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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE COUNCIL AND THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE**

**A European strategy on clean and energy efficient vehicles**

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**(Text with EEA relevance)**

**1. AIMS OF THE STRATEGY**

The European automotive industry is a world leader in developing clean and energy efficient technologies based on combustion engines, consequence of substantial investment in the last 15 years in research and development. It is also a crucial European industry, competitive, innovative and supporting a wide range of related sectors.

This Communication sets out a strategy for encouraging the development and uptake of clean and energy efficient ("green") heavy- (buses and trucks)<sup>1</sup> and light-duty vehicles (cars and vans)<sup>2</sup> as well as two- and three-wheelers and quadricycles<sup>3</sup>. Currently, transport is responsible for about a quarter of EU CO<sub>2</sub> emissions and also contributes significantly to reduced air quality (particulate matter, NO<sub>x</sub>, HC and CO) and related health problems, in particular in urban areas.

The internal combustion engine is likely to remain dominant in road vehicles in the short and medium term perspective. However, alternative fuels and propulsion technologies will be increasingly important in the future. Green vehicles have very low environmental impacts throughout their lifecycle: they use low-carbon energy sources, have very low air pollutant and noise emissions and can be easily recycled.

Green vehicles, including those capable of using electricity, hydrogen, biogas and liquid biofuels in high blends, are likely to contribute significantly to the Europe 2020<sup>4</sup> priorities of developing an economy based on knowledge and innovation (smart growth) and promoting a more resource efficient, greener and more competitive economy (sustainable growth). The strategy is a vital part of the Europe 2020 flagship initiative 'Resource-efficient Europe', which seeks to promote new technologies to modernise and decarbonise the transport sector, thereby contributing to increase competitiveness. One aim of the flagship initiative is hence to promote "green" vehicles by encouraging research, setting common standards and developing the infrastructure needed to support 'the shift towards a resource efficient and low-carbon economy that is efficient in the way it uses all resources'<sup>5</sup>.

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<sup>1</sup> Vehicles of categories M2, M3 and N2, N3 as defined in Directive 2007/46/EC.

<sup>2</sup> Vehicles of categories M1 and N1 as defined in Directive 2007/46/EC.

<sup>3</sup> Vehicles of category L as defined in Directive 2002/24/EC.

<sup>4</sup> COM(2010) 2020, 3.3.2010.

<sup>5</sup> COM(2010) 2020, 3.3.2010, p. 14.

The global car fleet is predicted to grow from 800 million to 1.6 billion vehicles<sup>6</sup> by 2030. This doubling of the global car fleet calls for a step change in technology to ensure sustainable mobility in the long term in view of the goal of decarbonising transport. The strategy should therefore help European industry lead the world in deploying alternative propulsion technologies. The global trend towards sustainable transport shows that the European automotive industry can only remain competitive by leading in green technologies. This requires a progressive shift from today's situation. A new industrial approach based on clean and energy efficient vehicles will boost the competitiveness of the European industry, provide new jobs in the automotive industry and in other sectors in the supply chain and support restructuring. Hence this initiative builds on the European green cars initiative which was launched as a part of the European Economic Recovery Plan<sup>7</sup> in November 2008.

Developing advanced common standards for safety, environmental performance and interoperability will also keep the internal market fully functioning and ensure planning certainty for all stakeholders.

Moreover, the EU's global competitors on both the American and Asian continents are also investing in research in low-carbon technologies and launching targeted programmes to shift to low-carbon road transport. They are taking steps to rapidly develop standards for alternative technologies. In order to permit its industry to stay competitive and ensure its position in green technologies, the EU must create the right framework for advanced products that will be needed worldwide.

The strategy builds on the existing 2007 strategy to reduce CO<sub>2</sub> emissions from passenger cars and light-duty commercial vehicles<sup>8</sup>, and complements ongoing and planned activities to decarbonise transport and to reduce their environmental impacts. While it is limited to road transport, road vehicles and the mid-term perspective, it supports the goal of reducing carbon emissions by 80-95% by 2050. Technological developments in green automotive propulsion technologies can/should have spin-offs to maritime, air, heavy-duty vehicles, urban and light-rail transport modes.

## **2. ACTION PLAN FOR GREEN VEHICLES**

This strategy aims to provide an appropriate and technology neutral policy framework for clean and energy efficient vehicles. Two tracks need to be followed simultaneously: promoting clean and energy efficient vehicles based on conventional internal combustion engines and facilitating the deployment of breakthrough technologies in ultra-low-carbon vehicles. The following powertrains are considered:

- Alternative fuels to burn in combustion engines to substitute petrol or diesel fuel include liquid biofuels and gaseous fuels (including LPG, CNG and biogas). They offer a potential to reduce the environmental impact of road transport through reduced CO<sub>2</sub> and pollutant emissions. However, the use of alternative fuels other than biofuels requires the modification of combustion engines, a dedicated on-board fuel storage system and a sufficiently widespread refuelling network. Liquid

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<sup>6</sup> United Nations Economic Commission for Europe - World Forum for Harmonization of Vehicle Regulations (UNECE-WP.29): Informal document GRPE-58-02.

<sup>7</sup> COM(2008) 800, 26.11.2008.

<sup>8</sup> COM(2007) 19, 7.2.2007.

biofuels, such as ethanol and biodiesel can be blended with conventional liquid fuels and burned in existing combustion engines up to a certain ratio. However, a higher blend needs the modification of the fuelling system and the engine of the vehicle. Gaseous fuels can be burned in modified combustion engines and stored on-board in special fuel tanks. Flex-fuel vehicles can use a number of different fuels available. To achieve the expected reduction of environmental impacts when compared to conventional petrol or diesel fuels, alternative fuels need to be produced in a sustainable manner. Work to further improve the quality of conventional petrol and diesel fuels should continue.

- Electric vehicles use an electric motor to move the vehicle and are recharged with electricity. The energy is stored in batteries or in other alternative storage systems on board the vehicle. Electric vehicles might remain a niche market in the near future, but sales are then expected to expand as battery technologies improve. For battery electric vehicles, studies forecast a market share in new car sales of 1 to 2 % in 2020 rising to 11 to 30 % in 2030. For plug-in hybrid vehicles a share of 2 % is forecast in 2020, and 5 to 20 % by 2030<sup>9</sup>. Affordability is a crucial factor in introducing electric vehicles to the mainstream consumer market. Consumer prices will have to fall significantly through technological improvements and economies of scale to expand market share. Electric vehicle technology has significant potential to radically address a number of challenges facing the European Union, such as global warming, dependency from fossil fuels, local air pollution and storage of renewable energy in vehicle batteries through smart grids. Pure electric vehicles appear to be most promising for urban use, given the relatively limited range provided by batteries and the potentially better cost-benefit ratio of deploying recharging infrastructure first in cities. Lower pollutant and noise emissions also have the biggest social, including health benefits in urban areas.
- Hydrogen fuel cell vehicles can also deliver similar environmental benefits to battery electric vehicles. They also have electric motors but generate the electricity on board the vehicle from hydrogen fuel using fuel cells, producing only water vapour. The development and deployment of battery and hydrogen fuel cell vehicles is therefore mutually complementary as they share many similar electrical drivetrain components.

The strategy builds on existing ongoing measures and **sets out medium- to long-term actions**. The actions will ensure that — while realising the benefits of new propulsion technologies in terms of environmental and energy policy goals — a situation, where advances in new technologies would be offset by reduced improvements in conventional vehicles or by growing demand for less efficient vehicles is avoided. It will exploit the synergies between improving internal combustion engines and introducing ultra-low-carbon technologies. It facilitates the emergence and proliferation of breakthrough technologies which, combined with proposals to be brought forward in the upcoming White Paper on European Transport Policy can be expected to contribute substantially to more sustainable mobility.

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<sup>9</sup> IHS - Global Insight: Battery Electric and Plug-in Hybrid Vehicles study.

At present, there is a lack of a European framework for electric mobility. Therefore, to ensure technological neutrality in practice, section 2.7. focuses on actions needed to ensure an equivalent regulatory framework for enabling this technology.

An assessment of the environmental, economic and social impacts will have to be taken into account in specific policy initiatives mentioned in the strategy. Actions at EU level will complement those taken at national and regional level and focus on areas where there is clear European added value, in line with the principle of subsidiarity.

## 2.1. Regulatory framework

The EU has set out an ambitious strategy to reduce CO<sub>2</sub> emissions from road vehicles<sup>10</sup> and much has been achieved already. Regulation (EC) No 443/2009 setting emission performance standards for new passenger cars requires a fleet average emission of 130 g CO<sub>2</sub>/km for new passenger cars to be fully achieved by 2015. Industry will need to invest even more in emission reduction technologies, including smart traffic management technologies, and further improve engine efficiency.

Moreover a Commission proposal<sup>11</sup> to reduce CO<sub>2</sub> emissions from light commercial vehicles (vans) is currently being discussed by the Council and Parliament. It proposes a fleet average emission for all new vans of 175 g/km as of 2016.

The EU has also reduced emissions of pollutants such as particulate matter and NO<sub>x</sub> by setting ever stricter standards. Euro 6 limits<sup>12</sup> for cars and vans and EURO VI for heavy-duty vehicles will apply as of 2014.

Even though petrol and diesel combustion engines will become less dominant in the 2020 perspective, every means available must be used to reduce their negative environmental impact.

The Commission will:

- propose a Regulation on type-approval requirements for two- and three-wheelers and quadricycles (L-category vehicles) in 2010 that will set emission standards and will adapt or develop measures to take account of new technologies;
- prepare the measures implementing Regulation (EC) No 443/2009 by 2011: detailed rules on the monitoring and reporting of data; detailed rules on the application for a derogation from the specific CO<sub>2</sub> emission targets for small volume and niche manufacturers; detailed rules on the procedure for approving innovative technologies (eco-innovations); detailed rules on the methods for the collection of excess emissions premiums;
- propose detailed rules on the marketing of the 'green additionality' of vehicles to avoid misleading environmental claims;
- present a proposal by 2011 to reduce fuel consumption impacts of mobile air conditioning systems;

<sup>10</sup> Regulation (EC) No 443/2009 (OJ L 140, 5.6.2009, p. 1).

<sup>11</sup> COM(2009) 593, 28.10.2009.

<sup>12</sup> Regulation (EC) No 715/2007 (OJ L 171, 29.6.2007, p. 1).

- make an inventory of measures offering environmental benefits under the ‘integrated approach’ as soon as possible and determine further steps, including through regulatory means, to promote such measures;
- present a proposal to amend Directive 70/157/EEC<sup>13</sup> by the end of 2011 to reduce noise emissions of vehicles;
- ensure that CO<sub>2</sub> and pollutant emissions are reduced under real-world driving conditions by proposing at the latest by 2013 a revised test cycle to measure emissions, developed through UNECE<sup>14</sup>, including a methodology for taking into account innovative technologies; and develop a robust procedure by 2012 to measure real world emissions, considering the use of portable emissions measurable systems;
- propose a strategy targeting fuel consumption and CO<sub>2</sub> emissions from heavy-duty vehicles;
- promote additional measures that may help to decrease CO<sub>2</sub> and pollution emissions from road transport — such as eco-driving, Intelligent Transport Systems (ITS), including onboard technologies and the applications stemming from Galileo, infrastructure measures, and urban transport management;
- ensure implementation of the Community's sustainability criteria for biofuels as well as promote the development of advanced low carbon fuels and sustainable biofuels and engine technology that is capable of using these fuels.

## 2.2. Supporting research and innovation in green technologies

Electric and hydrogen fuel cell vehicles and components are still expensive, despite recent technological advances. Further research and technology development is needed to bring costs down and to improve the electric and hydrogen vehicles’ range and driveability, including research on cooperative vehicle systems using vehicle-to-vehicle and vehicle-to-infrastructure communication technologies. New materials must be investigated for use in batteries and for storage of hydrogen for fuel cell vehicles as well as alternative charging and energy storage technologies. The European Green Cars Initiative is funding research and demonstration on electrifying transport, while the Fuel Cells and Hydrogen Joint Undertaking supports research and technology development of hydrogen fuel cell vehicles and infrastructure.

The Commission will:

- ensure that European research continues targeting low carbon fuels and clean and energy efficient transport, including the improvement of conventional engines, electric drivetrains including alternative battery technologies and hydrogen technologies with grants focusing on topics with clear added value at EU level;
- simplify and streamline administrative rules of obtaining EU research grants;

<sup>13</sup> OJ L 42, 23.02.1970, p. 16.

<sup>14</sup> However, should progress not be forthcoming then unilateral legislation within the EU remains a possibility.

- propose a long term research strategy in 2011 in the Strategic Transport Technology Plan and in the Communication on Clean Transport Systems;
- explore with the European Investment Bank the continuation of support to research and innovation projects to promote clean and energy efficient automotive products to support the transformation of the industry.

### 2.3. Market uptake and consumer information

A "greening" of the European vehicle fleet will only be successful if consumers are indeed choosing to buy clean and energy efficient vehicles. Due to their advanced technology, green vehicles are however still significantly more expensive than conventional ones. Involvement of consumers and demand-side incentives are therefore important to encourage market uptake. Such incentives must be introduced at the right time, targeted, non-discriminatory, and limited in time and budget.

The majority of Member States have introduced, in a non coordinated manner, CO<sub>2</sub> emission based vehicle taxation schemes, while others have adopted or are considering specific incentive schemes, many of them financial, to encourage consumers to opt for electric vehicles. The schemes vary significantly and generally act in isolation since the existing fuel taxes do not take CO<sub>2</sub> performance into account when vehicles come into use. There is concern that the benefits will be outweighed by the significant differences in such incentives across Member States, which may have detrimental effects on the functioning of the internal market.

Cities and urban zones are the most promising areas for the development of new vehicles with relatively limited range. Reduction of pollutant emissions is most important in densely populated urban areas, and energy efficient technologies provide the largest gain for energy saving and CO<sub>2</sub> emission reduction in urban stop-and-go traffic, as recognised by the Action Plan on Urban Mobility<sup>15</sup>. Local and regional authorities could have therefore an important role to play as contracting authorities, making a smart use of public procurement rules to accelerate market uptake. This would also provide an important stimulus to innovation.

Directive 2009/33/EC<sup>16</sup> on the promotion of clean and energy efficient road transport vehicles, which aims at reducing greenhouse gas emissions and improving air quality (particularly in cities) requires that public authorities take into account energy and environmental impacts linked to the operation of vehicles over their lifetime. This gives a competitive advantage to green vehicles and provides strong support to their broad market introduction.

To accept green vehicles as real alternatives to conventional vehicles, consumers need to be well informed about the opportunities, advantages and practical aspects of green mobility, which is essentially up to industry. Consumers should also have tools to compare these technologies with conventional vehicles.

The Commission will:

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<sup>15</sup> COM(2009) 490, 30.9.2009.

<sup>16</sup> OJ L 120, 15.5.2009, p. 5.

- present guidelines on financial incentives to consumers to buy green vehicles in 2010, encourage coordination of demand-side measures adopted in Member States, ensure that any benefit accruing to industry is in line with existing State Aid rules;
- work on a revision of the energy taxation directive, to better incentivise the efficient use of conventional fuels and the gradual uptake of alternative low-carbon emitting fuels;
- take action to ensure more coordination and improve the overall effectiveness of measures taken by of Member States in the area of vehicle taxation in order to promote green vehicles;
- monitor the implementation of Directive 2009/33/EC;
- 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;
- present a proposal to amend Directive 1999/94/EC<sup>17</sup> on car labelling;
- launch an EU-wide electromobility demonstration project in 2011 within the European Green Cars Initiative to assess consumer behaviour, usage patterns and foster user awareness of all types of electric technology as well as to test new developments in the area of standardisation for electric vehicles; future initiatives of this kind may be targeted specifically to those urban areas that have sustained air quality exceedance levels.

## 2.4. Global issues

The EU industry is operating on world markets and has many global alliances. To improve the global business environment and ensure business opportunities for European industry, we need greater openness and level playing field in the major automotive markets. Open world markets are an important source of productivity gains, growth and job creation. Providing access to global markets means both reducing tariffs and removing unnecessarily restrictive technical regulations. Regulatory convergence with our main commercial partners should be sought wherever possible, as well as an ambitious market access.

Large-scale production of electric and hydrogen fuel cell vehicles will require the use of raw materials different from those of conventional vehicles. Some of those materials are in short supply and concentrated in very few geographical areas, such as rare earth elements for batteries and noble metals for fuel cells. Fair and open access to these materials should be ensured so that a potential shortage does not hamper the competitiveness of EU industry.

The Commission will:

- engage in international standardisation activities, regulatory dialogues with our main commercial partners, and provide technical assistance to non-EU countries with a view to promoting trade and preventing market-distorting rules on green vehicles;

<sup>17</sup> OJ L 12, 18.1.2000, p. 16.

- continue to take regulatory cooperation initiatives to promote harmonised regulations at global level with countries that are not contracting parties at UNECE;
- support access to materials in short supply through the Raw materials initiative<sup>18</sup>.

## 2.5. Employment

Anticipating and managing restructuring and anticipating the skills and qualifications needed to design and produce innovative vehicles, is essential to give European vehicle manufacturers a suitably skilled workforce. These skills are currently rare. The social actors have recently issued in the framework of the Automotive Partnership a declaration calling for the establishment of a Pan-European Observatory.

The Commission will:

- based on the declaration of the Automotive Partnership, establish a European Sectoral Skills Council, aiming at creating a network of Member States' national observatories;
- target use of the European Social Fund starting in 2011 to encourage retraining and upskilling.

## 2.6. Mid-term review of CO<sub>2</sub> emissions legislation

The Commission will:

- review Regulation (EC) No 443/2009 by 2013, looking at the modalities of reaching the 2020 target of 95 g/km for passenger cars and the long-term (2030) perspective, whilst building on the experience gained from implementing the short term targets;
- review the modalities of reaching the long term target to reduce CO<sub>2</sub> emissions from light commercial vehicles (vans) by a date to be determined by the legislator<sup>19</sup>.

An objective of the mid-term review will be to provide the automotive industry with the planning certainty as to the long-term target. Any new CO<sub>2</sub> standards should be based on the full potential of different technological options because ambitious emission targets will be crucial in driving innovations in the long-term and will take account of their contribution to achieving the overall level of greenhouse gas reduction needed in the transport sector. An overriding objective in this period will be to ensure that any support mechanisms for ultra-low emission vehicles do not weaken the incentive for emission-reduction from the existing fleet of conventional combustion engine vehicles.

## 2.7. Specific actions for electric vehicles

### 1. *Placing on the market*

Type-approval for road vehicles<sup>20</sup> has been extended to cover all propulsion systems with the aim of removing potential regulatory barriers and to ensure that alternative propulsion

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<sup>18</sup> COM(2008) 699, 4.11.2008.

<sup>19</sup> The Commission proposal foresees the 2020 target of 135g/km (COM(2009) 593, 28.10.2009).

<sup>20</sup> Regulated by Directive 2007/46/EC (OJ L 263, 9.10.2007, p. 1).

vehicles are at least as safe as conventional ones. Therefore, common rules have already been set out for hydrogen powered vehicles, gas fuelled vehicles and biofuels<sup>21</sup>. Common requirements are needed for electric vehicles too, which will facilitate legal certainty for industry and protect consumers.

The Commission - through working together with international partners at the UNECE - will:

- propose electric safety requirements for vehicle type-approval in 2010;
- review other type-approval requirements covered by Directive 2007/46/EC by 2011;
- review crash safety requirements and consider whether the quietness of these vehicles is potentially dangerous to vulnerable road users by 2012.

## 2. *Standardisation*

Common standards should allow all electric vehicles to be charged and to communicate with the electricity grid anywhere in the EU and also with all types of chargers. Investment in electric charging points based on different standards should be avoided as far as possible. Compatibility problems that prevent drivers from charging at any available point could undermine consumer confidence in electric vehicle technology.

Slow vehicle charging from existing electric sockets is already possible. However, fast charging with high voltage, public charging points and the need to ensure communication between the vehicle and the electricity grid requires a dedicated plug and socket, which needs to be standardised at the EU level to ensure interoperability. The quick adoption of a European standard would reinforce the global competitiveness of European industry by making it an early mover in the area. The standard shall take into account ongoing work at international standardisation bodies.

The Commission will:

- within the framework of Directive 98/34/EC<sup>22</sup>, mandate the European standardisation bodies in 2010 to develop by 2011 a standardised charging interface to ensure interoperability and connectivity between the electricity supply point and the charger of the electric vehicle, to address safety risks and electromagnetic compatibility and to consider smart charging (the possibility for users to take advantage of the use of electricity during "off peak hours");
- identify a method to implement that standard, so that the interoperable interface is adopted by all industry players, including vehicle manufacturers, electricity providers and electricity distribution network operators;
- constantly monitor global technological and market developments to update European standards if necessary.

## 3. *Infrastructure*

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<sup>21</sup> Regulation (EC) No 79/2009 (OJ L 35, 4.2.2009, p. 32); UNECE Regulations 67 and 110; Directive 2009/30/EC (OJ L 140, 5.6.2009, p. 88).

<sup>22</sup> OJ L 204, 21.7.1998, p. 37.

With the entry into the market of electric vehicles, consumers can start charging them from existing power points. However, publicly accessible charging points will have to be provided to meet consumers' needs on battery charging. An adequate electric charging network will require significant investment and definition of standards on safety, interoperability and payment. An assessment needs to be made whether synergies exist between capacity build up for electric and hydrogen vehicles and their connection to low-carbon electricity sources.

The Commission will:

- provide a leading role in working with Member States at national and regional level on the build-up of charging and refuelling infrastructure in the EU;
- explore with the European Investment Bank how to provide funding to stimulate investment in infrastructure and services build-up for green vehicles.

#### 4. *Energy, power generation and distribution*

The impact of green vehicles with alternative technologies needs to be thoroughly assessed and compared with the impact of conventional vehicles using a life cycle approach. Such an approach considers the impact of the 'well-to-wheel' emissions<sup>23</sup>, including emissions from electricity generation as well as the environmental impacts due to the production and disposal of the vehicle.

Electrifying transport is expected to lead to a increase in overall electricity demand, albeit not sudden given that the market introduction of electric vehicles will be gradual<sup>24</sup>. However, especially if vehicles are charged at peak times, additional demand could lead to a need to install additional, potentially carbon-intensive power generation capacity. The risk can be mitigated if rechargeable vehicles are fully integrated into the electricity grid towards the implementation of smart grids, smart metering and appropriate consumer incentives as well as with other business models, such as exchange of batteries. Full integration would also allow batteries in electric vehicles to serve as secondary storage capacity for excess renewable energy production.

This means e.g. adapting the existing electricity distribution network and developing smart grids and communication protocols between the vehicle and the grid, enabling charging to be automatically timed to coincide with off-peak or excess intermittent renewable electricity, taking into account pricing impacts.

The Industrial Initiatives of the European Strategic Energy Technology Plan (SET-Plan) will be playing an important role in these developments. In particular the Electricity Grid Initiative anticipates the development of the electrification of transport while the European Industrial Bioenergy Initiative aims at further developing the technologies for producing advanced biofuels while respecting the sustainability criteria of the Renewable Energy Directive.

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<sup>23</sup> For 'well-to-wheel' (or WTW) impact means the sum on the impact of fuel production (well-to-tank) and the impact of the vehicle use (tank-to-wheel). WTW is an important element of the complete life cycle impact of a vehicle that also includes the environmental impact of production and disposal of the vehicle.

<sup>24</sup> The European Topic Centre on Air and Climate Change: Environmental impacts and impact on the electricity market of a large scale introduction of electric cars in Europe, p. 97.

The Commission will:

- determine and compare the environmental and carbon footprint of vehicles (internal combustion engine, electric, gas fuelled vehicles and hydrogen) based on a life cycle approach;
- evaluate whether the promotion of electric vehicles leads to the additional provision of low-carbon electricity generation via the promotion of low carbon energy sources to ensure that the electricity consumed by electric vehicles does not go to the detriment of low carbon electricity already expected from meeting the requirements of the Renewable Energy Directive<sup>25</sup>;
- evaluate the impact of the increased requirement for low-carbon electricity on the supply system and on the grid.

### 5. *Recycling and transportation of batteries*

Intensive use of batteries by electric vehicles brings its own environmental implications. Similarly hydrogen fuel cells will bring new issues such as the recycling of platinum catalysts. A high rate of recycling is also justified given the scarcity and price of some of the raw materials.

When they are no longer of use in vehicles because their energy storage capacity falls, batteries could be used for other purposes, such as stationary energy storage in homes. Provisions and schemes for this ‘secondary use’ will be considered.

The quantity of operational batteries that can be transported is currently limited by the Directive on transport of dangerous goods<sup>26</sup>. The resulting high transport costs contribute to the high cost of vehicle batteries.

The Commission will:

- consider what changes may need to be made to existing legislation in relation to the recycling of batteries and end of life vehicles to adjust to the new market circumstances;
- promote European research programmes on recycling and reusing of batteries;
- review options for changing the rules on transporting batteries after carefully evaluating the costs and potential risks.

## 3. GOVERNANCE

This Communication sets out a strategy to support the creation of a clean and energy efficient transport system in the EU that will contribute to achieving the Europe 2020 objectives by reinforcing Europe’s capacity to produce smart and sustainable products in a key sector.

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<sup>25</sup> Renewable Energy Directive , Directive 2009/28/EC (OJ L 140, 5.6.2009, p. 16).

<sup>26</sup> Directive 2008/68/EC (OJ L 260, 30.9.2008, p. 13).

Action in the areas identified by this strategy requires a high level of coordination across relevant policy areas (industrial, transport, energy, trade, climate action and environment, employment, health and consumers, research) and all stakeholders to put everything in place to give the EU a sustainable transport system with a competitive industrial base. The challenge requires ongoing discussion among interested parties and stakeholders who have not necessarily cooperated before — the automotive industry (vehicle manufacturers and suppliers), electricity providers, gas companies, grid managers, electric component manufacturers, scientific and standardisation bodies, as well as EU, national and regional authorities, municipalities and consumers.

In addition, a number of EU Member States have launched national programmes to promote electric mobility. The Commission recognises the merits of these programmes, which create an early market and consumer awareness of the technology. However, if the approaches are not coordinated, the EU's internal market may be fragmented and it risks losing its competitive advantage in this technology.

The Commission will:

- propose to re-launch the CARS 21 High Level Group with a revised mandate and extended stakeholder involvement to in particular address the barriers to market uptake of alternative technologies;
- implement the strategy to reduce CO<sub>2</sub> emissions from road vehicles under the European Climate Change Programme (ECCP);
- closely coordinate the workflows from ECCP and CARS 21;
- ensure the integration of this strategy into the overall EU transport policy with the forthcoming White Paper on European Transport Policy;
- ensure coordination and co-operation with Member States on the actions of this strategy in particular to secure the internal market, to avoid fragmentation of efforts, to create sufficient critical mass for the industry and to monitor and discuss national developments.

The added value of an EU strategy is clear: it draws together multiple initiatives and actions and creates a platform to coordinate efforts between European, national and regional actors and keep the internal market working properly. The initiative promotes better regulation by setting out long-term policy orientations and increase certainty for business operators.

To ensure its successful implementation, the strategy will be reviewed in 2014 to take stock of progress, to assess how the market and technologies have changed, and to recommend further action.