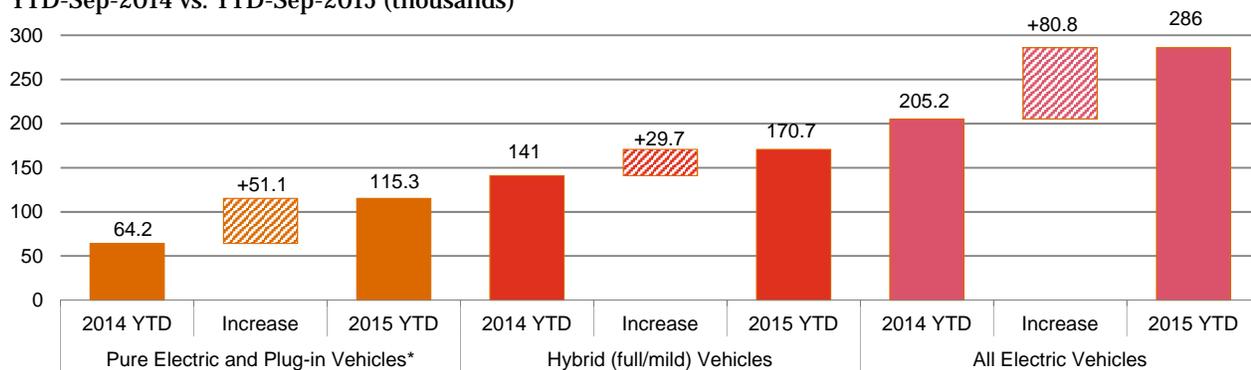


Europe: Electrification and beyond

A market outlook on emissions and electric mobility

The automotive industry continues to face transformation and change, with more on the horizon within the next few years. Perhaps the most challenging will be the shift away from traditional combustion engines to alternative propulsion technologies.

EU+EFTA: New registrations of electric cars
YTD-Sep-2014 vs. YTD-Sep-2015 (thousands)



Source: ACEA *including fuel cell vehicles

The current landscape

Though global fuel prices have reached lows not seen in years, European consumers are slowly embracing alternatively fuelled vehicles (AFVs). Of these alternative technologies, pure electric and plug-ins make up the largest share of this growth at 79.5% increase through September, followed by hybrids at 21.0% when compared to 2014. Consumers looking for lower levels of CO₂ emissions – which means higher fuel economy - are increasingly drawn to EVs and plug-ins compared to traditional hybrids.

This growth is not equal across the EU though, with some countries accounting for a much higher overall share of this yearly increase. For all EVs, Norway accounts for the highest EU+EFTA share with 24,866 registrations, followed by the UK at 20,966 through September. The UK saw a significant increase of 138.5% for the largest increase in absolute terms. Germany, the largest single market in Europe, is fifth in volume at 14,930 and ranks between France and Sweden. Many Central European countries had jumps of 500% to 900%, but still only represent volumes of less than 100 vehicles through YTD September 2015.

Hybrid vehicles, including mild and full, represent a larger share of the market but had a less impressive yearly increase of 29,618 units year over year. In the hybrid segment, France continues to lead the EU+EFTA with both the largest market share and largest increase in absolute terms in the year to September 2015 with 39,983 registrations for an increase of 35.2%. Digging a bit further into specific countries, three of the six largest hybrid markets in the EU+EFTA - Germany, the Netherlands and Belgium – actually saw sales decreases when compared to 2014. The Netherlands led with the largest fall of (-19.5%) from 10,680 new registrations to 8,594. This shift indicates an overall change in dynamic from mild to plug-in hybrids, as technology matures.

Looking ahead to 2016, pure plug-in sales are expected to slow given the run-out of “green” subsidies. In the UK, for example, a £5,000 government grant available since 2011 is nearing its limit of 50,000 applicants. UK buyers are likely hoping to take advantage of the program before it ends. In the Netherlands, the government will end a tax break for alternative-fuel company cars. The current company car tax rate is 25%, but plug-ins can have it as low as 7%. In 2016, the minimum tax for vehicles with an emission of 1 to

50 g/km will be 15% resulting in consumers paying thousands of Euros more per year.

EV Sales and Production in Europe

In 2014, of the top AFV sales, EVs lead with four of the top five bestselling models, but the overall bestseller was a plug-in. AFVs at lower price points still represent a greater challenge for OEMs because consumers are more price sensitive. Take the comparable Renault Zoe EV and Renault Clio: in 2014, Renault sold 299,787 Clio passenger cars compared to 11,004 Zoes. On the other end of the spectrum, the EV-only Tesla Model S was the second best seller in the premium segment. The Mitsubishi Outlander PHEV likewise accounted for nearly two-thirds of all 33,702 Outlander sales in 2014.

Looking ahead, growth in the European EV production forecast will come from new models such as the Audi Q6 e-tron Quattro, VW Polo EV and growing share of current models like the Tesla Model S, Nissan Leaf, Bolloré Bluecar and VW e-Golf. For plug-in production growth in Europe, the BMW X1, Mercedes Benz C-Class and VW Golf GTE will be major contributors.

New providers of electric mobility

Another bright spot of electric car building in Europe is the German firm Streetscooter. It was founded in 2010 as a spinoff of RWTH Aachen University. Since then, the first fully electric commercial vehicle prototype for

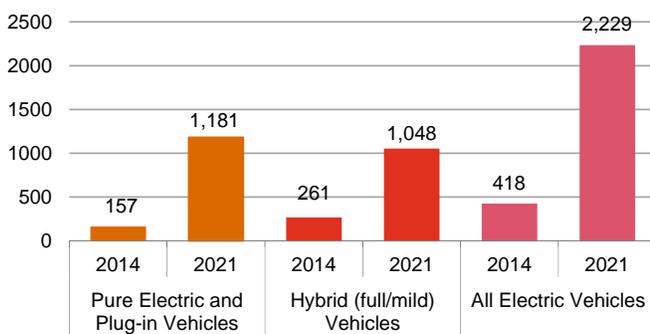
DHL, and about 200 vehicles have been produced in a pilot project. Deutsche Post integrated and acquired the entire entity in 2014, including technology and production facilities. Annual production volume is expected to reach 5,000 units, with 20,000 earmarked to renew DHL's delivery fleet of around 30,000 vehicles. Additionally, Tesla has announced a "Gigafactory" and full vehicle production in Europe, in succession of its CKD plant in Tilburg, Netherlands.

Outlook and Assembly Forecast

With the growth of AFV acceptance and demand from European governments, companies and consumers, Autofacts forecasts growth in productions is only further supported by the next-level EU CO₂ targets that essentially require OEMs to offer AFVs within their portfolio. However, although growing AFV demand may dominate headlines, overall demand is still limited. On a percentage basis, growth numbers look impressive, however, volume remains low. Current EV, plug-in and hybrid production in Europe represents a mere 2.5% of the total market, and continued transformation of consumer preferences will be needed if true mass penetration is to take hold.

To continue this conversation and find additional information on PwC's automotive capabilities, please visit pwc.com/auto.

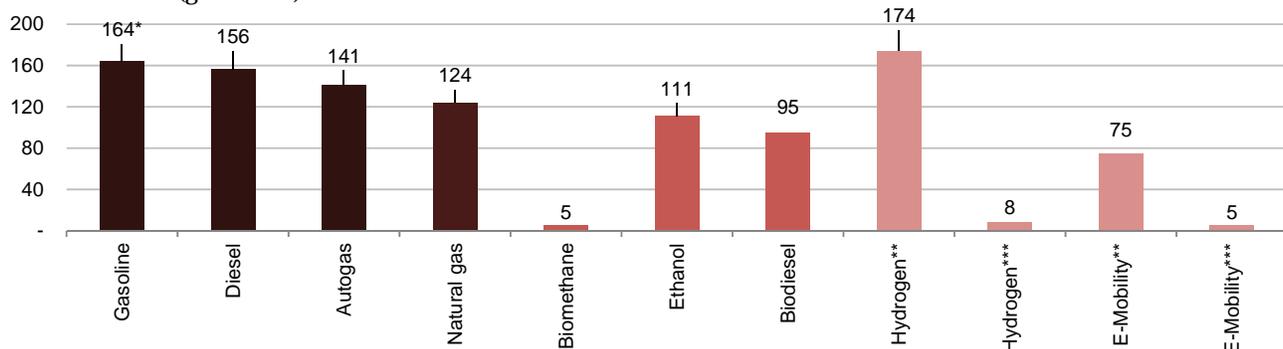
EU+EFTA: Light EV Assembly 2014 vs. 2021 (thousands)



EU+EFTA: Top Five Model Performance 2014 (unit sales)

Vehicle	Unit Sales	EV
Mitsubishi Outlander PHEV	19,855	No
Nissan Leaf	15,134	Yes
Renault Zoe	10,919	Yes
BMW i3	8,966	Yes
Tesla Model S	8,805	Yes

Emissions of CO₂ for different drive variants Well-to-Wheel (gCO₂/km)



Source: Autofacts 2015 Q4 Forecast Release, Jato Dynamics, erdgas-mobil.de, *) reference vehicle: gasoline engine (naturally aspirated), consumption: 7L/100km, **) current mix, ***) 100% regenerative