

## Australia

### Country spotlight

Population (million) (World Bank, 2016a):	23.7
Urban population (% of total) (World Bank, 2016b):	89%
GDP per capita (2014 USD/year) (World Bank, 2016c):	56 300
Average price gasoline and diesel (USD cent per L, 2014) (GIZ, 2015):	123; 128
Fuel tax class (2014) (GIZ, 2015):	taxed petroleum fuels

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In 2015, about 1.1 million LDVs were sold in Australia (IHS Markit, 2016). The LDV stock totalled 16.3 million vehicles (IEA, 2016b). LDV ownership was close to 0.7 vehicles per capita, among the highest globally.

To date, Australia is one of the few OECD countries without mandatory fuel economy standards, although various voluntary standards have been in place since 1978 (UNEP, 2016). The latest voluntary standard dates from 2005, when the Federal Chamber of Automotive Industry set a target of approximately 222 g CO<sub>2</sub>/km (New European Driving Cycle [NEDC]) for all light-vehicles below 3.5 tonnes sold from 2010. However, the government is currently working on developing a corporate-average CO<sub>2</sub>-based standard for LDVs and a pollutants emission standard for HDVs (DIRD, 2016).

Australia does not have tax schemes favouring energy efficiency. It publishes a Green Vehicle Guide, rating LDVs for environmental performance and fuel consumption (GreenVehicleGuide, 2016).

### Market profile and vehicle characteristics

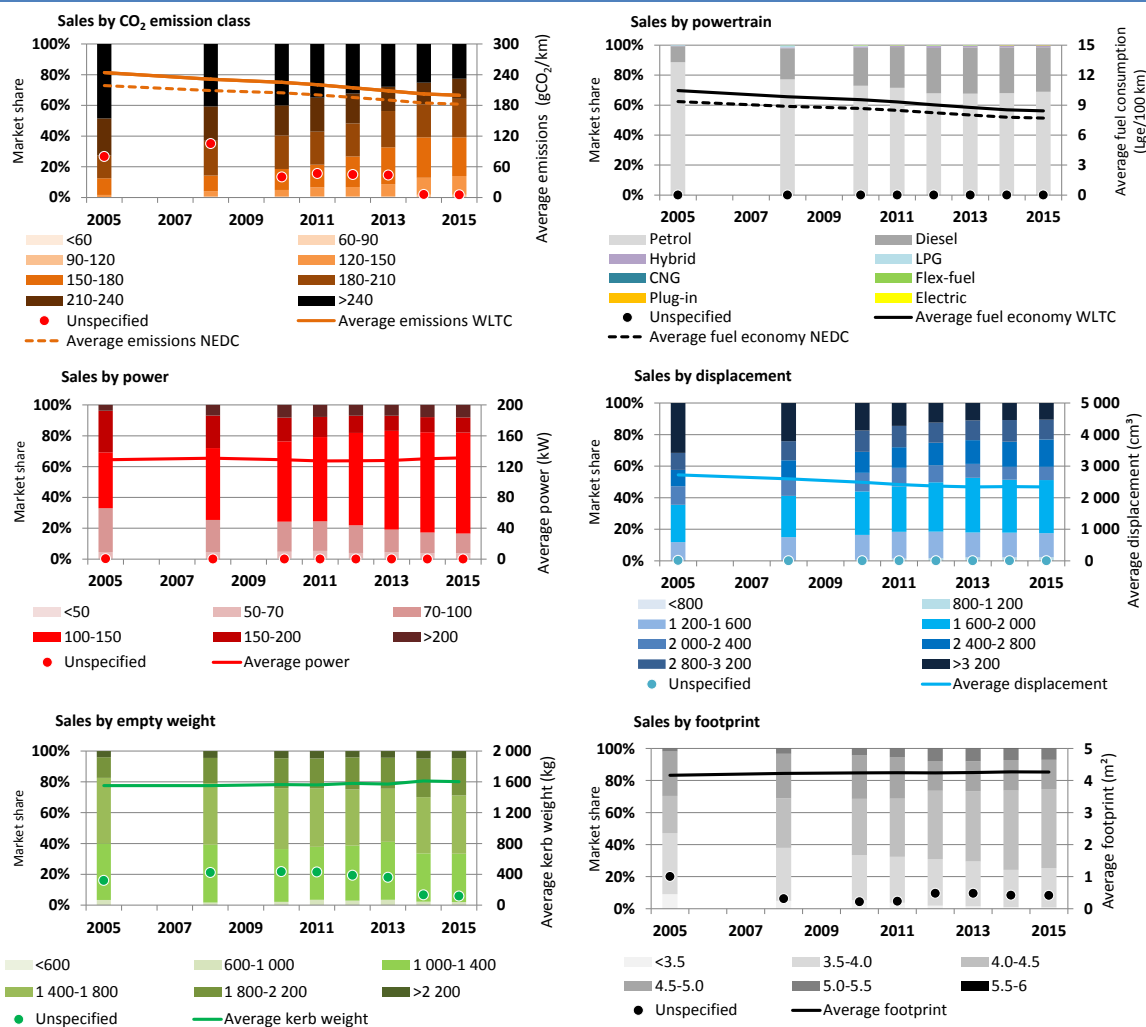
Australia has among the lowest population densities in the world, which is consistent with its high vehicle ownership of 0.7 vehicles per capita. The number of newly registered LDVs has been relatively stable since 2012. Australia has only a limited amount of vehicle production within its own borders: approximately 170 000 vehicles in 2015, covering around 15% of the Australian LDV market (OICA, 2016). The most popular brands are Toyota, Mazda and Holden, accounting for 40% of Australian LDV sales in 2015.

Australia's LDV market is dominated by large vehicles, similar to Canada and the United States. Unlike these countries, Australia has not yet implemented mandatory fuel economy standards. Nevertheless, Australia's average CO<sub>2</sub> emissions per km experienced a steady decline between 2005 and 2015. The market share of vehicles emitting more than 210 g CO<sub>2</sub>/km approximately halved in the last ten years, while the market share of LDVs in the 120-150 g CO<sub>2</sub> per km category tripled in the same period. The average fuel economy improved, reaching 8.4 lge/100 km in 2015, around 7% below the United States. Gasoline vehicles had a 60% market share. Diesels represent almost 30% of all LDV sales.

Average engine power did not change between 2010 and 2013, but increased from 128 kW to 131 kW between 2013 and 2015. Overall, LDVs with a power range between 100 kW and 150 kW gained market share against other power classes. Average displacement fell by almost 15% between 2005 and 2015, but hardly any change took place between 2013 and 2015.

The weight of new LDVs slowly increased between 2008 and 2014, followed by a small decrease back to 1 600 kg between 2014 and 2015. Also, the footprint rose between 2005 and 2015, with a slowdown between 2013 and 2015.

**Figure 1 • LDV market by g CO<sub>2</sub>/km, powertrain, power, displacement, weight and footprint, Australia, 2005-15**

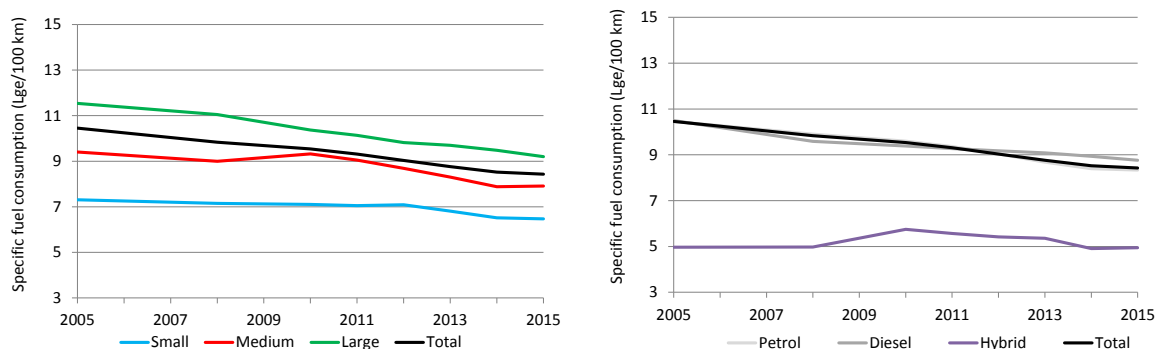


Source: IEA elaboration and enhancement for broader coverage of IHS Markit database.

### Analysis of fuel economy trends

The left-hand side of Figure 2 shows different trends for the three size segments. Large vehicles experienced continuous improvements in fuel economy during the ten-year period between 2005 and 2015. Medium-sized vehicles saw their average fuel economy worsen between 2008 and 2010, improve again between 2010 and 2014 and stagnate between 2014 and 2015. The fuel economy of small vehicles improved only modestly until 2012 and in 2015.

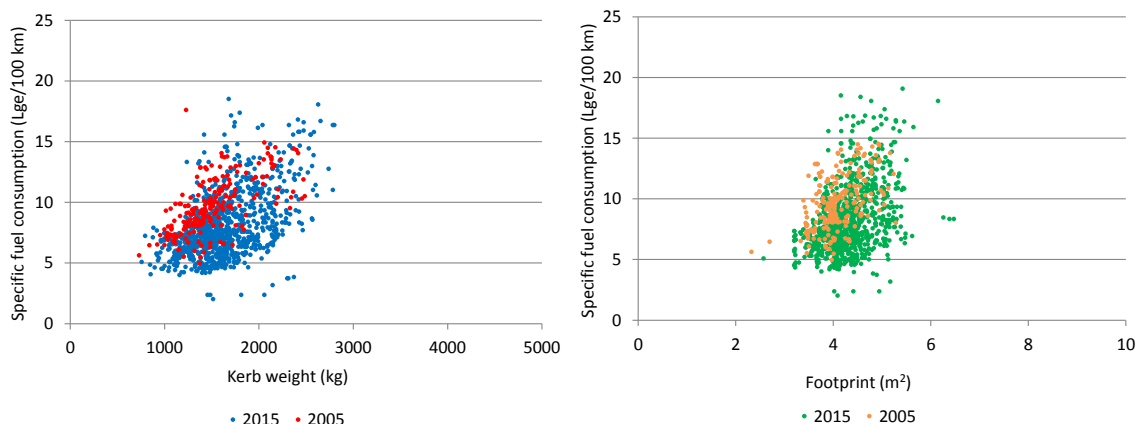
**Figure 2 • Average new LDV fuel consumption per km by vehicle segment and powertrain, Australia, 2005-15**



Source: IEA elaboration and enhancement for broader coverage of IHS Markit database.

The average fuel economy of diesels fluctuated around that of gasoline and exceeded the fuel consumption per km of gasoline vehicles after 2012. This consistent with the large share of diesels (80%) sold in the large vehicle segment. The small market size of hybrids largely explains their fluctuating fuel economy development.

**Figure 3 • Fuel consumption per km of new LDVs plotted against vehicle weight and footprint, Australia, 2005 and 2015**

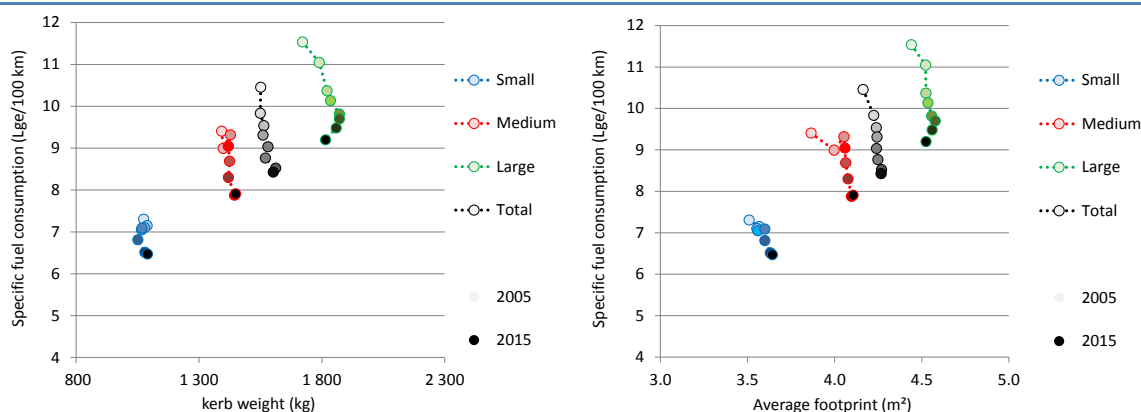


Source: IEA elaboration and enhancement for broader coverage of IHS Markit database.

The plots comparing average fuel economy with weight and footprint (Figure 3) show movement towards improved fuel economy under similar weight and slightly increasing footprint between 2005 and 2015. Also, the number of unique models sold increased substantially, accompanied with a larger spread.

Fuel economy improvements that occurred between 2011 and 2015 were coupled with fairly constant average vehicle weight and footprint in almost all market classes (the sole exception being an increase in footprint for LDVs in the medium segment) (Figure 4). Fuel economy improvements were lowest for small vehicles and greatest for the vehicles in the high weight and large footprint segments. The development of average footprint shows that the average footprint of small vehicles grew, while that of large vehicles shrank between 2012 and 2015.

**Figure 4 • Average new LDV fuel consumption per km by segment plotted against vehicle weight and footprint, Australia, 2005-15**



Source: IEA elaboration and enhancement for broader coverage of IHS Markit database.

## References

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