

Electric Vehicles in 2013: A Progress Report

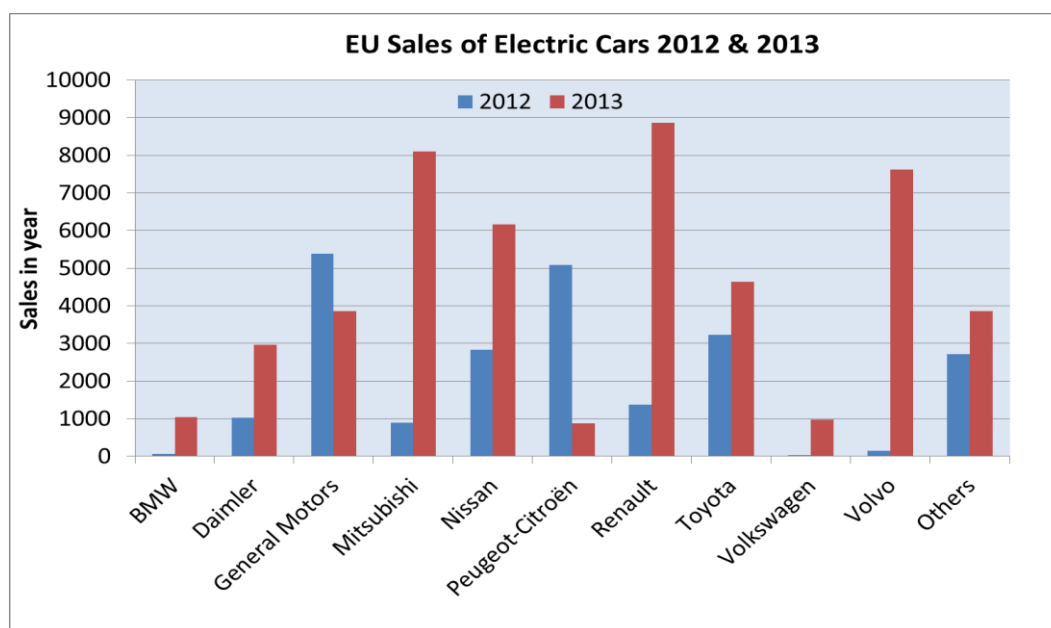
Executive Summary

This is the second part of T&E's annual Cars and CO2 report¹ that examines developments in new car CO2 emissions. This part is focused on electric cars.

Analysis of provisional cars sales data in 2013 supplied by the European Environment Agency² shows the market for electric vehicles (EVs) continues to grow strongly from a low base. Sales have approximately doubled annually since production vehicles were first marketed in 2010. In 2013, nearly 50,000 plug-in vehicles were sold in the EU representing around 0.4% of all cars. The top three selling models in 2013 in the EU were all new entrants (Renault Zoe, Mitsubishi Outlander and Volvo V60 Plug-in).

Manufacturer	Model	Type	Segment	Sales 2012 (approx)	Sales 2013 (approx)	New Entrant
Renault	Zoe	BEV	Supermini	-	8500	✓
Mitsubishi	Outlander	PHEV	SUV	-	8200	✓
Volvo	V60 Plug-in	PHEV	Large hatch	40	7580	✓
Nissan	Leaf	BEV	Compact	2800	6160	
Toyota	Prius Plug-in	PHEV	Midsize hatch	3200	4620	
General Motors	Volt/Ampera	PHEV	Midsize hatch	5300	3860	

In contrast, sales of the best-selling models in 2012 (Opel Ampera and Peugeot Citroen iOn / C-zero) both fell significantly. This suggests models and offerings with stronger consumer appeal are now being introduced. Another example of this is the BMW i3 which was only launched at the end of 2013 and therefore achieved only modest sales in-year.



¹ <http://www.transportenvironment.org/publications/how-clean-are-europe%E2%80%99s-cars-2014-%E2%80%93-part-1>

² <http://www.eea.europa.eu/data-and-maps/data/co2-cars-emission-6>

The EU accounts for about a quarter of global sales, which are also following a similar growth trajectory to the European market.³ The USA and Japan represent the largest national markets, with California in particular having achieved a 4% market share, largely driven by a mandate requiring manufacturers to sell EVs. In contrast, sales are still less than 1% in Japan and the rest of the US and are split evenly between battery electric and plug-in hybrid models. In coming years growth in China is expected to be particularly strong.

There is a wide variation in sales of EVs between European countries with Norway and the Netherlands achieving over 5% sales, compared to less than 1% elsewhere. In these two countries generous fiscal incentives drove the market in 2013; in the Netherlands some of the incentives ended on 31 December spurring last-minute purchases late 2013.

In 2013, as part of the Cars and CO₂ Regulation, sales of ultralow carbon vehicles were given an additional incentive as counting 3.5 times towards the manufacturer's fleet average emissions through a supercredit mechanism.⁴ Mitsubishi earned 19g/km of supercredits, artificially lowering its fleet average emissions from 123.9g/km down to 104.9g/km. Volvo reduced its emissions using supercredits by 7.1g/km. These excessively generous credits effectively reduce the need for companies to improve the efficiency of conventional vehicles and have fortunately been capped for the 2020/1, 95g/km target.⁵ It is essential that future policy to encourage ultralow carbon vehicles post 2020 does not introduce hot air by allowing far less efficient conventional vehicles.

The future trajectory of EVs sales is highly uncertain but seems likely to continue on at least the trajectory achieved since 2010. On this basis European sales would exceed 100,000 by 2015, 500,000 by 2021 and 1 million by 2025. This steady growth is more likely in the medium term than a sudden transformation of car sales to electric powertrains.

For the foreseeable future there is likely to be a diversity of fuels and powertrains including small efficient internal combustion engines for micro or city vehicles, hybrids and plug-in hybrids, electric and hydrogen vehicles which compete in different market segments. Regulations need to support this competition beyond 2020, as the way passenger cars and vans are decarbonised will progressively shift from improving the efficiency of conventional vehicles to increasing sales of ultralow carbon vehicles (ULCVs) with alternative powertrains. To achieve both of these objectives, establishing fleet average car CO₂ standards for 2025 and 2030 based upon tailpipe emissions is an effective approach. Whilst zero-rating battery electric and hydrogen vehicles does not reflect their full environmental impact, a complementary policy to incentivise supply of low carbon fuels, such as a Fuel Quality Regulation will encourage energy companies to decarbonise transport fuels.

Conversely, including transport in the Emissions Trading Scheme, as proposed by German Carmakers,⁶ would not provide the right market signal to require a shift to alternative powertrains. The significant economic opportunities created by the shift to ultralow carbon vehicles, such as is currently being achieved in the UK,⁷ will not therefore be realized were

³ http://www.theicct.org/sites/default/files/publications/ICCT_EV-fiscal-incentives_20140506.pdf

⁴ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02009R0443-20130508&from=EN>

⁵ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0333&from=EN>

⁶ Intervention by the German Association of the Automotive Industry (VDA) to a European Commission stakeholder event, Brussels, 27th March 2014

⁷ http://www.lowcvp.org.uk/news/lowcvp-news-uk-auto-sector-renaissance-driven-by-low-carbon-policy-focus-new_3026.htm

transport included in the ETS. Such a move would also eliminate wider benefits of more fuel efficient cars to the EU economy, drivers and energy security.

To incentivise ultralow carbon vehicle sales a flexible mandate, similar to that successfully used in California, is the most effective approach. This would encourage all carmakers to ensure a minimum percentage of sales are ultralow carbon vehicles but provide flexibility on how the target is met. A 2025 mandate of around 10% sales is likely to be both achievable and on a pathway to fully decarbonise vehicles by 2050. Including a trading element, like in California, further increases compliance flexibility without weakening incentives or the regulation as a whole.

Electric vehicles can perform an important role in a shift to more sustainable mobility but are not a panacea. Specifically, *how* and not *whether* a shift to emobility happens will determine how sustainable the eventual outcome becomes. For example: unless vehicles are powered by renewable energy, CO₂ benefits will be limited or even negative in some countries. Unless EVs are used appropriately in combination with other sustainable transport models, excessive car use will continue to impose huge costs through congestion and reduce urban quality of life. The focus of future policy must not therefore be only to increase sales but to encourage emobility where it makes the most economic and environmental sense. This includes encouraging electric bikes, micro-urban passenger and delivery vehicles, shared use cars and taxis and fleets in addition to growing the market share amongst private buyers.