

Bellona Europa response to the consultation on the revision of Regulation (EU) No 443/2009 and Regulation (EU) No 510/2011 setting CO₂ emission performance standards for light duty vehicles

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The Bellona Foundation is an independent non-profit organisation that aims to meet and fight the climate challenges, through identifying and implementing sustainable environmental solutions. We work towards reaching a greater ecological understanding, protection of nature, the environment and health. Bellona is engaged in a broad spectre of current national and international environmental questions and issues around the world.

Pollution knows no borders, thus Bellona works with and against anyone and everyone relevant to our work, both nationally and internationally. Bellona has a solution-oriented approach to the environmental challenges and has since 1998 had extensive cooperation with a number of companies in different industries and businesses. Our approach is that to achieve results one must jointly work out the best social and environmental solutions, and make these financially profitable and viable. Bellona has always been and remains an independent watch dog that investigates, scrutinises and reports any environmental crime we uncover.

The Bellona Foundation was founded in 1986. We are currently 65 employees, working at the main office in Oslo and our three international offices in Brussels (Belgium / EU) Murmansk (Russia) and St. Petersburg (Russia). Bellona has been established with an office in Brussels since 1994.

Introduction

Meeting the EU's target of reducing CO₂ emissions from transport by 60% and eliminating the use of fossil fuels in cars by 2050 will necessitate significant and immediate efforts to transition to a low- and zero-emission transport sector. The tightening of CO₂ emission targets for new cars and light commercial vehicles via the currently ongoing review process is an important step in this direction.

Bellona believes that in addition to setting a 2030 target, a 2025 target would be necessary in order to provide investor certainty and ensure sufficient improvements in vehicles' fuel economy are secured prior to 2030. Equally important is that the new light duty vehicle (LDV) CO₂ emission targets be based on the new Worldwide Harmonised Light Vehicles Test Procedure (WLTP). The exploitation by car makers of loopholes and inadequacies in the long-outdated New European Driving Cycle (NEDC) test has undermined the stringency of existing EU fuel efficiency targets. The ambition and stringency of the future EU fuel efficiency targets will therefore be largely determined by the vehicle emission testing regime accompanying these.

While some improvement has been observed in vehicle fuel economy over the past decade, existing EU targets have fallen short in incentivising zero-emission technologies. Bellona sees electric vehicles (EVs) in particular as representing one of the most promising technologies for cutting CO₂ emissions, reducing petroleum reliance and improving local air quality. EVs will, furthermore, help to optimise the ever increasing use of renewables and increase the predictability of the electricity sector, as EV batteries can be re-used to store and manage wind and solar-based electricity¹. According to the IEA three-fourths of global car sales will need to be in EVs or plug-in hybrids by 2050 if the transportation sector is to do its part in keeping global average temperature rise below the 2°C target of the Paris Agreement².

In light of this, Bellona calls for additional incentives and measures to be put in place at EU-level, as well as Member State-, regional- and local-level to stimulate both the supply and demand for zero-emission vehicles. Rendering EVs competitive vis-à-vis internal combustion engine (ICE) cars and therefore boosting their demand necessitates long-term government support in the form of targeted policies, including fiscal and usage incentives, and preferential treatment³.

¹*Why an electrified transport sector needs to form a core component of the Energy Union*, Bellona brief (December 2015), http://network.bellona.org/content/uploads/sites/3/2015/12/EV-Brief_Why-an-electrified-transport-sector-should-form-a-core-component-of-the-Energy-Union1.pdf

²*Global EV Outlook*, IEA report (April 2013), http://www.iea.org/topics/transport/subtopics/electricvehiclesinitiative/EVI_GEO_2013_FullReport.pdf

³*Why an electrified transport sector needs to form a core component of the Energy Union*, Bellona brief (December 2015); http://network.bellona.org/content/uploads/sites/3/2015/12/EV-Brief_Why-an-electrified-transport-sector-should-form-a-core-component-of-the-Energy-Union1.pdf

What is more, Bellona strongly supports the inclusion of a mechanism into the future EU legislation to encourage the deployment of zero-emission vehicles, alongside fuel economy targets for conventional fossil vehicles. This should be in the form of targets requiring car makers to produce and sell a minimum proportion of zero-emission vehicles. When designing these targets, Bellona encourages the Commission to draw lessons from the Californian Zero Emission Vehicle (ZEV) programme, where manufacturers have been granted flexibility in meeting their targets. This possibility to exchange and trade credits would allow car manufacturers to meet their targets more cost-effectively and would encourage new entrants into the market. In countries like Norway for instance electro-mobility has already become a reality⁴, with EV registrations having exceeded 112,721 (July, 2016)⁵ and accounting for roughly 29% of the country's new car sales. In light of this, and taking into account rapid Li-ion battery advancements in terms of performance and reduced costs and the positive future outlook, Bellona believes it fair to expect a 10-20% total market share of EVs by 2025 for the EU as a whole. When it comes to new car sales, on the other hand, Bellona expects this share to go up to 100% in light of a growing number of EU countries, including Norway, the Netherlands, and Germany, announcing plans of phasing out fossil cars within 2025-30.

What is more, Bellona finds it crucial that fuel efficiency standards also be applied to road freight transport (N2 type vehicles). CO₂ emissions stemming from road freight are the fastest growing segment of land transport emissions both in the EU and globally. While in the EU trucks only make up less than 5% of all road vehicles, they are responsible for 25% of total transport CO₂ emissions. Tackling these will therefore be key for meeting the EU's 2030 and 2050 climate objectives. The recent *Low-Emission Mobility Strategy* offers hope of breaking this trend by stating the Commission's intention of accelerating analytical work on design options for standards for heavy duty vehicles. Bellona wants to see the Commission following through with concrete and timely measures.

Last but not least, failure to ensure the timely introduction of stringent CO₂ emission targets for LDVs risks undermining the EU's leadership position in the field of climate technologies and regulation vis-à-vis third countries. The EU is already falling behind the US, China and Japan with regards to regulating and innovating its road freight transport and we are also seeing the EU fall behind Asian manufacturers who are dominating the Li-ion battery production. Failure to ensure rapid investments into strengthening Europe's automotive battery industry as well as stringent measures to discourage carbon intensive transport and incentivise electro-mobility uptake will put Europe at risk of undermining the industrial competitiveness and the viability of its automotive industry.

⁴ *Electric vehicles: The Norwegian experience in overcoming barriers*, Bellona brief (March 2015);

http://network.bellona.org/content/uploads/sites/3/Bellona-EV-Brief_The-Norwegian-Success-Story1.pdf

⁵<http://www.hybridcars.com/americans-buy-their-half-millionth-plug-in-car/top-pev-global-markets-july-2016/>

I. General questions

The main problem to address

The Regulations setting CO₂ targets for new cars and light commercial vehicles request the Commission to bring forward proposals to set new targets for the period beyond 2020.

Q1. In your view, how important is the following action?

	Very important	Important	Somewhat important	Not important	I don't know
Setting CO ₂ emission targets for new cars and light commercial vehicles in the EU in order to reduce emissions from this segment and contribute to meeting the EU's overall climate goals	X				

The EU is committed to cutting its emissions from transport by 30% by 2030 as compared to 2005 levels. Moreover, by 2050 the EU will have to cut its transport-related CO₂ emissions by 60% as well as fully eliminate the use of fossil fuels in cars. Meeting these targets will necessitate significant and immediate efforts, and the tightening of CO₂ emission performance targets for new cars and vans is one important step in this direction. The European Commission's recent *Strategy for Low-Emission Mobility* (July 2016) acknowledges the key role of EU fuel efficiency standards for new cars and vans in driving innovation and efficiency in automotive technology but also calls for accelerated efforts to foster the transition towards low- and zero-emission vehicles to achieve a fossil-free EU transport sector by 2050.⁶ Bellona fully agrees with the need to go beyond mere fuel efficiency improvements to ultra-low carbon- and in particular electric mobility if we are to achieve a fossil fuel free transport sector by mid-century.

The need for EU action

There is a single market for LDVs across the EU. If no EU action was taken to address the problem, Member States would adopt individual approaches to reduce LDV CO₂ emissions, in order to achieve the needed reductions for the non-ETS sector. As the evaluation of the

⁶ *European Strategy for Low-Emission Mobility* (July 2016), http://ec.europa.eu/transport/themes/strategies/news/2016-07-20-decarbonisation_en

Regulations highlighted, the use of differing tools and levels of ambition by Member States could lead to market fragmentation. This would lead to higher costs, both for industry and vehicle purchasers for achieving the goal and probably be less effective at actually reducing greenhouse gas emissions. Current evidence from the use of CO₂ linked vehicle taxation clearly demonstrates the widely differing approaches which would result from Member State action and the additional costs this would cause.

Q2. In your view, what would be likely to happen without EU action?

	Likely	Neutral	Unlikely
Member States would individually implement legislation			X
Legislation introduced by individual Member States would lead to fragmentation and higher costs	X		
Member States would have difficulty to achieve the necessary reductions to meet EU climate goals	X		

EU-wide action and legislation to support Member States’ emission reductions efforts in the transport sector, as well as other Effort Sharing Decision (ESD) sectors, is of key importance and should be enhanced. Bellona views the transport sector as a large and untapped sector for significant amount of cost effective mitigation potential. Failure to fully exploit all abatement potential from transport could result in increased costs of mitigation for Member States of meeting their 2030 and 2050 targets.

Main policy objectives

Q3. In your view, how important are the following objectives for future LDV CO₂ legislation?

	Important	Neutral	Unimportant
Continuing to reduce CO ₂ emissions from cars and light commercial vehicles cost effectively and in line with EU	X		

climate and energy goals			
Ensuring technology neutrality (e.g. between different powertrains)			X
Ensuring competitive neutrality between manufacturers		X	
Preserving the competitiveness of EU automotive manufacturing	X		
Ensuring that the legislation's impacts are socially equitable		X	
Promoting the market uptake of low-emission and zero-emission vehicles	X		
Contributing to reducing air pollution caused by cars and light commercial vehicles (emissions of nitrogen oxides, particulate matter, ...)	X		

Form that action should take to reduce LDV CO₂ emissions

Q4. Please indicate your preference for the following options to reduce new LDV CO₂ emissions, and to contribute to the 2030 Energy and Climate targets (with 1st being the most preferred option and 7th being the least preferred)?

	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Legislation setting LDV CO ₂ emissions targets at EU level	X						
Use of vehicle or fuel taxes or other incentives by Member States to affect vehicle choice and use			X				
A voluntary agreement with industry to reduce new vehicle CO ₂ emissions						X	
Member State actions to influence vehicle choice in other ways such as restricting access to urban		X					

areas for certain types of vehicles							
Development of international standards for LDV fuel economy				X			
No action							X

Further actions Bellona calls for:

1) An adequate and representative vehicle emission testing regime

The tightening of CO₂ emission targets for new cars and light commercial vehicles is paramount to improving vehicle fuel efficiency performance and to meeting the EU’s emission reduction targets for transport. Equally important, however, is for these tightened LDV CO₂ emission targets to be accompanied by the timely replacement of the outdated ‘New European Driving Cycle’ (NEDC) with the Worldwide Harmonised Light Vehicles Test Procedure (WLTP).

The Dieselgate scandal has helped in exposing the commonplace nature of emission testing manipulations across the car maker industry. Car makers’ exploitation of loopholes and inadequacies of the NEDC test have acted to undermine the stringency of EU fuel efficiency targets. The ICCT, for instance, has found that in 2002 cars performed 10% better under laboratory tests measuring CO₂ emissions than in the real world. By 2010, the gap had reached 24% and rose further to 35% in 2014. This widening of the gap can be attributed to car makers improving their skills at cheating the system more than focussing on improving car engines. To better illustrate the significance of the gap, a T&E report found that on average two-thirds of the claimed gains in CO₂ emissions and fuel consumption since 2008 were delivered through test manipulations. In fact, test manipulations have enabled car makers to reduce their costs of complying with EU regulations by roughly €7 billion⁷.

The ambition and stringency of the future EU fuel efficiency targets will therefore be largely determined by the vehicle emission testing regime accompanying these. Bellona calls for the timely introduction of an EU independent type-approval authority, operating under a clear and transparent mandate. Third-party monitoring and sporadic spot checks will be key to ensuring tests are conducted under realistic conditions representing real-world weather and road conditions⁸.

⁷ *Mind the Gap 2015*, Transport & Environment (September 2015), https://www.transportenvironment.org/sites/te/files/publications/TE_Mind_the_Gap_2015_FINAL.pdf

⁸ *The Emission Testing Gap – Why business-as-usual for the conventional car industry cannot continue*, Bellona Brief (November 2015), http://network.bellona.org/content/uploads/sites/3/2015/11/Bellona-EV-Brief_The-Emission-Testing-Gap.pdf

2) Fiscal and usage incentives to stimulate demand for zero-emission vehicles

This table provides a list of EV incentives and the pre-conditions, in terms of Member State characteristics, for their effectiveness to foster EV uptake:

EV incentive	Justification	Best applicability in MS with following characteristics
CO₂ taxation at registration VAT exemptions	<i>A bonus-malus system should be introduced, whereby heavier polluters are taxed more heavily. This measure is budget-neutral as EVs are granted tax reductions.</i>	These measures are most effective in countries with heavier tax burdens as they have more freedom in incentivising EVs by reducing tax burdens/VAT rates (e.g. Norway)
Fuel taxation	Consumers are price sensitive, so a rise in the fuel taxation would result in greater purchase of less polluting cars and EVs. This measure would affect both the choice of car and the driving behaviour.	The estimated fuel cost savings, and therefore the incentive to switch to an EV, would be greater in countries with relatively high gas prices and relatively low electricity tariffs (e.g. Norway).
Access restriction schemes Congestion charge	The discrimination of ICE cars always fosters EV uptake. The growing concerns for public health due to air pollution, renders their adoption more feasible.	Strict emission criteria (coupled with accurate emission testing ⁸) should be ensured to guarantee effectiveness of the measure (e.g. UK, Italy, Netherlands, Germany, and some cities in Poland, Czech Republic, Austria and Hungary ⁹).
Parking benefits	To avoid significant income deficits for city councils, the grating of free/reduced parking to EVs should be accompanied by a raise in the parking fee levels for ICE cars.	In general, since parking space is a rare commodity in many cities – any incentives for EV owners with regards to parking could foster EV uptake.

While ensuring the tightening of CO₂ emission performance standards for newly sold vehicles is a key measure to cut transport emissions, it is important to note that the EU targets set have fallen short in incentivising zero-emission technologies, such as electric vehicles (EVs). Therefore, to support the transition to a low-carbon transport sector in Europe, incentives on both the supply- and demand-side will be needed through measures at EU level, as well as at Member State, regional and/or local level. Rendering EVs competitive vis-à-vis ICE cars and therefore boosting their demand necessitates long-term government support in the form of targeted policies, including fiscal and usage incentives, and preferential treatment.

Noteworthy, however, is that there is no ‘one-rule-fitting-all’ solution when it comes to EV incentives. The choice of fiscal incentives package will largely depend on the characteristics of each EU Member State in mind, such as for instance, the level of car ownership tax burden, the VAT rates, the cost of electricity, and gas prices among others. The table to the left lists the various EV incentives and their pre-conditions, in terms of Member State characteristics, for their effectiveness to foster the EV market uptake. More detailed EV incentives information can be found in our policy brief [here](#). Moreover, Bellona strongly supports the inclusion of a mechanism into the CO₂ legislation to encourage the deployment of zero-emission vehicles, i.e. **requiring car makers to produce and sell a minimum**

proportion of zero-emission vehicles ([see more on this topic below in Q12 & Q13 on incentivising low- and zero-emission vehicles](#)).

3) Green Public Procurement (GPP)

Public authorities are a powerful purchaser on the market and are therefore key actors in transport decarbonisation. World-wide 557,000 cities and communities spend roughly €4 trillion per year; the equivalent of 10% of global GDP'. Green public procurement (GPP) is a key tool public authorities can use to build trust in and stimulate demand for low- and zero-emission vehicles. The uptake of EVs and full application of the Clean Vehicles Directive, currently regulating GPP in the EU, by EU public authorities has remained slow, however. Rectifying this would necessitate an expansion of the directive's scope to cover companies contracted by public authorities to provide various services: a substantial sector, currently omitted by the directive. Fostering the wider uptake of EVs will require, in addition to GPP, a more comprehensive approach to fleet management to be adopted. EU Member States should establish national and regional capacity building centres to provide free advice and training to public authorities.

4) Facilitating the creation of an interoperable electric re-charging infrastructure

The roll-out of a comprehensive, interoperable recharging infrastructure is a key pre-condition to fostering the uptake of zero-emission electric vehicles and the creation of an EU Single Market for electro-mobility. The Alternative Fuels Infrastructure (AFI) Directive 2014/94/EU aims to achieve this by mandating the deployment of private charging points and sufficient number of publically accessible charging points, as well as setting EU-wide harmonised standards for charging connectors and user information requirements. In light of the upcoming deadline of 18 November 2016 for the submission of Member States' National Policy Frameworks (NPFs) for the implementation of the directive, Bellona would like to see a quick and appropriate roll-out of normal and high-power charging infrastructure which secures a good balance between harmonisation of technologies and common standards on the one hand, and a competitive market conducive of technological and business innovations, on the other. Further detail on Bellona's recommendations for the implementation of the AFI Directive and overcoming interoperability barriers to electro-mobility can be read [here](#).

The level of future LDV CO₂ emissions targets

The EU Regulations currently set new vehicle fleet average CO₂ targets of 95gCO₂/km for cars from 2021 on and of 147gCO₂/km for light commercial vehicles from 2020 on. Without further action, these targets will remain unchanged after those dates.

The current targets require manufacturers to reduce new car emissions by about 5% per year between 2015 and 2021 and new light commercial vehicle emissions by about 5.5% per year between 2017 and 2020.

Q5. In comparison to the current reduction rates new targets for the period after 2020 should be set at levels which require a higher rate of reduction than that required under the current Regulation.

What is your view on the timetable for the post-2020 strategy on cars and vans?

Under the current EU legislation car makers are required to limit their average car emissions to a maximum of 95 grams of CO₂ by 2021 whereas for new vans the target is 147 grams of CO₂ by 2020. While some improvement has been observed in the fuel economy performance of passenger vehicles, the regulation's impact has been sub-optimal due to car makers' increasing exploitation of loopholes in the outdated NEDC test.

Bellona calls for the tightening of fuel efficiency standards for new cars and vans in the currently ongoing review process to ensure a higher rate of reduction than that required under current legislation. A 2025 target is paramount to ensuring significant improvements in vehicles' fuel economy and thus to achieving the required emission reductions by 2030. This target would also provide investor certainty and much-needed impetus for investment in low carbon technologies. New targets need to be based on the revised WLTP test. A recent study by Element Energy finds that meeting the 30% reduction target for transport is estimated to require emissions (based on the new WLPT) of 75 grams of CO₂/km in 2025 and 50 grams of CO₂/km in 2030 for cars, and 82 grams of CO₂/km in 2025 and 33 grams of CO₂/km in 2030 for vans.

Bellona calls for a rapid finalisation of the new targets, preferably in the first half of 2017, so as to send a strong signal to car makers and national policy makers that business-as-usual cannot continue, and to accelerate much-needed investments into zero-emission, and in particular pure battery electric vehicles.

Innovation and competitiveness

The Paris Climate agreement and the obligations on participating countries may increase the global competition for technologies to reduce road vehicle CO₂ emissions.

Q6. Do you think EU legislation to regulate CO₂ emissions for LDVs will:

	Agree	Neutral	Disagree
Increase the competitiveness of EU industry on the global market	X		
Increase the likelihood of the EU automotive industry developing further CO ₂ reducing technology for conventional engines	X		
Increase the likelihood of the EU industry developing technology for alternative powertrains		X	

Ambitious CO₂ emission targets for LDVs, as long as accompanied by accurate and representative vehicle emission testing, are key to improving vehicle fuel efficiency performance and cutting CO₂ emissions. Nevertheless, even if emission testing is improved from the current NEDC and vehicles taxed fairly to reflect real-world emissions, there are limits to how much the efficiency of combustion engines can be improved. This means that soon it will be cheaper and more sustainable to incentivise and heavily invest in EVs. Because EU targets set have fallen short in incentivising alternative powertrains and zero-emission technologies, such as electric vehicles (EVs), additional measures and incentives will need to be enacted (see Q12 and Q13 below for Bellona’s recommendations on incentivising zero-emission vehicles via EU regulation).

EU legislation and impact on industrial competitiveness: Failure to ensure the timely introduction of stringent CO₂ emission targets for LDVs also risks undermining the EU’s leadership position in the field of climate technologies and regulation, in particular vis-à-vis third countries. The EU is already falling behind the US, China and Japan with regards to regulating and innovating its road freight transport. Unlike the US, China and Japan, Europe has had no fuel efficiency standards for trucks, which has resulted in limited innovation and a stable carbon footprint of trucks over the past two decades. We are also seeing the EU fall behind Asian manufacturers who are dominating the Li-ion battery production. In China, for instance, the development of alternatively fuelled vehicles and the Li-ion battery sector has been booming thanks to the robust support scheme that has been put in place by the government. In May 2016 alone, nearly €360 million have been poured into China’s Li-ion battery market. To put this into perspective, over the past five years, the growth of the energy storage market in China

has outpaced that of the global market by six times, with a growth rate of 110%. Installed capacity of Li-ion battery captured 66% of the market share in the energy storage market⁹.

In light of this strong competition from its Asian counterparts, coupled with the Dieselgate emission testing scandal which revealed the ever more challenging and costly nature of attaining combustion engine efficiency improvements, Europe needs to urgently get off the brakes on electro-mobility and embrace this inevitable transition. Failure to ensure timely investments into strengthening Europe’s automotive battery industry as well as stringent measures to discourage carbon intensive transport and incentivise electro-mobility uptake will put Europe at risk of undermining the industrial competitiveness and the viability of its automotive industry.

II. Policy design questions

Aspects of the Regulatory approach:

Q7.

	Yes	No	Neutral
In addition to cars (M1) and Light Commercial Vehicles (N1), should the legislation also cover heavier vehicles (N2 type)?	X		
Should the car Regulation also include small Light Commercial Vehicles?	X		
Should cars and Light Commercial Vehicles be covered by the same Regulation?	X		
Should the current approach where manufacturers are the regulated entity be replaced by regulating manufacturer groups?		X	
Should the current Tank To Wheel (TTW) metric be replaced by a Well To Wheel (WTW) metric?			X

⁹ <http://www.cnchemicals.com/>

Should the current approach based on CO ₂ emissions be replaced by an approach based on energy use?		X	
Should the metric used to set the target also include emissions occurring during manufacturing and at the time of disposal of the vehicle ?		X	

Bellona finds it crucial that fuel efficiency standards also be applied to **road freight transport** (N2 type vehicles). CO₂ emissions stemming from road freight are the fastest growing segment of land transport emissions both in the EU and globally. While in the EU trucks only make up less than 5% of all road vehicles, they are responsible for 25% of total CO₂ emissions. Tackling these will therefore be key for meeting the EU’s 2030 and 2050 climate objectives. Unlike the US, China and Japan, **Europe has had no fuel efficiency standards for trucks, which has resulted in limited innovation and no reduction in the carbon footprint of its trucks over the past two decades.**

On a positive note, the Commission’s recent *Low-Emission Mobility Strategy* offers hope of breaking this trend. More concretely, the strategy states the Commission’s intention of accelerating analytical work on design options for standards for heavy duty vehicles and announces an upcoming consultation to lead up to the legislative proposal. The enforcement at EU level of fuel-efficiency standards for trucks will provide the well overdue impetus for investments in decarbonising and electrifying the freight industry.

Encouraging developments to tackle freight emissions are already being observed on the other side of the Atlantic. The Californian Air Resources Board (CARB) this summer adopted its Sustainable Freight Action Plan which calls for the deployment of more than 100,000 trucks and other freight transporting equipment capable of zero-emission operation by 2030¹⁰. Meeting this target will require the large scale rollout of electric trucks.

Measuring performance:

Concerns over the growing divergence between test cycle CO₂ emissions and those experienced in real driving will be largely tackled by the foreseen change from the current NEDC test cycle to the World harmonised Light vehicle Test Procedure (WLTP) for regulatory purposes. However, this approach is different to the one taken for pollutant emissions where a 'real driving emissions' test is being introduced.

¹⁰ <https://www.trucks.com/2016/05/03/state-plan-calls-for-massive-overhaul-of-californias-freight-system/>

Q8. In view of this:

	Yes	No	Neutral
Do you think the Commission should explore what potential exists to further reduce the divergence between the test cycles and real world emissions?	X		
Should supplemental driving tests be implemented to give values closer to real emissions?	X		
Should data based on mass monitoring of fuel consumption in vehicles be used for monitoring programmes?	X		

Car makers' exploitation of loopholes and inadequacies of the NEDC test, as exposed by the Dieselgate scandal, have acted to undermine the effectiveness of EU fuel efficiency targets. A T&E report shows that on average two-thirds of the claimed gains in CO₂ emissions and fuel consumption since 2008 were delivered through test manipulations. In fact, test manipulations have enabled car makers to reduce their costs of complying with EU regulations by roughly €7 billion¹¹. Tightened LDV CO₂ emission targets therefore need to be accompanied by the timely replacement of the outdated 'New European Driving Cycle' (NEDC) with the Worldwide Harmonised Light Vehicles Test Procedure (WLTP).

Moreover, Bellona calls for the rapid introduction of an EU independent type-approval authority, operating under a clear and transparent mandate. Third-party monitoring and sporadic spot checks will be key to ensuring tests are conducted under realistic conditions representing real-world weather and road conditions¹².

Strengthening the independence of Member States' type approving authorities will require disallowing car makers from being able to pay directly to centres responsible for the performance of emission tests, and for the establishment of stringent criteria to be met while the tests are carried out. Bellona would also like to see an expansion of EU powers in terms of granting the European Commission the right to carry out ex-post verification testing, as is already the case in the US.

¹¹ *Mind the Gap 2015*, Transport & Environment (September 2015),

https://www.transportenvironment.org/sites/te/files/publications/TE_Mind_the_Gap_2015_FINAL.pdf

¹² *The Emission Testing Gap – Why business-as-usual for the conventional car industry cannot continue*, Bellona Brief (November 2015), http://network.bellona.org/content/uploads/sites/3/2015/11/Bellona-EV-Brief_The-Emission-Testing-Gap.pdf

Technology specific requirements:

Q9.

	Yes	No	Neutral
Should manufacturers be given the freedom to choose the mix of technologies and emission levels for their vehicles provided they meet the overall target set for them?	X		
Should specific CO ₂ targets be set for different fuel types or technologies?		X	
Should manufacturers' targets continue to be set based on their sales weighted average registrations (as in the current legislation)?		X	
Should average mileage by fuel and vehicle segment be taken into account in establishing targets?	X		

How should the effort be shared between different actors?

Q10.

	No	Yes	Neutral
Should a utility parameter be used to distribute the effort between different vehicle manufacturers (as in the current legislation)?		X	

Q11.

	Mass	Footprint	Other
Which utility parameter should be used?		X	

Incentivising low- and zero-emission vehicles

Q12.

	Yes	No	Neutral
Should there be a mechanism in the CO ₂ legislation to encourage the deployment of low- and zero-emissions vehicles?	X		

Q13. Please answer the following questions:

	Yes	No	Neutral
Should manufacturers be required to produce and sell a minimum proportion of low- and zero-emission vehicles?"	X		
Should other types of incentives be put in place for low- and zero-emission vehicles (instead of requirement to produce and sell a minimum proportion of low- and zero emission vehicles)?			X

While tightened CO₂ emission performance standards for newly sold vehicles is key to improving their fuel economy and cutting emissions, EU targets that have been set have fallen short in incentivising zero-emission technologies, such as electric vehicles (EVs).

Bellona sees EVs as representing one of the most promising technologies for cutting CO₂ emissions, reducing petroleum reliance and improving local air quality. EVs will, furthermore, help to optimise the ever increasing use of renewables and increase the predictability of the electricity sector, as EV batteries can be re-used to store and manage wind and solar-based electricity¹³. According to the International Energy Agency three-fourths of global car sales will need to be in EVs or plug-in hybrids by 2050 if the transportation sector is to do its part in keeping global average temperature rise below the 2 °C target of the Paris Agreement¹⁴.

¹³ *Why an electrified transport sector needs to form a core component of the Energy Union*, Bellona brief (December 2015), http://network.bellona.org/content/uploads/sites/3/2015/12/EV-Brief_Why-an-electrified-transport-sector-should-form-a-core-component-of-the-Energy-Union1.pdf

¹⁴ *Global EV Outlook*, IEA report (April 2013), http://www.iea.org/topics/transport/subtopics/electricvehiclesinitiative/EVI_GEO_2013_FullReport.pdf

The revision of CO₂ emission performance limits will therefore need to be accompanied by a **mechanism whereby car makers are required to produce and sell a minimum proportion of low- and zero-emission vehicles**. Requiring car makers to meet a target for low- and zero-emission vehicles is key to stimulating competition, innovation and more choice in the electric vehicle market, which is much-needed in particular when it comes to vans. Moreover, demand for van transport is expected to increase significantly, thus necessitating urgent measures to decarbonise this transport segment and meet the EU's decarbonisation objectives.

How could incentives for low- and zero-emission vehicles be designed in the future legislation?

Bellona strongly supports the introduction of targets requiring each car manufacturer to ensure a minimum share of their sales are in low- and zero-emission vehicles. In countries like Norway for instance electro-mobility has already become a reality. In Norway EV registrations have exceeded 112,721 (July, 2016)¹⁵ and account for roughly 29% of the country's new car sales. In light of this, and taking into account rapid Li-ion battery improvements in terms of performance and reduced costs and the positive future outlook¹⁶, Bellona believes it fair to expect a 10-20% market share of electric vehicles by 2025 for the EU as a whole. When it comes to new car sales, on the other hand, Bellona expects this share to go up to 100% in light of increasing number of EU countries, including Norway, the Netherlands, and Germany, announcing plans of phasing out fossil cars within 2025-30.

The introduction of a minimum target for low- and zero-emission vehicles should go hand-in-hand with the introduction of stringent fuel efficiency standards for conventionally fuelled vehicles in order to guarantee reductions in overall emissions from transport. Moreover, allowing for tradability of obligations between car makers would render the scheme more dynamically efficient – by rewarding manufacturers having exceeded their target with less stringent target for their conventional fleet, and vice versa. This would also incentivise new car makers to enter the market. When designing these targets, Bellona encourages the Commission to draw lessons from the Californian Zero Emission Vehicle (ZEV) programme, where manufacturers have been granted flexibility in meeting their targets. The possibility to exchange and trade credits would allow car manufacturers to meet their targets more cost-effectively.

¹⁵ <http://www.hybridcars.com/americans-buy-their-half-millionth-plug-in-car/top-pev-global-markets-july-2016/>

¹⁶ The IEA predicts that by 2020, EV battery costs will have reached \$300kWh (or €283/kWh): a threshold they estimate to render EVs cost-competitive with their ICE counterparts; *Global EV Outlook*, IEA report (April 2013), http://www.iea.org/topics/transport/subtopics/electricvehiclesinitiative/EVI_GEO_2013_FullReport.pdf

Q14. What criteria should be used for defining low- and zero-emissions vehicles?

	Yes	No	Neutral
CO ₂ emission performance	X		

Q15. What criteria should be used for defining low- and zero-emissions vehicles?

	Yes	No	Neutral
Zero emission range (km)	X		

It is clear that EU legislation needs to increasingly focus on incentivising the production of low- and zero-emission vehicles, and in particular pure battery electric vehicles, if we are to reduce EU transport emissions by 60% as well as fully eliminate the use of fossil fuels in cars by 2050. CO₂ emission performance as well as total zero emission range (in terms of total km travelled) are two important criteria to take into account when defining and rewarding low- and zero-emission vehicles under future EU legislation.

In light of this, it is crucial that pure battery electric vehicles receive higher credits than plug-in hybrid vehicles to correctly reflect their CO₂ emission performance. The ICCT for instance has shown that the mismatch between real-world emissions and reported emissions (via the outdated NEDC test) for hybrids is even greater than for ICE cars, and may well be even more so for plug-in hybrids. For instance, the most popular plug-in vehicle in the EU, the Mitsubishi Outlander, has emissions of 49g/km according to NEDC calculations but three times higher than this on the road. This reflects the particularly favourable testing assumptions under the NEDC for plug-in hybrids, but also a lack of understanding about how hybrids will be used in future, and how and when plug-ins will be recharged¹⁷.

EU legislation should only incentivise low- and zero-emission vehicles with an adequate zero-emission, electric range. Long-distance electric journeys are key to overcoming consumer anxieties and to rendering EVs a viable substitute to conventional internal combustion engine (ICE) vehicles. Higher credits should therefore be earned by manufacturers producing higher range vehicles to reflect their potential to fully substitute ICE vehicles.

¹⁷The Emission Testing Gap: Why Business-as-Usual for the Conventional Car Industry Cannot Continue, Bellona brief (November 2015), http://network.bellona.org/content/uploads/sites/3/2015/11/Bellona-EV-Brief_The-Emission-Testing-Gap.pdf

Technologies which reduce CO₂ emissions but not during the type approval test

Q16.

	Yes	No	Neutral
Should CO ₂ emission reductions arising from the deployment of technology which reduces emissions in normal driving but whose benefit is not shown in the normal test cycle be taken into account in the legislation?	X		