



## DECARBONISING TRANSPORT THROUGH ELECTRO-MOBILITY

### Summary of Recommendations

Platform for electro-mobility, 21 April 2016

**Electro-mobility offers an unequalled solution to make Europe’s transport more efficient, less dependent on imported energy, low carbon, clean and quiet. Specifically, the electrification of surface transport will enable Member States to meet their greenhouse gas emission reduction targets for 2030; and addresses the public health crisis<sup>i</sup> arising from urban air pollution.**

**It can play a key role** in delivering the EU Transport White Paper objectives to halve emissions in urban centres by 2050; attain zero-emission urban logistics by 2030<sup>ii</sup>; and ban conventionally-fuelled cars from cities by 2050. Only electrification of transport in conjunction with broader sustainable transport principles provides such wide ranging benefits, which multiply when coupled with low-carbon generation of electricity connected through smart grids. The Energy Union’s aim to “to break oil dependency and to decarbonise transport, especially for road (short and medium distance) and rail”<sup>iii</sup> when implemented in conjunction with broader sustainable transport principles,<sup>iv</sup> should make the shift to electro-mobility a cornerstone of Europe’s 2016 decarbonisation of transport strategy.

**The Platform for Electro-mobility** is an alliance of organisations from across industries and transport modes representing producers, infrastructure managers, operators and users of transport means as well as cities and civil society. It shares a vision of electro-mobility for surface transport delivered through multiple modes including electric bikes, cars and vans, trucks, buses, rail and other public transport. The Platform has been created to drive forward this transformation.

**This paper** outlines the key EU and other actions needed to create a single market for electro-mobility and enable the Union to become a “leader in e-mobility”<sup>v</sup> generating growth and jobs. The upcoming *European Commission Communication on the Decarbonisation of Transport* provides the ideal opportunity to make detailed proposals in the areas identified above to help deliver these objectives.

**Access the complete platform recommendations here:**

<http://www.platformelectromobility.eu/2016/04/20/full-position-paper-platform-for-electro-mobility/>

## Barriers and solutions to electro-mobility uptake in Europe

The Platform has identified 6 key EU-level actions to address the principal barriers to the shift to electro-mobility in Europe:

### 1. A comprehensive EU strategy for clean and efficient electro-mobility on road and rail

Within the European Commission there are a range of initiatives to encourage electro-mobility key amongst these being the Sustainable Transport Forum (that is focused on recharging infrastructure); Horizon 2020 (research); and Gear 2030 (on the future of the EU automotive industry). But current efforts are uncoordinated and somewhat piecemeal and such a strategically significant and complex transition requires an **overarching EU wide strategy** (anchored in the Energy Union framework) to ensure the benefits are maximized and risks mitigated.

An EU strategy for electro-mobility should aim to increase the share of electric journey and freight kilometers travelled using vehicles and trains, many of which are manufactured in the EU. It should provide an EU-wide framework for electro-mobility throughout Member States by ensuring:

- An adequate, interoperable charging network to enable electric vehicle use EU wide
- An increasing choice of vehicles for drivers and public transport operators by incentivizing the supply of electric vehicles
- The EU automotive and rail industries capture value from the transition to electro-mobility
- Electro-mobility is integrated with smart, low carbon electricity generation and distribution
- Electric rail services and public transport continue to expand and increase in efficiency
- Research is directed to capturing value for EU businesses from the transition.

### 2. To more strongly embed electro-mobility within the Energy Union and all Member States' efforts to decarbonise transport

Whilst electric vehicles meet the typical daily driving needs of most motorists they are currently a niche market. There are a range of reasons including higher purchase cost, range anxiety, a lack of customer awareness of the benefits and limited choice (compared to conventional vehicles). While the outlook is promising as battery costs fall a supportive regulatory and tax environment is needed to grow demand; boost investment and innovation; and to increase supply. This is particularly true for Light Electric Vehicles (LEV) the market for which is hampered by current type approval regulations that are designed for conventional mopeds and motorcycles; and different safety rules being applied in Member states. There are several ways intervention at an EU level can assist such as by:

- **Extending the scope of the Clean Vehicles Directive<sup>vi</sup> to light and utility vehicles** such as road maintenance, waste disposal and social services transport vehicles as well as setting more ambitious criteria on purchase. This needs to be done through a **review of the criteria**.
- The European Market **for light electric vehicles will benefit from a simplified and more adapted Light Vehicles Type Approval Regulation<sup>vii</sup>** and harmonized safety rules. A regulatory fitness check is needed, possible leading to a separate technical regulatory framework for light electric vehicles is needed. The Commission should investigate the need for further European harmonization of safety rules, for instance in the field of helmet equipment.
- The EU should ensure a **single market for electric vehicles** by encouraging Member States to quickly and fully **implement the Alternative Fuels Infrastructure Directive<sup>viii</sup>**.

## Other solutions

- Member States, regions and cities should be encouraged to use both fiscal and non-fiscal incentives such as the creation of low/zero emission zones, controlled access to other restricted areas and incentives in the areas of parking and tolls, and should promote benefits of electro-mobility such as their lower total cost of ownership.
- To further support uptake and use of LEVs, Member States can reduce VAT on repair and services.

### 3. Incentivising smart charging through the New Energy Market Design

Across the EU regulatory support for smart charging and energy storage is lacking. Smart charging of electric vehicles should benefit EV owners by reducing their electricity costs in return for the enhanced grid stability and reliability. At present this rarely happens as customer incentives are insufficient because electricity spot-prices vary little, network tariffs are fixed, and opportunities for consumers to valorise their flexibility when to charge are lacking. The absence of a definition of energy storage in the Electricity Directive<sup>ix</sup> also limits the opportunities for electrified vehicles to contribute to grid balancing.

The lack of an adequate public recharging network both in cities and along the highway network is a significant psychological and practical barrier to potential buyers of electric vehicles and can limit the journeys which can be made using a clean electric vehicle. There is a particular need to integrate electric cars with existing public transport infrastructure (such as stations) to enable seamless electro-mobility journeys. At present there is a practical difficulty in many member states for investors seeking to develop new charging infrastructure due to uncertainty about selling electricity directly to drivers or selling electricity or services back to grid. To address these barriers:

- **The design of the New Energy Market** needs to market parties to invest in and use smart charging, including innovative grid fees and/or ICT infrastructure financing models. These would allow DSOs to manage their grids more intelligently; and retailers or service providers (including Energy Service Companies or aggregators) to offer innovative smart charging services to customers. Consumers need to receive clear financial benefits through **efficient price signals (time-varying prices) or smart contract based control signals**.
- **A clear regulatory framework for energy storage, including a definition of energy storage and services is lacking and should be developed as part of the New Energy Market design.** This should be designed in such a way as to: accelerate the harmonization of the internal market; remove double grid fees; allow small players to participate in energy and balancing trading markets; and, establish clear duties and rights of new players such as Energy Service Companies and independent aggregators.
- **New energy market design rules** need to ensure cities and public transport operators can resell energy (recovered energy from public transport systems) at charging points to private customers to provide greater incentives to invest in recharging infrastructure to support multimodal journeys.
- The European Commission must ensure Member States fully **implement the Alternative Fuels Infrastructure Directive** and do so in a way that does **not to create barriers for private investors and hinder competing charging solutions**. They should also incorporate smart charging into the National roll-out Plans.

## Other solutions

- Unclear connection rules for storage systems in certain Member States as well as remove double grid fees for storage tool owners who want to feed electricity into the grid.
- Include provision for e-vehicle charging for new and substantially refurbished homes with off-street parking, carparks and commercial developments. All public charging should be interoperable with other charging infrastructure to enable easy open access to any vehicle.

## 4. Accelerate Smart Metering, Interoperability and Standardisation

Extending the use of electric vehicles depends on the construction of an EU-wide targeted interoperable charging infrastructure including smart metering. Existing standards are insufficient and must be extended to encompass vehicle integration with smart grid and home energy management systems; also to ensure interoperability procedures, data models and communication interfaces. Standards are also required to ensure an adequate level of charging power.

For charging services, different market models exist but major concerns remain regarding consumers' rights to freely choose an energy supplier or an independent service provider. For consumers increasingly concerned about emissions generated by vehicles, a means must be provided to choose the (renewable) energy they want without restrictions imposed by charging stations.

There is rapid development within the charging industry and a new higher level of “ultra-fast” charging is already under development. Most observers now expect that by 2020 a majority of new vehicles will be capable of accepting at least 120kW (or higher) ultra-fast charging which will be more than double the present level of 50kW used by most vehicles – regulation needs to allow fast charging standards need to evolve. Most solutions lie at the EU level where:

- **European and national regulators should incentivize smart charging and smart metering (stationary or on-board) to ensure interoperability.** A key advantage of electro-mobility is that a large portion of the infrastructure is already technically in place. Standardisation solutions for an internal market of electro-mobility and its services requires the establishment of **smart metering** and improving collaboration between grid operators, service providers and end-users, strengthening system reliability and providing new business opportunities, developing **an adapted framework for the valorisation of consumers' flexibility**. An interoperable electro-mobility service market in Europe requires a **roaming** system that can be established between charging point operators, but should also allow electricity roaming, i.e. allowing customers to choose a (renewable) energy supplier or independent service provider of their choice. Of course, charging operators should be allowed to invest in other solutions such as direct payment at the charging point.
- For interoperability the Alternative Fuels Infrastructure Directive lays down minimum standards for AC and DC charging above 22kW. As most manufacturers are now supplying vehicles with bigger batteries than was the case when the Directive was approved and are also working on faster chargers, **the Commission should make a renewed and continuous effort to bring together the parties working on these systems to minimise the number of incompatible options that emerge.**

## 5. Improved efficiency and further electrification of Europe's Rail Network

Electric rail is well established in many countries, with 50% of the lines being electrified and 80% of the traffic running on electric traction in the EU. Despite this leading position of rail in electro-mobility there is lack of public support for rail research and development to improve energy efficiency. Also, the cost of further electrification of the rail infrastructure may not be economically justified, especially on low-density lines. Finally, public procurement also often focuses on the solutions requiring less initial investment, not taking into account a life-cycle costs approach during the tendering phase (environmental performance criteria etc.) which can be detrimental for the market uptake of more energy efficient solutions. The solutions are that:

- The **2014 Public Procurement Directives should be transposed in national law so as** to favour the use of tender award criteria based on environmental footprint and life-cycle-costs and include **criteria for transport<sup>x</sup>** which should be used to encourage more energy efficient solutions such as permanent magnet motors, regenerative braking and reduction of weight through the use of lighter materials and composites.
- To improve energy efficient and energy management systems **continued funding for R&D projects** such as the SHIFT2RAIL Joint Undertaking in needed.

## 6. Better Sustainable Urban Mobility Planning and funding is needed to integrate electro-mobility solutions into the urban public transport network

Urban transport is rarely planned and/or delivered in a holistic, sustainable way but new electro-mobility solutions provide the opportunity for better intermodality between electric public, private and shared vehicle options to improve the customer experience. The forthcoming review of the Sustainable Urban Mobility Planning (SUMPS) system in 2017 presents the ideal opportunity to include electro-mobility components into SUMPs or as an appendix, providing a separate comprehensive set of guidelines on 'electro-mobility in cities'.

To encourage investment in electrified transport systems and vehicles, ongoing public support is necessary both to reinforce public transport infrastructure and to facilitate the deployment of integrated e-mobility solutions and combined mobility. Financing mechanisms such as Public Private Partnership (PPP) should also be encouraged through the European Fund for Strategic Investment (EFSI) in conjunction with European Structural and Investment Funds and public investment. To that end, it is also important to provide predictability on EUROSTAT's provisions regarding debt consolidation for public-private partnerships for electro-mobility infrastructure transport projects, and in particular an incentivizing treatment of the incurred debt under the EU Stability and Growth Pact (SGP) and flexible ESA2010 rules.

To support the early market for electric buses additional EU co-funded demonstration projects are essential as is Horizon 2020 R&D funding for projects that seek to develop synergies between electric transport modes, long distance transportation and last mile delivery. These should be accompanied by new financial instruments schemes that support, for example, the scale-up of electric buses introduction at the level of fleet. This should include supporting projects seeking to build charging infrastructure to integrate e-buses, e-car-sharing and powered two-wheelers into an intermodal public transport network. Furthermore, the carbon footprint of vehicles should be given greater impact on award criteria within the revision of the Clean Vehicles Directive).

## 7. Other Solutions

- Complementing the existing European Joint Initiative with a **dedicated initiative on e-buses**. This would allow to gather private and public stakeholders under the same initiative to tackle the current challenges faced in this sector.
- Member States should ensure there is a designated authority to ensure the provision of interconnected, intermodal electro-mobility solutions. This should include consideration of **public transport hubs involving the sharing of electric vehicles, powered-two-wheelers and bikes**.
- The use of e-bikes and powered two-wheelers in cities for short urban trips would benefit from a denser distribution, servicing network as well as parking infrastructure.



<sup>i</sup> Air pollution is the largest single environmental health risk that we face today according to the WHO

<sup>ii</sup> European White Paper for Transport 2011

<sup>iii</sup> European Commission 2015, Energy Union package

<sup>iv</sup> Paris Declaration on Electro-Mobility and Climate Change

<sup>v</sup> European Commission 2015, Energy Union package, COM(2015) 80 final, p.24

<sup>vi</sup> Directive 2009/33/EC

<sup>vii</sup> Regulation 168/2013

<sup>viii</sup> Directive 2014/94/EU

<sup>ix</sup> Directive 2009/72/EC

<sup>x</sup> EU Green Public Procurement criteria