



## Electric mobility & PTWs

### The role of ePTWs in sustainable mobility

By 2030, 60% of the world's population will live in cities<sup>1</sup> and some automotive analysts have predicted that today's 1.2 billion global car fleet could double by 2030<sup>2</sup>. The existing urban infrastructure cannot support such an increase in vehicles on the road. These global trends, coupled with societal changes, recent technological developments and the urgent need of a carbon footprint reduction, have led to a significant evolution in how, both citizens and policymakers, understand mobility. In this evolution, powered two-wheelers (PTWs) and particularly electrically chargeable powered two-wheelers (ePTWs)<sup>3</sup> will play a key role in defining future mobility and especially urban mobility.

With the European Commission's renewed commitment for a "European Green Deal", EU institutions have strengthened their determination to ensure greater deployment of electrically chargeable vehicles in the next decade. ACEM members are also fully committed to the further decarbonisation of road

<sup>1</sup> Shannon Bouton et al., How to make a city great, McKinsey & Company, September 2013.

<sup>2</sup> Joyce Dargay, Dermot Gately, and Martin Sommer, "Vehicle ownership and income growth, worldwide: 1960–2030," Energy Journal, Volume 28, Number 4, 2007, pp. 143-70.

<sup>3</sup> Electrically chargeable vehicles include battery electric vehicles and plug-in hybrids, both of which require appropriate recharging infrastructure. They also include hybrid electric vehicles (mild or full) that are powered by an internal combustion engine but also have a battery-powered electric motor that serves to complement the conventional engine and their electricity is generated internally, not requiring recharging infrastructure.

# Electric mobility & PTWs

## The role of ePTWs in sustainable mobility

transport and believe that the EU - as well as its Member States - should play a key role in removing obstacles to the electrification of vehicles and ensuring favourable market conditions for the uptake of new mobility technologies.

Compared to cars and vans, smaller and lighter vehicles such as ePTWs are best positioned to fully exploit the advantages of electric mobility, offering an ideal response to the new mobility and sustainability challenges. While shorter-term forecasts of electrically chargeable vehicle sales remain significantly lower than their less expensive fossil-fuel counterparts, this trend could be contradicted in the urban context where driving distances are shorter and people are less concerned by the limitations of battery range. In this sense, ePTWs are very much suited to urban use - including sharing, last-mile and delivery services - and can help improve air quality and reduce traffic noise levels in European cities.

The PTW industry clearly understands that electromobility will play a key role in the future mobility of people and goods. Manufacturers in ACEM are progressively increasing the availability of electric models designed to meet these new consumer mobility and citizen needs, within or around cities. Policymakers should also recognize that, due to the already limited impact on climate change and the relatively lower pollutant emissions compared to other vehicles, PTWs with conventional internal combustion engines (ICE) still have an important role to play in the foreseeable future. This transition from ICE engines to fully electric powertrains could also be accompanied by alternative efficient technologies such as hybridization.

Today, the ePTW market share still represents only 4.93% of PTWs registered in the EU<sup>4</sup>. Even though this market grew by 71% compared to the same period of 2018, it is still a small proportion of the total number of registrations. Several challenges still lie ahead for consumers to access and use electrically chargeable powered two-wheelers in a satisfactory manner, especially when it comes to affordability, safety and charging infrastructure.



BMW C evolution

<sup>4</sup> First half 2019 registration data (ACEM).

## Appropriate and adequate charging infrastructure

A balanced supply of charging and refuelling infrastructure, truly harmonized across the Member States, is a prerequisite for stronger sales of alternatively powered vehicles across the EU.

According to the European Alternative Fuels Observatory, of the roughly 160,000 charging points available today, 75% are concentrated in only five countries (the Netherlands, France, Norway, Germany and the UK)<sup>5</sup>. The industry is looking forward to the development of a mature ePTW market, however, several technical challenges need to be addressed.

Negative public perception of battery range and vehicle performance, make electric vehicles less attractive than conventional internal combustion engines. It can be assumed that a natural market shift will not happen without the development of a widespread interoperable charging infrastructure that meets consumer needs.

Having already contributed to ensuring improved inter-operability of ePTWs and AC public charging infrastructure, to satisfy the demand for a faster and more powerful recharging supply, the motorcycle industry is also working on standardization for the direct current (DC) charging infrastructure suitable for ePTWs with higher energy capacity. This should also be encouraged and, when ready, referenced at EU level for Member States to implement at national level.



Vespa Elettrica

<sup>5</sup> Smart Mobility Report, September 2019, Politecnico di Milano, Energy and Strategy Group.

## ACEM Recommendations on charging infrastructure

Administration	Recommendations
<b>Member States</b>	<p>Member States must also give preference to inter-operable and harmonized modes and connectors over domestic plug systems when deploying such charging infrastructure for ePTWs.</p> <p>National authorities must implement recharging infrastructure for ePTWs, following EU Regulation 2019/1745:</p> <ul style="list-style-type: none"> <li>• For ePTWs up to 3.7 kVA: socket-outlets or vehicle connectors of Type 3A compliant with standard EN 62196-2 (for Mode 3 charging).</li> <li>• For ePTWs above 3.7 kVA: at least socket-outlets or vehicle connectors of Type 2 as described in standard EN 62196-2.</li> </ul>
<b>European Commission</b>	<p>The European Commission must promote investments for the development of a large-scale charging infrastructure equally widespread across Member States, to stimulate consumer acceptance of alternatively powered vehicles.</p> <p>It must also support the development and soon thereafter the reference, in legislation, to the adopted standard on DC charging for small and medium ePTWs:</p> <ul style="list-style-type: none"> <li>• DC charging system: as described in standard IEC 61851-25.</li> <li>• DC Connector and vehicle inlet: as described in standard 62196-6.</li> </ul>

## Making ePTWs attractive for all

### More incentives for PTWs

Affordable mobility remains a major issue for many European citizens. As pointed out by the European Environment Agency<sup>6</sup>, the market uptake of electric vehicles can be enhanced by well-designed incentives and taxes. However, very often national and local government initiatives incentivize electric cars only, neglecting the role ePTWs will play, not only in achieving EU decarbonisation targets, but also in reducing congestion.

An ePTW can be an entry point for households into trying an electric vehicle for the first time. As these

<sup>6</sup> "Fiscal instruments favouring electric over conventional cars are greener", EEA, published on 24 September 2019.

vehicles are often used for shorter journeys and can be a more affordable alternative to an electric car, it is likely that the purchase of an ePTW will be the first time many people will experience owning an electric vehicle. EPTWs can be an introduction for many to confidence in EV technology, as well as helping contribute to the set-up of home charging infrastructures for e-vehicles.

The ambitious target identified by the EU Institutions will only be achieved if accepted by the whole of society. National governments - with the support of the EU - should put in place positive fiscal incentive schemes to effectively promote change in consumers' behaviour and to promote the uptake, not only of electric cars, but also of PTWs with alternative propulsion technologies, such as ePTWs.

### Vehicle usage Restrictions

A similar recommendation applies when looking at the spread of urban area restrictions on vehicle usage (emissions' restrictions, congestion charges, restriction zones etc.). Many urban centres are "implementing a one-size-fits-all approach, which risks excluding many everyday users"<sup>7</sup>, that also includes ePTWs users. As acknowledged by the European Commission in its Urban Mobility Package<sup>8</sup>, while decisions on access regulations are to be taken at local level, there is considerable potential for a more common and coordinated approach across the EU, regarding vehicle characteristics, information and communication, as well as evaluation. PTWs with alternative propulsion technologies, such as ePTWs, should therefore be included in the Sustainable Urban Mobility Plans (SUMP) and hence should be promoted as an affordable urban mobility alternative to traditional cars.

It should also be considered that PTWs are generally much smaller in size than cars which will greatly support cities and municipalities in dealing with traffic congestion and parking space issues. It is therefore valuable that cities and municipalities take into consideration vehicle size/weight when preparing air quality measures.

### Mitigating electricity supply challenges

The impact of market uptake of electric vehicles is not limited to the transport sector, it also affects the electricity sector: it adds to the grid load, requires charging infrastructure and creates opportunities for smart charging. Electricity distribution grids, in many cases already overloaded, will have to further adapt to support the additional power which will be required.

Besides the deployment of adequate and interoperable public charging stations, that should be undertaken by Member States today, the industry believes that ePTWs' faster recharge and lower energy capacity will help soften the increased electricity demand. ACEM calls on the European Union and the Commission in particular, to support efforts in that direction in a sustainable manner.

The possibility to equip light ePTWs with swappable batteries could be seen as one way to achieve a reduction of charging times for the user and a reduction of peak time grid load, due to their greater flexibility in choosing the charging time of day.

<sup>7</sup> Policy Position on Urban Vehicle Access Restrictions, FIA Region I, 04/04/2019.

<sup>8</sup> "Together towards competitive and resource-efficient urban mobility", COM(2013) 913.

## Importance of the Circular Economy

As pointed out by the European Environment Agency <sup>9</sup>, in the electro-mobility discussion, the Circular Economy perspective plays an important role and great attention should be given to the recycling, reuse and remanufacturing of batteries. Battery sustainability and recyclability represent critical issues that will have to be addressed in the next years by the European Institutions. If the electro-mobility sector is to play an increasing role in the European market, battery manufacturing should overcome significant barriers (i.e. reduced access to critical raw materials and lack of an efficient circular approach to batteries) and contribute to the creation of a functional EU battery value chain.

Regulatory measures - such as traceability or minimum design requirements - and financial instruments could both ensure a minimum level of availability of critical raw materials from EU internal sources and promote higher reusability levels, contributing to a greater EU circular approach in the management of the battery life-cycle.

## ACEM Recommendations on improved uptake

- Support national governments in the promotion of harmonized **positive incentives schemes for PTWs with alternative propulsion technologies**.
- Support national governments in the promotion of **positive incentives schemes for charging infrastructure suitable for ePTW**.
- Promote **policy interventions** at both local and national level in favour of market uptake of PTWs with alternative propulsion technologies, such as ePTWs, in the EU.
- Ensure **technology neutrality**: this transitional process will necessarily cross different stages and imposing specific technologies means to limit choice and constrains innovation.
- Promote a **circular economy approach** through regulatory measures and financial instruments to ensure a better access to critical raw materials and the development of an EU battery value chain based on the principles of reusability and recyclability.

<sup>9</sup> "Electric vehicles: a smart choice for the environment", interview with Andreas Unterstaller published in the December 2018 issue of the EEA Newsletter (04/2018).

## Ensuring safe and reliable solutions

### Safety compliance is imperative

Full compliance with safety and performance-related requirements established in UNECE Regulation R136 as well as in the set of ISO and IEC standards defined specifically for ePTWs should be ensured. This is of utmost importance to guarantee a level playing field among different mobility solutions and minimize the risk of having unsafe products that could affect user safety in European cities.

### Shaping the growth of the electric micro-mobility segment

There is no doubt that urban mobility will also be characterized by a multitude of new products, following the fast growth of the so-called micro-mobility sector (kick-scooters, “segways”, monowheels, hoverboards etc.). The proliferation of many new vehicle types raises challenges today. ACEM members believe that [micro-mobility tools and their usage should be properly regulated](#) with road safety considerations in mind. ACEM calls on the EU institutions to assess the regulatory prescriptions needed to frame the access and use of such micro-mobility alternatives, promoting as much as possible a harmonized approach across EU countries.



eQooder

# Electric mobility & PTWs

## The role of ePTWs in sustainable mobility

On the issue of electrical safety, ACEM urges all policy-makers, at EU and national/local levels, to take the following measures:

- Request manufacturers to abide by the minimum construction requirements set in the new standard EN17128<sup>10</sup> and the requirements laid down in UNECE R136.
- Introduce these references into legal acts (i.e. in the EU Machinery Directive) in order to bring legal clarity for all, including manufacturers.

### Market surveillance for enhanced consumer safety

Considering that consumers will be the most affected by the ongoing mobility revolution, decision makers should ensure that the variety of mobility solutions respond to the highest safety and reliability standards. Market surveillance of safety standards is particularly important for non-type approved vehicles (including EPACS, e- 'kick' scooters etc.). Market surveillance measures are of paramount importance to prevent unfair competition. Products that do not meet EU quality and safety standards, ultimately damage both EU consumer safety and the competitiveness of compliant manufacturers.

### ACEM Recommendations

- Promote an EU harmonized approach to regulatory prescriptions and use requirements to ensure a level playing field between different vehicles that share the same road.
- Increase market surveillance to ensure fair trade conditions between manufacturers and reduce the number of non-compliant vehicles circulating on EU roads.

### About ACEM

The European Association of Motorcycle Manufacturers (ACEM) represents manufacturers of mopeds, motorcycles, three-wheelers and quadricycles (L-category vehicles) in Europe.

ACEM members include 18 manufacturing companies: BMW Motorrad, Bombardier Recreational Products (BRP), Ducati Motor holding, Harley-Davidson, Honda, Kawasaki, KTM, KYMCO, MV Agusta, Peugeot Scooters, Piaggio, Polaris Industries, Qooder, Renault, Royal Enfield, Suzuki, Triumph Motorcycles and Yamaha.

ACEM also represents 17 motorcycle industry associations in 15 different European countries. About 300,000 jobs depend on the L-category industry in Europe. There are about 35.3 million motorcycles and scooters on Europe's roads.

To find out more about ACEM please visit [www.acem.eu](http://www.acem.eu)

<sup>10</sup> "Light motorized vehicles for the transportation of persons and goods and related facilities and not subject to type approval for on-road use - Personal light electric vehicles (PLEV) - Requirements and test methods".