



To: [tren-future-of-transport@ec.europa.eu](mailto:tren-future-of-transport@ec.europa.eu)

Brussels, 19 October 2009

**Subject: Response to the Public Consultation of DG TREN on a sustainable transport future**

Dear Sir/ Madam,

Please find below the response of EURELECTRIC to the above mentioned public consultation.

We apologise for the delay in our response.

Sincerely yours,

Hans ten Berge  
Secretary General

**EURELECTRIC Response to the Public Consultation on the Communication on a  
Sustainable Future for Transport  
DG TREN – September 2009**

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**SUMMARY OF KEY RECOMMENDATIONS:**

- Support **pilot projects** for electric vehicles to analyse the impact on existing network architecture and the conditions for the development of a competitive market; future requirements for active demand management and storage possibilities need to be scrutinised in the light of the growing grid integration of renewable energies and challenges in balancing the power supply
- Continuous and credible contributions to the **research and development** of emerging electric drive and battery technologies
- Cooperation among the various stakeholders to ensure a **clear, stable regulatory framework** conducive to investments, in order to attain mass market deployment of electric vehicles
- Creation of **appropriate incentives** to overcome market hurdles and initial commercialisation hurdles for this technology; given the uncertainty of the oil price, the right fiscal and tax policies are needed to address the substantial first-cost hurdles facing the consumer
- **Deployment and availability of infrastructure** to serve consumers with different usage needs - eg different charging options - plus proper integration into the retail electricity market
- **Full recognition of the role of electric vehicles** in the forthcoming European Commission White Paper on a Sustainable Transport Future

## Introduction

The Union of the Electricity Industry – EURELECTRIC - is the sector association representing the common interests of the European electricity industry and its worldwide affiliates and associates. Recently, EURELECTRIC has intensified its work on electric vehicles (EVs) in view of recent technological advances, and of the role EVs could play in reducing the carbon emissions of transport, and in reducing other environmental impacts of transport. We feel there is an urgent need for action in this area; the increase in carbon emissions in the transport sector, - e.g. a 27% rise between 1990 and 2006, is outstripping increases in other sectors and indeed compensating for cuts in emissions in other areas. Whilst the solution to this will require many different measures, EURELECTRIC would like to take this opportunity to underline the contribution electric vehicles could make in reducing transport emissions.

In order to deliver upon the aim to improve the sustainability of transport, and in particular, make significant reductions in carbon dioxide emissions, a *progressive transition to **electricity*** as the energy source for surface transport is a major part of the solution. Whilst electricity already plays a major role as the energy vector for railways, there is a major opportunity for electrified road transport. Making a transition in road transport from oil to electricity can simultaneously address the combined challenges of improving energy security, ensuring fuel diversification, reducing greenhouse gas emissions, and improved local air quality. Unlike oil, electricity is secure, not highly dependent on unstable imports to the EU, and available everywhere. In terms of carbon emissions, electric vehicles using the existing electricity mix would result in emissions of around 80g/km, compared to the current fleet average for existing petrol and diesel cars of around 160g/km<sup>1</sup>.

However, electricity is set to progressively decarbonise over the next years. Indeed, the only realistic way to decarbonise road transport is to make a transition to electricity. This progressive decarbonisation is already underway – the EU's 2020 Renewables and carbon targets will play a major role. Indeed, given that electricity is subject to the Emissions trading system, with a progressively declining cap, additional electricity use by electric vehicles will in fact not lead to any net increase in total emissions – therefore the effective marginal emissions of EVs is zero. The CEOs of Europe's major electricity companies have made a commitment to decarbonise electricity completely by 2050<sup>2</sup>. EURELECTRIC is currently modelling this pathway to decarbonisation by 2050 and will bring forward results shortly.

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<sup>1</sup>Union of the Electricity Industry – EURELECTRIC, *Electric Vehicles The future of transport Electricity Drives Cleaner Brochure*, November 2008

<sup>2</sup> Union of the Electricity Industry – EURELECTRIC, *Climate Change, Electricity markets, supply security, A declaration by European Electricity Sector Chief Executives*, March 2009.

In short we believe that electrified road transport, has the potential to contribute significantly to solving present and future environmental and economic challenges of our transportation system. However, given the electric vehicles will not solve the economic problems created by traffic congestion, we also see the need to demand management of road transport and additional shift to public transport. Surface public transport itself needs to be further electrified, indeed, this may actually improve its attractiveness as a form of transport.

The European Commission can determine the pace of commercial success of electric vehicles by setting the right regulatory framework which entails investment security and by setting the right incentives for the industry and the consumer. With the right actions, electric vehicles have the potential to revolutionise transport, deliver on Europe's environmental goals for transport and radically improve the quality of life of Europe's citizens.

## 1. The e-mobility infrastructure:

In contrast to other new individual transport concepts the "refuelling" infrastructure for electric vehicles is already in place. A great number of electric vehicles can be supplied by the existing electricity grid structure. However in order to exploit the maximum of the benefits of electric vehicles, the electricity grid will need to be reinforced on the long run. Hence it is indispensable to create and set an encouraging climate to develop electric vehicle infrastructure.

Also, as correctly mentioned in the European Commission's Communication, there will be a need for **demonstration projects** with regards to smart grids which will play a major role in optimising the efficient charging of electric vehicles. An intelligent connection and interaction between the car and the grid will ensure security of supply under mass volume conditions as well as an optimum overall cost scenario. Through the use of smart grids, the charging of electric vehicles can be optimised in accordance with the availability of renewable electricity; indeed, there is a significant synergy to be exploited here, as EVs could increase the value of renewable electricity generated in typical periods of low demand.

**Standardisation** of EV charging infrastructure and service is also a key issue. A mass market for electric vehicles requires innovative interactions between the consumer and several stakeholders. This requires also a common hardware solution between the socket, connector and charging point for ensuring maximum customer convenience. It is important to standardise the technology as this would provide a securer investment climate and avoid market hurdles. Furthermore to support the Market partner Automobile manufacturer with a future oriented hardware solution. Additionally there is also a need for communication software standards, i.e. innovative communication and data handling based

on standardised metering protocols. The European Commission could play a key role in facilitating this standardization.

## 2. Action to promote the deployment of electric vehicles: funding and pricing

Replacing conventional internal combustion engine (ICE) vehicles would result in major reductions of carbon emissions, local air pollutants, and noise. In encouraging the shift towards cleaner transport, a logical approach to transport taxation and pricing is needed for both passenger and freight transport. EURELECTRIC believes that the **taxation and pricing of transport should be based primarily on carbon emissions**, though as mentioned, emissions of local air pollutants and noise should also be taken into account. We believe that this approach should be adopted in all of the following areas of taxation and pricing of transport:

- **Purchase taxes**
- **Annual taxes**
- **Fuel taxes** (should be based on carbon content of fuel)
- **Road pricing/Congestion charging** (pricing under such schemes should be differentiated according to carbon emissions of vehicle and other environmental impact).

Taxation and pricing based on CO<sub>2</sub> should be a linear tax with each incremental g/km of CO<sub>2</sub> taxed equally and thus technology neutral. Whilst recognising that the European Commission currently only has a limited competence in this area, we believe that it could try to set a framework for the basis of taxation and pricing in transport. The current plethora of taxation policies across the EU leads to a fragmented market which does not give always clear signals to manufacturers on what types of vehicles to develop for the EU market – the differences in national taxation policy lead to very different market preferences.

With regards to the overall costs, to attract buyers, electric vehicles must be cheaper or equal than gas-fuelled cars to operate. Given a high petrol price, electric cars can be competitive. However, given the higher costs of electric vehicles at the moment and in the coming years due to high battery costs and the new technology, subsidies could help to bridge the difference between the costs of an electric vehicle and internal combustion cars in an early market stage.

Overall, we feel there is a need here for the commission to at least study the question of taxation and pricing, and **disseminate best practice** to member states; however, within the 10 year timescale of the forthcoming transport white paper some form of **common European framework on taxation and pricing** would also appear to be a possibility.

### 3. Actions regarding technology

Although costs and performance of advanced batteries have improved in recent years in order to become a success batteries technologies for electric vehicles need to be further improved. The costs of batteries have already been declining for some years and some analysts expect that their production volumes will rise, the costs will further decline. Nonetheless even within the next years upfront purchase price of electric vehicles will remain quite expensive in comparison with internal combustion engine cars. The difference between the total lifetime costs of a car with an internal-combustion engine and an electrified car will depend for some time on the difference between the price of gasoline at the pump and the cost of the battery and of recharging it or the cost of leasing a battery and of recharging services.

Electricity companies have been assessing the possibilities of a vehicle to grid technology. This vehicle to grid technology offers options to level fluctuating power supply and to deliver grid services using the batteries. When the electric cars are coupled to the grid before, during or after recharging the battery, it could be used as a power storage device within the system management of smart grids. In a future power supply it may serve to integrate renewable energy systems or to avoid local grid congestions. However there is still a lot of research work that need to be completed.

In view of the above, we recommend that EU-funded **research and development in the area of batteries and smart grids be greatly accelerated**. It is notable that given the worldwide appeal of these technologies, there is a significant opportunity for **Europe to become a leader in these technologies**. However, at present, in the area of EV batteries at least, the EU risks being left behind by Asia and the US in establishing technology leadership.

### 4. Legislative framework

The European Commission should continue to tighten **emission limits** applied to both passenger cars and trucks, even beyond the foreseen EURO VI regulations. A further area for regulation could be **noise emissions**, in view of its increasing impact of human health and quality of life (the EEA estimates that 55% of the EU population of urban centres over 250.000 population are exposed daily to road noise levels exceeding 55 decibels). Particular attention could be given to noise from 2-wheeled vehicles, which appear to have disproportionate noise levels. It is notable that electric vehicles, with their much reduced noise level, would significantly enhance quality of life for those living in close proximity to heavily used roads.

## 5. Behaviour

The EU can influence customer behaviour in setting a common framework for **vehicle labelling** for carbon emissions and fuel consumption. We could suggest that the current provisions for EU-wide labelling are modified to clarify the clear labelling of electric vehicles, which are likely to arrive in car showroom in the next 2 years.

## 6. Coordinated action

Many of the recommendations we have already referred to above call for co-ordinated action across member states, but we re-iterate a number of these below:

- **The European Union should help in standardisation of charging infrastructure for electric vehicles (see section 1).** To ensure a rapid market penetration and avoid future incompatibilities it is however necessary to reach a cross-industry agreement on how to charge the vehicles. Standardising the infrastructure and the connection for electric vehicles to the charging appliances offers benefits to all stakeholders. To enhance progress in European car and battery technology research, development and innovation, development of standardisation is of the utmost importance.
- **The European Union should use available powers to encourage Member States to use CO2 emissions as the standard base** for car purchase and circulation taxes and road pricing (see also Section 2). Inconsistent taxes based on archaic power and engine capacity ratings are creating an uneven market which runs counter to EU principles.
- **The European Union should prioritize R&D funds for electric vehicle research (see section 4)** In addition a positive approach to EV demonstration projects should be given under the Intelligent Energy Europe framework. It is important to test network integration of electric vehicles in different environments due to different customer behaviour and existing infrastructure.
- **The European Union should establish a framework or best practice guidelines for the integration of electric vehicles. This could include some of the following:**
  - **Need for member states remove administrative and planning barriers** to the installation of public charging poles for plug-in and pure electric vehicles
  - **How to support infrastructure investments** such as public charging stations.

- **Best practice for encouraging use of EVs in cities** – congestion charges and parking fees to be reduced or removed for EVs; long term logical approach is for such fees to be based on environmental impact of the particular vehicle.

## **7. The external dimension**

In regard to the standardization of vehicle charging infrastructure, The European Union should consider co-ordinating this with work at the international level, particularly given the global nature of the car market. Especially a coordinated monitoring of the existing large scale demonstration projects at national level, could help to ensure an interoperability of the simple vehicle to grid connection as well that the idea of an European-wide trust centre concept could be fostered, based on the automatic registration process of a vehicle when it is connected to the grid.