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COMMISSION STAFF WORKING PAPER

**“A European strategy for clean and energy efficient vehicles”
state of play 2011**

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The purpose of this document is to **present the state of play and the calendar** for the implementation of the actions announced in the European strategy for clean and energy efficient vehicles¹. The first report on the implementation of the strategy was published in December 2010² and this new report is demonstrating a further progress. Both reports will contribute to the **review of the strategy scheduled for 2014**, when the Commission will take stock of progress achieved, assess the evolution of market and technologies and recommend further actions.

In 2011, despite the **macro-economic context marked by uncertainty**, the need to promote sustainable growth as expressed by the Europe 2020 Strategy³ and industrial decisions remain unchanged. The automotive industry, more than ever, needs to be globally competitive and this **competitiveness needs to be based inter alia on the leadership in “green” vehicle technologies**. The assumptions on the market penetration of different kinds of “green” vehicles also stay unchanged – the **ICE vehicles, with ever better environmental performance, are expected to remain dominant in the 2030 perspective**. Work on the further reduction of CO₂ emissions from conventional vehicles remains therefore of key importance. As for electric vehicles (EVs), the current trends indicate **even faster market penetration** than at the time of the adoption of the strategy. Despite the macro-economic uncertainties, both vehicle manufacturers and suppliers are seriously investing in this new technology. Also the **consumers are getting increasingly convinced** about the merits of electric power-train and the concept of electro-mobility

Consequently, the necessity to **complete the European type-approval framework for EVs**, already being the key rationale behind the adoption of the strategy in 2010, has now become even more pressing from both the consumer and business point of view. It is therefore important to highlight that **the EU type-approval framework for EVs is now almost complete and, in majority of cases, will become mandatory for all new cars in 2014**. The only outstanding area of regulatory action concerns rechargeable energy storage systems (RESS) but work in this field has already started and concrete results will be delivered by the end of 2011. Importantly, all activities on regulatory requirements for EVs take place within the United Nations⁴ framework, which aims for **international convergence of technical requirements** for this new technology, in order to facilitate the industry reaching the critical mass by operating on several markets.

In 2011, the strategy has benefited from synergies with several new initiatives. First of all, the implementation of the strategy is closely linked to the **re-launch of the CARS 21 High-Level Group** - effective as of October 2010. As foreseen in the strategy, the re-launched CARS 21 High Level Group has gathered an enlarged group of stakeholders in order to give **advice on**

¹ COM(2010) 186 final, 28.4.2010.

² SEC(2010) 1606 final, 14.12.2010.

³ COM(2010) 2020 final, 3.3.2010

⁴ World Forum for Harmonization of Vehicle Regulations in the framework of United Nations Economic Commission for Europe.

the design and the implementation of the several actions announced in the strategy. Furthermore, the Group also prepares the recommendations which go beyond the time horizon of the strategy and identifies possible follow-up actions.

Secondly, the strategy is also closely linked with a **series of strategic initiatives in the fields of low-carbon economy⁵, transport⁶ and energy decarbonisation⁷, as well as resource efficiency⁸** that were adopted by the Commission in 2011. An important component of all of these initiatives is improvement of the sustainability and environmental performance of vehicles and mobility – coherent and complementary to the concrete measures charted by the strategy for clean and energy efficient vehicles.

The sections below explain the progress achieved since the last report on the implementation of the strategy.

I. REGULATORY FRAMEWORK

Implementing measures for Regulation (EC) No 443/2009 – CO₂ from cars

Regulation (EC) No 443/2009 setting emission performance standards for new passenger cars as part of the integrated approach to reduce CO₂ emissions from light-duty vehicles⁹ entered into force in 2009. Already in 2008 and in 2009 significant decreases in the average CO₂ emissions from new passenger cars have been demonstrated and new figures for 2010 (average emissions of 140 g CO₂/km) show that the European automotive industry is on track of reaching 2012 to 2015 targets. At the same time, the Commission is advancing in the adoption of the following implementing acts of this Regulation:

- **Commission Regulation (EU) No 1014/2010 on monitoring and reporting of data on the registration of new passenger cars pursuant to Regulation (EC) No 443/2009 of the European Parliament and of the Council¹⁰** was adopted in November 2010.
- **Commission Communication COM (2010)657 final on monitoring and reporting of data on the registration of new passenger cars** was adopted in November 2010.
- **Commission Regulation (EU) No 63/2011 laying down detailed provisions for the application for a derogation from the specific CO₂ emission targets pursuant to Article 11 of Regulation (EC) No 443/2009 of the European Parliament and of the Council¹¹** was adopted in January 2011. The Regulation specifies the procedure to be followed by small volume manufacturers (less than 10 000 cars) and niche manufacturers (10 000 - 300 000 cars) in order to apply for derogations from their specific emissions targets.

⁵ A Roadmap for moving to a competitive low carbon economy in 2050, COM (2011) 112 final, 8.3.2011

⁶ White Paper: Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, COM (2011) 144 final, 28.3.2011

⁷ http://ec.europa.eu/energy/technology/set_plan/set_plan_en.htm

⁸ Flagship initiative on a resource efficient Europe, COM(2011)21 final, 26.1.2011; Roadmap to a resource efficient Europe, COM(2011)571 final, 20.9.2011

⁹ OJ L140, 5.6.2009, p. 1.

¹⁰ OJ L 293, 11.11.2010, p.15.

¹¹ OJ L 23, 27.1.2011, p. 16.

- **Commission Implementing Regulation (EU) No 725/2011 establishing a procedure for the approval and certification of innovative technologies for reducing CO₂ emissions from passenger cars pursuant to Regulation (EC) No 443/2009 of the European Parliament and of the Council**¹² was adopted in July 2011. The Regulation will support the development and market penetration of CO₂ saving technologies by allowing manufacturers or suppliers to apply to the Commission for the approval of a CO₂ saving technology as an eco-innovation. The CO₂ savings from the eco-innovation will be determined for each vehicle as part of the type-approval and may be taken into account for reducing the average CO₂ emissions of a manufacturer by a maximum of 7g CO₂/km.

CO₂ emissions from light commercial vehicles

Regulation (EU) No 510/2011 of the European Parliament and of the Council of 11 May 2011 setting emission performance standards for new light commercial vehicles as part of the Union's integrated approach to reduce CO₂ emissions from light-duty vehicles¹³ entered into force in June 2011. Implementation of that act is underway and will build on the experience gained from the implementation of Regulation (EC) No 443/2009 – CO₂ from cars.

Strategy targeting CO₂ emissions of heavy-duty vehicles

As a first step in the preparation of the strategy, the Commission undertook to better understand the specificities of the heavy-duty sector and to propose an **adequate methodology for CO₂ emissions measurement for complete heavy duty vehicles** (current test procedure measures the emissions of the engines only). For that purpose, the Commission published an **expert report** on the sector which identifies a series of policy options for reducing CO₂ emissions¹⁴. The report clearly shows that further technical improvements may significantly reduce new vehicle emissions. However, total heavy-duty vehicles fleet CO₂ emissions may only reduce to levels slightly below today's levels by 2030, thus stressing the **need for a comprehensive strategy**. Such a strategy could include measures related to CO₂ performance of vehicles, demand-side measures influencing purchase decisions by fleet operators, measures affecting the operation of the vehicles, as well as a system similar to the European Emissions Trading Scheme. At the same time, the Impact Assessment accompanying the White Paper: Roadmap to a Single European Transport Area¹⁵ showed that without vigorous policy action CO₂ emissions from heavy duty vehicles will continue to increase despite improved fuel efficiency and some uptake of less CO₂ intense fuels. The Commission's proposal on the reduction of CO₂ emissions from heavy duty vehicles is scheduled for 2013.

New type-approval framework for two- and three-wheelers and quadricycles

The **Commission's proposal**¹⁶ adopted in October 2010 launches a major overhaul of the EU type-approval law for the light category of vehicles, including a modernisation of the requirements for their safety (notably by obligatory fitting of advanced brake systems) and environmental performance. The proposal also features **certain functional safety aspects** (such as electric safety) **for the light EVs**, as this category of vehicle is expected to become

¹² OJ L 194, 26.7.2011, p. 19.

¹³ OJ L 145, 31.5.2011, p. 1.

¹⁴ http://ec.europa.eu/clima/studies/transport/vehicles/docs/ec_hdv_ghg_strategy_en.pdf

¹⁵ See footnote 6

¹⁶ COM(2010) 542 final, 4.10.2010.

increasingly popular. The Commission proposal is currently **being discussed by the Parliament and the Council** and agreement is expected in 2012, before the first set of requirements become mandatory in 2014.

Sustainability criteria for biofuels

With the implementation of the Renewable Energy Directives¹⁷ having started in 2010, Member States submitted their National Renewable Energy Action Plans, in which biofuels are clearly expected to be the largest contributor to the target of 10% renewables in the energy consumed in transport (in 2020). In addition, the same criteria also applies to those biofuels contributing to the 6% greenhouse gas emissions reduction requirements in the Fuel Quality Directive¹⁸. The sustainability performance of biofuels is therefore of key importance. In 2010, the Commission adopted guidelines aimed at assisting Member States with the implementation of the sustainability criteria for biofuels and bioliquids.¹⁹ In addition, in December 2010, the Commission published a **report²⁰**, which **analysed the additional aspect of the impact of indirect land-use change related to biofuels** (and bioliquids) on greenhouse gas emissions. Following up on that report, the Commission will present an Impact Assessment analysing ways to minimise that impact, and if appropriate, accompanied by a Commission proposal.

Noise emissions reduction

By the end of the year, the Commission plans to adopt a **proposal for a Regulation** of the European Parliament and of the Council **aimed at reducing noise emissions of motor vehicles**, which will **replace Directive 70/157/EEC²¹**. The noise limits have been reduced several times in the past but it has been recognised that the latest reduction (in 1995) did not produce the expected benefits, partly because the **current test method does not reflect real world driving behaviour**. This is why, in the new proposal, the old test method is to be replaced by a new one (which is already included in Directive 70/157/EEC but, so far, only for monitoring purposes).

At the same time, it is proposed to **lower limit values for noise in two steps**. Besides, **additional sound emission provisions** (for the worst case conditions and street driving) **would be included in the type-approval procedure**. Finally, requirements regarding the minimum noise of quiet vehicles (e.g. electric and hybrid electric vehicles) would be considered. These requirements shall ensure that **only adequate sound generating devices are fitted on the vehicle and it shall give a legal framework for the development of this technology**.

¹⁷ Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ L140, 5.6.2009 p.16.

¹⁸ Directive 2009/30/EC of the Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC, OJ L 140, 5.6.2009, p.88.

¹⁹ OJ C 160, 19.6.2010, p.1 and p.8.

²⁰ COM(2010) 811 final, 22.12.2010.

²¹ Council Directive 70/157/EEC of 6 February 1970 on the approximation of the laws of the Member States relating to the permissible sound level and the exhaust system of motor vehicles, OJ L42, 23.2.1970, p.16

Comprehensive measures to reduce pollutant emissions

While air quality has improved considerably following the introduction of the Euro standards, particulate matter, NO_x and ozone concentrations remain a source of concern, particularly in urban areas. **A range of measures to remedy this situation is being implemented for heavy-duty vehicles with the introduction of Euro VI requirements, which will become mandatory for new types of heavy duty vehicles from 2013 onwards.** These measures include:

Substantially reduced **emission limits** for particulate matter and NO_x and the introduction of a limit value on particulate numbers to better control emissions of ultrafine particles.

A **new world harmonized test cycle** including a cold start that better represents normal operation of heavy duty vehicles.

- Introduction of **new requirements for on-board diagnostics (OBD)** monitoring the performance of the emission control system on board a vehicle in its normal operation. This also includes the feasibility assessment of monitoring the performance of the particulate matter after-treatment device against the OBD threshold limits (foreseen for 2012).
- One of the more important new requirements in Euro VI is the introduction of **emission testing in normal use of vehicles on the road using Portable Emissions Measurement System (PEMS)**. Even though the PEMS procedure is being introduced with Euro VI, an assessment of the procedure will take place and based on the results the procedure may be amended. This assessment should be ready in 2014.
- As alternative powertrains and fuels are coming even more into focus, (this is also true for heavy-duty vehicles) work has started in the UNECE framework to implement requirements to enable type approval of dual-fuel (diesel and gas) vehicles into Euro VI (to be completed by February 2013).
- A procedure for **testing heavy-duty hybrid vehicles** is being developed in the UNECE framework (to be completed by February 2014).

Similar measures for light-duty vehicles are envisaged for Euro 6 vehicles and have been discussed by the CARS 21 High Level Group. Those measures are: finalising the last formal step for Euro 6 type-approvals (fixing Euro 6 OBD threshold limits and particulate number emission limits for G-DI vehicles); better controlling real driving emissions (including low temperature conditions); addressing NO₂ emissions and a revision of evaporative emissions in light of the increased use of biofuels. These procedures should be developed in early 2013.

The strategy sets out that, in 2012-2014, the Commission will:

- adopt rules on the method for the collection of excess emissions premiums for cars and vans as part of the implementation of Regulations (EC) No 443/2009 and (EU) No 510/2011;
- adopt rules on derogations for small-volume and niche manufacturers of vans, as well as rules on eco-innovations for vans;

- complete the reviews of Regulation (EC) No 443/2009 and Regulation (EU) No 510/2011. The reviews will aim at defining the modalities for reaching, by the year 2020, the long-term targets for cars (95g of CO₂/km) and vans (147g of CO₂/km - subject to confirmation of its feasibility) in a cost-effective manner, and the aspects of implementation of those targets, including the excess emissions premiums and derogations for small volume and niche manufacturers.

A study to prepare for the review of Regulation (EC) No 443/2009 was launched in January 2010 and the final report is due by the end of the year. A similar study is due by mid 2012 for the review of Regulation (EU) No 510/2011. Within the context of those reviews, the Commission services will inter alia:

- **look at the modalities of reaching the 2020 targets** and the long-term (2025-2030) perspective, whilst building on the experience gained from implementing the short-term targets;
 - **consider the possibility of any new measures under the integrated approach** that are measurable, monitorable, and accountable;
 - **investigate the existing methodologies and merits of measuring CO₂ emissions from various life cycle aspects** to enable better environmental comparison of vehicles.
- consider, based on a thorough impact assessment, proposing a target for passenger car emissions to be reached by 2025. Among other options, the Commission will assess the feasibility of the target suggested by the European Parliament²² of reaching 70 gCO₂/km by 2025, as indicated in its Resolution of 24 October 2007 on the strategy to reduce CO₂ emissions from passenger cars and light-commercial vehicles;
 - propose a revised test cycle to measure emissions, together with an adaptation of the 2020 CO₂ targets reflecting the change in the test procedure;
 - develop a proposal to reduce fuel consumption impacts of mobile air conditioning systems;
 - propose voluntary rules on marketing of “green” vehicles;
 - following the adoption of the Commission’s Directive on Intelligent Transport Systems²³ (ITS) of 7 July 2010, adopt specifications necessary to ensure the compatibility, interoperability and continuity for the deployment and operational use of ITS (by 27 February 2013) in the priority actions referred to in Article 3 of the Directive.

II. SUPPORTING RESEARCH, DEVELOPMENT AND INNOVATION

European research targeting low carbon fuels and clean and energy efficient transport

²² P6-TA(2007)0469

²³ Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport, OJ L207, 6.2010 p.1

The European support for research, development and innovation in “green” automotive technologies and transport systems is currently managed under two instruments: the **European Green Cars Initiative** launched in 2008 by the European Economic Recovery Plan²⁴ and the **Fuel Cells and Hydrogen Joint Undertaking** (FCH JU) launched in 2008²⁵.

Under the **European Green Cars Initiative**, the financing comprises the FP7 research grants and the European Investment Bank (EIB) loans for automotive research and development in clean technologies and smart energy infrastructure. This instrument has played a key role in the recovery of the automotive industry from the crisis and is currently used by the industry to strengthen its competitive position in “green” technologies.

The FP7 grants represent a **yearly envelope of about €100 m – matched by the industry’s equal involvement**²⁶. The Commission launched its first - call for proposals in July 2009, which focused fully on **vehicle electrification technologies**. 30 projects were selected for funding with a total budget of €108 m. The **second round of calls for proposals** published in **July 2010**, with a total indicative budget of €6 m opened **further research topics on trucks and logistics research, while keeping a major focus on EVs**. For EVs the opened fields of research address topics like: electrical engines development and integration; safety; thermal management and innovative light-duty vehicles architectures; materials for advanced electrochemical storage solutions; battery manufacturing and ICT for battery and onboard systems management; as well as grid integration and cooperative systems technologies. The research priorities of EVs, trucks and logistics are supported by the detailed technology roadmaps²⁷ elaborated by the Advisory Group of the European Green Cars Initiative.

Most of the research projects that will result from the **third round** of calls for proposals (**published in July 2011**) will start during 2012 or at the beginning of 2013. The indicative budget of these calls is €108 m. **The last round of calls for proposal will be published in 2012.**

Furthermore, under the 5th Call of the ICT PSP Competitiveness and Innovation Program²⁸ (2011), four projects amounting to an indicative budget of €8 m will demonstrate advanced ICT services and applications supporting electromobility.

The FCH JU, with the EU contribution of €470 m is a unique public private partnership led by industry supporting research, technological development and demonstration activities in fuel cell and hydrogen energy technologies in Europe. Around 45% of the available resources are being targeted to activities relevant to clean transport applications and the related infrastructure.

Through this Joint Undertaking four calls for proposals have been published from 2008 to 2011, with a total amount of close to €300 m, of which more than €100 m has been allocated to "**transport and refuelling stations**" applications. Some of the demonstration projects have the potential to become international references.

²⁴ COM(2008) 800 final, 26.11.2008.

²⁵ Council Regulation (EC) No 521/2008 of 30 May 2008 in OJ L 153 12.6. 2008, p.1.

²⁶ In some cases, participants have received FP7 contributions greater than 50% of eligible costs.

²⁷ <http://www.green-cars-initiative.eu/public/documents>

²⁸

http://ec.europa.eu/information_society/activities/ict_psp/participating/calls/call_proposals_11/index_en.htm

The architecture of future European funding for research in clean transport is currently being prepared in the form of the following strategy papers (all foreseen for adoption by the end of 2011):

- **Horizon 2020** – the Framework Programme for Research and Innovation 2014-2020
- **Strategic Transport Technology Plan** - this document will present a set of research and innovation areas.

Additional research is also supported under Challenge 6: ICT for a low carbon economy, within the ICT programme under the 7th Framework Programme for Research and Innovation²⁹. Research on ICT for electro-mobility is also supported through the Joint Undertakings ENIAC³⁰ and ARTEMIS³¹. Further funds for trials and market take-up are provided by means of the Competitive and Innovation Framework Programme (CIP)³².

The role of the European Investment Bank (EIB)

As outlined above, the EIB has also contributed to the European Green Cars Initiative – mostly via the **European Clean Transport Facility (ECTF)**, which was established for the period 2009-2010. By the end of 2010, total ECTF lending had reached €8.8 bn and 86% of this lending was granted to the automotive industry (24 OEMs and 12 suppliers). Among suppliers, it was essentially first-tier suppliers who benefited from the programme. On the other hand, the “global loans” accessible to all suppliers via EIB partner commercial banks were almost unused despite the eligibility of automotive suppliers. **The total lending to the automotive sector** (including ECTF and other programmes) **reached €13.9 bn at the end of 2010.**

The EIB’s automotive **lending will continue beyond the ECTF, which has now come to an end.** The lending **volumes are, however, expected to decrease** in parallel with market recovery and renewed access to finance for the industry. The EIB will integrate the objectives of the ECTF, which was a temporary crisis measure, under the EIB normal lending policy. For 2011, the total EIB lending volume for the automotive sector is estimated around to €1.5 bn. The bank will maintain a technology-neutral approach to technologies but will dedicate a **special effort to infrastructure and services for electro-mobility** (notably the joint Commission and EIB’s ELENA programme - see below).

III. MARKET UPTAKE AND CONSUMER INFORMATION

Guidelines on financial incentives to consumers to buy “green” vehicles

Currently a number of Member States is offering financial incentives for the purchase of “green” vehicles as well as influencing the demand with CO₂-based taxation regimes. The **Commission undertook to provide guidelines that would promote the best performing schemes that indeed encourage a quicker market penetration of “green” vehicles.** The guidelines will also aim to support the convergence of the schemes among the Member States, which would make it easier for vehicle manufacturers to adapt them. The draft guidelines

²⁹ http://cordis.europa.eu/fp7/ict/programme/challenge6_en.html

³⁰ www.eniac.eu

³¹ www.artemis-ju.eu

³² <http://ec.europa.eu/cip>

were discussed by stakeholders in the CARS 21 High Level Group meeting and will be published by the end of 2011, taking into account the recommendations delivered by the Group.

Revision of energy taxation Directive

In April 2011, the Commission adopted a **proposal for a Revision of the Energy Taxation Directive (ETD)**³³ and an accompanying Communication on “Smarter energy taxation for the EU”³⁴. The proposal adapts the European energy taxation system to the Europe 2020 strategy and its climate and energy targets. It sets a framework for **consistent treatment of energy sources** in order to provide a genuine level playing field between energy consumers independent of the energy sources used, as well as providing an adapted framework for the **taxation of renewable energies**. The proposal provides a framework for the use of CO₂ taxation to complement the carbon price signal established by the ETS while avoiding overlaps between the two instruments. The proposal also introduces an **explicit distinction between** a tax element based on the CO₂ content and an element based on the energy content of the energy products consumed. Concerning **motor fuels**, a progressive alignment of minimum tax rates as well as national rates on the basis of CO₂ and energy content is proposed. A transitional period of ten years is granted to Member States in order to facilitate the process.

EU-wide electro-mobility demonstration project “Green eMotion”

The “**Green eMotion**” project was launched by the Commission in March 2011 following the call for proposals in 2010. **The aim of the project is to enable, via demonstration, a mass deployment of electromobility in Europe.** The project consortium gathers 42 partners from the automotive industry, the energy sector, municipalities as well as universities and research institutions. The aim of the project is that this large business platform will develop and demonstrate a **user-friendly framework consisting of interoperable and scalable technical solutions for EVs which could be commonly accepted in Europe.** The project will investigate different types of EVs and different urban mobility concepts as well as their integration in electric networks, smart grids and ICT solutions. The project has a total budget of €41.8 m and is partly funded by the Commission’s contribution of €24.2 m.

The “Green eMotion” project also aims to **connect with the already ongoing regional and national electromobility initiatives** leveraging their results and comparing the different technology approaches to promote the best solutions for the European market. Moreover, a **wider business platform will be created to enable the new actors to interact with the project consortium and to potentially develop pan-European services** such as an “EU Clearing House” that would facilitate European billing and contribute to the development and application of standards for electromobility interfaces. With a large number of actors and locations involved, the key objective will be to demonstrate the interoperability of the entire framework together with the identification of good practices and a reference model for a sustainable rollout of EVs in Europe.

The strategy sets out that in 2012-2014, the Commission will:

³³ Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for taxation of energy products and electricity, OJ L 283 of 31.10.2003 p. 51; Directive last amended by Directives 2004/74/EC and 2004/75/EC, OJ L 157 of 30 April 2004, p. 87 and p.100.

³⁴ COM(2011) 168 final, 13.4.2011.

- present the results of a study looking at the state of implementation of Directive 1999/94/EC on car CO₂ labelling and consider the need for a review;
- launch a research project to fully understand consumer expectations and buying behaviours and test different possible information tools to compare clean and energy efficient cars with conventional vehicles.

IV. GLOBAL ISSUES

Applying harmonised regulation at a global level

International harmonisation of technical requirements is essential for the successful roll-out of clean and energy efficient vehicles, and will clearly enhance the competitive operation of European vehicle manufacturing in the third markets. The Commission is therefore **actively promoting the development of such requirements within the framework of the United Nations' World Forum for Harmonisation of Vehicle Regulations (WP.29) and is systematically incorporating these requirements into the EU type-approval legislation for motor vehicles.**

In addition, the Commission has initiated and **is steering a major review of the UNECE 1958 Agreement** with a view to ensure that this Agreement will remain sufficiently reliable and robust to cope with future developments and challenges in the globalised automotive market and to attract emerging vehicle manufacturing countries that are currently not contracting parties to this international Agreement. **An inventory of the necessary improvements will be presented to WP.29 in November 2011, with a view to establishing a roadmap for the finalisation of the necessary changes to the UNECE 1958 Agreement by 2016 at the latest.**

The development of harmonised international standards is even more important to ensure that **the specific safety and environmental issues that arise from the introduction of new technologies such as in electric propulsion are addressed properly at global level.** This international harmonisation is also essential to ensure that economies of scale can be accrued to enable sales in several global markets. This is why the Commission is strongly promoting the widest possible acceptance and application of harmonised safety and environmental performance requirements for EVs within the framework of the UNECE.

As a part of these efforts, **the Commission, together with the US and Japan announced in June 2011 their intention to set up a new joint initiative to launch two informal working groups on EVs (in the framework of 1998 Agreement)** to explore common regulatory approaches for EVs on safety and environmental issues, respectively.

Raw materials initiative

Building on the Raw Materials Initiative³⁵, adopted in 2008, and taking account of the flagship initiative for a resource efficient Europe³⁶ and Communication³⁷ from the previous year, in February 2011, the Commission adopted a renewed strategy on a sustainable supply

³⁵ COM(2008) 669 final, 4.11.2008

³⁶ See footnote 8

³⁷ COM(2010) 614 final, 28.10.2010

of raw materials, “Tackling the challenges in commodity markets and on raw materials”³⁸. This strategy paper follows the 2008 three-pillar approach. It outlines the sustainable supply of raw materials from international markets (i.e. 1st pillar) and within the EU (i.e. 2nd pillar) and also covers recycling and resource efficiency (i.e. 3rd pillar). It also looks at stability and transparency of commodity prices. The Commission is currently preparing a Communication proposing a **European Innovation Partnership** (EIP) on raw materials, which is intended to be presented by early 2012. The issue of raw materials is also tackled on the international stage, in the context of the Transatlantic Economic Council, the EU-US-Japan research oriented dialogue and in cooperation with the African Union and Greenland.

For the automotive industry, apart from iron ore and aluminium, the **key raw materials remain rare earths**, which are very important for manufacturing of high performance electric motors and batteries as well as **lithium** for batteries. In addition, **copper** is an important material since its prices have already strongly increased and the demand arising from the introduction of EVs might increase the supply risk. A specific topic on these issues from the automotive research point of view has been introduced in the 2012 European Green Cars Initiative work programme.

Transatlantic Economic Council (TEC)

At the last **TEC meeting in December 2010**, the Commission and the US administration agreed on a common statement³⁹ calling for stronger cooperation on electromobility. This statement came as a result of **political interest** in electromobility and a **strong demand from industry** to have **common standards** that would facilitate the roll-out of EVs on international markets and enable industry to achieve larger economies of scale. The TEC statement also confirmed the willingness of both administrations to work together on electromobility via **regulatory cooperation in the framework of UNECE** (see above). In 2011, the Commission has been active in the preparation of its follow-up, especially ensuring that concrete deliverables can be presented for the next TEC high-level meeting by the end of the year.

V. EMPLOYMENT

European Automotive Skills Council

In the first semester of 2011, the economic and social actors of the automotive sector have been co-operating with the financial support of the Commission in order to **assess the feasibility and added value of setting-up a European Automotive Skills Council**. A decision is expected by the end of 2011. The initiative of the Sectoral Council builds on the previous project “European Partnership for anticipation of change in the automotive sector”⁴⁰. The Sectoral Council would establish a network of existing national organisations doing research on skills and employment in the automotive sector, also involving employers’ and workers’ representatives at European level and organisations of education and training providers. It would aim at developing **peer learning based on the exchange of information and good practice** as well as **providing a platform for dialogue on skills issues** between actors from the labour market and those from education and training.

³⁸ COM(2011) 25 final, 2.2.2011.

³⁹ http://trade.ec.europa.eu/doclib/docs/2010/december/tradoc_147140.final.pdf

⁴⁰ <http://www.anticipationofchange.eu/>

The Sectoral Council is also expected to lead to the production of reports presenting the **analysis of quantitative and qualitative trends in automotive employment and skills, consideration of tools and strategies** being used at the national level to anticipate and match future skills needs, and **lead to recommendations** for the attention of policymakers, education and training providers and other stakeholders. The European Automotive Skills Council is not an isolated initiative since other pilot sectoral skills councils will be launched in 2011 in the textile, clothing and leather sector and several other sectors will be in the feasibility assessment process.

Continuous support to the training, retraining and upskilling of workers with the financial support of the EU funds

Apart from the **contribution of the European Social Fund**, the **key instrument** for training, re-training and upskilling of workers, especially in the context of crisis recovery, has been the **European Globalisation Adjustment Fund (EGAF)**. Its rules were revised to provide support for workers made redundant not only as a result of globalisation but also as a direct result of the global financial and economic crisis. Between 2009 and August 2011, 10 applications have been submitted (from 8 different Member States), amounting to **support measures worth €80.6 m** (of which €52.4 m of EGAF financing) for automotive industry. **Over 12,000 workers benefited from the funding** (the activities most often funded were training or re-training) and the average amount attributed per worker was ca. €5,000.

The strategy sets out that in 2012-2014 the Commission will:

- continue to encourage the development by the relevant stakeholders, and in particular the social partners, of mechanisms of planning for employment and skills needs, like Sectoral Councils.

VI. SPECIFIC ACTIONS CREATING A FRAMEWORK FOR ELECTRIC VEHICLES

Placing on the market

A study⁴¹ was completed in 2010 that reviewed the type-approval requirements covered by the Framework Directive 2007/46/EC⁴² and identified some missing elements, in particular with regard to the **safety of EVs, due to the high voltage parts of these vehicles and in terms of crash safety**.

It is therefore a key achievement that in April 2011, the Commission, in the context of implementation of General Safety Regulation⁴³ adopted Regulation (EU) No 407/2011⁴⁴

⁴¹ http://ec.europa.eu/enterprise/sectors/automotive/files/projects/report_electric_vehicles_en.pdf

⁴² Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, OJ L 263 9.10.2007 p.1.

⁴³ Regulation (EC) No 661/2009 of the European Parliament and of the Council of 13 July 2009 concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor, OJ L 200, 31.7.2009, p. 1.

⁴⁴ Commission Regulation (EU) No 407/2011 of 27 April 2011 amending Regulation (EC) No 661/2009 of the European Parliament and of the Council as regards the inclusion of certain Regulations of the United Nations Economic Commission for Europe on the type-approval of motor vehicles, their trailers and systems, components and separate technical units intended therefor. This Regulation incorporated

which **makes the type-approval framework for EVs almost complete by incorporating into EU law UNECE technical requirements guaranteeing the functional safety of EVs (UNECE Regulation No 100) and their crash safety (UNECE Regulations No 94 and 95)**. With the mandatory application of these UNECE Regulations in the EU⁴⁵, European consumers will be reassured since EVs are and will be as safe as conventional ones. Also the internal market for EVs will be preserved in the EU and there will be only one set of rules to comply with for manufacturers producing for the EU, Japan, Russia and other markets.

The only aspect of EV not yet covered by regulations is the Renewable Energy Storage Systems (RESS). While some voluntary standards on automotive batteries already exist or are currently being developed, the **work on setting the mandatory technical requirements** for automotive batteries during recharge, normal and post-crash operation has been started in an informal UNECE working group. This group aims to set up **battery testing methods as well as safety requirements** concerning thermal shock, humidity and moisture exposure, fire resistance, short-circuiting and over-charging protection. The outcome of this work is expected to be proposed in a form of an amendment to the UNECE Regulation 100.

Standardisation

In June 2010, Vice-president Tajani handed over the mandate to the European standardisation bodies (CEN, CENELEC and ETSI) to develop a standard for **interoperability and connectivity between the electricity supply point and the EV**⁴⁶. Such a standard is considered essential for consumer confidence and thus mass market uptake of EVs. The mandate also requires the European standardisation bodies to study the issues of **smart-charging, safety risks and electromagnetic compatibility**. The work is as well linked to the standardisation supporting the smartgrid deployment.⁴⁷

In 2010, the European standardisation bodies formed a **Focus Group** whose task was to advise the European standardisation bodies on modification of existing standards or creation of new standards. The Group was also mandated to make recommendations to regulatory bodies. The **draft report of the Focus Group was made available in June 2011**. The Commission will take into account recommendations of this report and discuss the next steps in the CARS 21 High Level Group.

Charging and refuelling infrastructure

The 2011 White Paper on Transport has announced that the European Commission will develop a “sustainable alternative fuels strategy including also the appropriate infrastructure”⁴⁸. In this context, the European Commission has launched the **Clean Transport Systems (CTS) initiative** that will lead, in 2012, to a Communication on a **comprehensive long-term alternative fuel strategy for the EU** covering the whole transport

62 UNECE Regulations, including Regulation No 100 on the safety of electric vehicles and Regulations No 94 and 95 on crash safety of vehicles (including electric vehicles).

⁴⁵ The Regulation 100 will apply on a compulsory basis to new types of vehicles by the end of 2012 and to new vehicles by the end of 2014. The Regulations 94 and 95 will apply as from 1 November 2012 for new types of vehicles and 1 November 2014 for new vehicles.

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http://ec.europa.eu/enterprise/standards_policy/mandates/database/index.cfm?fuseaction=search.detail&id=450

⁴⁷

http://ec.europa.eu/energy/gas_electricity/smartgrids/doc/2011_03_01_mandate_m490_en.pdf

⁴⁸

See footnote 6

sector and possible future actions in this area. Possible options have been assessed with the Future Transport Fuels Expert Group and will be further investigated in a study initiated in July 2011. A public consultation on the Clean Transport Systems initiative of the Commission was launched⁴⁹.

Specifically in the design of the most appropriate approach for the charging infrastructure for EVs, the Commission is currently considering the results of two **FP7 research projects** (“G4V” and “MERGE”) on the strategic impact of large scale roll out of EVs on grid infrastructure. Similarly the first results of the **FP7 demonstration project** “Green eMotion” project (see above) are providing insights into the EV infrastructure needs.

The Commission is also supporting the integration of the EV's and their communication with the Grid (V2G) in the overall cooperative transport infrastructures through research projects like e-Dash, Power-Up, Smart V2G, ECOGEM and ELVIRE.

Following the recommendations of the **TEN-T Policy Review Expert Group 3** on Intelligent Transport Systems and New Technologies within the Framework of the TEN-T⁵⁰, **EU funds have been made available under the annual TEN-T calls for infrastructure studies with the possibilities of integrated pilot deployment contributing to the decarbonisation of transport. These provisions concern also the build-up of alternative fuel infrastructure on the TEN-T network.** The electro-mobility project, “Greening European Transportation Infrastructure for Electric Vehicles” is the first project to be funded under the TEN-T annual call 2010, with a Community contribution of €4.95 m.

Furthermore, also recommended by the experts, **the Commission proposal for the new TEN-T Guidelines**, which was adopted on 19 October,⁵¹ will open TEN-T support to a much wider range of innovative actions on transport infrastructure, once adopted by Council and European Parliament in the present form (adoption is foreseen for 2012).

In terms of funding, the **joint Commission and EIB’s technical assistance facility “ELENA”**⁵², for sustainable energy projects developed by local authorities (also covering EV charging infrastructure), has been already operational since 2010 and so far 13 projects have been supported via ELENA including 3 projects for EV infrastructure and public transport.

Finally, the European Commission has strengthened collaboration with **Regions and Municipalities** on the development of alternative fuels. As a result, HyER – Hydrogen Fuel Cells and Electromobility for European Regions⁵³, established in April 2008 with over 30 Regions and cities in Europe – announced its intention to broaden its support of fuel cell EVs to battery EVs and accelerate the uptake of electromobility in Europe. More than 70 Regions meanwhile have supported this move. **The Partnership will help to ensure a critical mass**

⁴⁹ http://ec.europa.eu/transport/urban/consultations/2011-10-06-cts_en.htm The consultation period ended 20 October 2011

⁵⁰ http://ec.europa.eu/transport/infrastructure/ten-t-policy/review/expert_group_3_en.htm

⁵¹ http://ec.europa.eu/transport/infrastructure/connecting/proposal-ten-t_en.htm

⁵² ELENA technical assistance facility for (European Local ENergy Assistance) - http://www.eib.org/products/technical_assistance/elena/index.htm?lang=en

⁵³ Formerly know as HyRaMP – the European Regions and Municipalities Partnership for Hydrogen and Fuels Cells <http://www.hyer.eu/>

within industry for the deployment of battery and fuel cell EVs, and help coordinate the build-up of the relevant infrastructure across the EU.

Transportation of batteries

The provisions relating to the **rail transport** of batteries are established by international agreements on the transport of dangerous goods at UNECE and Intergovernmental Organisation for International Carriage by Rail (OTIF). The rules have been recently streamlined on some aspects, notably relating to nickel-metal hybrid batteries while **current thresholds on transport of lithium batteries have been maintained**. Current assessment does not point to the need to revise this international legislation. The provisions relating to the **air transport** of batteries are established by International Civil Aviation Organisation (ICAO) and currently they allow the transport of batteries by air only up to the weight limit of 35 kg.

Research on recycling and reusing strategic materials for batteries

In 2010, several studies on environmental and strategic raw material issues raised by a possible mass adoption of lithium batteries were launched by FP7 funded project “HELIOS” and in the framework of other European Green Cars Initiative’s projects (see above). A project, currently under negotiations, will also deal with recycling of rare earths from motor magnets.

Role of electricity used by vehicles in the Renewable Energy Directive⁵⁴

In the framework of the Directive, **the Commission will evaluate (by the end of 2011) whether the rules for accounting for electricity used in vehicles towards renewable energy targets need adjustment** and, if appropriate, present a proposal outlining the conditions under which electricity consumed by EVs may be counted in full towards the Renewable Energy Directive's 10% target for renewable energy in transport instead of only a share of it. The Commission organised a public consultation exercise on this topic⁵⁵ and a study⁵⁶ has been launched. This will provide input to the Impact Assessment, which the Commission will present by the end of the year, and if appropriate, accompanied by a proposal.

The strategy sets out that in 2012-2014 the Commission will:

- (following the adoption of the standard recharging interface) identify a method to implement the standard on charging systems.

VII. GOVERNANCE

CARS 21

The CARS 21 High-Level Group was re-launched with the Commission’s Decision of 14 October 2010⁵⁷ with the objective to advise the Commission on the implementation of the strategy on clean and energy efficient vehicles and, more broadly, delivering policy

⁵⁴ See footnote 17

⁵⁵ http://ec.europa.eu/energy/renewables/consultations/20110614_res_target_en.htm

⁵⁶ Terms of reference: http://ec.europa.eu/dgs/energy/tenders/doc/2010/s207_315298_specifications.pdf

⁵⁷ OJ C 280, 16.10.2010, pp. 32-34.

recommendations to support the competitiveness and sustainable growth of the European automotive industry. The first high-level meeting took place in November 2010 and endorsed the **terms of reference and the list of key topics for the discussion**. In the first half of 2011, numerous meetings of the **thematic working groups** took place.

Whereas the Final Report will be delivered in spring 2012, the current focus of the process is an **Interim Report that will be adopted at the next High Level Group Meeting, scheduled for 2 December 2011**. The Interim Report will contain policy recommendations from the group on a selected number of topics including those central in the strategy: financial incentives for “green” vehicles, infrastructure for alternative fuels, strategy on CO₂ emission from heavy-duty vehicles and long-term research policy for clean transport. While the CARS 21 High Level Group has a fixed composition and its meetings are closed, a large part of the materials prepared for the Group was made available on the Commission’s website⁵⁸.

⁵⁸ http://ec.europa.eu/enterprise/sectors/automotive/competitiveness-cars21/cars21/index_en.htm