



SUMMARY REPORT

Clean road mobility: what role for lightweighting technologies?

24 January 2017

European Parliament, Brussels

This conference hosted policy-makers, industries, NGOs, and stakeholders in the European Parliament to discuss the role of lightweighting technologies in light of the new proposal presented by the European Commission in November 2017 to accelerate the transition to low- and zero-emission vehicles.

Dr. Dieter-Lebrecht Koch MEP and Chair of the “Transport” working group of the EP Intergroup on “Climate Change, Biodiversity, and Sustainable Development” welcomed participants by highlighting that the EU has an ambitious agenda concerning the transport sector. This comes as a response to the noticeable increase in emissions during the last decades. It was said that transportation must be more sustainable and the Commission is aware of this, which is why they proposed new CO₂ targets for 2025 and 2030 to reduce emissions in this sector. However, the questions whether the quotas are too ambitious or too limited and whether it is necessary to have an intermediate emission reduction goal in 2025 are controversial issues. In addition, it was said that the industry should design the path and politics should make technologically neutral legislation in order not to interfere with technological advances. Regarding existing technologies, it was mentioned that combustion engines are becoming more sustainable and that they can be part of the solution to reduce emissions. Finally, Dr. Koch welcomed the incentive based quota and stated that the Parliament will explore the possibility of the reduction of car weight as a means for reducing CO₂ emissions in the sector.

Peter Mock, from the International Council for Clean Transportation (ICCT), presented an overview of the assessment of the Commission’s proposal regarding the CO₂ regulation on cars and vans. The introduction of standards in 2009 has spurred emission reductions. But the proposed level of ambition for 2025/30 stays behind the annual rate of reduction in the past. Additionally, the Commission proposal would result in higher CO₂ emissions for new cars in 2025 than originally requested by the European Parliament. Three points were made regarding the impact assessment behind the Commission’s proposal. Firstly, the ICCT emphasizes that the technology cost curves are rather pessimistic compared to their analysis. In fact the Commission is more pessimistic than the original document provided by their consultant. As part of this, the lightweighting component was not adequately considered in the proposal. Concerning the cost curves, it was said that according to ICCT analysis, 2021-2030 CO₂ reduction requirements of ~70% result in a higher net benefit than the 30% proposed by the Commission. The second point made is that the Commission uses the weight-based target system. This means that the heavier the car, the more emissions are allowed to be emitted. This, however, will always reduce the incentive to apply lightweighting technologies for CO₂ reduction because whenever the weight is reduced, a more stringent target will apply. As a result, the proposal disincentivizes



lightweighting technologies and is therefore not technology neutral. It was therefore proposed to rather use a size-based target system. The third point highlighted that this system will be more problematic in the future because of the changes in the market situation. Cars are becoming more efficient, vehicles emit less CO₂ than before and this influences the target reductions. This means that without adapting the proposed slope value, each individual manufacturer has a strong incentive to actually increase vehicle weight.

Alessandro Coda, from the European Association of Automotive Suppliers (CLEPA), introduced the association which represents 3000 automotive suppliers. The automotive sector employs over 12 million people in Europe and is the largest private investor in research and innovation which amounts to 25 billion per year. In regards to green house gas (GHG) emissions, it was said that their reduction can only be achieved if all economic sectors contribute, including the transport sector. The sector accounts for 14% of the GHG emissions and the automotive industry is committed to reduce that percentage the coming years to meet the targets. To do this, the use of diverse technologies is needed to create low emission vehicles. Lightweighting technologies are one of them. It was said that among CLEPA members, technology neutrality remains a key necessity for CO₂ reductions and different pathways have to be considered. Lightweighting can play a significant role in emission reductions but it was said that in the last 15 years little increase in the weight has been noticed despite additional on-board equipment/systems due to customer preferences and safety regulations. Additionally, it was said that electrification of road transport is quickly moving forward but the increase in combustion engine efficiency is also needed to meet the Paris agreement. Policy makers are asked to promote low carbon mobility in a sustainable and competitive way and this can be done by strengthening technology leadership as well as growth and employment in Europe. Three points were made concerning regulations: Firstly, transparent and technology neutral target setting is fundamental underlining that this will encourage innovation in all possible CO₂ reduction pathways. Secondly, measures have to be harmonized and well coordinated which will take into account the megatrends that are ongoing. Thirdly, industrial policy should incorporate environmental and technological targets in order to get a more spherical view of the current trends. As a final point, CLEPA finds it important to include the Well-To-Wheels approach and for the different CO₂ reduction pathways work and work together on defining a common Life Cycle Assessment methodology, which again will support technology neutrality in future policy making.

Kai Lücke, Mahle, a foundation company and an automotive supplier, which employs 78.000 people, of whom 35.000 work in Europe, is a leader in thermal management of engines and very active in electric motors. It was stated that lightweighting was, is, and will be important in the years to come. The importance was illustrated by giving the example of pistons. A piston has to be of great quality to withstand pressure and it has to meet the requirements to do so. It was explained that once these requirements are met, manufacturers wish to reduce the weight of pistons. In fact, from generation to generation, manufacturers have gradually decreased the weight of pistons and there is progress in the field because of new material and designs being introduced. As a consequence, new designs allow for



material use reductions which then translate to lower production costs. It was underlined that a real interest seems to be present in weight reduction within the industry. Electric cars were also raised mentioning specifically the issue of “range anxiety”. In order for electric cars to be able to travel long distances, heavier batteries are required and this could have great implications in the generation of CO₂ emissions. It was said that this is unfortunately not mentioned in the Commission’s proposal and therefore does not take life cycle emissions into consideration. This creates two types of problems: Firstly, it is questionable whether electric cars with heavy batteries will be able to deliver to CO₂ reductions in the future. Secondly, concerning long distance driving, an efficient combustion engine running on alternative fuel is more than competitive from a cost but also from a CO₂ emitting perspective. In conclusion, it was said that if we want to make large CO₂ reductions, we should not consider only heavy battery vehicles but also the option of hybrids because they can optimize this trade off between weight and CO₂ emissions. It was stated that discussion is also needed in how the Commission incentivizes or not the path of hybridization as well as the option of cars running on both electric and efficient combustion engines using alternative fuels.

Dimitri Vergne, The European Consumer Organisation (BEUC), highlighted three main points concerning the Commission proposal on clean mobility. Firstly, putting ambitious CO₂ standards can help consumers to save money on fuel costs. It was explained that the less CO₂ a car emits the less fuel it consumes. Secondly, the CO₂ regulation can impact the air quality, by encouraging the uptake of zero and low emission cars and the third point made is that it can help Europe reach its climate change commitments. Three recommendations were also given as to how the proposal can be improved; to increase the ambition level; to introduce the real driving test on CO₂ emissions; and to push manufacturers to produce zero and low emission vehicles by using a penalty system. Concerning the ambition level, BEUC believes that a level of 30% reduction by 2025 can be reached instead of the proposed 15% reduction as well as a 45% in 2030 instead of the proposed 30%. In addition, it was said that it is critical to already set a binding regulation for 2025 in order to kick start the transition and to make sure that investments are not delayed. Regarding the emission tests, it was mentioned that laboratory tests do not reflect the reality and that the gap between real world performance and laboratory tests reaches 40%. While the new Worldwide Harmonised Light Vehicle Test Procedure (WLTP) will certainly help close the gap, it cannot close it completely. It was said that in order to make sure that the gap does not grow, a real driving emission test should be developed by the Commission. As for the idea of creating a penalty system, BEUC welcomes the idea to reward producers that exceed the targets but underlined that a balance is needed and an equal 5% penalty should be given to the producers not complying with the zero and low-emission cars objectives. Finally, it was said that lightweighting technologies are hindered by the mass parameter which is part of the proposal. Instead of this parameter, the Commission should switch to using a footprint parameter or no parameter at all and setting an absolute target for manufacturers.

Aude Charrier, Permanent Representation of France to the EU, stated that there is no doubt that the EU should reduce the emissions from the road transport sector. After all, there is no choice after the



commitments made in the Paris agreement. It was said that emissions have been rising since the 1990s and if we don't manage to increase the efficiency of vehicles we will fail to reach our emission reduction goals. An ambitious policy framework is needed and it has to be well designed to avoid risk of loopholes and split incentives. In addition, it was underlined that the EU competitiveness in the automotive sector should go hand in hand with the shift to zero emission vehicles. Of course this transition is complex and has costs but that is why the regulation must be designed to benefit from the most efficient ways to reduce emissions. It was also said that the proposal should be more ambitious and that it does not incentivize enough a quick transition to zero emission cars. Regarding lightweighting technologies, it was stated that while it serves as a promising solution, the proposal does not incentivize it and there seems to be an issue on whether the proposal is technologically neutral. The design of the regulation creates a bias because no rewards are given to manufacturers applying lightweighting technologies. The proposal also has the objective of sharing the distribution of efforts between manufacturers in a fair way. However the impact assessment shows that the option of using the mass parameter implies more importing costs for small sized cars than heavier cars. In addition, the rationale behind the proposal in linking the mass parameter with utility is unclear. Why are heavier cars allowed to emit more CO₂ than lighter vehicles? It was said that this shows that the regulation does not support equality and effort. Finally, it was stated that France is committed to improve the proposal in the coming months with Member States and the Members of the European Parliament.

Ortwin Meeuws, PlasticsEurope, which represents more than 100 plastic producing companies, outlined that the plastics industry makes a significant contribution to the welfare in Europe, employing more than 1.5 million people and a turnover of 340 billion euro per year. Regarding the automotive industry, it was said that no one can imagine a car without plastics. The average modern car contains between 12-15% plastics. It was explained that plastics provide cars with safety, comfort, a cost effective design and is an excellent material to make them lighter. This is important because a lighter car needs less power to move forward. However, looking at the data of the last decade, it was said that there is no significant trend of reduction in the average mass of the vehicle. While lightweighting can contribute to CO₂ reductions it is not promoted by EU legislation. It was said that a heavier car fleet is allowed to emit more than a lighter one, which jeopardizes technology neutrality in the legislation. However, technology neutrality is important for all stakeholders. Car manufacturers have to reduce car emissions and are investing heavily in various technologies such as electrification. However, an OEM investing in lightweighting its fleet will face a stricter CO₂ target. As a result, Plastics Europe is asking for a better regulation which takes into account the lightweight benefits to reduce CO₂ emissions or at least a legislation that does not give a disadvantage to these technologies. A better incentive should be created to reduce car weight and the legislation should be adapted to be mass neutral.

Patrik Ragnarsson, European Aluminium, outlined that the association represents over 80 aluminium producer companies and national associations in Europe. It was said that all available technologies should be used to their full extent to contribute to emission reductions. Only then can the targets be reached in a cost-effective manner. Technology neutrality, for them, means that no technology should



be discriminated and manufacturers should feel free to use any technology they want in order to reach their targets. However, it was said that this is not the case with the current regulation based on mass. In fact, 50% of the effect of lightweighting is deleted because of the weight-based parameter. This means that companies that invest in it will only get a 50% benefit in terms of reaching their targets. The regulation is thus not technology neutral. Furthermore, the report drafted by the consultant of the Commission found no valid argument as to keep mass as a utility parameter. It was stated that this is a strong argument coming from a consultant that has had all the available data and looked into the various options. Finally, the European Parliament had issued a report last year on the European strategy on low emission mobility where they clearly call the Commission to take the contribution of lightweighting into account to directly reduce CO₂ emissions of vehicles. It was said that the Parliament will hopefully remember this when they move into the discussions concerning the current proposal. European Aluminium proposes an alternative form of regulation, the footprint regulation, which has been successfully used in the United States and lightweighted technologies benefit from this approach. Further, it was said that as an alternative the utility parameter should also be left out of the regulation and the targets could be based on a percentage reduction for each OEM based on their 2021 CO₂ target. To conclude, European Aluminium supports the mass neutral regulation and is determined to collaborate with the stakeholders moving forward.

The discussion among panellists and the audience highlighted that more clarity is needed concerning the footprint and the Life Cycle Assessment (LCA) approach. It was said that, if a fine is given due to a LCA, then the fine should be split between the different actors which would be unfavourable. In response, it was said that a qualitative LCA can be considered in the regulation which would drive other elements in the regulation such as the promotion of hybrid systems. It was also said that the cars in the US are currently decreasing in weight and that this is an indication that the footprint parameter is better in terms of promoting lightweight technologies. In the contrary, France does not support the footprint parameter approach as it has shown to be unfair in terms of the distribution of efforts and cost of compliance between manufacturers. The topic of rewarding manufacturers who achieve a share of zero- and low-emission vehicles higher than the proposed benchmark level of 15% in 2025 and 30% in 2030, was also touched upon. This reward takes the form of a less strict CO₂ target. In line with this statement, it was suggested that a stricter target should be applied to those who perform badly in terms of sales of zero and low-emission vehicles. It was said that we should also bring the link of recycling plastics into the clean mobility topic and discuss about the possible links. In response, Plastic Europe stated that the recycling regulation is dealt with by the end of life vehicle (ELV) directive and that it should not be mixed with the CO₂ regulation.

Edoardo Turano, Unit C4 Road Transport, DG CLIMA responded to the presentations and discussion by highlighting the need to put things in the bigger perspective, which is the approach that the Commission has taken. It was said that this proposal is one of the actions that will help decarbonise the transport sector. In July 2016, the Commission came forward with the adoption of the low emission mobility strategy, presenting an holistic approach to accelerate the pace of the transition to a low emission



mobility. This included an action plan with both legislative and non-legislative actions. The legislative proposal adopted in November 2017 is part of the clean mobility package and is one of the regulatory instruments that will contribute to reach the 2030 energy and climate goals and the EU commitment in the Paris Agreement. Specifically, the proposed regulation has 3 main objectives: to reduce the EU's GHG emissions deriving from the transport sector; to reduce fuel costs for consumers; to maintain and strengthen the position of the EU's automotive industry. It was outlined that there are different elements of the regulation that will help reach the objectives. The 3 main elements are: (i) the CO2 emission standards: the proposed targets are both realistic and ambitious, and will help to achieve the goals of the Paris agreement; (ii) support for zero and low emission vehicles through an incentive system rewarding the manufacturers who put on the market higher shares of these vehicles than set benchmarks; (iii) better enforcement of the existing rules. Concerning the gap between real emissions and laboratory tests, the Commission will improve market surveillance and ensure the continuous monitoring of this gap, and therefore the effectiveness of the regulation. As to lightweighting, Mr Turano said it is one of the key technologies to lower emissions from cars and it is considered in the impact assessment of the proposal. In addition, the proposal is based on sound assumptions on the costs of lightweighting. It was said that lightweighting benefits are recognised in the test procedure (lighter vehicles will emit less). Due to the utility parameter used to set the specific targets (mass), a limited part of this benefit is not taken into account for checking compliance with the specific targets. However, the expectations are that the slope, mentioned in the presentation of the ICCT, will not steepen but instead flatten. This means that the limited impact of this issue will be further reduced. In terms of the choice of using the mass parameter in the proposal, it was said that a quantitative and qualitative assessment was done, and it is documented in the Impact assessment. Finally, it was said that the proposal is technology neutral and incentivizes all manufacturers to lower their car emissions by any means of technological improvements.

MEP Dr. Dieter-Lebrecht Koch concluded by stating that emission reduction from the transport sector is a must. It was said logical approaches should be found in order to achieve this and the need for legislation to help the consumers was underlined.

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