
| Local government | -7.6 |
| State government | -4.3 |
| Rental | -4.1 |
| Diplomatic | -3.9 |
| Large fleet | -3.8 |
| Dealer demonstrator | -3.4 |
| Not-for-profit organisation | -2.9 |
| Private – overseas delivery | -2.8 |
| Private – local delivery | -1.8 |
| Fleet | -0.5 |
| Taxi | 1.8 |
| Other | 2.9 |
| Federal government | 3.1 |

‎**Figure 19** and **‎Figure 20** show the corresponding information for the MC+NA category. There was a very large decrease in average emissions intensity for taxi buyers – going from the highest average emissions intensity in 2020 to the lowest in 2021 – but there were very few vehicles sold to this buyer type in the MC+NA category in either year. Additional data on the detailed buyer types is provided in **‎Table 16** and **‎Table 17** in the appendix.

1. Average emissions intensity by detailed buyer type for the MC+NA category, 2021

| Buyer type | 2021 emissions |
| --- | --- |
| Taxi | 142 |
| Local government | 203 |
| Company capitalisation | 206 |
| Diplomatic | 207 |
| Rental | 208 |
| Other | 208 |
| Private – overseas delivery | 213 |
| Dealer demonstrator | 213 |
| Private – local delivery | 214 |
| Federal government | 215 |
| Not-for-profit organisation | 215 |
| Large fleet | 216 |
| Fleet | 219 |
| State government | 219 |
| Business – overseas delivery | 239 |

1. Percentage change in average emissions intensity by detailed buyer type for the MC+NA category between 2020 and 2021 (%)

| Buyer type | Percentage difference (%) |
| --- | --- |
| Taxi | -42.8 |
| Private – overseas delivery | -9.5 |
| Not-for-profit organisation | -3.9 |
| Rental | -3.6 |
| Local government | -2.8 |
| Large fleet | -2.1 |
| State government | -1.8 |
| Fleet | -1.7 |
| Federal government | -1.4 |
| Private – local delivery | -0.6 |
| Dealer demonstrator | 0.1 |
| Company capitalisation | 1.2 |
| Diplomatic | 1.4 |
| Other | 5.9 |
| Business – overseas delivery | 9.5 |

A further comparison of the emissions intensity for governments’ vehicle purchases is possible by breaking down ‘State government’ into each of the state and territory governments, while reporting ‘Federal government’ and ‘Local government’ alongside. ‎**Figure 21** compares the emissions intensity for the MA category and shows that the ACT had the lowest emissions intensity while the Northern Territory Government had the highest.[[9]](#footnote-10)

1. Average emissions intensity by government for the MA category, 2021

| Buyer type | 2021 emissions |
| --- | --- |
| ACT | 65.6 |
| SA | 116.7 |
| QLD | 123.5 |
| Local government | 125.3 |
| TAS | 126.2 |
| NSW | 128.1 |
| Federal government | 131.4 |
| VIC | 136.4 |
| WA | 144.5 |
| NT | 155.9 |

**‎Figure 22** provides the same comparison for the MC+NA category. Local governments had the lowest emissions intensity, with the ACT Government again having the lowest emissions intensity among states and territories, while WA had the highest. Overall, the differences in emissions intensity were much smaller for the MC+NA category than the MA category.

1. Average emissions intensity by government for the MC+NA category, 2021

| Buyer type | 2021 emissions |
| --- | --- |
| Local government | 203.4 |
| ACT | 207.2 |
| VIC | 213.8 |
| SA | 214.0 |
| Federal government | 214.6 |
| TAS | 215.9 |
| NT | 220.7 |
| QLD | 222.0 |
| NSW | 222.1 |
| WA | 222.2 |

## Powertrain and fuel type

This section contains average carbon dioxide emissions intensity by powertrain and fuel type.

**‎Figure 23** shows the average carbon dioxide emissions intensity by powertrain and fuel type for 2021 for the MA category. More detailed information about electric and hybrid vehicles is reported in the following section. We have reported the emissions intensity of hybrid vehicles separately from petrol- and diesel-only vehicles. Petrol-only vehicles in the MA category had an average emissions intensity of 164 g/km, while diesel vehicles’ average emissions intensity was 176 g/km; this was significantly higher than the emissions intensity of HEVs (102 g/km). There were also two models of hydrogen vehicles sold in 2021 (the Hyundai NEXO and Toyota MIRAI), with a total of 38 vehicles sold.

Additional data on fuel types is provided in **‎Table 18** and ‎**Table 19** in the appendix.

1. Average emissions intensity by powertrain and fuel type for the MA category, 2021

| Powertrain/fuel type | Average emissions intensity (g/km) 2021 |
| --- | --- |
| BEV | 0.0 |
| Hydrogen | 0.0 |
| PHEV | 46.4 |
| HEV | 102.3 |
| Petrol | 164.3 |
| Diesel | 175.8 |

‎**Figure 24** shows the average carbon dioxide emissions intensity by powertrain and fuel type for the MC+NA category. Petrol-only vehicles also had lower emissions intensity than diesel-only vehicles for the MC+NA category: 216 g/km compared with 218 g/km. This was again significantly higher than the emissions intensity of MC+NA category HEVs (129 g/km).

1. Average emissions intensity by powertrain and fuel type for the MC+NA category, 2021

| Powertrain/fuel type | Average emissions intensity (g/km) 2021 |
| --- | --- |
| BEV | 0.0 |
| PHEV | 60.4 |
| HEV | 129.1 |
| Petrol | 216.1 |
| Diesel | 218.2 |

There were reductions in the emissions intensity for most powertrains and fuel types in 2021 compared with the previous year, as shown in **‎Figure 25**.[[10]](#footnote-11) The largest reductions were for HEVs and PHEVs in the MC+NA category, albeit these two groups had relatively low sales figures. The emissions intensity of petrol MC+NA vehicles increased by 1 per cent.

1. Percentage change in average emissions intensity by powertrain and fuel type between 2020 and 2021 (%)

| Powertrain/fuel type | Percentage difference (%) |
| --- | --- |
| HEV (MC+NA) | -14.7 |
| PHEV (MC+NA) | -13.6 |
| PHEV (MA) | -2.1 |
| Diesel (MA) | -1.1 |
| Petrol (MA) | -0.9 |
| Diesel (MC+NA) | -0.7 |
| HEV (MA) | 0.1 |
| Petrol (MC+NA) | 1.0 |

Among the top 15 selling manufacturers, there is some variation in the adoption of different technologies. **‎Figure 26** shows the differing mixes of petrol and diesel vehicles sold among the top 15 selling manufacturers. Relative to their total sales, MG and Mercedes-Benz Cars had the highest proportion of electric vehicle sales, while Toyota had the highest proportion of hybrid vehicle sales.

1. Share of total sales by powertrain and fuel type for top 15 selling manufacturers, 2021

|  | BEV | PHEV | HEV | Hydrogen | Petrol | Diesel | Total |
| --- | --- | --- | --- | --- | --- | --- | --- |
| BMW | 0.66% | 1.34% | 0.00% | 0.00% | 82.50% | 15.50% | 100.00% |
| Ford | 0.00% | 0.00% | 0.00% | 0.00% | 12.57% | 87.43% | 100.00% |
| GWM | 0.00% | 0.00% | 0.00% | 0.00% | 55.86% | 44.14% | 100.00% |
| Honda | 0.00% | 0.00% | 0.31% | 0.00% | 99.69% | 0.00% | 100.00% |
| Hyundai | 1.39% | 0.09% | 0.11% | 0.04% | 80.02% | 18.35% | 100.00% |
| Isuzu Ute | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 100.00% | 100.00% |
| Kia | 0.32% | 0.11% | 0.68% | 0.00% | 85.38% | 13.51% | 100.00% |
| Mazda | 0.06% | 0.00% | 0.00% | 0.00% | 81.47% | 18.47% | 100.00% |
| Mercedes-Benz Cars | 2.35% | 1.44% | 0.00% | 0.00% | 86.73% | 9.49% | 100.00% |
| MG | 3.56% | 1.49% | 0.00% | 0.00% | 94.96% | 0.00% | 100.00% |
| Mitsubishi | 0.00% | 1.21% | 0.00% | 0.00% | 54.52% | 44.27% | 100.00% |
| Nissan | 0.89% | 0.00% | 0.01% | 0.00% | 62.10% | 37.00% | 100.00% |
| Subaru | 0.00% | 0.00% | 2.05% | 0.00% | 97.91% | 0.04% | 100.00% |
| Toyota | 0.00% | 0.00% | 29.64% | 0.01% | 23.24% | 47.12% | 100.00% |
| Volkswagen | 0.00% | 0.00% | 0.00% | 0.00% | 66.76% | 33.24% | 100.00% |
| **Total** | **0.44%** | **0.26%** | **7.57%** | **0.00%** | **55.99%** | **35.73%** | **100.00%** |

## Electric and hybrid vehicles

This year’s report provides more detailed information on electric vehicles – both battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) – as well as separate graphs and data on hybrid electric vehicles (HEVs).[[11]](#footnote-12)

Data on electric vehicle sales and emissions can be broken down into the categories shown in **‎Table 4.** Plug-in hybrid electric vehicles are vehicles whose primary fuel type is electric, but which have a secondary engine/fuel type (that is, petrol or diesel) and have a non-zero emissions figure in the FCAI data. Battery electric vehicles have no secondary engine/fuel type, and therefore no (tailpipe) emissions listed in the FCAI data. Sales of PHEVs were nearly twice as high in 2021 compared with the previous year, while BEV sales almost tripled.

1. Emissions intensity and annual sales by electric vehicle type, 2020 and 2021

| Electric vehicle type | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Change from 2020 to 2021 (%) | Sales in 2020 | Sales  in 2021 |
| --- | --- | --- | --- | --- | --- |
| Plug-in Hybrid Electric Vehicles (PHEV) | 51 | 48 | -5.9 | 1,692 | 3,372 |
| Battery Electric Vehicles (BEV) | 0 | 0 | N/A | 1,778 | 5,149 |
| **Total** | **N/A** | **N/A** | **N/A** | **3,470** | **8,521** |

The FCAI data does not include Tesla vehicles. **‎Table 5** includes the FCAI data on electric vehicle sales and the NTC’s estimates of the number of Tesla vehicles sold to determine total electric vehicle sales in Australia using state- and territory-based registration systems for the number of Tesla vehicles for 2020 and 2021. Note that the Tesla ‘sales’ figure of 3,918 for 2020 is higher than reported in last year’s report (3,430). This reflects both a slightly longer reporting period (December 2019 to January 2021), and a modification to the original registration data query used in last year’s report, in order to ensure that Teslas from all manufacturing sites around the world are captured within the registration data snapshot used to produce these figures. The total number of electric vehicles sold in 2021 was 20,579 compared to 7,388 vehicles sold in 2020. This is a 179 per cent increase.

1. Electric vehicle sales, 2020 and 2021

| Make | 2020 | 2021 | % change between 2020 and 2021 |
| --- | --- | --- | --- |
| Tesla | 3,918a | 12,058b | 208% |
| All other makesc | 3,470 | 8,521 | 146% |
| **Total** | **7,388** | **20,579** | **179%** |

* a New registrations from state- and territory-based registration systems for December 2019 to January 2021.
* b New registrations from state- and territory-based registration systems for January 2021 to January 2022
* c FCAI data

The total number of registered Tesla electric vehicles in the Australian fleet in January 2022 was 22,134.

There were 49 models of electric vehicles sold in 2021 compared with 37 models in 2020 (excluding Tesla models). ‎**Figure 27** shows the sales of the more popular electric vehicle models in 2020 and 2021. The first five models in the graph were the top selling BEVs in 2021, the next five are the top selling PHEVs, followed by Teslas and then the combined total of all other electric vehicles in the FCAI’s data. Additional data on sales by model, state and buyer type for 2020 and 2021 for the FCAI data are provided in **‎Table 20**, ‎**Table 21** and ‎**Table 22** in the appendix.

1. Sales of selected electric vehicles, 2020 and 2021

| Make and model | 2020 sales | 2021 sales |
| --- | --- | --- |
| MG MG ZS EV | 0 | 1,388 |
| Porsche TAY | 0 | 531 |
| Hyundai KONA | 488 | 505 |
| Mercedes-Benz Cars EQA 250 | 0 | 367 |
| Nissan LEAF | 380 | 367 |
| Mitsubishi OUTLANDER | 440 | 592 |
| MG MG HS PHEV | 0 | 580 |
| Volvo Car XC60 | 120 | 308 |
| Mercedes-Benz Cars GLC300E 4M FL | 274 | 307 |
| Volvo Car XC40 | 67 | 288 |
| Tesla (all models) | 3,918 | 12,058 |
| All other models | 1,701 | 3,288 |

‎**Table 6** summarises various types of electric vehicle data by state and territory. The first row of data summarises electric vehicle sales in 2021 from the FCAI data. The second row of data shows all electric vehicle sales between 2010 and 2021 in each state and territory, and again relies on the FCAI data. The final row of data shows the number of Tesla vehicles registered in each state and territory as at 21 January 2022. Although the second and third rows of data to some extent show the total (cumulative) vehicle fleet for non-Tesla and Tesla electric vehicles, respectively, they are not directly comparable.[[12]](#footnote-13)

The NTC estimates there were around 42,500 electric vehicles in the Australian vehicle fleet at the end of 2021. The total number of passenger vehicles and light commercial vehicles in Australia as at 31 January 2021 was 18.4 million (ABS, 2021), meaning that electric vehicles represent around 0.23 per cent of the nation’s 18.4 million cars and light commercial vehicles (see details in ‎**Table 23** in the appendix, which also includes the estimated share of electric vehicles in the total fleet in each state and territory). ‎**Table 24** in the appendix contains more detailed information on BEV sales by state and model.

1. Electric vehicle sales and Tesla registrations by state and territory

| Description | ACT | NSW | NT | QLD | SA | TAS | VIC | WA | Australia |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Electric vehicle sales in 2021 (excluding Tesla) | 349 | 2,597 | 24 | 1,605 | 570 | 239 | 2,483 | 654 | 8,521 |
| Total electric vehicle sales from 2010 to 2021 (excluding Tesla) | 917 | 5,966 | 50 | 3,464 | 2,382 | 460 | 5,725 | 1,596 | 20,560 |
| Tesla registrations as at 21 January 2022\* | 819 | 7,236 | 37 | 4,992 | 768 | 229 | 5,935 | 2,118 | 22,134 |

\* Registrations from state- and territory-based registration systems as at 21 January 2022

‎**Table 7** reports on the sales and emissions intensity for hybrid electric vehicles (HEVs). Sales of these vehicles were around 20 per cent higher in 2021 than the previous year, while their average emissions intensity increased by around 2 per cent.

1. Emissions intensity and annual sales for hybrid vehicles, 2020 and 2021

| Hybrid vehicle type | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Percentage difference (%) | Sales in 2020 | Sales in 2021 |
| --- | --- | --- | --- | --- | --- |
| Hybrid Electric Vehicle (HEV) | 103a | 105 a | 1.8 | 58,595 | 70,506 |

a This figure is the combined figure for MA and MC+NA

There were 27 models of hybrid vehicles sold in 2021 compared with 26 models in 2020. ‎**Figure 28** shows the sales of the most popular hybrid vehicle models in 2020 and 2021. Toyota sold around 93 per cent of all hybrids in 2021. Additional data on hybrid vehicle sales by model for 2020 and 2021 is provided in ‎**Table 25** in the appendix.

1. Sales of selected hybrid vehicles, 2020 and 2021

| Make and model | 2020 sales | 2021 sales |
| --- | --- | --- |
| Kia DE NIRO | 0 | 465 |
| Lexus ES300H | 586 | 700 |
| Lexus NX300H | 943 | 992 |
| Lexus UX250H | 608 | 975 |
| Toyota CAMRY HYBRID | 9,615 | 10,979 |
| Toyota C-HR HYBRID | 2,810 | 3,075 |
| Toyota COROLLA HYBRID | 13,943 | 14,657 |
| Toyota KLUGER HYBRID | 0 | 4,985 |
| Toyota RAV4 HYBRID | 26,400 | 25,850 |
| Toyota YARIS CROSSHV | 857 | 5,052 |
| Toyota YARIS HYBRID | 260 | 605 |
| All other models | 2,573 | 2,171 |

Electric and hybrid vehicles have been purchased to varying degrees by different buyer types. ‎**Figure 29** shows the percentage of total sales made up of BEVs, PHEVs, HEVs and hydrogen vehicles for various buyer types. Overall, governments had the highest or second highest shares of electric and hydrogen vehicles in the graph, as a proportion of total sales. However, in terms of the absolute number of sales, private buyers were by far the biggest purchasers of electric and hybrid vehicles.

1. Percentage of total sales that were electric, hybrid or hydrogen vehicles by buyer type, 2021

| Buyer type | BEV | PHEV | HEV | Hydrogen |
| --- | --- | --- | --- | --- |
| Business | 0.19% | 0.20% | 5.71% | 0.00% |
| Fleet | 0.88% | 0.88% | 3.53% | 0.00% |
| Government | 0.98% | 0.42% | 19.41% | 0.00% |
| Non-government | 0.57% | 0.34% | 11.98% | 0.04% |
| Private | 0.57% | 0.31% | 6.79% | 0.00% |

‎**Figure 30** shows similar information by detailed buyer type. Over 90 per cent of taxi purchases in 2021 were hybrid vehicles, albeit this represented around 900 vehicles.

1. Percentage of total sales that were electric, hybrid or hydrogen vehicles by detailed buyer type, 2021

| Buyer type | BEV | PHEV | HEV | Hydrogen |
| --- | --- | --- | --- | --- |
| Business – overseas delivery | 0.00% | 0.00% | 0.00% | 0.00% |
| Company capitalisation | 2.74% | 1.86% | 5.33% | 0.22% |
| Dealer demonstrator | 0.88% | 0.88% | 3.53% | 0.00% |
| Diplomatic | 0.00% | 3.85% | 5.13% | 0.00% |
| Federal government | 0.24% | 0.08% | 12.89% | 0.00% |
| Fleet | 0.18% | 0.19% | 4.63% | 0.00% |
| Large fleet | 0.22% | 0.21% | 7.47% | 0.00% |
| Local government | 1.72% | 0.18% | 11.40% | 0.00% |
| Not-for-profit organisation | 0.12% | 0.05% | 18.86% | 0.00% |
| Other | 1.92% | 0.00% | 0.00% | 0.00% |
| Private – local delivery | 0.57% | 0.31% | 6.79% | 0.00% |
| Private – overseas delivery | 0.00% | 0.00% | 0.00% | 0.00% |
| Rental | 0.15% | 0.06% | 11.87% | 0.00% |
| State government | 0.79% | 0.55% | 23.34% | 0.00% |
| Taxi | 0.00% | 0.00% | 95.98% | 0.00% |
| **Total** | **0.51%** | **0.34%** | **7.03%** | **0.00%** |

‎**Figure 31** compares the percentages of electric and hybrid vehicles for each state and territory government, as well as the federal government and all local governments. The ACT Government had by far the highest shares of BEVs and PHEVs as a proportion of total sales, with around 21 per cent of its vehicle purchases being electric; however, the total number of vehicles it purchased in 2021 was relatively small at 166 vehicles. Almost all governments purchased at least 10 per cent of their fleet as either electric or hybrid vehicles in 2021, but for most governments most of these were hybrid vehicles. ‎**Table 26** in the appendix provides further detail on the powertrain and fuel type of vehicle purchases by governments.

1. Percentage of total sales that were electric or hybrid vehicles by government, 2021

|  | BEV | PHEV | HEV |
| --- | --- | --- | --- |
| Federal government | 0.24% | 0.08% | 12.89% |
| NSW | 0.66% | 0.16% | 27.49% |
| VIC | 0.48% | 0.60% | 22.74% |
| QLD | 0.70% | 0.80% | 23.43% |
| SA | 0.86% | 0.43% | 40.81% |
| WA | 0.66% | 0.33% | 9.59% |
| TAS | 1.59% | 0.74% | 17.58% |
| NT | 0.34% | 0.17% | 6.29% |
| ACT | 13.86% | 7.23% | 0.60% |
| Local government | 1.72% | 0.18% | 11.40% |
| **Total** | **0.98%** | **0.42%** | **19.41%** |

Although sales of BEVs and PHEVs, and to a lesser extent HEVs, remain relatively low overall, they have increased significantly in recent years, as demonstrated in ‎**Figure 32**, which shows the share of total sales by powertrain and fuel type from 2014 to 2021.[[13]](#footnote-14)

1. Share of total sales by powertrain and fuel type, 2014–2021

|  | BEV | PHEV | HEV | Hydrogen | LPG | Petrol | Diesel | Total |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2014 | 0.02% | 0.09% | 1.10% | 0.00% | 0.27% | 67.90% | 30.62% | 100.00% |
| 2015 | 0.02% | 0.08% | 1.08% | 0.00% | 0.18% | 68.90% | 29.74% | 100.00% |
| 2016 | 0.01% | 0.01% | 1.10% | 0.00% | 0.05% | 67.20% | 31.63% | 100.00% |
| 2017 | 0.00% | 0.09% | 0.97% | 0.00% | 0.00% | 66.28% | 32.65% | 100.00% |
| 2018 | 0.02% | 0.10% | 1.29% | 0.00% | 0.00% | 65.43% | 33.16% | 100.00% |
| 2019 | 0.15% | 0.14% | 3.00% | 0.00% | 0.00% | 64.47% | 32.25% | 100.00% |
| 2020 | 0.20% | 0.19% | 6.66% | 0.00% | 0.00% | 60.23% | 32.72% | 100.00% |
| 2021 | 0.51% | 0.34% | 7.03% | 0.00% | 0.00% | 57.87% | 34.25% | 100.00% |

This result in part reflects the increased availability of BEVs, PHEVs and HEVs model variants in the Australian market over time. ‎**Figure 33** shows that the number of PHEV model variants sold in the Australian market increased significantly in 2017, when it reached 18, and has increased further since then to 30 variants in 2021. BEV model variants sold have also increased from just 2 in 2015 to 23 in 2021. The overall number of model variants sold in Australia peaked in 2017, with the subsequent decline primarily due to diesel variants.

1. Number of model variants sold in Australia by powertrain and fuel type, 2014–2021

|  | BEV | PHEV | HEV | Hydrogen | LPG | Petrol | Diesel | Total |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2014 | 3 | 4 | 28 | 0 | 3 | 443 | 219 | 700 |
| 2015 | 2 | 4 | 31 | 0 | 3 | 467 | 224 | 731 |
| 2016 | 3 | 3 | 32 | 0 | 2 | 486 | 216 | 742 |
| 2017 | 4 | 18 | 23 | 0 | 1 | 486 | 216 | 748 |
| 2018 | 6 | 22 | 20 | 0 | 0 | 487 | 197 | 732 |
| 2019 | 9 | 25 | 28 | 0 | 0 | 470 | 179 | 711 |
| 2020 | 13 | 26 | 26 | 0 | 0 | 475 | 151 | 691 |
| 2021 | 23 | 30 | 27 | 2 | 0 | 446 | 131 | 659 |

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| **Sales of hybrid vehicles increased by 20% in 2021 compared with 2020, with 70,506 hybrid vehicles sold in 2021.** |

Improved battery technology and the increased number of BEV models available in Australia has improved the driving range of these vehicles in recent years. ‎**Figure 34** shows that since 2016 there has been a significant increase in the average driving range of BEVs sold in Australia. The maximum range across all models sold has increased even more quickly, from below 200 km in 2016 to above 600 km in 2021. Note that the analysis in ‎**Figure 34** does not include Tesla vehicles as we do not have data on sales by Tesla model or variant.

1. Driving range for BEV models sold in Australia, 2010–2021

| BEV driving range | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Average (sales-weighted) | 160.0 | 165.8 | 166.8 | 175.2 | 172.7 | 163.4 | 160.1 | 203.5 | 290.6 | 363.0 | 365.0 | 370.1 |
| Minimum | 160 | 160 | 160 | 175 | 130 | 130 | 130 | 185 | 200 | 200 | 200 | 200 |
| Maximum | 160 | 175 | 185 | 185 | 175 | 175 | 175 | 300 | 446 | 484 | 484 | 620 |

**Source:** NTC analysis based on FCAI sales data and driving ranges collected from a variety of sources including manufacturers’ websites, Electric Vehicle Council *State of Electric Vehicles* reports and other websites for historical models.

The share of BEV sales as a proportion of total sales varies between manufacturers. 'Premium' brands have tended to lead in electric vehicle sales, in part due to the relatively higher cost of manufacturing electric vehicles and their batteries and the typically higher prices that these brands can charge (ABC, 2021). In research by S&P Global published by the FCAI, ‘premium’ brands are forecast to have 77 per cent of their sales as BEVs by 2033 compared with 21 per cent for volume brands (FCAI, 2022b). Using the same categorisation of ‘premium’ and ‘volume’ brands, based on a list provided by the FCAI to the NTC, ‎**Figure 35** shows that this trend has already begun, with ‘premium’ brands having 11.9 per cent of their total sales as BEVs in 2021 compared with 0.3 per cent for ‘volume’ brands (which sold around 88 per cent of all vehicles in 2021). For the purposes of this analysis, all vehicles sold by ‘volume’ brands were classified as ‘volume’ sales (even though some vehicle models or model variants sold by these brands may be considered ‘premium’ vehicles); and similarly, all sales by ‘premium’ brands are classified as ‘premium’.

1. Share of BEV sales for 'premium' and 'volume' brands, 2017–2021

| Year | 'Premium' brands | 'Volume' brands |
| --- | --- | --- |
| 2017 | 1.06% | 0.00% |
| 2018 | 0.92% | 0.01% |
| 2019 | 2.74% | 0.14% |
| 2020 | 3.97% | 0.17% |
| 2021 | 11.86% | 0.35% |

**Source:** NTC analysis based on classification of ‘premium’ and ‘volume’ brands provided by the FCAI, VFACTS sales data, and Tesla data from state- and territory-based registration systems (with Tesla ‘sales’, calculated based on the annual difference in the number of registered vehicles, included among the ‘premium’ brands).

## Green vehicles

Two alternative measures of ‘green’ vehicles are reported on. The first continues the approach of previous reports, where a ‘green’ vehicle has been defined as a vehicle whose carbon dioxide emissions intensity does not exceed 120 g/km. In Australia, the proportion of green cars sold in 2021 was 9.6 per cent of total sales (compared with 8.4 per cent in 2020). ‎**Figure 36** shows ‘green’ vehicle sales as a proportion of total new light vehicle sales between 2011 and 2021.

‎**Table 27** in the appendix provides more detail on ‘green’ vehicles sold in Australia in 2021, based on this measure of ‘green’ vehicles.

1. ‘Green’ vehicle sales as a percentage of total new light vehicles sold, 2011–2021

| Year | Green vehicles as percentage of total vehicles sold (%) |
| --- | --- |
| 2011 | 0.8 |
| 2012 | 1.4 |
| 2013 | 2.3 |
| 2014 | 2.8 |
| 2015 | 4.1 |
| 2016 | 3.8 |
| 2017 | 3.8 |
| 2018 | 4.1 |
| 2019 | 5.7 |
| 2020 | 8.4 |
| 2021 | 9.6 |

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| **Electric vehicles make up an estimated 0.23% of the nation’s 18.4 million cars and light commercial vehicles.** |

An alternative measure of ‘green’ vehicles is to compare each vehicle model’s emissions intensity to its limit curve and record the share of vehicles receiving the different super-credit weightings under the FCAI’s voluntary emissions standard methodology, as shown in ‎**Figure 37** and **‎Figure 38**, for MA and MC+NA, respectively. Around 8 per cent of all vehicles in the MA category received a super-credit weighting above 1 in 2021 – which is down by around 2 percentage points compared with the previous year – with a large majority of these receiving the 1.5 super-credit weighting (where emissions are between one-third and two-thirds of the limit curve). Super-credit weightings of 2 and 3 were attained by 0.5 per cent and 0.8 per cent of sales, respectively, in the MA category. For the MC+NA category, 98.6 per cent of vehicle sales did not have a super-credit weighting of above 1 in 2021 (that is, the emissions intensity was above two-thirds of the limit curve), whereas in 2020 this figure was 99.9 per cent.

1. Alternative measure of ‘green’ vehicles using the FCAI super-credits for the MA category, 2020 and 2021

|  | 2020 | 2021 |
| --- | --- | --- |
| Other sales | 89.7 | 91.8 |
| One-third to two-thirds of limit curve | 9.8 | 6.9 |
| Up to one-third of limit curve | 0.2 | 0.5 |
| Zero emissions | 0.3 | 0.8 |

1. Alternative measure of ‘green’ vehicles using the FCAI super-credits for the MC+NA category, 2020 and 2021

|  | 2020 | 2021 |
| --- | --- | --- |
| Other sales | 99.9 | 98.6 |
| One-third to two-thirds of limit curve | 0.1 | 1.4 |
| Up to one-third of limit curve | 0.0 | 0.1 |
| Zero emissions | 0.0 | 0.0 |

## Contribution of each segment to the average emissions intensity in each category

This section shows the percentage contribution of each segment to the average vehicle emissions intensity figure in both the MA and MC+NA categories. The ‘contribution’ for a segment is calculated as: the number of vehicle sales in the segment, multiplied by the weighted average emissions intensity figure for that segment (as reported in ‎**Table 10** and **‎Table 11** in the appendix), divided by total vehicle sales.[[14]](#footnote-15) The sum of the ‘contributions’ from each segment is the overall average emissions intensity in each category. A segment will make a larger contribution to the overall average emissions intensity the higher the number of vehicle sales in that segment and/or the higher the average emissions intensity of vehicles in that segment.

**‎Figure 39** displays the percentage ‘contributions’ for the MA category and shows that the five segments of SUVs contributed slightly less than two-thirds of the overall emissions intensity for the MA category. SUV Medium was the segment with the largest contribution (28 per cent), with SUV Small second largest with 22 per cent, ahead of the Small segment which contributed 16 per cent.

1. Percentage contribution to overall emissions intensity by segment for the MA category, 2021

| Segment | Contribution percentage of total |
| --- | --- |
| Micro (MA) | 1.09% |
| Light (MA) | 6.13% |
| Small (MA) | 16.09% |
| Medium (MA) | 4.86% |
| Large (MA) | 0.84% |
| Upper Large (MA) | 0.17% |
| Sports (MA) | 2.17% |
| People Movers (MA) | 2.18% |
| SUV Light (MA) | 6.52% |
| SUV Small (MA) | 21.79% |
| SUV Medium (MA) | 27.56% |
| SUV Large (MA) | 10.03% |
| SUV Upper Large (MA) | 0.55% |
| **Total** | **100.00%** |

‎**Figure 40** displays the percentage ‘contributions’ for the MC+NA category. More than half of the contribution for this category came from the Pick-up/Chassis 4×4 segment (52 per cent), while SUV Large was the second highest with 21 per cent. These two segments had the two highest emissions intensities in the MC+NA category, and the Pick-up/Chassis 4×4 segment comprised around half of total sales in the MC+NA category.

1. Percentage contribution to overall emissions intensity by segment for the MC+NA category, 2021

| Segment | Contribution percentage of total |
| --- | --- |
| SUV Light (MC+NA) | 0.53% |
| SUV Small (MC+NA) | 0.68% |
| SUV Medium (MC+NA) | 3.62% |
| SUV Large (MC+NA) | 20.56% |
| SUV Upper Large (MC+NA) | 6.40% |
| Pick-up/Chassis 4×2 (MC+NA) | 8.86% |
| Pick-up/Chassis 4×4 (MC+NA) | 52.39% |
| Vans/Cab Chassis (MC+NA) | 6.95% |
| **Total** | **100.00%** |

There has been a significant transition in sales for different segments of Australia’s vehicle fleet since 2011, as shown in ‎**Figure 41**. There has been a large shift of sales away from segments in the ‘Passenger motor vehicles’ section of ‎**Table 1**, and a shift towards SUVs and light trucks. While sales of the five segments of SUVs represented 25 per cent of total sales in 2011, they had increased to over half (53 per cent) of total sales in 2021. Among the ‘Passenger motor vehicles’ segments, the share of total sales in the Light and Small segments decreased fairly consistently over the same time period. Sales in the Small segment represented one quarter of all sales in 2011 but had decreased to 11 per cent by 2021; the Light segment’s share of total sales decreased from 14 per cent in 2011 to 5 per cent in 2021.

Between 2011 and 2021, the average emissions intensity decreased in all segments except ‘Sports’, and in most segments there was a decrease by at least 10 per cent. However, the shift in the mix of the fleet may help explain why the national average emissions intensity figure has declined relatively slowly in recent years (as shown in ‎**Figure 3**), despite the relative emissions intensity improving in most segments.

1. Vehicle sales by segment, 2011–2021

|  | Micro | Light | Small | Medium | Large | Upper Large | Sports | People Movers | SUV Light | SUV Small | SUV Medium | SUV Large | SUV Upper Large | Pick-up/Chassis 4×2 | Pick-up/Chassis 4×4 | Vans/Cab Chassis | Light Buses | Total |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2011 | 0.00% | 13.51% | 24.90% | 7.75% | 7.97% | 0.31% | 1.49% | 1.13% | 0.00% | 4.03% | 9.20% | 10.33% | 1.34% | 5.32% | 10.19% | 2.13% | 0.39% | **100.00%** |
| 2012 | 0.00% | 12.73% | 23.33% | 8.11% | 5.84% | 0.30% | 1.98% | 1.08% | 0.00% | 5.61% | 10.18% | 11.13% | 1.36% | 4.55% | 11.52% | 1.91% | 0.36% | **100.00%** |
| 2013 | 0.00% | 11.84% | 24.12% | 7.06% | 4.75% | 0.38% | 2.29% | 0.84% | 0.00% | 6.77% | 10.82% | 11.46% | 1.15% | 4.06% | 12.50% | 1.69% | 0.27% | **100.00%** |
| 2014 | 1.46% | 10.03% | 23.16% | 6.60% | 4.38% | 0.36% | 2.20% | 0.94% | 0.00% | 8.06% | 11.57% | 11.81% | 1.12% | 3.86% | 12.35% | 1.78% | 0.31% | **100.00%** |
| 2015 | 0.95% | 9.97% | 20.75% | 6.96% | 3.91% | 0.26% | 2.04% | 1.06% | 0.00% | 9.91% | 12.90% | 12.44% | 1.12% | 3.62% | 11.93% | 1.87% | 0.30% | **100.00%** |
| 2016 | 0.89% | 8.31% | 19.62% | 6.52% | 3.44% | 0.20% | 2.40% | 1.12% | 0.00% | 9.65% | 15.06% | 12.46% | 1.39% | 3.84% | 12.81% | 2.08% | 0.19% | **100.00%** |
| 2017 | 0.62% | 7.32% | 19.14% | 5.51% | 2.85% | 0.12% | 2.37% | 1.18% | 0.00% | 10.22% | 17.01% | 11.88% | 1.37% | 3.64% | 14.37% | 2.21% | 0.20% | **100.00%** |
| 2018 | 0.70% | 6.91% | 17.94% | 4.16% | 1.39% | 0.10% | 1.67% | 1.20% | 0.00% | 12.53% | 18.59% | 11.95% | 1.52% | 3.39% | 15.60% | 2.10% | 0.24% | **100.00%** |
| 2019 | 0.64% | 6.17% | 16.05% | 4.21% | 1.12% | 0.09% | 1.40% | 1.23% | 2.46% | 11.17% | 19.70% | 12.01% | 1.93% | 3.21% | 16.49% | 2.05% | 0.08% | **100.00%** |
| 2020 | 0.57% | 4.38% | 13.77% | 3.73% | 0.61% | 0.10% | 1.21% | 0.88% | 3.27% | 13.17% | 20.46% | 12.37% | 2.46% | 3.03% | 17.30% | 2.69% | 0.00% | **100.00%** |
| 2021 | 0.95% | 4.56% | 10.87% | 3.05% | 0.47% | 0.08% | 0.99% | 1.12% | 5.16% | 14.38% | 17.96% | 13.33% | 2.17% | 3.26% | 18.88% | 2.76% | 0.00% | **100.00%** |
| **Total** | **0.62%** | **8.77%** | **19.56%** | **5.84%** | **3.37%** | **0.21%** | **1.85%** | **1.07%** | **0.90%** | **9.55%** | **14.77%** | **11.93%** | **1.51%** | **3.80%** | **13.91%** | **2.10%** | **0.22%** | **100.00%** |

Of the top 15 selling manufacturers in 2021, 14 sold more than half of their vehicles in the SUV or Pick-up/Chassis segments (the exception was Kia), as shown in ‎**Figure 42**. Five of these manufacturers sold over 90 per cent of their vehicles in these segments.

1. Share of total sales by segment for top 15 selling manufacturers, 2021

|  | Micro | Light | Small | Medium | Large | Upper Large | Sports | People Movers | SUV Light | SUV Small | SUV Medium | SUV Large | SUV Upper Large | Pick-up/Chassis 4×2 | Pick-up/Chassis 4×4 | Vans/Cab Chassis | Total |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BMW | 0.00% | 0.00% | 19.61% | 16.72% | 2.43% | 0.75% | 6.80% | 0.00% | 0.00% | 14.31% | 20.98% | 15.22% | 3.18% | 0.00% | 0.00% | 0.00% | **100.00%** |
| Ford | 0.00% | 0.49% | 1.05% | 0.01% | 0.00% | 0.00% | 4.04% | 0.00% | 4.60% | 0.00% | 2.39% | 11.98% | 0.00% | 6.14% | 65.74% | 3.56% | **100.00%** |
| GWM | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 32.90% | 19.77% | 2.95% | 0.00% | 4.91% | 39.47% | 0.00% | **100.00%** |
| Honda | 0.00% | 2.48% | 16.80% | 0.51% | 0.00% | 0.00% | 0.00% | 6.51% | 0.00% | 34.56% | 39.15% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **100.00%** |
| Hyundai | 0.00% | 0.36% | 35.77% | 0.83% | 0.00% | 0.00% | 0.19% | 1.35% | 8.03% | 17.49% | 19.75% | 12.03% | 0.00% | 0.00% | 0.00% | 4.20% | **100.00%** |
| Isuzu Ute | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 29.71% | 0.00% | 18.13% | 52.16% | 0.00% | **100.00%** |
| Kia | 9.70% | 8.30% | 26.65% | 0.00% | 2.07% | 0.00% | 0.00% | 8.63% | 11.25% | 14.16% | 11.70% | 7.54% | 0.00% | 0.00% | 0.00% | 0.00% | **100.00%** |
| Mazda | 0.00% | 4.14% | 13.97% | 1.47% | 0.00% | 0.00% | 0.74% | 0.00% | 12.73% | 14.16% | 24.69% | 12.61% | 0.00% | 2.84% | 12.64% | 0.00% | **100.00%** |
| Mercedes-Benz Cars | 0.00% | 0.00% | 14.75% | 14.57% | 3.32% | 1.01% | 5.47% | 0.00% | 0.00% | 10.55% | 27.69% | 16.63% | 6.01% | 0.00% | 0.00% | 0.00% | **100.00%** |
| MG | 0.00% | 35.30% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 47.21% | 17.50% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **100.00%** |
| Mitsubishi | 3.25% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 30.85% | 21.51% | 13.37% | 0.00% | 4.28% | 24.11% | 2.63% | **100.00%** |
| Nissan | 0.00% | 0.00% | 0.89% | 0.00% | 0.00% | 0.00% | 0.80% | 0.00% | 5.72% | 13.94% | 33.59% | 0.35% | 8.08% | 5.01% | 31.61% | 0.00% | **100.00%** |
| Subaru | 0.00% | 0.00% | 13.25% | 0.74% | 0.00% | 0.00% | 0.53% | 0.00% | 0.00% | 25.24% | 31.91% | 28.34% | 0.00% | 0.00% | 0.00% | 0.00% | **100.00%** |
| Toyota | 0.00% | 2.03% | 13.15% | 5.92% | 0.01% | 0.00% | 0.16% | 0.09% | 3.54% | 2.98% | 16.18% | 15.59% | 6.50% | 5.98% | 23.47% | 4.40% | **100.00%** |
| Volkswagen | 0.00% | 12.92% | 4.85% | 2.57% | 0.00% | 0.00% | 0.00% | 3.45% | 15.38% | 12.19% | 9.51% | 13.73% | 0.00% | 0.00% | 19.30% | 6.09% | **100.00%** |
| **Total** | **1.00%** | **3.88%** | **12.16%** | **2.82%** | **0.34%** | **0.05%** | **0.89%** | **1.08%** | **5.20%** | **13.73%** | **18.04%** | **12.95%** | **2.29%** | **3.71%** | **19.67%** | **2.21%** | **100.00%** |

# Emissions in Australia and other countries

This section compares data from Australia and other countries.

Different methods have been used worldwide to calculate vehicle emissions which makes direct comparisons difficult. The three main methods are from Europe, Japan and the United States. Each method can give a different emissions result when applied to the same vehicle.

An international test method, called the Worldwide Harmonised Light Vehicle Test Procedure (WLTP), has been developed to replace these three different regional test methods and to better reflect on-road emissions performance. The WLTP began to be used in Europe from 2019.

Australia currently uses the previous European method, the New European Driving Cycle (NEDC), and will continue to do so until the United Nations Working Party on Pollution and Energy agrees to adopt the WLTP method.

Beginning in 2019, European vehicle emissions reporting must be done using the WLTP method, but NEDC results were still reported alongside WLTP results during the initial years after implementation. However, the European Environment Agency notes that ‘from 2021 onwards, the WLTP will replace fully the NEDC for the purpose of the CO2 emission standards’ (EEA, 2022b), and the published European dataset for 2021 has many records with missing NEDC values. For these reasons, the European data reported in this chapter is based on WLTP emissions results.

The WLTP methodology has been noted to be ‘closer to reality and more demanding than the NEDC’ (Mercedes-Benz, 2022), with WLTP estimated to increase type-approval emissions results by approximately 25 per cent compared with NEDC (Pavlovic, et al., 2018).

The discussion in the previous two paragraphs means that some caution should be exercised when comparing the results for Australia and Europe in this chapter, as the results are based on two different testing regimes. Another reason for caution is that the 2021 European data used in the graphs is provisional rather than final data.[[15]](#footnote-16)

The published data from Europe separates passenger cars from light commercial vehicles.[[16]](#footnote-17) The Australian information presented in section 3 is combined data covering passenger and light commercial vehicles. To enable comparisons between Australian and European data, we separated the Australian data into passenger vehicle and light commercial vehicle groups as defined in section 1. The Australian groupings are consistent with the European Commission Regulation (No 443/2009, Annex II).

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| **Less than half of Australian new passenger car sales had an emissions intensity of 160 g/km or less, whereas almost 90% of new European passenger car registrations were below 160 g/km.** |

Emissions from new vehicles in European countries tend to be lower than Australia. There are a number of reasons for this, including fewer measures in Australia to reduce carbon dioxide emissions and emissions intensity. The European measures are shown in ‎**Table 8**. A summary of the European measures was published by the European Conference of Ministers of Transport (2007). Governments in a number of European countries have provided incentives or levied taxes to try to reduce carbon dioxide emissions from road transport; see ETCAPCCM (2018) for a summary.[[17]](#footnote-18)

Consumer preferences also contribute to the difference in emissions performance between Australia and Europe. For example, European consumers purchase more small vehicles compared with Australian consumers and prefer manual transmission to automatic transmissions.[[18]](#footnote-19)

1. European measures that have reduced carbon dioxide emissions from motor vehicles

| European measure | Intent of measure |
| --- | --- |
| High fuel prices through higher fuel taxes | Encourages consumers to purchase fuel-efficient vehicles to lower running costs |
| Low diesel taxes compared with petrol taxes | Encourages consumers to purchase diesel vehicles to reduce running costs |
| Regulating carbon dioxide emissions from motor vehicles (passenger vehicle standards were phased in from 2012, with full implementation from 2015) | Provides manufacturers with targets for emissions reductions |
| Vehicle excise duties | Encourages consumers to purchase low carbon dioxide-emitting vehicles |
| Direct cash incentives for consumers to purchase low carbon dioxide-emitting vehicles | Encourages consumers to purchase low carbon dioxide-emitting vehicles as it lowers the purchase price of the vehicle |
| Consumer information on vehicles | Provides information to consumers about relative carbon dioxide efficiency and the annual running costs of new vehicles |
| Consumer information in printed advertisements | Provides information to consumers about relative carbon dioxide efficiency and the annual running costs of new vehicles |

The next two parts of this section compare Australian and other countries’ carbon dioxide emissions intensity data for passenger and light commercial vehicles separately. These international comparisons use European data from the European Environment Agency (EEA, 2022a). The final part of this section provides an alternative international comparison using data from the International Energy Agency (IEA).

## Passenger vehicles: average emissions intensity by country for 2021

The breakdown for average carbon dioxide emissions intensity for new passenger vehicles by country for 2021 is shown in ‎**Figure 43**. As noted above, key caveats in interpreting this and the following graphs are that the European emissions data is based on the WLTP methodology, and the European data for 2021 is provisional data. Another difference is that the Australian data reflects new vehicle sales, while the European data reflects new vehicle registrations.

In 2021, emissions intensity for passenger cars in European countries ranged from 28 g/km in Norway to 146 g/km in Cyprus. The overall average emissions intensity for the 29 European countries was 115 g/km. Australia’s emissions intensity was significantly higher at 160 g/km (based on the combined results for the MA and MC categories).

1. Average emissions intensity of passenger vehicles in Australia and Europe, 2021

| Country | Emissions intensity |
| --- | --- |
| Norway | 28 |
| Iceland | 80 |
| Sweden | 88 |
| Denmark | 93 |
| Netherlands | 95 |
| Finland | 98 |
| Malta | 104 |
| Portugal | 107 |
| France | 109 |
| Ireland | 113 |
| Germany | 114 |
| Europe | 115 |
| Austria | 116 |
| Belgium | 117 |
| Greece | 120 |
| Luxembourg | 124 |
| Italy | 125 |
| Romania | 127 |
| Spain | 127 |
| Croatia | 129 |
| Hungary | 133 |
| Slovenia | 134 |
| Lithuania | 136 |
| Czech Republic | 136 |
| Poland | 136 |
| Slovakia | 139 |
| Bulgaria | 140 |
| Latvia | 143 |
| Estonia | 143 |
| Cyprus | 146 |
| Australia (MA+MC) | 160 |

‎**Figure 44** compares the distribution of the emissions intensity among new passenger car sales in Australia[[19]](#footnote-20) and Europe, in intervals of 10 g/km.[[20]](#footnote-21) Norway is also shown as a comparator. Each line in the graph shows the percentage of vehicles sold with an emissions intensity *less than or equal to* a given emissions intensity value on the horizonal axis. The graph shows that around 5 per cent of Australia’s passenger car sales in 2020 had an emissions intensity of 100 g/km or less, whereas 20 per cent of European and 87 per cent of Norwegian passenger vehicles were at or below this emissions intensity figure. The vast majority of European new passenger cars (89 per cent) had an emissions intensity of 160 g/km or less, whereas in Australia just 45 per cent were below this mark.

1. Cumulative percentage of passenger vehicle sales relative to emissions intensity in Australia and Europe, 2021

| CO2 emissions intensity | Australia  Cumulative percentage | Europe  Cumulative percentage | Norway  Cumulative percentage |
| --- | --- | --- | --- |
| 0 | 0.68% | 10.15% | 64.55% |
| 10 | 0.68% | 10.15% | 64.55% |
| 20 | 0.68% | 10.23% | 64.79% |
| 30 | 0.70% | 12.61% | 71.82% |
| 40 | 0.79% | 15.60% | 76.09% |
| 50 | 1.02% | 17.53% | 82.39% |
| 60 | 1.11% | 18.08% | 84.54% |
| 70 | 1.11% | 18.29% | 85.33% |
| 80 | 1.22% | 18.49% | 86.14% |
| 90 | 2.44% | 18.95% | 86.35% |
| 100 | 4.62% | 20.29% | 87.07% |
| 110 | 10.38% | 24.47% | 87.74% |
| 120 | 12.74% | 39.89% | 90.11% |
| 130 | 17.14% | 58.41% | 92.40% |
| 140 | 21.59% | 73.55% | 93.92% |
| 150 | 30.91% | 83.48% | 95.91% |
| 160 | 45.04% | 89.24% | 97.19% |
| 170 | 62.25% | 92.62% | 97.88% |
| 180 | 71.70% | 94.73% | 98.77% |
| 190 | 80.07% | 96.12% | 99.19% |
| 200 | 83.76% | 97.23% | 99.37% |
| 210 | 88.48% | 97.88% | 99.54% |
| 220 | 92.98% | 98.36% | 99.65% |
| 230 | 94.65% | 98.84% | 99.73% |
| 240 | 96.14% | 99.07% | 99.75% |
| 250 | 97.96% | 99.33% | 99.79% |
| 260 | 98.26% | 99.50% | 99.82% |
| 270 | 98.39% | 99.59% | 99.83% |
| 280 | 98.76% | 99.66% | 99.85% |
| 290 | 99.14% | 99.74% | 99.87% |
| 300 | 99.36% | 99.85% | 99.90% |
| Over 300 | 100.00% | 100.00% | 100.00% |

The share of electric vehicles sold, relative to total sales, varies considerably across countries in Europe. ‎**Figure 45** plots the share of electric vehicles – separately for BEVs and PHEVs – in each European country, as well as the average across the 29 European countries and in Australia[[21]](#footnote-22). In Norway, more than 85 per cent of new passenger vehicles are electric vehicles, with BEVs representing almost 65 per cent of total new registrations. The uptake of electric vehicles within Norway has been encouraged by exempting electric vehicles from registration and circulation taxes that apply to other conventional vehicles (EEA, 2019).

Cyprus had the lowest share of new electric passenger vehicles at 0.8 per cent, with Australia’s figure slightly higher at 1.1 per cent. Overall, the share of electric vehicles in new passenger car registrations remains below 10 per cent in around half of the European countries shown in the graph.

1. Electric vehicle share of new passenger car registrations/sales (%) in Australia and Europe, 2021

| Country | BEV | PHEV |
| --- | --- | --- |
| Cyprus | 0.5% | 0.3% |
| Australia (MA+MC) | 0.7% | 0.4% |
| Slovakia | 1.5% | 0.6% |
| Czech Republic | 1.3% | 1.9% |
| Estonia | 2.2% | 1.0% |
| Poland | 1.2% | 2.4% |
| Latvia | 2.9% | 1.0% |
| Slovenia | 3.3% | 1.0% |
| Croatia | 3.0% | 1.4% |
| Bulgaria | 2.2% | 2.2% |
| Lithuania | 3.7% | 1.3% |
| Spain | 2.6% | 3.1% |
| Greece | 2.2% | 4.8% |
| Hungary | 3.5% | 3.5% |
| Romania | 5.2% | 2.4% |
| Italy | 4.6% | 4.7% |
| Ireland | 8.3% | 7.7% |
| France | 9.5% | 8.1% |
| Europe | 10.0% | 9.1% |
| Belgium | 5.9% | 13.7% |
| Portugal | 9.2% | 10.8% |
| Austria | 13.9% | 6.1% |
| Malta | 8.0% | 12.5% |
| Luxembourg | 11.4% | 10.1% |
| Germany | 14.0% | 12.9% |
| Netherlands | 19.9% | 9.8% |
| Finland | 10.6% | 21.2% |
| Denmark | 13.6% | 20.9% |
| Sweden | 19.5% | 26.5% |
| Iceland | 28.1% | 35.9% |
| Norway | 64.5% | 21.7% |

## Light commercial vehicles: emissions intensity for 2021

‎**Figure 46** compares the distribution of the emissions intensity among new light commercial vehicle sales in Australia[[22]](#footnote-23) and Europe, in intervals of 10 g/km.[[23]](#footnote-24) The graph shows that around 14 per cent of Australia’s light commercial vehicle sales in 2021 had an emissions intensity of 200 g/km or less, whereas around 57 per cent of new European light commercial vehicles were at or below this emissions intensity.

1. Cumulative percentage of light commercial vehicles sales relative to emissions intensity in Australia and Europe, 2021

| CO2 emissions intensity | Australia  Cumulative percentage | Europe  Cumulative percentage |
| --- | --- | --- |
| 0 | 0.02% | 3.52% |
| 10 | 0.02% | 3.52% |
| 20 | 0.02% | 3.52% |
| 30 | 0.02% | 3.53% |
| 40 | 0.02% | 3.54% |
| 50 | 0.02% | 3.54% |
| 60 | 0.02% | 3.55% |
| 70 | 0.02% | 3.60% |
| 80 | 0.02% | 3.61% |
| 90 | 0.02% | 3.61% |
| 100 | 0.02% | 3.62% |
| 110 | 0.02% | 3.69% |
| 120 | 0.02% | 4.25% |
| 130 | 0.06% | 6.42% |
| 140 | 0.21% | 13.37% |
| 150 | 0.68% | 25.13% |
| 160 | 0.70% | 31.32% |
| 170 | 1.22% | 34.65% |
| 180 | 2.05% | 37.38% |
| 190 | 4.05% | 45.96% |
| 200 | 14.43% | 56.98% |
| 210 | 41.97% | 60.34% |
| 220 | 59.53% | 64.70% |
| 230 | 71.43% | 68.59% |
| 240 | 80.04% | 73.54% |
| 250 | 85.30% | 84.48% |
| 260 | 91.13% | 89.64% |
| 270 | 91.58% | 92.38% |
| 280 | 91.78% | 94.19% |
| 290 | 99.15% | 95.40% |
| 300 | 99.99% | 96.30% |
| Over 300 | 100.00% | 100.00% |

## International comparison of average emissions intensity using IEA data

The NTC has compared the average emissions intensity for new vehicle sales in various countries from 2010 to 2019 (the latest available year of data), using data published as part of the IEA’s *Global Fuel Economy Initiative 2021* (IEA, 2021a; IEA, 2021b). Due to the various testing regimes in place in different regions of the world, the IEA converted each country’s emissions intensity results in its database to WLTP (IEA, 2021a). ‎**Figure 47** compares the average emissions intensities for selected countries; it shows that all countries’ new vehicle sales had a lower average emissions intensity in 2019 than 2010. However, most countries saw the emissions intensity reductions achieved during the early years stabilise towards the end of this time period, and emissions intensity actually increased in European Union (EU) countries.[[24]](#footnote-25) The emissions intensity for Australia was broadly comparable with Canada and the USA, and among the highest of all countries in the IEA’s dataset. Japan and European Union countries tended to have the lowest emissions intensities, with Japan’s emissions intensity around 36 per cent below Australia’s in 2019.

1. International comparison of emissions intensity of light-duty vehicle sales using IEA data, 2010-2019

| Year | Japan | Australia | USA | Canada | Mexico | UK | Europe | China |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2010 | 163.2 | 224.9 | 220.7 | 220.6 | 221.1 | 160.6 | 156.0 | 202.1 |
| 2011 | 158.5 | 220.1 | 217.2 | 217.4 | 217.2 | 155.1 | 151.0 | 202.5 |
| 2012 | 147.5 | 214.1 | 210.8 | 210.5 | 202.6 | 148.7 | 146.0 | 199.1 |
| 2013 | 142.8 | 208.1 | 207.6 | 204.9 | 198.8 | 144.5 | 140.0 | 196.9 |
| 2014 | 135.6 | 204.7 | 202.8 | 203.4 | 177.2 | 140.6 | 136.0 | 189.5 |
| 2015 | 133.0 | 202.3 | 200.2 | 204.2 | 173.9 | 137.8 | 132.0 | 185.5 |
| 2016 | 130.9 | 198.5 | 199.2 | 206.2 | 175.8 | 136.0 | 131.0 | 178.0 |
| 2017 | 129.3 | 197.5 | 198.4 | 206.4 | 175.4 | 136.6 | 132.0 | 175.0 |
| 2018 | 127.5 | 196.6 | 196.2 | 200.1 | 175.3 | 141.1 | 134.0 | 167.0 |
| 2019 | 126.2 | 196.3 | 197.6 | 198.4 | 175.8 | 146.4 | 137.0 | 164.0 |

**Source:** NTC analysis based on IEA data (IEA, 2021a; IEA, 2021b).

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Appendix

This appendix provides tables containing the data used in this report.

1. National average emissions intensity for new passenger and light commercial vehicles, 2002–2021

| Year | Average CO2 emissions (g/km) | Annual change (%) | Average CO2 emissions - MA (g/km) | Annual change (%) | Average CO2 emissions - MC+NA (g/km) | Annual change (%) |
| --- | --- | --- | --- | --- | --- | --- |
| 2002 | 252.4 | N/A |  | N/A |  | N/A |
| 2003 | 249.5 | -1.1 |  | N/A |  | N/A |
| 2004 | 246.5 | -1.2 |  | N/A |  | N/A |
| 2005 | 240.5 | -2.4 |  | N/A |  | N/A |
| 2006 | 230.3 | -4.2 |  | N/A |  | N/A |
| 2007 | 226.4 | -1.7 |  | N/A |  | N/A |
| 2008 | 222.4 | -1.8 |  | N/A |  | N/A |
| 2009 | 218.6 | -1.7 |  | N/A |  | N/A |
| 2010 | 212.6 | -2.7 |  | N/A |  | N/A |
| 2011 | 206.6 | -2.8 |  | N/A |  | N/A |
| 2012 | 199.0 | -3.7 |  | N/A |  | N/A |
| 2013 | 192.2 | -3.4 |  | N/A |  | N/A |
| 2014 | 187.8 | -2.3 |  | N/A |  | N/A |
| 2015 | 184.2 | -1.9 |  | N/A |  | N/A |
| 2016 | 182.1 | -1.1 |  | N/A |  | N/A |
| 2017 | 181.7 | -0.3 |  | N/A |  | N/A |
| 2018 | 180.9 | -0.4 |  | N/A |  | N/A |
| 2019 | 180.5 | -0.2 |  | N/A |  | N/A |
| 2020 | N/A | N/A | 149.5 | N/A | 216.7 | N/A |
| 2021 | N/A | N/A | 146.5 | -2.0 | 212.5 | -1.9 |

N/A – not applicable

**Note:** 2020 and 2021 figures are sourced from the FCAI’s voluntary emissions standard (FCAI, 2021b; FCAI, 2022a), and therefore include the impacts of air-conditioning credits and off-cycle credits.

1. Average emissions intensity and annual sales by segment for the MA category, 2020 and 2021

| Segment | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Annual change (%) | Sales in 2020 | Sales in 2021 |
| --- | --- | --- | --- | --- | --- |
| SUV Medium | 157 | 156 | -0.9 | 159,368 | 162,777 |
| SUV Small | 156 | 148 | -4.9 | 114,658 | 141,410 |
| Small | 142 | 144 | 1.7 | 121,151 | 109,064 |
| SUV Large | 195 | 190 | -2.2 | 54,229 | 52,441 |
| SUV Light | 142 | 135 | -4.9 | 26,425 | 48,894 |
| Light | 132 | 133 | 0.8 | 38,545 | 45,732 |
| Medium | 137 | 136 | -1.2 | 32,852 | 30,601 |
| People Movers | 212 | 196 | -7.4 | 7,733 | 11,202 |
| Sports | 214 | 221 | 3.4 | 10,674 | 9,939 |
| Micro | 123 | 116 | -5.9 | 5,008 | 9,528 |
| Large | 198 | 146 | -26.5 | 5,353 | 4,689 |
| SUV Upper Large | 213 | 226 | 6.1 | 2,149 | 2,459 |
| Upper Large | 212 | 214 | 1.1 | 858 | 798 |
| **Total** | **N/A** | **N/A** | **N/A** | **579,003** | **629,534** |

1. Average emissions intensity and annual sales by segment for the MC+NA category, 2020 and 2021

| Segment | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Annual change (%) | Sales in 2020 | Sales in 2021 |
| --- | --- | --- | --- | --- | --- |
| Pick-up/Chassis 4×4 | 224 | 224 | 0.2 | 152,145 | 189,400 |
| SUV Large | 212 | 198 | -6.2 | 54,611 | 81,307 |
| Pick-up/Chassis 4×2 | 223 | 220 | -1.7 | 26,614 | 32,731 |
| Vans/Cab Chassis | 204 | 203 | -0.1 | 23,646 | 27,665 |
| SUV Upper Large | 265 | 269 | 1.4 | 19,523 | 19,308 |
| SUV Medium | 170 | 169 | -0.5 | 20,592 | 17,388 |
| SUV Small | 189 | 193 | 2.4 | 1,161 | 2,860 |
| SUV Light | 152 | 152 | 0.0 | 2,368 | 2,856 |
| **Total** | **N/A** | **N/A** | **N/A** | **300,660** | **373,515** |

1. Top selling models within segments and comparison with best-in-class model, 2021
   1. Top selling models within Micro (MA) segment and comparison with best-in-class model Mitsubishi MIRAGE (petrol), 109 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Kia | JA PICANTO | 6,591 | 117 | 7 |
| 2 | Mitsubishi | MIRAGE | 2,198 | 110 | 1 |
| 3 | Fiat | ABARTH | 401 | 139 | 27 |
| 4 | Fiat | 500 | 338 | 112 | 2 |

* 1. Top selling models within Light (MA) segment and comparison with best-in-class model MINI COOPER (electric), 0 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | MG | MG3 | 13,774 | 159 | N/A |
| 2 | Kia | YB RIO | 5,644 | 140 | N/A |
| 3 | Volkswagen | POLO | 5,125 | 116 | N/A |
| 4 | Mazda | 200 | 4,183 | 123 | N/A |
| 5 | Suzuki | SWIFT | 4,131 | 115 | N/A |
| 6 | Suzuki | BALENO | 3,896 | 125 | N/A |
| 7 | Toyota | YARIS | 2,357 | 114 | N/A |
| 8 | MINI | COOPER | 1,866 | 84 | N/A |
| 9 | Toyota | GR YARIS | 1,533 | 172 | N/A |
| 10 | Skoda | FABIA | 813 | 108 | N/A |

* 1. Top selling models within Small (MA) segment and comparison with best-in-class model Nissan LEAF (electric), 0 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Hyundai | I30 | 25,575 | 172 | N/A |
| 2 | Kia | BD CERATO | 18,114 | 165 | N/A |
| 3 | Toyota | COROLLA HYBRID | 14,657 | 91 | N/A |
| 4 | Mazda | 300 | 14,126 | 147 | N/A |
| 5 | Toyota | COROLLA | 14,111 | 139 | N/A |
| 6 | Subaru | IMPREZA | 3,642 | 157 | N/A |
| 7 | Honda | CIVIC 5D | 1,964 | 148 | N/A |
| 8 | Volkswagen | GOLF | 1,926 | 138 | N/A |
| 9 | BMW | 118I | 1,543 | 135 | N/A |
| 10 | Subaru | WRX | 1,261 | 228 | N/A |

* 1. Top selling models within Medium (MA) segment and comparison with best-in-class model Peugeot 508 (electric-petrol), 40 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Toyota | CAMRY HYBRID | 10,979 | 102 | 154 |
| 2 | BMW | 330I | 2,082 | 160 | 300 |
| 3 | Toyota | CAMRY | 1,886 | 169 | 322 |
| 4 | Mazda | 600 | 1,491 | 170 | 326 |
| 5 | Skoda | OCTAVIA | 1,279 | 143 | 258 |
| 6 | Mercedes-Benz Cars | C200 FL | 1,231 | 159 | 298 |
| 7 | Volkswagen | PASSAT | 948 | 162 | 305 |
| 8 | Mercedes-Benz Cars | C300 FL | 872 | 159 | 298 |
| 9 | BMW | 320I | 747 | 144 | 260 |
| 10 | Lexus | ES300H | 700 | 109 | 173 |

* 1. Top selling models within Large (MA) segment and comparison with best-in-class model Porsche TAY (electric), 0 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Kia | CK STINGER | 1,407 | 236 | N/A |
| 2 | Skoda | SUPERB | 597 | 174 | N/A |
| 3 | Porsche | TAY | 531 | 0 | N/A |
| 4 | Mercedes-Benz Cars | E200 FL | 477 | 180 | N/A |
| 5 | Maserati | GHIBLI | 152 | 210 | N/A |
| 6 | BMW | 530D | 148 | 144 | N/A |
| 7 | Audi | A6 | 140 | 164 | N/A |
| 8 | Mercedes-Benz Cars | E350 FL | 133 | 175 | N/A |
| 9 | BMW | 520I | 116 | 156 | N/A |
| 10 | Mercedes-Benz Cars | M-AMG E63S FL | 109 | 280 | N/A |

* 1. Top selling models within Upper Large (MA) segment and comparison with best-in-class model Porsche 97A (electric-petrol), 56 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Mercedes-Benz Cars | S450 4M | 171 | 188 | 235 |
| 2 | Chrysler | 300 LX | 170 | 305 | 445 |
| 3 | Mercedes-Benz Cars | S450 4M L | 65 | 191 | 241 |
| 4 | BMW | 620D GT | 64 | 126 | 125 |
| 5 | Porsche | 97A | 48 | 187 | 235 |
| 6 | BMW | 740I | 33 | 177 | 216 |
| 7 | BMW | 840I GC | 28 | 180 | 221 |
| 8 | Lexus | LS500 | 26 | 217 | 288 |
| 9 | Mercedes-Benz Cars | M-AMG GT 63S 4M | 22 | 258 | 361 |
| 10 | Bentley | FLYING SPUR | 21 | 327 | 484 |

* 1. Top selling models within Sports (MA) segment and comparison with best-in-class model Audi A3 (petrol), 120 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Ford | MUSTANG | 2,827 | 282 | 135 |
| 2 | Mazda | MX5 | 744 | 161 | 34 |
| 3 | Porsche | 911 | 428 | 238 | 99 |
| 4 | Mercedes-Benz Cars | C200 CPE FL | 325 | 159 | 32 |
| 5 | BMW | M2 | 295 | 207 | 73 |
| 6 | Mercedes-Benz Cars | M-AMG C63S CPFL | 279 | 234 | 95 |
| 7 | BMW | 420I COUPE | 261 | 146 | 22 |
| 8 | Nissan | 370Z | 260 | 248 | 107 |
| 9 | Porsche | 982 | 256 | 215 | 79 |
| 10 | BMW | 430I COUPE | 249 | 151 | 26 |

* 1. Top selling models within People Movers (MA) segment and comparison with best-in-class model Volkswagen CADDY (diesel), 129 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Kia | KA4 CARNIVAL | 5,493 | 186 | 44 |
| 2 | Honda | ODYSSEY | 1,143 | 183 | 42 |
| 3 | LDV | G10 | 1,064 | 263 | 104 |
| 4 | Volkswagen | MULTIVAN | 936 | 182 | 41 |
| 5 | Hyundai | STARIA | 628 | 224 | 74 |
| 6 | Kia | YP CARNIVAL | 369 | 232 | 79 |
| 7 | Hyundai | IMAX | 353 | 231 | 79 |
| 8 | Mercedes-Benz Vans | V-CLASS | 330 | 156 | 21 |
| 9 | Mercedes-Benz Vans | VALENTE | 208 | 172 | 33 |
| 10 | Toyota | GRANVIA | 194 | 211 | 64 |

* 1. Top selling models within SUV Light (MA) segment and comparison with best-in-class model Toyota YARIS CROSSHV (petrol-electric), 86 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Mazda | CX3 | 12,873 | 144 | 67 |
| 2 | Kia | YB STONIC | 7,645 | 150 | 74 |
| 3 | Volkswagen | T-CROSS | 6,104 | 123 | 43 |
| 4 | Hyundai | VENUE | 5,854 | 165 | 92 |
| 5 | Toyota | YARIS CROSSHV | 5,052 | 87 | 1 |
| 6 | Ford | PUMA | 3,218 | 121 | 41 |
| 7 | Toyota | YARIS CROSS | 2,776 | 124 | 44 |
| 8 | Nissan | JUKE | 2,362 | 136 | 58 |
| 9 | Suzuki | IGNIS | 1,979 | 113 | 32 |
| 10 | Renault | CAPTUR | 533 | 149 | 73 |

* 1. Top selling models within SUV Small (MA) segment and comparison with best-in-class model MG MG ZS EV (electric), 0 (g/km)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| 1 | MG | MG ZS | 17,035 | 163 | N/A |
| 2 | Mitsubishi | ASX | 14,764 | 177 | N/A |
| 3 | Mazda | C30 | 13,309 | 153 | N/A |
| 4 | Hyundai | KONA | 12,748 | 135 | N/A |
| 5 | Subaru | XV | 9,342 | 158 | N/A |
| 6 | Kia | SP2 SELTOS | 8,884 | 161 | N/A |
| 7 | Mitsubishi | ECLIPSE CROSS | 6,132 | 157 | N/A |
| 8 | Honda | HR-V | 6,069 | 156 | N/A |
| 9 | Nissan | QASHQAI | 5,750 | 159 | N/A |
| 10 | Volkswagen | T-ROC | 4,838 | 154 | N/A |

* 1. Top selling models within SUV Medium (MA) segment and comparison with best-in-class model Mercedes-Benz Cars EQC 400 4M (electric), 0 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Toyota | RAV4 HYBRID | 25,850 | 108 | N/A |
| 2 | Mazda | CX5 | 24,968 | 171 | N/A |
| 3 | Mitsubishi | OUTLANDER | 14,572 | 158 | N/A |
| 4 | Hyundai | TUCSON | 14,194 | 178 | N/A |
| 5 | Nissan | XTRAIL | 13,860 | 186 | N/A |
| 6 | Toyota | RAV4 | 9,901 | 150 | N/A |
| 7 | Honda | CR-V | 6,875 | 166 | N/A |
| 8 | Kia | QL SPORTAGE | 6,659 | 183 | N/A |
| 9 | MG | MG HS | 6,248 | 176 | N/A |
| 10 | Volkswagen | TIGUAN | 3,772 | 186 | N/A |

* 1. Top selling models within SUV Large (MA) segment and comparison with best-in-class model Audi EB (electric), 0 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Mazda | CX8 | 6,119 | 177 | N/A |
| 2 | Kia | MQ4 SORENTO | 5,103 | 177 | N/A |
| 3 | Hyundai | SANTA FE | 5,048 | 177 | N/A |
| 4 | Volkswagen | TIGUAN ALLSPACE | 3,966 | 194 | N/A |
| 5 | Mazda | CX9 | 3,884 | 197 | N/A |
| 6 | Hyundai | PALISADE | 3,720 | 204 | N/A |
| 7 | Toyota | KLUGER | 3,085 | 206 | N/A |
| 8 | Isuzu Ute | MU-X | 2,794 | 209 | N/A |
| 9 | BMW | X5 XDRIVE30D | 2,194 | 189 | N/A |
| 10 | Skoda | KODIAQ | 1,694 | 174 | N/A |

* 1. Top selling models within SUV Upper Large (MA) segment and comparison with best-in-class model Land Rover RANGE ROVER (electric-petrol), 64 (g/km)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| 1 | BMW | X7 XDRIVE30D | 622 | 191 | 198 |
| 2 | Mercedes-Benz Cars | GLS450 4M | 432 | 210 | 228 |
| 3 | Mercedes-Benz Cars | GLS400D 4M | 380 | 202 | 216 |
| 4 | Mercedes-Benz Cars | M-AMG GLS63 | 273 | 296 | 363 |
| 5 | BMW | X7 M50I | 168 | 265 | 314 |
| 6 | Audi | RSQ8 | 129 | 276 | 331 |
| 7 | Audi | SQ8 | 115 | 205 | 220 |
| 8 | Bentley | BENTAYGA | 98 | 265 | 314 |
| 9 | Audi | Q8 | 84 | 193 | 202 |
| 10 | Lamborghini | URUS | 64 | 279 | 336 |

* 1. Top selling models within SUV Light (MC+NA) segment and comparison with best-in-class model Suzuki JIMNY (petrol), 146 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Suzuki | JIMNY | 2,856 | 152 | 4 |

* 1. Top selling models within SUV Small (MC+NA) segment and comparison with best-in-class model Jeep COMPASS (diesel), 150 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Volvo Car | XC40 | 2,034 | 182 | 21 |
| 2 | Jeep | COMPASS | 826 | 221 | 47 |

* 1. Top selling models within SUV Medium (MC+NA) segment and comparison with best-in-class model BMW X3 XDRIVE30E (electric-petrol), 73 (g/km)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| 1 | Subaru | FORESTER | 11,810 | 168 | 129 |
| 2 | BMW | X3 XDRIVE30I | 2,664 | 170 | 133 |
| 3 | BMW | X3 SDRIVE20I | 794 | 163 | 124 |
| 4 | BMW | X4 XDRIVE30I | 438 | 169 | 132 |
| 5 | BMW | X3 M40I | 333 | 199 | 173 |
| 6 | BMW | X4 XDRIVE20I | 242 | 167 | 129 |
| 7 | Land Rover | RR EVOQUE | 225 | 165 | 126 |
| 8 | Land Rover | DISCOVERY SPORT | 209 | 158 | 116 |
| 9 | BMW | X4 M40I | 150 | 199 | 173 |
| 10 | BMW | X3 XDRIVE30D | 138 | 159 | 118 |

* 1. Top selling models within SUV Large (MC+NA) segment and comparison with best-in-class model Volvo Car XC90 (electric-petrol), 49 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Toyota | PRADO | 21,299 | 211 | 330 |
| 2 | Subaru | OUTBACK | 10,490 | 169 | 244 |
| 3 | Isuzu Ute | MU-X | 7,824 | 213 | 335 |
| 4 | Ford | EVEREST | 7,465 | 195 | 299 |
| 5 | Mitsubishi | PAJERO SPORT | 6,804 | 212 | 333 |
| 6 | Toyota | KLUGER HYBRID | 4,985 | 128 | 161 |
| 7 | Toyota | FORTUNER | 3,822 | 201 | 310 |
| 8 | Jeep | GRAND CHEROKEE | 3,009 | 231 | 372 |
| 9 | Mazda | CX9 | 2,746 | 211 | 331 |
| 10 | Mitsubishi | PAJERO | 2,250 | 240 | 390 |

* 1. Top selling models within SUV Upper Large (MC+NA) segment and comparison with best-in-class model Audi Q8 (diesel), 181 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Toyota | LANDCRUISER | 14,356 | 253 | 40 |
| 2 | Nissan | PATROL | 3,333 | 343 | 90 |
| 3 | Mercedes-Benz Cars | M-AMG G63 FL | 568 | 299 | 65 |
| 4 | Land Rover | DISCOVERY | 533 | 202 | 11 |
| 5 | Lexus | LX570 | 189 | 334 | 85 |
| 6 | Lexus | LX450D | 111 | 250 | 38 |
| 7 | Land Rover | RANGE ROVER | 110 | 257 | 42 |
| 8 | Aston Martin | DBX | 61 | 269 | 49 |
| 9 | Mercedes-Benz Cars | G400D | 26 | 252 | 39 |
| 10 | Audi | Q8 | 21 | 198 | 9 |

* 1. Top selling models within Pick-up/Chassis 4x2 (MC+NA) segment and comparison with best-in-class model Nissan NAVARA (diesel), 166 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Toyota | HILUX 4X2 | 13,214 | 239 | 44 |
| 2 | Isuzu Ute | D-MAX | 6,478 | 205 | 23 |
| 3 | Ford | RANGER | 4,293 | 202 | 22 |
| 4 | Mitsubishi | TRITON | 2,899 | 225 | 35 |
| 5 | Mazda | B30 | 2,823 | 204 | 23 |
| 6 | Nissan | NAVARA | 2,069 | 195 | 18 |
| 7 | GWM | STEED | 738 | 213 | 28 |
| 8 | GWM | UTE | 164 | 246 | 48 |
| 9 | Mazda | B19 | 41 | 180 | 8 |
| 10 | Mazda | B32 | 11 | 243 | 46 |

* 1. Top selling models within Pick-up/Chassis 4x4 (MC+NA) segment and comparison with best-in-class model Nissan NAVARA (diesel), 147 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Ford | RANGER | 45,986 | 220 | 50 |
| 2 | Toyota | HILUX 4X4 | 39,587 | 210 | 43 |
| 3 | Isuzu Ute | D-MAX | 18,639 | 207 | 41 |
| 4 | Mitsubishi | TRITON | 16,333 | 223 | 52 |
| 5 | Nissan | NAVARA | 13,044 | 204 | 39 |
| 6 | Mazda | B30 | 12,738 | 206 | 40 |
| 7 | Toyota | LANDCRUISER | 12,277 | 281 | 91 |
| 8 | Volkswagen | AMAROK | 7,659 | 244 | 66 |
| 9 | GWM | UTE | 6,742 | 246 | 67 |
| 10 | LDV | T60 | 6,307 | 254 | 73 |

* 1. Top selling models within Van/Cab Chassis (MC+NA) segment and comparison with best-in-class model Renault KANGOO (electric), 0 (g/km)

| Selling rank within segment | Make | Model | Sales | Average emissions intensity (g/km) | Difference in average emissions intensity compared with best-in-class model (%)\* |
| --- | --- | --- | --- | --- | --- |
| 1 | Toyota | HIACE | 9,726 | 217 | N/A |
| 2 | Ford | TRANSIT CUSTOM | 2,488 | 186 | N/A |
| 3 | Hyundai | ILOAD | 2,446 | 229 | N/A |
| 4 | Renault | TRAFIC | 2,093 | 183 | N/A |
| 5 | LDV | G10 | 1,829 | 230 | N/A |
| 6 | Mitsubishi | EXPRESS | 1,780 | 187 | N/A |
| 7 | Volkswagen | TRANSPORTER | 1,727 | 206 | N/A |
| 8 | LDV | G10+ | 1,477 | 220 | N/A |
| 9 | Mercedes-Benz Vans | VITO | 996 | 176 | N/A |
| 10 | Renault | KANGOO | 732 | 118 | N/A |

\* Best-in-class is the lowest emissions model variant and includes battery electric vehicles with emissions of 0 g/km. For segments where the best-in-class vehicle is a battery electric vehicle, it is not possible to do a percentage difference for the top-selling models.

1. Average emissions intensity for models with a sales volume greater than 1,000 vehicles, 2021

| Rank | Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- | --- |
| 1 | Ford | RANGER | 218 | 50,279 |
| 2 | Toyota | HILUX 4X4 | 210 | 39,587 |
| 3 | Toyota | LANDCRUISER | 266 | 26,633 |
| 4 | Toyota | RAV4 HYBRID | 108 | 25,850 |
| 5 | Hyundai | I30 | 172 | 25,575 |
| 6 | Isuzu Ute | D-MAX | 206 | 25,117 |
| 7 | Mazda | CX5 | 171 | 24,968 |
| 8 | Toyota | PRADO | 211 | 21,299 |
| 9 | Mitsubishi | TRITON | 223 | 19,232 |
| 10 | Kia | BD CERATO | 165 | 18,114 |
| 11 | MG | MG ZS | 163 | 17,035 |
| 12 | Mazda | B30 | 206 | 15,561 |
| 13 | Nissan | NAVARA | 203 | 15,113 |
| 14 | Mitsubishi | ASX | 177 | 14,764 |
| 15 | Toyota | COROLLA HYBRID | 91 | 14,657 |
| 16 | Mitsubishi | OUTLANDER | 158 | 14,572 |
| 17 | Hyundai | TUCSON | 178 | 14,194 |
| 18 | Mazda | 300 | 147 | 14,126 |
| 19 | Toyota | COROLLA | 139 | 14,111 |
| 20 | Nissan | XTRAIL | 186 | 13,860 |
| 21 | MG | MG3 | 159 | 13,774 |
| 22 | Mazda | C30 | 153 | 13,309 |
| 23 | Toyota | HILUX 4X2 | 239 | 13,214 |
| 24 | Mazda | CX3 | 144 | 12,873 |
| 25 | Hyundai | KONA | 135 | 12,748 |
| 26 | Subaru | FORESTER | 168 | 11,810 |
| 27 | Toyota | CAMRY HYBRID | 102 | 10,979 |
| 28 | Isuzu Ute | MU-X | 212 | 10,618 |
| 29 | Subaru | OUTBACK | 169 | 10,490 |
| 30 | Toyota | RAV4 | 150 | 9,901 |
| 31 | Toyota | HIACE | 217 | 9,726 |
| 32 | Subaru | XV | 158 | 9,342 |
| 33 | Kia | SP2 SELTOS | 161 | 8,884 |
| 34 | Ford | EVEREST | 195 | 8,359 |
| 35 | Volkswagen | AMAROK | 244 | 7,659 |
| 36 | Kia | YB STONIC | 150 | 7,645 |
| 37 | GWM | UTE | 246 | 6,906 |
| 38 | Honda | CR-V | 166 | 6,875 |
| 39 | Mitsubishi | PAJERO SPORT | 212 | 6,804 |
| 40 | Kia | QL SPORTAGE | 183 | 6,659 |
| 41 | Mazda | CX9 | 203 | 6,630 |
| 42 | Kia | JA PICANTO | 117 | 6,591 |
| 43 | LDV | T60 | 254 | 6,307 |
| 44 | MG | MG HS | 176 | 6,248 |
| 45 | Mitsubishi | ECLIPSE CROSS | 157 | 6,132 |
| 46 | Mazda | CX8 | 177 | 6,119 |
| 47 | Volkswagen | T-CROSS | 123 | 6,104 |
| 48 | Honda | HR-V | 156 | 6,069 |
| 49 | Hyundai | VENUE | 165 | 5,854 |
| 50 | Nissan | QASHQAI | 159 | 5,750 |
| 51 | Kia | YB RIO | 140 | 5,644 |
| 52 | Kia | KA4 CARNIVAL | 186 | 5,493 |
| 53 | Volkswagen | POLO | 116 | 5,125 |
| 54 | Kia | MQ4 SORENTO | 177 | 5,103 |
| 55 | Toyota | YARIS CROSSHV | 87 | 5,052 |
| 56 | Hyundai | SANTA FE | 177 | 5,048 |
| 57 | Toyota | KLUGER HYBRID | 128 | 4,985 |
| 58 | Volkswagen | T-ROC | 154 | 4,838 |
| 59 | Toyota | KLUGER | 206 | 4,335 |
| 60 | Mazda | 200 | 123 | 4,183 |
| 61 | Suzuki | SWIFT | 115 | 4,131 |
| 62 | GWM | HAVAL JOLION | 186 | 4,069 |
| 63 | Volkswagen | TIGUAN ALLSPACE | 194 | 3,966 |
| 64 | Suzuki | BALENO | 125 | 3,896 |
| 65 | Toyota | FORTUNER | 201 | 3,822 |
| 66 | Volkswagen | TIGUAN | 186 | 3,772 |
| 67 | Suzuki | VITARA | 139 | 3,745 |
| 68 | Hyundai | PALISADE | 204 | 3,720 |
| 69 | Volvo Car | XC60 | 156 | 3,688 |
| 70 | Volvo Car | XC40 | 137 | 3,687 |
| 71 | Subaru | IMPREZA | 157 | 3,642 |
| 72 | GWM | HAVAL H6 | 173 | 3,635 |
| 73 | MINI | COOPER | 108 | 3,579 |
| 74 | Toyota | C-HR | 147 | 3,503 |
| 75 | Suzuki | JIMNY | 153 | 3,350 |
| 76 | Nissan | PATROL | 343 | 3,333 |
| 77 | Ford | PUMA | 121 | 3,218 |
| 78 | Toyota | C-HR HYBRID | 97 | 3,075 |
| 79 | Jeep | GRAND CHEROKEE | 231 | 3,010 |
| 80 | Audi | Q5 | 168 | 2,945 |
| 81 | LDV | G10 | 242 | 2,893 |
| 82 | Ford | MUSTANG | 282 | 2,827 |
| 83 | Toyota | YARIS CROSS | 124 | 2,776 |
| 84 | BMW | X3 XDRIVE30I | 170 | 2,664 |
| 85 | Audi | Q3 SPORTBACK | 176 | 2,628 |
| 86 | Audi | Q3 | 173 | 2,507 |
| 87 | Ford | TRANSIT CUSTOM | 186 | 2,488 |
| 88 | Hyundai | ILOAD | 229 | 2,446 |
| 89 | Nissan | JUKE | 136 | 2,362 |
| 90 | Toyota | YARIS | 114 | 2,357 |
| 91 | Porsche | 95B | 218 | 2,328 |
| 92 | Mitsubishi | PAJERO | 240 | 2,250 |
| 93 | Mitsubishi | MIRAGE | 110 | 2,198 |
| 94 | Skoda | KAMIQ | 125 | 2,197 |
| 95 | BMW | X5 XDRIVE30D | 189 | 2,194 |
| 96 | Chevrolet | SILVERADO | 297 | 2,114 |
| 97 | Lexus | NX300 | 179 | 2,099 |
| 98 | Renault | TRAFIC | 183 | 2,093 |
| 99 | BMW | 330I | 160 | 2,082 |
| 100 | GWM | HAVAL H2 | 208 | 1,979 |
| 101 | Suzuki | IGNIS | 113 | 1,979 |
| 102 | Honda | CIVIC 5D | 148 | 1,964 |
| 103 | Renault | KOLEOS | 189 | 1,937 |
| 104 | Volkswagen | GOLF | 138 | 1,928 |
| 105 | Toyota | CAMRY | 169 | 1,886 |
| 106 | RAM | EXPRESS 1500 | 283 | 1,841 |
| 107 | Mitsubishi | EXPRESS | 187 | 1,780 |
| 108 | Jeep | WRANGLER | 228 | 1,734 |
| 109 | Volkswagen | TRANSPORTER | 206 | 1,727 |
| 110 | Skoda | KAROQ | 155 | 1,709 |
| 111 | Skoda | KODIAQ | 174 | 1,694 |
| 112 | Ford | ESCAPE | 199 | 1,673 |
| 113 | Mercedes-Benz Cars | GLB250 4M | 173 | 1,605 |
| 114 | LDV | D90 | 240 | 1,576 |
| 115 | BMW | 118I | 135 | 1,543 |
| 116 | Toyota | GR YARIS | 172 | 1,533 |
| 117 | Land Rover | DEFENDER 110 | 218 | 1,531 |
| 118 | Mazda | 600 | 170 | 1,491 |
| 119 | LDV | G10+ | 220 | 1,477 |
| 120 | Audi | Q2 | 126 | 1,475 |
| 121 | Land Rover | RR SPORT | 219 | 1,475 |
| 122 | BMW | X1 SDRIVE20I | 149 | 1,444 |
| 123 | Audi | Q7 | 183 | 1,418 |
| 124 | Kia | CK STINGER | 236 | 1,407 |
| 125 | MG | MG ZS EV | 0 | 1,388 |
| 126 | Jeep | COMPASS | 211 | 1,363 |
| 127 | Mercedes-Benz Cars | GLC300 4M FL | 181 | 1,335 |
| 128 | Volvo Car | XC90 | 158 | 1,323 |
| 129 | Kia | NQ5 SPORTAGE | 171 | 1,290 |
| 130 | Skoda | OCTAVIA | 143 | 1,279 |
| 131 | Jeep | GLADIATOR | 281 | 1,273 |
| 132 | Subaru | WRX | 228 | 1,261 |
| 133 | Volkswagen | TOUAREG | 181 | 1,261 |
| 134 | Mercedes-Benz Cars | GLB200 | 148 | 1,257 |
| 135 | GWM | STEED | 217 | 1,252 |
| 136 | Mercedes-Benz Cars | C200 FL | 159 | 1,231 |
| 137 | Mercedes-Benz Cars | GLE300D 4M | 182 | 1,222 |
| 138 | Peugeot | 3008 | 147 | 1,172 |
| 139 | Volkswagen | PASSAT | 167 | 1,169 |
| 140 | Honda | ODYSSEY | 183 | 1,143 |
| 141 | Land Rover | RR EVOQUE | 180 | 1,143 |
| 142 | SsangYong | MUSSO XLV | 230 | 1,026 |
| 143 | Mercedes-Benz Cars | GLE400D 4M | 202 | 1,024 |
| 144 | Mercedes-Benz Cars | GLA250 4M | 170 | 1,017 |
| 145 | Mazda | M30 | 125 | 1,014 |
| **Total\*** |  |  | **N/A** | **919,370** |

\* The totals shown in this row differ to the national totals shown in other tables as they only include vehicle models with sales of at least 1,000.

1. Average emissions intensity and annual sales by buyer type for the MA category, 2020 and 2021

| Buyer type | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Annual change (%) | Sales in 2020 | Sales in 2021 |
| --- | --- | --- | --- | --- | --- |
| Private | 155 | 153 | -1.8 | 342,422 | 391,111 |
| Business | 158 | 152 | -3.3 | 220,226 | 225,503 |
| Government | 134 | 129 | -4.4 | 16,355 | 12,920 |
| **Total** | **N/A** | **N/A** | **N/A** | **579,003** | **629,534** |

1. Average emissions intensity and annual sales by buyer type for the MC+NA category, 2020 and 2021

| Buyer type | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Annual change (%) | Sales in 2020 | Sales in 2021 |
| --- | --- | --- | --- | --- | --- |
| Business | 220 | 217 | -1.5 | 183,598 | 210,467 |
| Private | 216 | 214 | -0.6 | 103,004 | 147,876 |
| Government | 219 | 214 | -2.3 | 14,058 | 15,172 |
| **Total** | **N/A** | **N/A** | **N/A** | **300,660** | **373,515** |

1. Average emissions intensity and annual sales by detailed buyer type for the MA category, 2020 and 2021

| Buyer type | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Annual change (%) | Sales in 2020 | Sales in 2021 |
| --- | --- | --- | --- | --- | --- |
| Private – local delivery | 155 | 153 | -1.8 | 342,310 | 390,960 |
| Dealer demonstrator | 158 | 152 | -3.4 | 80,463 | 68,641 |
| Fleet | 160 | 159 | -0.5 | 59,014 | 59,470 |
| Rental | 157 | 151 | -4.1 | 27,212 | 45,311 |
| Large fleet | 156 | 150 | -3.8 | 25,920 | 28,272 |
| Not-for-profit organisation | 152 | 147 | -2.9 | 12,401 | 12,319 |
| Company capitalisation | 159 | 139 | -12.3 | 14,305 | 10,389 |
| State Government | 135 | 129 | -4.3 | 12,034 | 9,947 |
| Local Government | 135 | 125 | -7.6 | 3,085 | 2,233 |
| Taxi | 102 | 104 | 1.8 | 746 | 905 |
| Federal Government | 127 | 131 | 3.1 | 1,236 | 740 |
| Private – overseas delivery | 162 | 157 | -2.8 | 112 | 151 |
| Business – overseas delivery | 174 | 161 | -7.6 | 48 | 92 |
| Diplomatic | 156 | 150 | -3.9 | 49 | 58 |
| Other | 168 | 173 | 2.9 | 68 | 46 |
| **Total** | **N/A** | **N/A** | **N/A** | **579,003** | **629,534** |

1. Average emissions intensity and annual sales by detailed buyer type for the MC+NA category, 2020 and 2021

| Buyer type | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Annual change (%) | Sales in 2020 | Sales in 2021 |
| --- | --- | --- | --- | --- | --- |
| Private – local delivery | 216 | 214 | -0.6 | 102,965 | 147,808 |
| Fleet | 223 | 219 | -1.7 | 104,257 | 126,657 |
| Large fleet | 221 | 216 | -2.1 | 34,891 | 40,116 |
| Dealer demonstrator | 213 | 213 | 0.1 | 30,152 | 22,835 |
| Rental | 216 | 208 | -3.6 | 7,114 | 14,254 |
| State Government | 223 | 219 | -1.8 | 8,722 | 8,587 |
| Local Government | 209 | 203 | -2.8 | 4,089 | 4,803 |
| Company capitalisation | 203 | 206 | 1.2 | 4,873 | 3,939 |
| Not-for-profit organisation | 224 | 215 | -3.9 | 2,238 | 2,543 |
| Federal Government | 218 | 215 | -1.4 | 1,247 | 1,782 |
| Business – overseas delivery | 218 | 239 | 9.5 | 47 | 82 |
| Private – overseas delivery | 236 | 213 | -9.5 | 39 | 68 |
| Diplomatic | 204 | 207 | 1.4 | 9 | 20 |
| Taxi | 248 | 142 | -42.8 | 3 | 15 |
| Other | 197 | 208 | 5.9 | 14 | 6 |
| **Total** | **N/A** | **N/A** | **N/A** | **300,660** | **373,515** |

1. Average emissions intensity and annual sales by powertrain and fuel type for the MA category, 2020 and 2021

| Powertrain and fuel type | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Annual change (%) | Sales in 2020 | Sales in 2021 |
| --- | --- | --- | --- | --- | --- |
| Petrol | 166 | 164 | -0.9 | 480,925 | 514,418 |
| HEV | 102 | 102 | 0.1 | 57,724 | 65,165 |
| Diesel | 178 | 176 | -1.1 | 37,185 | 41,766 |
| BEV | 0 | 0 | N/A | 1,764 | 5,104 |
| PHEV | 47 | 46 | -2.1 | 1,405 | 3,043 |
| Hydrogen | 0 | 0 | N/A | 0 | 38 |
| **Total** | **N/A** | **N/A** | **N/A** | **579,003** | **629,534** |

1. Average emissions intensity and annual sales by powertrain and fuel type for the MC+NA category, 2020 and 2021

| Powertrain and fuel type | Average emissions intensity (g/km) in 2020 | Average emissions intensity (g/km) in 2021 | Annual change (%) | Sales in 2020 | Sales in 2021 |
| --- | --- | --- | --- | --- | --- |
| Diesel | 220 | 218 | -0.7 | 250,635 | 301,767 |
| Petrol | 214 | 216 | 1.0 | 48,853 | 66,033 |
| HEV | 151 | 129 | -14.7 | 871 | 5,341 |
| PHEV | 70 | 60 | -13.6 | 287 | 329 |
| BEV | 0 | 0 | N/A | 14 | 45 |
| **Total** | **N/A** | **N/A** | **N/A** | **300,660** | **373,515** |

1. Electric vehicle sales by model for FCAI data, 2020 and 2021

| Make and Model | 2020 | 2021 |
| --- | --- | --- |
| Audi E7 | 31 | 34 |
| Audi EB | 33 | 74 |
| BMW 330E | 91 | 150 |
| BMW 530E | 14 | 22 |
| BMW 745E | 5 | 6 |
| BMW I3 | 1 | 0 |
| BMW I3 REX | 1 | 0 |
| BMW I3S | 52 | 67 |
| BMW I8 | 1 | 0 |
| BMW I8 ROADSTER | 13 | 0 |
| BMW IX XDRIVE40 | 0 | 23 |
| BMW IX XDRIVE50 | 0 | 12 |
| BMW IX3 | 0 | 50 |
| BMW IX3 MSPORT | 0 | 12 |
| BMW X3 XDRIVE30E | 1 | 37 |
| BMW X5 XDRIVE45E | 46 | 118 |
| Ferrari SF90 SPIDER | 0 | 1 |
| Ferrari SF90 STRADALE | 0 | 24 |
| Hyundai IONIQ | 454 | 407 |
| Hyundai IONIQ 5 | 0 | 172 |
| Hyundai KONA | 488 | 505 |
| Jaguar I-PACE | 70 | 44 |
| Kia DE NIRO | 0 | 277 |
| Kia MQ4 SORENTO | 0 | 15 |
| Land Rover RANGE ROVER | 4 | 1 |
| Land Rover RR SPORT | 13 | 11 |
| Lexus UX300E | 0 | 43 |
| Mazda M30 | 0 | 63 |
| Mercedes-Benz Cars A250E | 18 | 49 |
| Mercedes-Benz Cars A250E SEDAN | 5 | 17 |
| Mercedes-Benz Cars C300E FL | 71 | 13 |
| Mercedes-Benz Cars E300E | 20 | 2 |
| Mercedes-Benz Cars E300E FL | 9 | 18 |
| Mercedes-Benz Cars EQA 250 | 0 | 367 |
| Mercedes-Benz Cars EQC 400 4M | 163 | 174 |
| Mercedes-Benz Cars EQC 400 4M EAL | 31 | 124 |
| Mercedes-Benz Cars GLC300E 4M FL | 274 | 307 |
| Mercedes-Benz Cars GLC300E 4MFL CP | 0 | 1 |
| MG MG HS PHEV | 0 | 580 |
| MG MG ZS EV | 0 | 1,388 |
| MINI COOPER | 150 | 432 |
| Mitsubishi ECLIPSE CROSS | 0 | 229 |
| Mitsubishi OUTLANDER | 440 | 592 |
| Nissan LEAF | 380 | 367 |
| Peugeot 3008 | 0 | 11 |
| Peugeot 508 | 0 | 5 |
| Porsche 97A | 6 | 6 |
| Porsche CAY | 205 | 122 |
| Porsche TAY | 0 | 531 |
| Renault KANGOO | 14 | 45 |
| Renault ZOE | 77 | 0 |
| Volvo Car S60 | 14 | 0 |
| Volvo Car V60 | 24 | 0 |
| Volvo Car XC40 | 67 | 495 |
| Volvo Car XC60 | 120 | 308 |
| Volvo Car XC90 | 64 | 170 |
| **Total** | **3,470** | **8,521** |

1. Electric vehicle sales by state for FCAI data, 2020 and 2021

| State | 2020 | 2021 |
| --- | --- | --- |
| Australian Capital Territory | 247 | 349 |
| New South Wales | 1,097 | 2,597 |
| Northern Territory | 6 | 24 |
| Queensland | 610 | 1,605 |
| South Australia | 207 | 570 |
| Tasmania | 83 | 239 |
| Victoria | 917 | 2,483 |
| Western Australia | 303 | 654 |
| **Total** | **3,470** | **8,521** |

1. Electric vehicle sales by buyer type for FCAI data, 2020 and 2021

| Buyer type | 2020 | 2021 |
| --- | --- | --- |
| Company capitalisation | 450 | 658 |
| Dealer demonstrator | 537 | 1,613 |
| Diplomatic | 1 | 3 |
| Federal government | 16 | 8 |
| Fleet | 314 | 682 |
| Large fleet | 173 | 290 |
| Local government | 106 | 134 |
| Not-for-profit organisation | 25 | 25 |
| Other | 1 | 1 |
| Private – local delivery | 1,643 | 4,733 |
| Private – overseas delivery | 1 | 0 |
| Rental | 1 | 125 |
| State government | 202 | 249 |
| **Total** | **3,470** | **8,521** |

1. Estimated electric vehicle fleet (including Tesla) by state and territory

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Vehicle description | ACT | NSW | NT | QLD | SA | TAS | VIC | WA | Australia |
| Total electric vehicle sales from 2010 to 2021 (excluding Tesla) | 917 | 5,966 | 50 | 3,464 | 2,382 | 460 | 5,725 | 1,596 | 20,560 |
| Tesla registrations as at 21 January 2022 | 819 | 7,236 | 37 | 4,992 | 768 | 229 | 5,935 | 2,118 | 22,134 |
| Total estimated electric vehicles as at 2021 (including Tesla) | 1,736 | 13,202 | 87 | 8,456 | 3,150 | 689 | 11,660 | 3,714 | 42,694 |
| Total passenger and light commercial vehicle fleet in 2021 | 299,582 | 5,380,182 | 146,178 | 3,892,775 | 1,366,865 | 468,860 | 4,745,233 | 2,070,457 | 18,370,132 |
| Estimate of electric vehicles as percentage of total fleet in 2021 | 0.58% | 0.25% | 0.06% | 0.22% | 0.23% | 0.15% | 0.25% | 0.18% | 0.23% |
| Total estimated electric vehicles as at 2020 (including Tesla) | 928 | 6,997 | 43 | 3,905 | 2,151 | 323 | 6,197 | 1,571 | 22,115 |
| Change in estimated total electric vehicle fleet between 2020 and 2021 | 87% | 89% | 102% | 117% | 46% | 113% | 88% | 136% | 93% |

**Sources:** VFACTS data on electric vehicles from 2010 to 2021; ABS (2021); Registrations from state- and territory-based registration systems as at 21 December 2020 and 21 January 2022 for Tesla data.

**Note:** Numbers in the table should be treated as indicative estimates, as they are based on a combination of cumulative VFACTS sales data and registration data (for Teslas). As a result, there is potential for electric vehicles to in some cases be under-counted and in others over-counted, as well as variation between jurisdictions. For example, electric vehicles sold early in the period of analysis (for example, 2010 or 2011) may no longer be in the fleet due to an accident or the vehicle or battery reaching the end of its life. By contrast, any ‘grey imports’ of electric vehicles from overseas markets would not be captured in the above data sources. Finally, transfers of vehicles between jurisdictions mean that there is potential for some discrepancies in the comparisons between states and territories, as a vehicle may have been sold in one jurisdiction but be currently registered in a different one. The estimated number of electric vehicles as at 2020, shown in the second last row of the table, is slightly higher than the corresponding figure in last year’s report, reflecting the amended Tesla registration data for this time period, as described in more detail in the text near **‎Table 5**.

1. Battery electric vehicle sales by model and jurisdiction, 2021

| Make and model | ACT | NSW | NT | QLD | SA | TAS | VIC | WA | Total |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Audi E7 | 1 | 9 | 0 | 6 | 4 | 2 | 8 | 4 | **34** |
| Audi EB | 0 | 33 | 0 | 12 | 2 | 3 | 12 | 12 | **74** |
| BMW I3S | 0 | 23 | 0 | 9 | 4 | 0 | 23 | 8 | **67** |
| BMW IX XDRIVE40 | 1 | 8 | 0 | 3 | 0 | 0 | 11 | 0 | **23** |
| BMW IX XDRIVE50 | 1 | 2 | 0 | 1 | 0 | 0 | 8 | 0 | **12** |
| BMW IX3 | 0 | 0 | 0 | 1 | 0 | 0 | 49 | 0 | **50** |
| BMW IX3 MSPORT | 0 | 4 | 0 | 1 | 0 | 0 | 7 | 0 | **12** |
| Hyundai IONIQ | 11 | 60 | 0 | 59 | 37 | 14 | 109 | 49 | **339** |
| Hyundai IONIQ 5 | 13 | 68 | 0 | 22 | 7 | 3 | 46 | 13 | **172** |
| Hyundai KONA | 29 | 125 | 0 | 87 | 51 | 34 | 136 | 43 | **505** |
| Jaguar I-PACE | 1 | 16 | 0 | 12 | 2 | 1 | 9 | 3 | **44** |
| Kia DE NIRO | 3 | 87 | 0 | 47 | 14 | 4 | 50 | 12 | **217** |
| Lexus UX300E | 1 | 11 | 1 | 10 | 1 | 0 | 16 | 3 | **43** |
| Mazda M30 | 0 | 8 | 3 | 14 | 7 | 1 | 27 | 3 | **63** |
| Mercedes-Benz Cars EQA 250 | 6 | 98 | 0 | 93 | 27 | 7 | 113 | 23 | **367** |
| Mercedes-Benz Cars EQC 400 4M | 4 | 34 | 0 | 29 | 10 | 3 | 88 | 6 | **174** |
| Mercedes-Benz Cars EQC 400 4M EAL | 3 | 41 | 0 | 17 | 3 | 2 | 52 | 6 | **124** |
| MG MG ZS EV | 50 | 427 | 6 | 321 | 72 | 68 | 355 | 89 | **1,388** |
| MINI COOPER | 13 | 95 | 0 | 62 | 16 | 10 | 78 | 17 | **291** |
| Nissan LEAF | 51 | 58 | 3 | 40 | 14 | 16 | 156 | 29 | **367** |
| Porsche TAY | 16 | 200 | 0 | 76 | 26 | 9 | 161 | 43 | **531** |
| Renault KANGOO | 0 | 18 | 1 | 6 | 1 | 0 | 17 | 2 | **45** |
| Volvo Car XC40 | 9 | 74 | 0 | 35 | 16 | 10 | 41 | 22 | **207** |
| **Total** | **213** | **1,499** | **14** | **963** | **314** | **187** | **1,572** | **387** | **5,149** |

1. Hybrid vehicle sales by model, 2020 and 2021

| Make and model | 2020 | 2021 |
| --- | --- | --- |
| Honda ACCORD | 70 | 54 |
| Hyundai IONIQ | 72 | 77 |
| Kia DE NIRO | 0 | 465 |
| Land Rover RR SPORT | 3 | 0 |
| Lexus CT200H | 112 | 77 |
| Lexus ES300H | 586 | 700 |
| Lexus GS450H | 4 | 0 |
| Lexus IS300H | 83 | 211 |
| Lexus LC500H | 3 | 1 |
| Lexus LS500H | 5 | 8 |
| Lexus NX300H | 943 | 992 |
| Lexus RX450H | 391 | 420 |
| Lexus RX450HL | 193 | 220 |
| Lexus UX250H | 608 | 975 |
| Maserati GHIBLI | 0 | 40 |
| Maserati LEVANTE | 0 | 13 |
| McLaren SPEEDTAIL | 1 | 0 |
| Nissan PATHFINDER | 22 | 4 |
| Subaru FORESTER | 868 | 356 |
| Subaru XV | 296 | 402 |
| Toyota CAMRY HYBRID | 9,615 | 10,979 |
| Toyota C-HR HYBRID | 2,810 | 3,075 |
| Toyota COROLLA HYBRID | 13,943 | 14,657 |
| Toyota KLUGER HYBRID | 0 | 4,985 |
| Toyota PRIUS | 95 | 77 |
| Toyota PRIUS C | 83 | 1 |
| Toyota PRIUS V | 272 | 210 |
| Toyota RAV4 HYBRID | 26,400 | 25,850 |
| Toyota YARIS CROSSHV | 857 | 5,052 |
| Toyota YARIS HYBRID | 260 | 605 |
| **Total** | **58,595** | **70,506** |

1. Sales of vehicles by powertrain and fuel type and government, 2020 and 2021

| Government | BEV  2020 sales | BEV  2021 sales | PHEV  2020 sales | PHEV  2021 sales | HEV  2020 sales | HEV  2021 sales | ICE  2020 sales | ICE  2021 sales | Total  2020 sales | Total  2021 sales |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Federal Government | 13 | 6 | 3 | 2 | 652 | 325 | 1,815 | 2,189 | **2,483** | **2,522** |
| NSW | 21 | 29 | 13 | 7 | 1,813 | 1,209 | 4,219 | 3,153 | **6,066** | **4,398** |
| VIC | 11 | 23 | 8 | 29 | 932 | 1,099 | 3,629 | 3,682 | **4,580** | **4,833** |
| QLD | 36 | 29 | 9 | 33 | 1,242 | 972 | 3,440 | 3,114 | **4,727** | **4,148** |
| SA | 8 | 14 | 1 | 7 | 479 | 666 | 1,360 | 945 | **1,848** | **1,632** |
| WA | 12 | 12 | 9 | 6 | 156 | 175 | 1,825 | 1,632 | **2,002** | **1,825** |
| TAS | 2 | 15 | 3 | 7 | 136 | 166 | 637 | 756 | **778** | **944** |
| NT | 0 | 2 | 0 | 1 | 58 | 37 | 481 | 548 | **539** | **588** |
| ACT | 32 | 23 | 37 | 12 | 20 | 1 | 127 | 130 | **216** | **166** |
| Local Government | 93 | 121 | 13 | 13 | 923 | 802 | 6,145 | 6,100 | **7,174** | **7,036** |
| **Total** | **228** | **274** | **96** | **117** | **6,411** | **5,452** | **23,678** | **22,249** | **30,413** | **28,092** |

1. ‘Green’ vehicle average emissions intensity and sales by segment, 2021
   1. ‘Green’ micro vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| Mitsubishi | MIRAGE | 110 | 2,198 |
| Fiat | 500 | 112 | 338 |
| Kia | JA PICANTO | 117 | 6,581 |

* 1. ‘Green’ light vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| MINI | COOPER | 0 | 291 |
| Toyota | YARIS HYBRID | 76 | 605 |
| Toyota | PRIUS C | 90 | 1 |
| Skoda | FABIA | 108 | 813 |
| Suzuki | SWIFT | 110 | 3,558 |
| Volkswagen | POLO | 114 | 4,593 |
| Toyota | YARIS | 114 | 2,271 |
| Citroen | C3 | 118 | 88 |
| Suzuki | BALENO | 118 | 246 |

* 1. ‘Green’ small vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| Nissan | LEAF | 0 | 367 |
| BMW | I3S | 0 | 67 |
| Hyundai | IONIQ | 11 | 484 |
| Mercedes-Benz Cars | A250E | 34 | 49 |
| Mercedes-Benz Cars | A250E SEDAN | 34 | 17 |
| Toyota | PRIUS | 80 | 77 |
| Toyota | COROLLA HYBRID | 91 | 14,657 |
| Lexus | CT200H | 95 | 77 |
| Toyota | PRIUS V | 101 | 210 |
| Skoda | SCALA | 113 | 76 |
| Alfa Romeo | GIULIETTA | 114 | 6 |
| Peugeot | 308 | 115 | 15 |
| Audi | A3 | 115 | 147 |

* 1. ‘Green’ medium vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| Peugeot | 508 | 40 | 5 |
| Mercedes-Benz Cars | C300E FL | 46 | 13 |
| BMW | 330E | 48 | 150 |
| Honda | ACCORD | 98 | 54 |
| Toyota | CAMRY HYBRID | 102 | 10,979 |
| Lexus | ES300H | 109 | 700 |
| Lexus | IS300H | 116 | 211 |

* 1. ‘Green’ large vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| Porsche | TAY | 0 | 531 |
| Toyota | MIRAI | 0 | 12 |
| Mercedes-Benz Cars | E300E | 50 | 2 |
| Mercedes-Benz Cars | E300E FL | 50 | 18 |
| BMW | 530E | 52 | 22 |

* 1. ‘Green’ upper large vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| BMW | 745E | 56 | 6 |
| Porsche | 97A | 59 | 6 |

* 1. ‘Green’ sports vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| Audi | A3 | 120 | 2 |

* 1. ‘Green’ SUV light vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| Toyota | YARIS CROSSHV | 87 | 5,052 |
| Suzuki | IGNIS | 113 | 1,979 |

* 1. ‘Green’ SUV small vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| Lexus | UX300E | 0 | 43 |
| MG | MG ZS EV | 0 | 1,388 |
| Mazda | M30 | 0 | 63 |
| Hyundai | KONA | 0 | 505 |
| Mercedes-Benz Cars | EQA 250 | 0 | 367 |
| Volvo Car | XC40 | 24 | 495 |
| Kia | DE NIRO | 42 | 742 |
| Mitsubishi | ECLIPSE CROSS | 43 | 229 |
| MINI | COOPER | 54 | 141 |
| Toyota | C-HR HYBRID | 97 | 3,075 |
| Lexus | UX250H | 103 | 975 |
| Skoda | KAMIQ | 113 | 505 |
| Audi | Q2 | 119 | 858 |

* 1. ‘Green’ SUV medium vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| BMW | IX3 MSPORT | 0 | 12 |
| Hyundai | IONIQ 5 | 0 | 172 |
| Hyundai | NEXO | 0 | 26 |
| Mercedes-Benz Cars | EQC 400 4M | 0 | 174 |
| Mercedes-Benz Cars | EQC 400 4M EAL | 0 | 124 |
| BMW | IX3 | 0 | 50 |
| Peugeot | 3008 | 37 | 11 |
| MG | MG HS PHEV | 39 | 580 |
| Mitsubishi | OUTLANDER | 43 | 592 |
| Volvo Car | XC60 | 50 | 308 |
| Mercedes-Benz Cars | GLC300E 4MFL CP | 57 | 1 |
| Mercedes-Benz Cars | GLC300E 4M FL | 59 | 307 |
| BMW | X3 XDRIVE30E | 73 | 37 |
| Toyota | RAV4 HYBRID | 108 | 25,850 |

* 1. ‘Green’ SUV large vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| BMW | IX XDRIVE50 | 0 | 12 |
| Audi | E7 | 0 | 34 |
| Audi | EB | 0 | 74 |
| Jaguar | I-PACE | 0 | 44 |
| BMW | IX XDRIVE40 | 0 | 23 |
| Kia | MQ4 SORENTO | 36 | 15 |
| Volvo Car | XC90 | 50 | 170 |
| BMW | X5 XDRIVE45E | 56 | 118 |
| Land Rover | RR SPORT | 64 | 11 |
| Porsche | CAY | 74 | 122 |

* 1. ‘Green’ SUV upper large vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| Land Rover | RANGE ROVER | 64 | 1 |

* 1. ‘Green’ vans/cabs chassis vehicle average emissions intensity and sales by segment, 2021

| Make | Model | Average emissions intensity (g/km) | Sales |
| --- | --- | --- | --- |
| Renault | KANGOO | 0 | 45 |

National Transport Commission

Level 3/600 Bourke Street Melbourne, Victoria, 3000

T: (03) 9236 5000

W: [enquiries@ntc.gov.au](mailto:enquiries@ntc.gov.au)

[www.ntc.gov.au](http://www.ntc.gov.au)

*Published by the National Transport Commission, September 2022.*

1. The super-credit weights were not available in the dataset provided by the FCAI to the NTC. The NTC has therefore calculated the super-credits in line with the methodology detailed in FCAI, 2021c. In a relatively small number of cases – 579 records in the dataset, comprising 10,007 sales – there was no data provided in the dataset on the unladen (kerb) mass. The NTC entered the tare mass as the unladen mass for these records. [↑](#footnote-ref-2)
2. In previous years, up to and including the report on 2019 sales, these vehicles had been excluded from the analysis on the basis that, when the NTC first began this series of reports over a decade ago, a zero value for emissions was more likely to reflect an error in the data than a true zero value (for a battery electric vehicle). This approach is unlikely to have materially affected the reported emissions results given that in each year between 2010 and 2019 battery electric vehicles comprised well below 1 per cent of total sales (a minimum of 0.004 per cent and a maximum 0.149 per cent). [↑](#footnote-ref-3)
3. In this case, the models selected are a battery electric vehicle (BEV), and the lowest emitting plug-in hybrid electric vehicle (PHEV), hybrid electric vehicle (HEV) and petrol- or diesel-only vehicle. [↑](#footnote-ref-4)
4. These numbers include the air-conditioning credits and off-cycle credits used by the FCAI but are not used elsewhere in the report (with the exception of **Figure 4**, ‎**Figure 6**, ‎Figure 7, ‎Figure 8, and ‎Figure 9 and **‎Table 9**). [↑](#footnote-ref-5)
5. Mercedes-Benz Cars was among the top 15 makes in 2021 but has not been included in the comparison because directly comparable data was not reported in the FCAI’s voluntary standard results for 2020 (only a single Mercedes-Benz entry was provided, rather than separate entries for Mercedes-Benz Cars and Mercedes-Benz Vans). [↑](#footnote-ref-6)
6. Volvo Car was among the top 15 makes in 2021, but no data was available for 2020 in the FCAI’s voluntary standard, so it has not been included in this graph. [↑](#footnote-ref-7)
7. SUVs, and the five associated SUV segments from Light through to Upper Large, may appear as either MA or MC (and therefore within the MC+NA category). This will depend on whether the SUV is considered an ‘off-road passenger vehicle’ (the MC category), as defined under the Australian Design Rules (Australian Government, 2021), and whether or not the vehicle manufacturer has chosen to apply for MC categorisation for the relevant model variant. [↑](#footnote-ref-8)
8. Top 10 models, or as many vehicle models as were sold in that segment. [↑](#footnote-ref-9)
9. The ACT Government recorded a bit over half the emissions intensity for the MA category than the government fleet with the next lowest emissions intensity. This is largely attributable to the higher percentage of PHEVs and BEVs within its purchased vehicle fleet (see ‎**Figure 31**), in combination with the resulting super-credit weighting applied to these purchases. [↑](#footnote-ref-10)
10. BEVs and hydrogen vehicles are not shown in the graph since they are zero emission vehicles. [↑](#footnote-ref-11)
11. HEVs are powered by an internal combustion engine in combination with one or more electric motors that use energy stored in batteries, with the batteries not being recharged from an external electricity source. They are listed in the FCAI data as having a petrol or diesel primary fuel source, and an electric secondary fuel source. [↑](#footnote-ref-12)
12. For example, it is possible that an electric vehicle could be sold in one state or territory and subsequently transferred to a different one. Additionally, a vehicle may be sold but subsequently written off as a result of a crash. [↑](#footnote-ref-13)
13. 2014 was chosen as the starting point as it is the first year for which we have data available on the secondary fuel type, needed to distinguish between BEVs and PHEVs, and between HEVs and internal combustion engine-only vehicles. [↑](#footnote-ref-14)
14. Both sales figures in these calculations include the use of super-credits. [↑](#footnote-ref-15)
15. In reporting for previous years, the NTC has generally used the latest available final dataset published by the EEA (which was typically available by the end of June). However, at the time of publication of this report the EEA has not yet published the final European data for 2020. [↑](#footnote-ref-16)
16. In Europe, the passenger cars category includes SUVs. [↑](#footnote-ref-17)
17. The impact of incentives and taxes on encouraging electric vehicle uptake is probably most evident by examining PHEV sales within the Netherlands between 2010 and 2017. From 2010 to 2013 they exempted PHEVs from taxation, before increasing the tax to the still reduced rate of 7 per cent. This encouraged PHEV sales to increase to 9.2 per cent of all new vehicle sales by 2015. However, by 2017 they had removed this incentive, taxing PHEVs at the same rate (22 per cent) as other conventional vehicles. As a consequence, by 2017 PHEVs had reduced to just 0.3 per cent of all new sales within the Netherlands (EEA, 2019). [↑](#footnote-ref-18)
18. Data from the International Council on Clean Transportation Europe shows that 50 per cent of new passenger car sales/registrations in the 27 European Union countries in 2020 had automatic transmissions (ICCT, 2021). By contrast, FCAI data shows that around 98 per cent of vehicle sales in the MA and MC categories in Australia in 2021 were either automatic or continuously variable transmission. [↑](#footnote-ref-19)
19. For the MA and MC categories combined. [↑](#footnote-ref-20)
20. Vehicles sold with an emissions intensity above 300 g/km have been grouped into a single ‘Over 300’ category. This is due to the relatively small number of vehicles in this emissions range and the long ‘tail’ of the distribution, reaching 486 g/km for Australia, 572 g/km for Europe and 374 g/km for Norway. [↑](#footnote-ref-21)
21. Using the MA and MC categories. [↑](#footnote-ref-22)
22. For the NA category. [↑](#footnote-ref-23)
23. Vehicles sold with an emissions intensity above 300 g/km have been grouped into a single ‘Over 300’ category. This is due to the relatively small number of vehicles in this emissions range and the long ‘tail’ of the distribution, reaching 333 g/km for Australia and 898 g/km for Europe. [↑](#footnote-ref-24)
24. The IEA attributes this result to: ‘A peculiarity of the EU CO2 emissions standards is that the targets are set at five-year intervals. Manufacturers have taken advantage of this leeway, which resulted in three consecutive years of increased average emissions intensity in vehicle sales (2017-2019).’ (IEA, 2021a, p. 30) [↑](#footnote-ref-25)