

Borneo Convention Centre Kuching, Sarawak, Malaysia

## EU CO<sub>2</sub> Car Regulation

#### Regional Policy Dialogue on Fuel Economy in Asia & 2nd APEC Workshop on Policy Dialogue on Fuel Economy Platform

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# Reducing CO<sub>2</sub> Emissions from Passenger Cars in the EU

EU legislation sets mandatory emission reduction targets for new cars. This legislation is the cornerstone of the EU's strategy to improve the fuel economy of cars sold on the European market. Similar targets have been set for new vans.

### 2015 target

The law requires that the new cars registered in the EU do not emit more than an average of 130 grams of CO2 per kilometer (g CO2/km) by 2015. This means a fuel consumption of around 5.6 liter per 100 km (l/100 km) of petrol or 4.9 l/100 km of diesel.

### 2021 target

By 2021, phased in from 2020, the fleet average to be achieved by all new cars is 95 grams of CO2 per kilometer.

This means a fuel consumption of around 4.1 I/100 km of petrol or 3.6 I/100 km of diesel.



Climate Action



 Real-world vs. type-approval CO2 emission values of new European passenger cars based on Spritmonitor.de estimates and type-approval data from the European Environment Agency (EEA) Source: ICCT 2016



#### Common ways carmakers manipulate tests for CO<sub>2</sub> emissions and fuel economy



# Comparison of Manufacture Declaration vs. spritmonitor.de selected Models

Platz Modell	Motorisierung	Normverbrauch (Liter/100km) <sup>1</sup>	spritmonitor.de (Liter/100km) <sup>2</sup>	Mehrverbrauch <sup>3</sup>
1 VW Golf	1.6 TDI, 110 PS (Schaltgetriebe)	3,2-3,9	<b>5,36</b> (n=35)	51,0%
2 VW Passat	2.0 TDI BMT, 150 PS (Schaltgetriebe/DSG)	4,0-4,7	6,28 (n=51)	44,4%
3 VW Polo	1.2 TSI, 90 PS (Schaltgetriebe)	4,7	6,01 (n=30)	27,9%
4 Mercedes C-Klasse	C220 BlueTec, 170 PS (Automatikgetriebe)	4,3-4,7	<b>6,17</b> (n=20)	37,1%
5 Audi A3	1.4 TFSI cod ultra, 150 PS (Schaltgetriebe/DSG)	4,7	7 (n=15)	48,9%
6 VW Tiguan	2.0 TDI, 110 PS (Schaltgetriebe)	5,3	6,53 (n=5)	23,2%
7 Skoda Octavia	1.8 TSI, 180 PS (Schaltgetriebe)	6,1	7,5 (n=4)	25,0%
8 Opel Corsa	1.0 ECOTEC DI Turbo, 90 F (Schaltgetriebe)	4,4	6,45 (n=6)	46,6%
9 Ford Focus	1.0l EcoBoost, 100 PS (Schaltgetriebe)	4,3-4,8	6,9 (n=10)	51,6%
10 Opel Astra	1.6 CDTI ecoFlex, 110 PS (Schaltgetriebe)	3,7-4,1	5 <b>,71</b> (n=5)	46,4%
		Durchschnittliche Abweichung		42%

#### Anmerkungen:

<sup>1</sup>Herstellerangabe: kombinierter Verbrauchswert nach Vo. (EG) Nr. 715/2007 bzw. Vo. (EG) Nr. 692/2008.

<sup>2</sup>Durchschnittswert aller Nutzereinträge (Baujahr 2015) für entsprechende Motorisierung, eingesehen am 04.11.2015

<sup>3</sup>Bei unterschiedlichen Normverbrauchsangaben für die Beispielmotorisierung, bedingt durch verschiedene Modell-/Karosserievarianten, wurde der mittlere Normverbrauchswert zu Vergleichszwecken herangezogen.

### **Example Opel Zafira Tourer vs. Opel Mokka:** Very different Certification values but in real driving practical the same

	Opel Zafira Tourer 1.6 CDTi ecoFlex, EZ 2015 <sup>1</sup>	Opel Mokka 1.4 Turbo ecoFLEX, EZ 2015 <sup>2</sup>
Official CO2-Value (NEFZ) (g/km)	108	155
CO2-Emission in real drive testing (g/km)	155	158
Deviation (%)	44%	2%
Mass of the vehicle (kg)	1816	1520
Length x Wide (m <sup>2</sup> )	8,8	7,5
CO2-Effciency class	A+	D

#### Anmerkungen:

<sup>1</sup>Quelle: Angaben des Fahrzeugscheins und <u>https://www.adac.de/infotestrat/autodatenbank/autokatalog/detail.aspx?mid=239397&bezeichnung=opel-zafira-tourer-1-6-cdti-ecoflex-start-stop-active-13-14</u>

(eingesehen am 24.04.2018)

<sup>2</sup>Quelle: Angaben des Fahrzeugscheins und <u>https://www.adac.de/infotestrat/autodatenbank/autokatalog/detail.aspx?mid=248712&bezeichnung=opel-mokka-1-4-turbo-ecoflex-start-stop-color-edition-4x4-15-16 (eingesehen am 24.04.2018).</u>

Euro 6 Benzin- und Benzin-Hybrid-Pkw	Ø CO2 g/km	Ø NOx mg/km	Faktor Grenzwert- überschreitung
Toyota Prius 1.8 Hybrid (blau)²)	84	5	0,1
Opel Mokka 1.4 ecoFlex	158	11	0,2
Toyota Prius 1.8 Hybrid (weiß)	77	15	0,3

# New Test Procedure WLTP: More realistic fuel consumption values, but the truth is on the road

Parameter	NEDC (Euro 6)	EU WLTP				
Testzyklus						
Zyklus	NEFZ	WLTP				
Länge des Zyklus	11,03 km	23,27 km				
Zeit	19,66 Minuten	30 Minuten				
Durchschnittsgeschwindigkeit	34 km/h	47 km/h				
Höchstgeschwindigkeit	120 km/h	131 km/h				
Standzeitanteil	24%	13%				
Schaltung (manuelle Getriebe)	Fixe Schaltpunkte	Fahrzeugspezifisch				
Ausrolltest						
Reifenprofiltiefe	50 bis 90%	80 bis 100%				
Reifendruck	Nicht definiert	Fahrzeugspezifisch				
Fahrzeuggewicht						
Testgewicht	Leergewicht + 100 kg	Leergewicht + 100 kg + Ausstattung + Nutzlast (keine Klimaanlage)				
Schwungmassenklassen (Einteilung der Testfahrzeuge nach Trägheitsverhalten)	Festgelegte Klassen	Keine Klassen, fahrzeugspezifisch				
Temperatur						
Außentemperatur der Vorkonditionie- rungshalle und Prüfkammer	20 bis 30°C	14°C / 23°C				
Starttemperatur des Motors	Kalt	Kalt				
Andere Parameter						
Laufleistung des Testfahrzeugs	Max. 3.000 km	3.000 bis 15.000 km				
Ladezustand der Batterie	Nicht definiert	Darf vor dem Zyklus nicht geladen werden				

Basic problem stays: In spite of improvements by the introduction of the WLTP: Even than real driving conditions are not completely reflected.

- Cycle detection is still possible to optimize the emission data in the test is still possible.
- It is impossible to define all parameter in a way that there are no loop holes.
- Therefore is necessary, to measure the die CO2 emissions on the road.

# EU Commission Proposal for post-2020 CO2 Targets for Cars and Vans

The EU commission had proposed that the 2030 CO2 reduction target for cars and vans should be 30% in 2030 and 15% in 2025 compared to 2021.

Starting from 2021, the emission targets will be based on the new emissions test procedure, the Worldwide Harmonised Light Vehicle Test Procedure (WLTP), which was introduced on 1 September 2017.

Zero-emission vehicles such as battery electric or fuel cell vehicles and low-emission vehicles having tailpipe emissions of less than 50 g CO2 per km – these are mainly plug-in hybrid vehicles equipped with both a conventional and an electric engine are mandated with 15% in 2025 and 30% in 2030.

## Position of the EU Parliament and of the EU Council

EU Parliament: Cars and vans sold in the EU in 2030 should on average emit 40 percent less carbon dioxide (CO2) t and by 2025 20 percent lower than in 2021 than they will be in 2021.

The parliament adopted an amendment which said car companies whose new sales in 2030 consisted of 35 percent ZLEVs, should be allowed to miss the CO2 target by up to five percentage points.

EU Council: CO2 emissions of new passenger cars will have to be 15% lower in 2025 and 35% lower in 2030, compared to the emission limits valid in 2021. For vans, the Council maintains the targets as proposed by the European Commission: 15% in 2025 and 30% in 2030.

The zero- and low-emission vehicles such as fully electric cars or plug-in hybrid vehicles benchmark for cars for 2030 was raised to 35%.

Now the socalled Trilogue between EU commission, EU council and EU Parliament has started to find a compromise.

# The Commission Proposal is by far not strict enough to meet the Paris Agreement Requirements



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#### More CO<sub>2</sub>-Reduction is technical feasible and has economical advantage for the Society



Data of the EU-Commission:

<sup>1</sup>Data taken from European Commission (EC) impact assessment

<sup>2</sup>Data from EC impact assessment, avoided CO<sub>2</sub> costs included, dashed bars use ICCT technology data

<sup>3</sup>Data from EC impact assessment, assuming battery cells manufactured in the EU



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#### A higher CO<sub>2</sub>- Reduction has an Advantage for the User of new and used Vehicles



#### Data EU-Commission:

<sup>1</sup>Data taken from European Commission (EC) impact assessment <sup>2</sup>Data from EC impact assessment, avoided CO<sub>2</sub> costs included, dashed bars use ICCT technology data <sup>3</sup>Data from EC impact assessment, assuming battery cells manufactured in the EU



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#### **Innovative Technologies lead less Oil- Imports and more Investments / Jobs in Europa**



Data of the EU-commission:





#### Effort Sharing Regulation:

#### High Cost for the State Budget at Non Compliance of the Targets

Mandatory national annual GHG budgets for non-ETS sectors (mainly traffic, building sector, agriculture, waste)

- Coverage for not compliance through trade with other EU member states
- Expectation: From 2021 changed market situation; Market price is at least equal CO2 avoidance costs in nun-ETS sectors (eg EUR 33.5 100 / t CO2)
- Annual cost savings for every million tonnes of avoided CO2 would be at non-compliance with the GHG budget is € 33.5 - € 100 million.
- The scenarios of the projection report 2017 lead to a cumulative missed target (2021 to 2030) between 150 300 million t CO2
- Costs of carbon offsetting of EUR 5 30 billion
- A higher level of ambition can significantly reduce the cost of the state budget, if the annual national GHG budgets of non-ETS sectors are not met.



## **Bosch Boss blames Auto Industry**

The boss of the automotive supplier Bosch demands from the German car manufacturers more use for the climate protection. Bosch boss Volkmar Denner has called for a greater commitment of the automotive industry to the environment. "The automotive industry can do more for climate protection than it has to," wrote Denner in a guest contribution for the "Handelsblatt".

The Bosch boss also criticized the federal government for its exit from the 2020 climate targets: "This strange serenity in the face of a global threat seems almost incomprehensible."



http://www.manager-magazin.de/unternehmen/autoindustrie/bosch-fordert-mehr-klimaschutzvon-vw-und-co-a-1232647.html

# Conclusions

The current proposal lags behind the necessary and required CO
Much more is technically possible, with positive effects for custom
The proposed E-vehicle regulation allows the increase of CO2 en
The proposed approximation of weight is an incentive to bring her
The conversion from NECD to WLTP can be abused by the manual

It is obvious that based on today knowledge the climate change

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# **Small is beautiful**

