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THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

BRIEFING

JULY 2015

CO_2 emissions from new passenger cars in the EU: Car manufacturers' performance in 2014

The purpose of this briefing is to provide a summary of CO_2 emission levels of new passenger cars in the European Union (EU), based on the provisional data recently released by the European Environment Agency (EEA). The EEA data shows that all manufacturers have achieved their 2015 targets ahead of time, with average emissions of 123.3 grams per kilometer (g/km) in 2014, a decrease of 3% compared to 2013.

As a follow up to the previous year's briefing[1], the paper details manufacturers' performance in terms of CO_2 emissions, fuel, and technology trends, and also discusses the impact of super-credits. The analysis is presented on the Member State level, as well as for manufacturer groups and individual brands.

All manufacturers comply with their 2015 targets and are on pace to reach their 2020 targets, with particularly notable progress by PSA, Toyota-Daihatsu, and Renault-Nissan. These groups have reduced their emissions by 10%, 9%, and 7% respectively; the total reduction required from the 2015 to the 2020 target is 27%.

Diesel vehicles (53% of total sales) and petrol vehicles (43%) dominate the market. Hybrid-electric (HEVs), plug-in hybrid (PHEVs) and battery electric vehicles (BEVs) account for a 2.1% share of the EU market. The remaining percentage is captured by alternative powertrains such as liquefied petroleum gas (LPG), compressed natural gas (CNG) and fuel cell vehicles. Low-emitting vehicles, i.e., vehicles with emissions below 50 CO_2 g/km, benefit from the use of super-credits, a factor that gives such vehicles a higher weight in the calculation of manufacturers' average emissions. The use of super-credits had an average impact on the CO_2 fleet emission level of 0.7 g/km.

1 Tietge, U., and Mock, P., "CO_2 emissions from new passenger cars in the EU: Car manufacturers' performance in 2013". http://www.theicct.org/co2-emissions-new-passenger-cars-eu-car-manufacturers%E2%80%99-performance-2013

1. BACKGROUND

The EEA has recently released the provisional data for the CO_2 emissions of passenger cars registered in the European Union in 2014.[2]

Average CO_2 emissions from European cars decreased by 3% compared to 2013, while the average mass fell by approximately 1% (to 1383 kg for all manufacturers). This development implies that all manufacturers have met their 2015 targets (130 g/km on average) and are already making progress towards their 2020 targets (95 g/km on average). According to the data, all major manufacturers have achieved the 2015 target at least one year early, with average EU fleet emissions amounting to 123.3 g/km.[3]

As Figure 1 illustrates, since 2005 CO_2 emission levels of new cars in the EU decreased by 24%, from a starting point of 162 g/km. As CO_2 emissions are directly related to fuel consumption, this reduction is equivalent to a decrease in fuel consumption from approximately 6.7 liters per 100 kilometers (l/100 km) to 5.1 l/100 km.

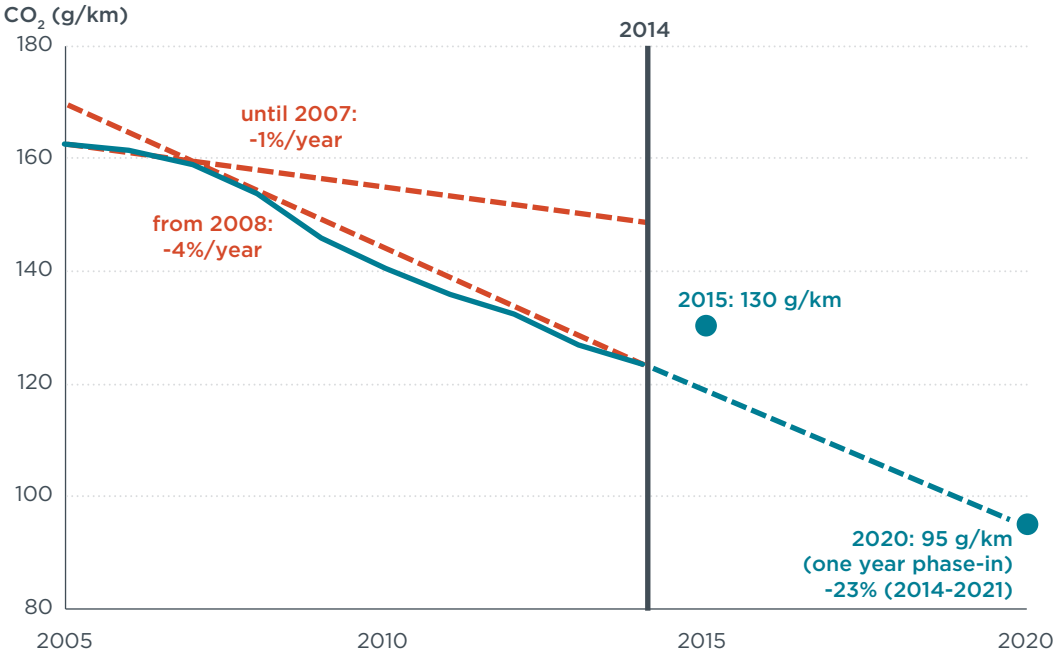

Figure 1: Historical development and future targets for CO_2 emission levels of new passenger cars in the EU. Effects of phase-in, super-credits and eco-innovations not shown here.

The purpose of this briefing paper is to build upon EEA's observations by providing a summary of individual passenger car manufacturers' performance in terms of CO_2 emission reduction, fuel/technology trends, and market share. The performance is investigated by country and manufacturer. Furthermore, the briefing paper discusses the use of super-credits as a medium of achieving emission targets.

2 European Environmental Agency, "New cars meet CO_2 target two years ahead of the deadline", http://www.eea.europa.eu/highlights/new-cars-meet-co2-target, European Environmental Agency, "Monitoring of CO_2 emissions from passenger cars: Summary data for 2014", http://www.eea.europa.eu/data-and-maps/data/co2-cars-emission-8.

3 Based on the New European Drive Cycle (NEDC) type-approval data

2. CO_2 EMISSIONS BY VEHICLE MANUFACTURER

The analysis of provisional data from the EEA confirms that all major vehicle manufacturer groups[4] have already achieved the 2015 target of 130 g/km and are on their way to the 95 g/km target for 2020 (more precisely, by 2021, taking into account the phase-in provision[5]).

These values refer to weighted average CO_2 emissions of new passenger cars registered in the EU. For individual manufacturer groups, emission targets vary according to a limit value curve that is mass dependent. Since the target of 130 g/km applies to the mass of the average European vehicle, heavier vehicles have a higher emission target, as their extra emissions are compensated by the lower total emissions of the lighter ones. The performance of the top-selling manufacturers[6] in the European Union is presented in Table 1 and Figure 2, which also shows the target lines of 2015 and 2020/21.

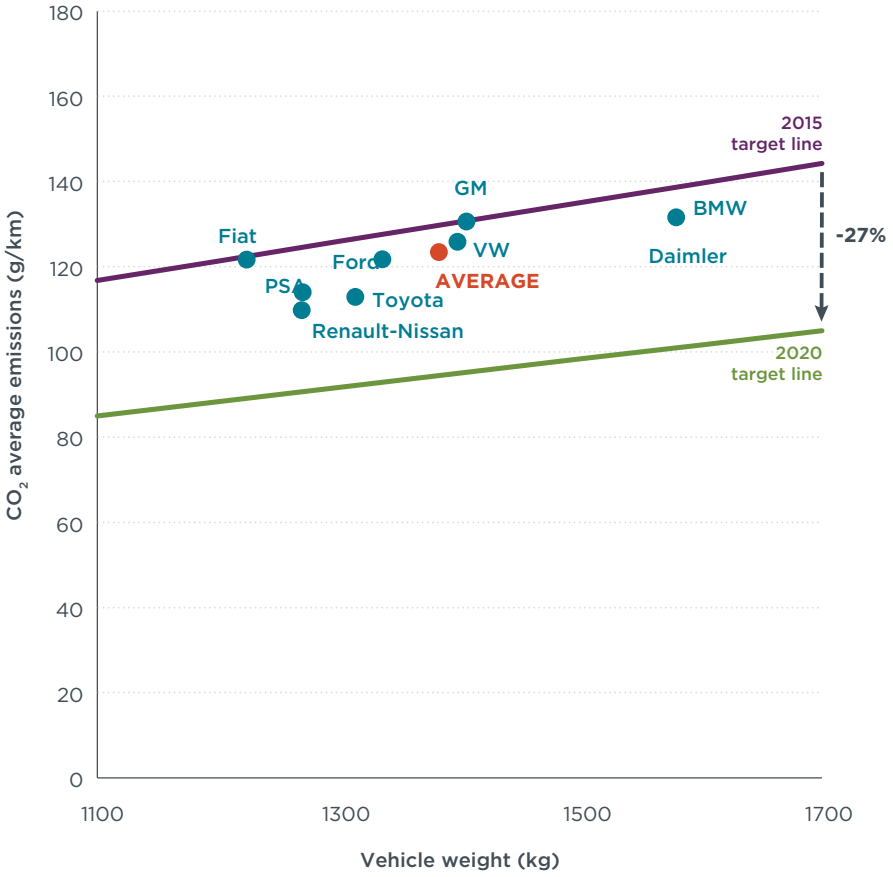

Figure 2: Performance of the top-selling EU passenger car manufacturer groups for 2014, along with the 2015 and 2020 (effectively 2021) target lines.

Table 1 also illustrates the impact of super-credits, where low-emitting vehicles (below 50 g CO_2/km) receive a special weighting factor when calculating a manufacturer's average emissions (for a more detailed explanation, see section 4). The use of super-credits makes a difference in emissions of up to 1 g/km for the nine top manufacturers, but in the future as sales of low-emission vehicles increase the expected effect of super-credits is likely to be higher by 2020/21.

4 For the purposes of this analysis, we follow a definition of manufacturers that is intended to mirror the actual vehicle market as closely as possible and may be different from manufacturer groups in the context of the EU regulations. Manufacturers are defined here as: PSA (Peugeot, Citroën); Toyota (Daihatsu, Lexus, Toyota); Renault-Nissan (Dacia, Nissan, Lada, Renault); Ford (Ford); Fiat (Chrysler, Fiat, Maserati); Volkswagen (Audi, Bentley, Bugatti, Lamborghini, Porsche, Quattro, Seat, Škoda, Volkswagen); General Motors (Chevrolet, GM, Opel); Daimler (Mercedes-Benz, Smart), BMW (BMW, Rolls Royce).

5 Mock, P., "EU CO_2 standards for passenger cars and light-commercial vehicles", http://www.theicct.org/eu-co2-standards-passenger-cars-and-lcvs.

6 The manufacturers presented account for about 85% of the total sales in the EU.

Table 1: Manufacturer group market shares, average vehicle mass, CO_2 emissions with and without super-credits for 2014, and CO_2 emission targets for 2015 and 2020 (effectively 2021). Average values include also manufacturer groups with smaller market shares not shown independently in the table. To illustrate the effect of the super-credits provision the 2021 multiplier 1.67 was applied for all low emission vehicles.

	Market share	Mass (kg)	CO_2 (g/km)			
			2014 w/o super-credits	2014 with super-credits for 2021	2015 target	2020/21 target
PSA (Peugeot-Citroën)	11%	1269	110	110	125	91
Toyota	4%	1314	113	113	127	93
Renault-Nissan	14%	1270	114	113	125	91
Fiat	6%	1224	122	121	123	90
Ford	7%	1336	122	122	128	93
Average		**1383**	**123**	**123**	**130**	**95**
Volkswagen	25%	1398	126	126	131	96
GM	7%	1406	131	130	132	96
Daimler	5%	1579	131	131	139	102
BMW	6%	1581	132	131	140	102

All manufacturers comply with their 2015 targets ahead of time, while some, such as PSA, Toyota-Daihatsu and Renault-Nissan have made significant progress towards their 2020 targets.

Figure 3 shows the status of each manufacturer group and the remaining reduction needed to meet their 2020 targets. The stacked bar shows progress towards the target, with the green part representing the amount of over-compliance with 2015 standards in 2014 emissions and the yellow part the effect of the super-credits.

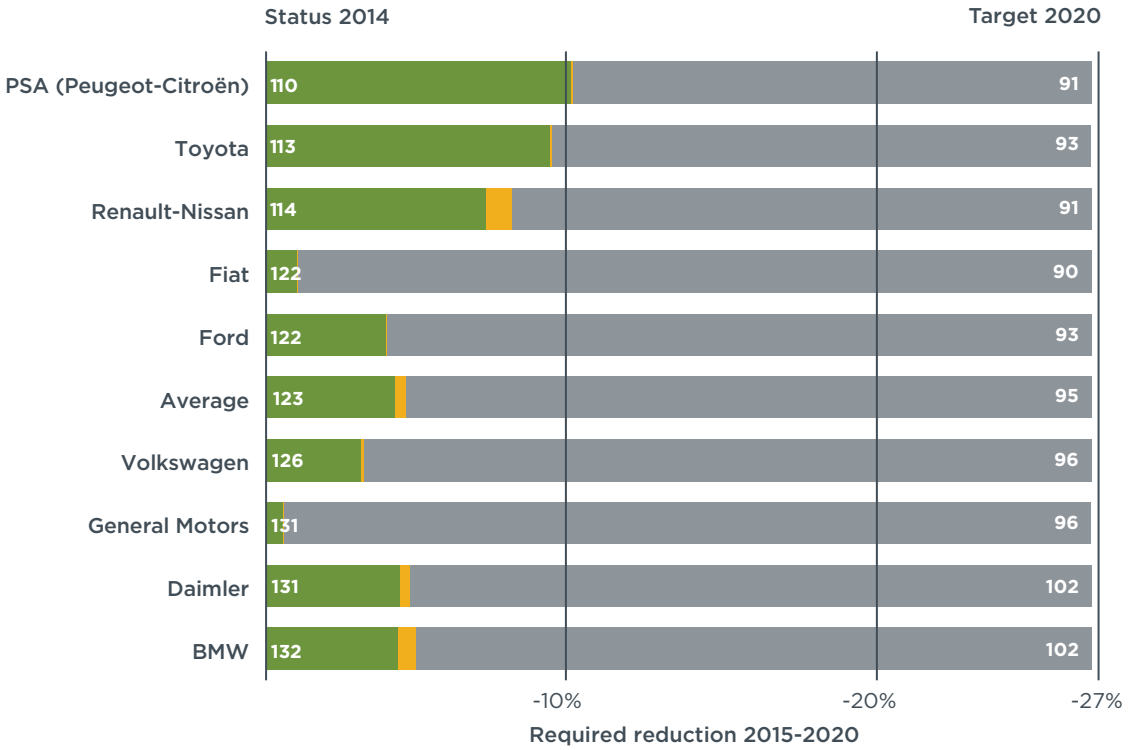

Figure 3: Average CO_2 emissions (in g/km) of key EU passenger manufacturers, including 2020 (effectively 2021) targets. Green bars represent the amount of over-compliance with 2015 standards in 2014. Yellow bars represent effect of the "super-credits" provision, assuming the 2021 multiplier of 1.67 for low emission vehicles and respective 2014 sales level. The gray part shows the remaining reduction to reach 2020/21 target.

Some manufacturers have decreased CO_2 emissions while at the same time significantly reducing the mass of their vehicle fleet. Table 2 presents the difference in mass and CO_2 emissions between 2013 and 2014 by manufacturer group. The 6% drop in the average mass of PSA vehicles, mainly due to improved production techniques and use of ultra high-strength materials,[7] is notable and has in turn significantly lowered the manufacturer's emission target, making it more difficult to reach. This illustrates why it is debatable whether the weight-based target system provides any incentives for reducing weight.[8]

Table 2: Change in average vehicle mass and CO_2 emissions from 2013 to 2014 by manufacturer group.

	Emission change	Mass change
PSA (Peugeot-Citroën)	-4.8%	-6.1%
Toyota	-3.4%	-1.2%
Renault-Nissan	-4.4%	-1.7%
Fiat	-1.8%	-0.9%
Ford	-0.1%	-0.3%
Average	**-2.9%**	**-0.7%**
Volkswagen	-2.4%	0.3%
GM	-1.7%	-2.3%
Daimler	-3.7%	0.1%
BMW	-2.1%	1.2%

The effect of the decrease in average mass of the PSA vehicle fleet is illustrated in Figure 4. In the current weight-based target system in the EU, of the 6 g/km CO_2 reduction of PSA from 2013 to 2014, half of the CO_2 savings is "lost" to the manufacturer. This is because at the same time the average vehicle weight was reduced by 83 kg, thereby lowering the 2020/21 CO_2 target for the PSA fleet. In contrast, in a footprint-based target system,[9] the fleet target would not have been influenced by the weight reduction and the full 6 g/km CO_2 reduction would have been credited to PSA. With mass reduction likely becoming a more and more relevant measure to reduce CO_2 emissions, the disincentive to lightweighting in the current EU target system is expected to impose a similar problem for other manufacturers as it does for PSA today.

7 For example, according to PSA, the new version of the Peugeot 308 is 140 kg lighter than the previous version: see http://www.peugeot.co.uk/showroom/308/5-door/p=technical-information/ and also http://www.peugeot.co.uk/showroom/208/3-door/p=technicalinformation/

8 Mock, P., "Evaluation of parameter-based vehicle emissions targets in the EU", http://www.theicct.org/evaluation-parameter-based-vehicle-emissions-targets-e

9 For this analysis, we define a footprint-based regulatory structure with a slope of 17.0 (CO_2 = 95 + 17 × (f-f0), where f_0 = 3.99 square meters). The slope of the footprint-based structure is identical to that analyzed in the 2013 European Commission Impact Assessment (SWD(2012) 213 final).

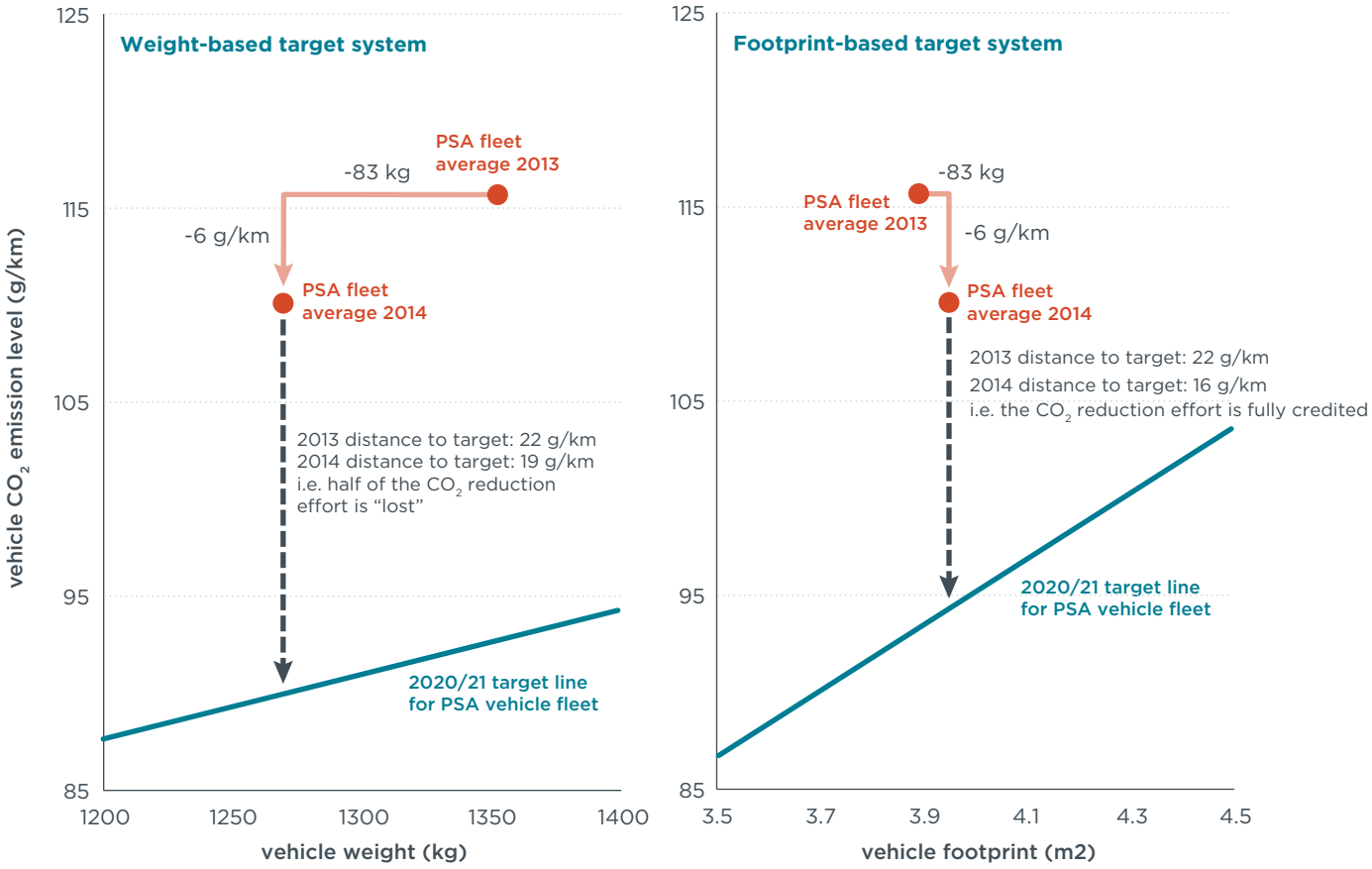

Figure 4: 2013 and 2014 CO_2 emission levels for the PSA new vehicle fleet, in the current EU weight-based target system and a hypothetical footprint-based target system.

3. FUEL/TECHNOLOGY TRENDS BY MEMBER STATE AND MANUFACTURER

An examination of fuel and technology trends provides a better understanding of the observed CO_2 emission values. This section presents market shares of various fuels and technologies[10] for countries and manufacturers.

The European new vehicle market is dominated by diesel (53%) and gasoline vehicles (43%). The highest share of hybrid powertrains is found in Norway (6.9%) and the Netherlands (3.7%), due to high fiscal incentives.[11] Plug-in hybrids also have a significant share in the Netherlands, accounting for a 3.1% of the market. The EU total market share (excluding Norway and Switzerland) of these two hybrid powertrains is 1.4% for hybrids and 0.2% for plug-in hybrids.

In the battery electric vehicle market, Norway stands out with a significant share of 12.6% of national registrations. The high share is attributable to the fiscal incentives, as such vehicles are excluded from import taxes and VAT. The EU total market share in this field is 0.3%. In this context, Denmark, where such vehicles were exempted from taxation until 2015, and the Netherlands stand out (0.9% in both cases).

10 Because the EEA data does not include details on whether a vehicle is a hybrid-electric or not, for purposes of this briefing we have supplemented it with commercial data obtained from IHS-Polk and analyzed by ICCT.

11 Yang, A., and Tietge, U., "2014 fuel price turbulence didn't pull the plug on EVs", http://www.theicct.org/blogs/staff/2014-fuel-price-turbulence-evs.

Furthermore, it is also interesting to note that LPG and CNG vehicles account for 14.3% of new car registrations in Italy, where fiscal incentives encourage the use of this fuel type.

The market share of various fuels/technologies is presented in Table 3. Powertrains that have a relatively low market share compared to the total EU sales, such as LPG, CNG and fuel cell vehicles are grouped together as "Other".

Table 3: Market share of fuel/technologies for new passenger cars in 2014, by country.

	Diesel	Petrol	Hybrid-electric	Battery-electric	Plug-in-hybrid-electric	Other	Market share
EU Total	**53%**	**43%**	**1.4%**	**0.5%**	**0.2%**	**1.7%**	**100.0%**
Germany	48%	51%	0.7%	0.3%	0.1%	0.5%	24.1%
UK	50%	48%	1.5%	0.3%	0.3%	0.0%	19.7%
France	63%	33%	2.3%	0.6%	0.1%	0.1%	14.0%
Italy	55%	29%	1.5%	0.1%	0.0%	14.3%	10.9%
Spain	66%	32%	1.4%	0.1%	0.0%	0.3%	6.8%
Belgium	62%	36%	1.6%	0.3%	0.1%	0.2%	3.8%
Netherlands	27%	64%	3.7%	0.9%	3.1%	1.0%	3.1%
Sweden	59%	36%	2.3%	0.5%	1.1%	1.6%	2.4%
Austria	57%	42%	0.6%	0.5%	0.1%	0.3%	2.4%
Denmark	31%	67%	0.6%	0.9%	0.0%	0.0%	1.5%
Portugal	71%	26%	1.3%	0.1%	0.1%	0.6%	1.1%
Greece	64%	35%	0.6%	0.1%	0.0%	0.3%	1.1%
Finland	39%	58%	2.2%	0.2%	0.2%	0.1%	0.8%
Ireland	73%	25%	1.0%	0.2%	0.0%	0.2%	0.8%
Luxembourg	72%	26%	0.8%	0.7%	0.1%	0.1%	0.4%
Others (EU)	43%	55%	0.8%	0.1%	0.0%	1.0%	7.0%
Norway	49%	31%	6.9%	12.6%	1.2%	0.0%	
Switzerland	37%	60%	2.0%	0.6%	0.2%	0.2%	

The dominant fuels, as noted, are still petrol and diesel, but there is an emerging market for hybrid and electric powertrains. Figure 5 shows the market share of HEV, PHEV and BEV, along with the change in sales between 2013 and 2014. Looking at Norway and the Netherlands, it can be seen how incentives significantly affect vehicle sales. Both countries have a relatively high market share of hybrid and full-electric powertrains, but due to the phase-out of tax incentives in the Netherlands towards the end of 2013 sales have declined significantly in 2014 when compared to 2013. In contrast, keeping incentive levels high in Norway has contributed to a continued increase in electric vehicle sales.

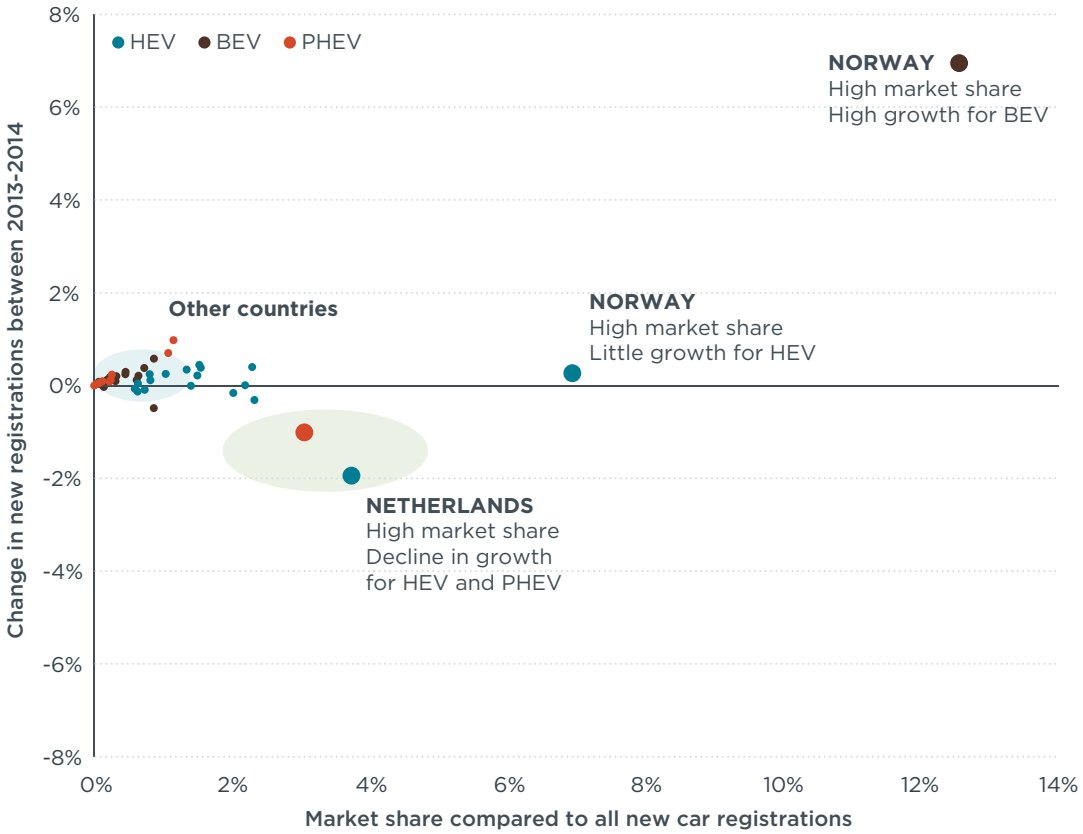

Figure 5: New hybrid, plug-in hybrid and battery electric passenger car market shares in Europe in 2014 and change in market share between 2013 and 2014. Norway and the Netherlands, with their comparably high electric vehicles' market shares, are pointed out with larger solid cycles.

At the manufacturer level, Toyota stands out with the highest share of hybrid-electric vehicles (27.8% of sales), while Renault and BMW lead in sales of electric vehicles (1.4% and 1.3% respectively). BMW and Toyota lead in the market for plug-in hybrids, which make up 0.2% of total sales for each manufacturer. Natural gas vehicles are about 11.2% of Fiat's sales, followed by General Motors with 2.9%. Table 4 shows sales by fuel/technology type as a percent of total for each manufacturer.

Table 4: Market share of fuel/technologies in 2014 by selected manufacturers.

	Diesel	Petrol	Hybrid-electric	Battery-electric	Plug-in-hybrid-electric	Other	Total market share
Average (All)	**53%**	**43%**	**1.4%**	**0.5%**	**0.2%**	**1.7%**	
Volkswagen	57%	42%	0.0%	0.3%	0.1%	1.1%	25.3%
Renault-Nissan	56%	41%	0.0%	1.4%	0.0%	2.0%	13.6%
PSA (Peugeot-Citroën)	63%	36%	0.9%	0.1%	0.0%	0.4%	10.4%
Ford	45%	53%	0.0%	0.0%	0.0%	1.8%	7.4%
GM	39%	58%	0.0%	0.1%	0.0%	2.9%	7.1%
Fiat	39%	50%	0.0%	0.0%	0.0%	11.2%	5.9%
Daimler	65%	33%	0.9%	0.4%	0.0%	0.4%	5.4%
BMW	78%	21%	0.1%	1.3%	0.2%	0.0%	5.2%
Toyota	26%	46%	27.8%	0.0%	0.2%	0.0%	4.4%

Table 5 shows the same detail by brand. Mitsubishi's share of plug-in hybrid electric vehicles (19.2% of sales) is attributed mainly to high sales of the Outlander, especially in the Netherlands, while Volvo's V60 plug-in hybrid accounts for 2.1% share of the brand's total sales.

The overall share of battery electric vehicles is low on average (0.5%), but identifying sales by brand highlights some rather successful models. For example, the Nissan Leaf accounts for 3% of the brand's total sales, while the Renault Zoe, BMW 3i, and Smart ForTwo accounted for more than 1% of their respective brands' sales.

A significant share (10.6%) of Fiat's brand total sales is attributed to natural gas vehicles, with the Panda, 500, and Punto being the top selling models in this category. Opel's share in this category of fuels is about 4% of its sales and mainly consists of the Corsa, Meriva and Mokka models.

Table 5: Market share of fuel/technologies for new passenger cars in 2014 for selected brands.

	Diesel	Petrol	Hybrid-electric	Battery-electric	Plug-in-hybrid-electric	Other	Total market share
Average	**53%**	**43%**	**1.4%**	**0.5%**	**0.2%**	**1.7%**	
VW	56%	42%	0.0%	0.5%	0.1%	1.4%	13.3%
Ford	45%	53%	0.0%	0.0%	0.0%	1.8%	7.8%
Renault	60%	39%	0.0%	1.2%	0.0%	0.7%	7.5%
Peugeot	62%	36%	1.3%	0.1%	0.0%	0.4%	6.2%
Audi	72%	27%	0.1%	0.0%	0.1%	0.8%	5.8%
BMW	78%	21%	0.1%	1.3%	0.2%	0.0%	5.5%
Mercedes-Benz	70%	28%	1.0%	0.0%	0.0%	0.4%	5.3%
Opel	40%	56%	0.0%	0.1%	0.0%	3.9%	5.2%
Fiat	37%	53%	0.0%	0.0%	0.0%	10.6%	4.9%
Citroën	63%	36%	0.4%	0.1%	0.0%	0.3%	4.8%
Skoda	49%	50%	0.0%	0.0%	0.0%	0.7%	4.6%
Toyota	27%	48%	23.9%	0.0%	0.2%	0.0%	4.5%
Nissan	51%	45%	0.0%	3.0%	0.0%	1.1%	3.9%
Hyundai	37%	61%	0.0%	0.0%	0.0%	1.8%	3.7%
Dacia	54%	40%	0.0%	0.0%	0.0%	6.2%	3.0%
Kia	46%	52%	0.2%	0.2%	0.0%	1.8%	2.8%
Seat	44%	55%	0.0%	0.0%	0.0%	1.1%	2.7%
Vauxhall	36%	64%	0.0%	0.2%	0.0%	0.0%	2.1%
Volvo	90%	8%	0.0%	0.0%	2.1%	0.2%	2.0%
Mini	43%	57%	0.0%	0.0%	0.0%	0.0%	1.2%
Honda	39%	58%	3.1%	0.0%	0.0%	0.0%	1.1%
Mitsubishi	36%	44%	0.0%	0.7%	19.2%	0.6%	0.8%
Smart	1%	93%	0.0%	5.6%	0.0%	0.0%	0.4%
Porsche	43%	54%	0.7%	0.0%	2.3%	0.0%	0.4%
Lexus	0%	3%	97.0%	0.0%	0.0%	0.1%	0.2%

4. SUPER-CREDITS

Manufacturer targets are adjusted for their fleet average vehicle weight, as discussed above. In addition, multiple mechanisms are in place to accommodate differences in manufacturers' fleets and to incentivize the uptake of low-carbon vehicles.

A key provision is the use of super-credits, where low-emitting vehicles, i.e, vehicles with CO_2 emissions below 50 g/km, are assigned an increased weight when calculating manufacturers' emissions. Specifically, a low-emitting vehicle was given a weighting factor of 3.5 in 2013, 2.5 in 2014, 1.5 in 2015, and 1 after 2015. Super-credits will be reintroduced in 2020 with reduced weights compared to the 2012–2015 period and with a cap of 7.5 g/km for each manufacturer group.

Table 6 presents the effect of super-credits for the major manufacturer groups in the EU, along with the inter-annual development from 2013 to 2014.

Table 6: Effect of super-credits on the estimated emissions by manufacturer group. Super-credits multiplier is 3.5 for 2013 and 2.5 for 2014.

	2013			2014			Inter-annual development	
	Avg. CO_2 emissions (g/km)			Avg. CO_2 emissions (g/km)			Reduction since 2013	
	w/o Super-credits	with Super-credits	Difference	w/o Super-credits	with Super-credits	Difference	w/o super-credits	with super-credits
PSA (Peugeot-Citroën)	115.7	115.5	0.2	110.1	110.0	0.1	5%	5%
Toyota	116.8	115.3	1.5	112.8	112.6	0.2	3%	2%
Renault-Nissan	119.2	116.2	2.9	113.9	111.9	2.1	4%	4%
Ford	121.8	121.8	0.0	121.7	121.7	0.0	0%	0%
Fiat (incl. Chrysler)	123.8	123.8	0.0	121.5	121.4	0.1	2%	2%
Volkswagen	128.9	128.8	0.1	125.8	125.5	0.3	2%	3%
GM	132.8	131.7	1.1	130.5	130.4	0.1	2%	1%
BMW	134.4	134.0	0.4	131.6	129.9	1.7	2%	3%
Daimler	136.6	135.1	1.5	131.5	130.6	0.9	4%	3%

Most brands have reduced their average emissions from 2013 to 2014 (see Table 7), although a slight increase is observed for Hyundai, KIA, and Smart. This change can be attributed to the increased sales of off-road vehicles for KIA and Hyundai and the release of the new Smart ForFour for the Smart brand. For BMW, the effect of super-credits is notable (1.7 g/km) and it is attributed to the i3 model.

For Mitsubishi, the difference of about 16 g/km between average CO_2 emissions with and without super-credits is noteworthy. This difference is due to the high share of sales of the Outlander plug-in hybrid electric vehicle. The impact of super-credits was also significant for Nissan, where the Leaf BEV contributes to the brand's emission reduction by nearly 4 g/km.

Table 7: Effect of super-credits on the estimated emissions by brand. Super-credits multiplier factor is 3.5 for 2013 and 2.5 for 2014.

	2013			2014			Interannual development	
	Avg. CO_2 emissions (g/km)			Avg. CO_2 emissions (g/km)			Reduction since 2013	
	w/o super-credits	with super-credits	Difference	w/o super-credits	with super-credits	Difference	w/o super-credits	with super-credits
VW	127.4	127.2	0.2	123.9	123.3	0.5	3%	3%
Ford	121.8	121.8	0.0	121.7	121.7	0.0	0%	0%
Renault	110.1	107.1	3.0	108.4	106.5	1.9	2%	1%
Peugeot	115.1	114.9	0.1	109.6	109.5	0.1	5%	5%
Audi	134.2	134.2	0.0	131.4	131.2	0.2	2%	2%
BMW	135.4	134.8	0.6	133.5	131.4	2.1	1%	3%
Mercedes-Benz	141.1	141.1	0.0	134.4	134.4	0.1	5%	5%
Opel	131.4	130.1	1.3	129.5	129.4	0.1	2%	1%
Fiat	121.0	121.0	0.0	117.9	117.8	0.1	3%	3%
Citroën	116.5	116.2	0.3	110.8	110.7	0.1	5%	5%
Skoda	125.4	125.4	0.0	121.0	121.0	0.0	4%	4%
Toyota	116.6	115.0	1.6	112.8	112.6	0.2	3%	2%
Nissan	130.4	125.7	4.7	115.0	111.3	3.8	12%	12%
Hyundai	129.8	129.8	0.0	130.1	130.1	0.0	0%	0%
Dacia	127.3	127.3	0.0	125.4	125.4	0.0	2%	2%
Kia	129.9	129.9	0.0	130.9	130.8	0.1	-1%	-1%
Seat	118.7	118.7	0.0	117.3	117.3	0.0	1%	1%
Vauxhall	133.6	133.3	0.3	131.7	131.5	0.2	1%	1%
Volvo	130.8	123.7	7.1	125.4	122.3	3.1	4%	1%
Mini	130.0	130.0	0.0	123.0	123.0	0.0	5%	5%
Honda	138.0	138.0	0.0	133.9	133.8	0.0	3%	3%
Mitsubishi	123.9	104.9	19.0	114.6	98.3	16.3	8%	6%
Smart	93.9	84.2	9.7	94.6	87.4	7.2	-1%	-4%
Porsche	201.1	201.1	0.0	192.6	192.6	0.1	4%	4%
Lexus	121.1	121.1	0.0	112.9	112.9	0.0	7%	7%

5. INTERNATIONAL CONTEXT

In the international context, the EU has historically been a front-runner with respect to vehicle emission targets. In recent years, however, most large economies have specified converging CO_2 emission targets for new vehicles (Figure 6). Compared to the EU's 2020 target of 95 g/km, the US (97 g/km for 2025 passenger cars), Japan (122 g/km by 2020), and Canada (97 g/km by 2025) have set similar targets. When including vans, which make up approximately 10 percent of the European vehicle market, the EU's 2020 target is equivalent to approximately 100 g/km.

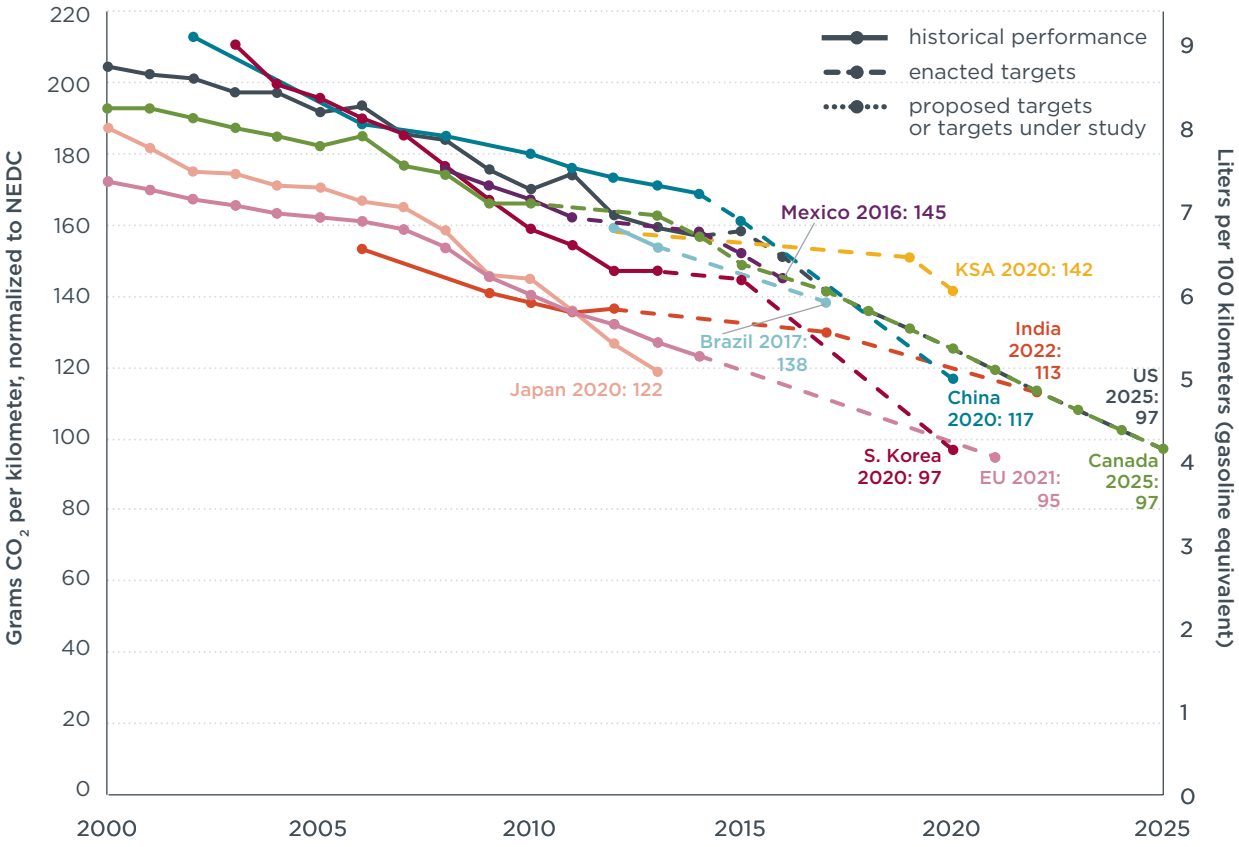

Figure 6: Comparison of global CO_2 regulations for new passenger cars. Note that Japan has already exceeded its 2020 statutory target, as of 2013.[12]

6. OUTLOOK

It should be noted that the EEA dataset has yet to be validated. The final dataset will be published at the end of 2015, so the specific numbers in this report may change. However, historically the difference between preliminary and final data has been slight. In 2013, average CO_2 emissions changed by less than 0.2% going from preliminary to final data. The preliminary data for 2014 should therefore provide relatively reliable results, although emissions under real world conditions could be significant higher.[13] The ICCT will follow up on European emissions data in the forthcoming European Vehicle Market Statistics Pocketbook 2015.[14]

12 China's target reflects gasoline vehicles only. US CO_2 emission values derived from fuel economy standards set by NHTSA, reflecting tailpipe GHG emission (i.e., they exclude low-GWP refrigerant credits incorporated in the U.S. EPA GHG regulation). Petrol in Brazil contains 22% ethanol (E22); all data in the chart has been converted to gasoline (E00) equivalent. Supporting data can be found at www.theicct.org/info-tools/global-passenger-vehicle-standards

13 See Mock, P., et al., "From laboratory to road: A 2014 update," http://www.theicct.org/laboratory-road-2014-update

14 For the 2014 edition, see http://www.theicct.org/european-vehicle-market-statistics-2014