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ROADMAP ON REGULATIONS AND STANDARDS FOR THE ELECTRIFICATION OF CARS

1. INTRODUCTION

Given the importance of reducing carbon emissions from road transport, and the price and security of oil supply, electric cars may well provide a viable alternative to traditional internal combustion engines using fossil fuels. In order to encourage the electrification of road transport, it is necessary to eliminate potential regulatory hurdles and to encourage standardisation activities on both intra- and extra-vehicle technologies.

The present roadmap describes the state-of-play with regard to regulatory and standardisation activities both at the European and international level and sets out a strategy to eliminate the identified obstacles in a timely manner with the involvement of all relevant stakeholders.

The present roadmap covers regulations and standards needed for both pure electric (propelled exclusively by the power saved in their battery) and hybrid vehicles (combination of electric propulsion with internal combustion engines).

2. ROADMAP ON REGULATIONS AND STANDARDS

2.1. Type-approval of electric vehicles

2.1.1. State-of-play

With the new Framework Directive (Directive 2007/46/EC¹) the legislative framework for type-approval of motor vehicles has been extended to cover all road vehicles irrespective of their means of propulsion. Thus, it now includes alternative powertrain vehicles, such as full electric and hybrid vehicles.

At the moment, there are no specific technical requirements in the type-approval legislation to deal with the specific characteristics and specific risks of electric vehicles,

¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32007L0046:EN:NOT>

related to protection of users from electric shock, other safety issues and environmental performance. However, the proper functioning of the internal market shall also be ensured for new technology vehicles. Thus, it is necessary to develop a harmonised approach regarding approval requirements of electric vehicles.

UNECE Regulation No. 100 deals with the electric safety of vehicles, however it is not yet applicable to the EC type-approval of vehicles on a mandatory basis.

The current version of Regulation No. 100 applies only to pure electric vehicles, however an electric safety working group (ELSA) under the Passive Safety Working Party (GRSP) of UNECE has been set up to develop a revised version of Regulation 100 to extend its scope to cover also hybrid vehicles and to update the electric safety requirements. The final adoption of the revised version is due to take place at the WP.29 session in March 2010. Regulation No. 100 provides for appropriate requirements to ensure a high level of public safety related to electric vehicles.

Other UNECE Regulations contain specific requirements on electric vehicles, such as Reg. 12 on protective steering, Reg. 13 on braking, Reg. 51 on noise, Regulation 83 on emissions, Reg. 85 on engine power and Reg. 101 on CO₂ emissions/fuel consumption.

2.1.2. Work to be done

The elements of a harmonised legislative framework for the approval of electric vehicles are the following:

2.1.2.1. Electric safety

The Commission services plan to issue a proposal for a Council decision to mandate the application of UNECE Regulation 100 for the type-approval of electric vehicles in order to adopt harmonised requirements on electric safety. The adoption of the proposal by the Council is envisaged for 2010.

2.1.2.2. Amendment to the Framework Directive

The Framework Directive (Directive 2007/46/EC) needs to be amended by a Commission Regulation to specify the applicable requirements for electric vehicles regarding specific type-approval provisions, including the mandatory application of certain UNECE Regulations. The proposal shall be adopted in 2010.

2.1.2.3. Review of other type-approval acts

Electric propulsion technology requires a special consideration from a regulatory perspective, given that on the one hand existing vehicle type-approval requirements need to be reviewed to take account of the specific characteristics of electric propulsion and on the other hand there could be potential issues associated with this technology that are not relevant for conventional vehicles.

Thus, a scientific review needs to be carried out to accommodate alternative propulsion technologies in separate type-approval acts so that test requirements fully take account of the specific technologies and potential risks that are not yet covered. The Commission services intend to launch a study on the subject, whose conclusions will be available in 2010. Appropriate actions shall be considered on the basis of the conclusions.

Further, the ELSA group at UNECE will continue its work on considering post-crash safety requirements to be included in UNECE Regulations No. 94 and 95.

2.2. Standards

2.2.1. Work to be done with regard to standardisation of the charging system of the batteries used in electric vehicles

The aim is to mandate the European standardisation bodies to adopt a European harmonised approach for the charging system of batteries used in electric vehicles so that this system is compatible with and can recharge all types of batteries of electric vehicles and it can operate in all EU States. No legal basis is foreseen for this issue.

Also to examine the possibility to mandate the European standardisation bodies to develop or update existing European standards in order to address safety risks and electro-magnetic disturbances with respect to the charging system of batteries used in electric vehicles. The aim of these standards is to provide a presumption of conformity with the requirements of LVD and EMC for this type of products. The legal basis for this issue will be LVD and EMC.

2.3. Roadmap of actions

- (1) Introduce electric safety requirements to EC vehicle type-approval legislation by mandating the application of UNECE Regulation 100 – Council Decision to be adopted in 2010;
- (2) Amend Directive 2007/46/EC by a Commission Regulation to specify the applicable requirements for electric vehicles regarding other technical requirements – to be adopted in 2010;
- (3) Launch a study to identify missing provisions to complete EC type-approval legislative framework – conclusions of study to be available in 2010, consider appropriate actions on the basis of conclusions;
- (4) Mandate the European standardisation bodies to adopt a European harmonised approach for charging system – mandate to be issued in 2010.