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CLEAN MOBILITY: RECOMMENDATIONS FOR ACCELERATING THE DEPLOYMENT OF ALTERNATIVE FUELS INFRASTRUCTURE IN EUROPE

EXECUTIVE SUMMARY

With the signature and ratification of the Paris Agreement, the EU committed to contribute to keeping global temperature increase to well below 2°C and to pursue efforts to limit increase to 1.5°C above pre-industrial levels.

The **lack of infrastructure for recharging and refuelling, insufficient smart grid development** and **difficulties for consumers to easily use the infrastructure** remain among the barriers that hinder the wider use of vehicles and vessels running on alternative fuels today. An integrated approach is needed to remove these barriers, which requires a common policy framework for vehicles, infrastructures, electricity grids, economic incentives and digital services across the EU, national, regional and local levels. The Action Plan and Investment Solutions for the trans-European Deployment of Alternative Fuels Infrastructure provides important momentum at a moment in time where commitment to sustainable transport infrastructures in the light of the Paris Agreement needs to gain in importance.

The European Technology Industries represented by Orgalime support the promotion of a sustainable range of transport solutions and the build-up of interoperable, alternative fuels infrastructure across the EU as a means to stimulate growth, jobs and technology take up. In concrete terms, we advocate for accelerating the deployment of alternative fuels infrastructure in Europe through especially the following actions:

- Setting in place clear requirements and measurable targets during the upcoming review of the Directive 2014/94/EU on the Deployment of the Alternative Fuels Infrastructure (DAFI): in particular, setting recommendations on the level of deployment of smart charging and power-to-x technologies (sector coupling) and requiring this information in National Policy Frameworks (NPFs) during the next DAFI review.
- Maximising synergies between transport, energy and telecommunications through the integration of smart grid technologies.
- Supporting the acceleration of the deployment of alternative fuels infrastructure in the future EU multiannual financial framework.
- Making use of the EU's energy taxation framework to incentivise the uptake of innovative technologies, including alternative fuels infrastructure and remove the existing barriers.
- Swiftly implementing article 8 of the new Directive 2018/844/EU (EPBD) regarding the installation of recharging points and ducting infrastructure in buildings and facilitate the deployment of smart charging from the outset.

Orgalime, the European Technology Industries, speaks for 45 trade federations representing the mechanical, electrical, electronic, metalworking & metal technologies industries of 23 European countries. The industry employs nearly 11 million people in the EU and in 2017 accounted for some €2000 billion of output. The industry represents over a quarter of the output of manufactured products and over a third of the manufactured exports of the European Union.

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- Making recharging infrastructures available to all electric vehicles (EVs) in a non-discriminatory manner, and in accordance with the relevant technical specifications of DAFI independently of the fast charging technology in case of high power charging infrastructure.
- Building in smart charging for recharging points from the beginning.
- Defining minimum standards for future charging stations in line with EU data protection and privacy rules (payment systems, protocols, data reporting, smart charging) to ensure the installation of future-proof charging stations.
- Support solutions of energy storage and usage based on power-to-x technologies, such as power-to-liquid and power-to-gas (e-fuels) where today's technologies of storing required amount of electrical energy are limited.

We specify our recommendations hereafter:

1. Introduction

With the signature and ratification of the Paris Agreement, the EU committed to contribute to keeping global temperature increase to well below 2°C and to pursue efforts to limit increase to 1.5°C above pre-industrial levels.

Road transport sector is a major contributor¹ to greenhouse gas emissions in Europe and in the past few years emissions have only continued to grow. If this trend continues, it will offset reductions made by other sectors to combat climate change. Thus, decarbonisation of all transport sectors needs to be accelerated and greenhouse gas emissions have also to be firmly in line with the EU's energy and climate change commitments.

Orgalime, the European Technology Industries, welcomes that the Commission's second Clean Mobility Package includes an **Action Plan and Investment Solutions for the trans-European Deployment of Alternative Fuels Infrastructure** (COM(2017)652). In this paper, we provide the recommendations of European Technology Industries and seeks the support of EU policy makers for their implementation.

The worldwide decarbonisation of the energy system in three key sectors – power, transportation and buildings - in combination with digitalisation and ever more decentralised energy systems is an irreversible trend. If designed properly, the transition to a low carbon economy presents significant opportunities for a competitive future EU industry that benefits society as a whole.

The EU aims to be a global leader in the path to low-carbon, smarter and healthier society. However, reality shows a different picture:

Last year, China continued to be a global leader of investment in clean energy technologies, such as batteries and electric vehicles, according to the report [Global EV Outlook 2017](#) by the International Energy Agency and the [Report by the Institute for Energy Economics and Financial Analysis](#) (IEEFA). The reports also found out that assisted by government policy, Chinese EV manufacturers are rapidly building domestic capacity. Gaining a strong head start in the electric vehicle sector domestically is a prelude to a push into international markets. The Commission states in its communication 'Delivering on low-emission mobility' (COM(2017)675), which forms part of Clean Mobility Package, that the car was invented in Europe and Europe must take the lead in re-inventing it.

We support the Commission's determination to cut transport emissions and we think that now it is the time to deliver. If the right conditions and incentives are in place, European industry will be able

¹ European Environment Agency <https://www.eea.europa.eu/data-and-maps/indicators/transport-emissions-of-greenhouse-gases/transport-emissions-of-greenhouse-gases-10>

to compete globally, generate innovation, growth and local jobs. It is clear that the transport sector is undergoing a fundamental transformation.

Innovation has to be at its centre, providing opportunities for a thorough modernisation of the transport system, driven by innovative, cutting edge technologies.

The primary objective of the Action Plan should therefore be tapping into the opportunities of the ongoing transformation, reinstalling EU technology leadership in this area and correcting market failure.

2. Detailed comments and recommendations on the Action Plan Alternative Fuels Infrastructure Deployment

The Commission rightly stresses in the Communication ‘Delivering on low-emission mobility’ that consumers will only truly make the shift to clean vehicles and other clean mobility solutions if alternative fuels infrastructure is available and if they can make informed judgements about the costs of the different fuel-types on offer and the related total cost of ownership over the full life of the vehicle. The current lack of recharging and refuelling infrastructure and difficulties for consumers to easily access it create market barriers to the wider use of alternatively fuelled vehicles and vessels. Removing market barriers therefore has to be the key item of the 2nd Clean Mobility Package, as is suggested in the Action Plan on Alternative Fuel Infrastructure.

With the **aim of creating an interoperable EU backbone infrastructure by 2025**, particularly for the **urban and sub-urban areas** and the **trans-European transport network (TEN-T) Core Network corridors** so that vehicles and vessels could easily move across the borders and for long distances, we comment on the five groups of actions suggested by the Commission as follows:

Spurring completion and the implementation of the NPFs

The Directive on the Deployment of Alternative Fuels Infrastructure (DAFI) (2014/94/EU), which is a key tool to boost sustainable transport, obliges Member States to develop national policy frameworks (NPFs) outlining their national targets and objectives, and supporting actions for the development of alternative fuels markets and their infrastructure in close cooperation with the industry concerned. Member States had to submit these plans to the Commission by 18 November 2016.

At the time when the action plan was issued, 26 NPFs have been submitted. Malta and Romania are yet to submit their NPF while Greece and Slovenia have submitted but the plans were not published as the translations were ongoing. Sweden did not submit estimates for electric vehicles nor their recharging infrastructure. Further, in most cases Member States designed their NPFs with some, however not sufficient consultation with the industry.

Analysis of the submitted NPFs shows that ambition among Member States to support alternative fuels vary greatly, however ten Member States (Austria, Denmark, France, Finland, Sweden, Germany, Netherlands, UK, Ireland, and Luxembourg) clearly prioritize e-mobility. Almost all NPFs define targets for publicly accessible recharging points. However, only seven NPFs (Cyprus, Denmark, Hungary, Italy, Latvia, Netherlands and Portugal) define a target that would ensure at least one publicly accessible recharging point per 10 electric vehicles for 2020. For the Member States that provide future EV estimates, the ratio of electric vehicles per publicly accessible recharging point ranges from 5 (in Latvia) to 32 in the different NPFs. The planned EU targets (200 000), which are ambiguously defined in some cases, also fall significantly short of the originally proposed targets that were used for the impact assessment of the proposed Directive (440 000) in the conservative scenario where by 2020 there will be 4 million electric vehicles on the road².

² Impact Assessment for Directive 2014/94/EU

In addition, the Commission notes that by 2025 around five times more or around 2 million publicly accessible recharging points would be needed. Furthermore, the NPFs scarcely cover shore-side electricity.

We believe that this somewhat moderate ambition of NPFs is also a consequence of the soft requirements established by Article 4.1 of DAFI, which read as follows: “*Member States shall ensure, by means of their national policy frameworks, that an appropriate number of recharging points accessible to the public are put in place by 31 December 2020, in order to ensure that electric vehicles can circulate at least in urban/suburban agglomerations and other densely populated areas, and, where appropriate, within networks determined by the Member States*”.

Clearer and firmer requirements in the DAFI would, in our opinion, be an efficient means for promoting more ambitious objectives in NPFs. Therefore, we recommend including concrete and binding targets for the Member States when revising the DAFI in accordance with Article 10 by 2020.

Recommendations for the implementation of the NPFs:

- **The Commission shall act as the Guardian of the Treaty and urge Member States that have not submitted their NPFs or have done so only partially to do so immediately.**
- **Countries should realistically align their public charging infrastructure and electric vehicle ambitions according to a balanced ratio of about one public charging point for 10 electric vehicles by 2020.**
- **Some countries need to reinforce their NPFs and set ambition higher. In doing so, they need to closely involve the industry concerned. Setting in place clear requirements and measurable targets during the upcoming review of DAFI would also contribute to more ambitious NPFs.**
- **In the context of the IMO (International Maritime Organisation) strategy to halve greenhouse gases emissions in shipping by 2050, we recommend establishing and deploying ambitious plans for shore side electricity infrastructures in harbours with the proper incentives schemes. This is complementary to the deployment of other alternative fuels infrastructure deployment, such as LNG.**

Investment support

Orgalime supports the actions proposed by the European Commission aimed at building the backbone of EU-wide recharging infrastructure by 2025 notably, **accelerating the roll-out of alternative fuels vehicles and infrastructure and developing flagship actions on the TEN-T network**. However, those infrastructures should be accessible to all electric vehicles in a non-discriminatory manner.

Given the emerging variety of alternative fuels and drive technologies dependent on the mode and purpose of transport, it is necessary to keep all alternative technological approaches on the table and to develop them further, as a final assessment of their long-term market viability is not yet possible. At the same time, new infrastructures are also required to convert the transport systems, including infrastructure for charging battery-driven vehicles, overhead lines for electrical street systems and the expansion of infrastructure for alternative gas fuels (e.g.: CNG, LNG, hydrogen) and connections to neighboring EU countries. While for light-duty vehicles direct electrification is generally the most efficient way to reduce greenhouse gas emission, there are certain applications like deep sea shipping, aviation or even long-distance transport on-road where today's technologies of storing required amount of electrical energy are limited.

These applications require gaseous or liquid energy carrier with a high energy density and as a result, would have an immediate effect on the reduction of GHG-emissions and accelerate the energy transition, too.

Synergies between transport, energy and information and communication technologies in relation to both long-distance and urban mobility must indeed be maximised. We are convinced that it is essential to integrate the decarbonisation of transport and energy supply, smart grids and innovative energy storage solutions.

Orgalime also sees great savings potential in an optimisation of logistics chains through intelligent networking. Industry 4.0 approaches can also contribute toward a significant increase in efficiency in the transport sector.

Recommendations for investment support:

- **Maximise synergies between transport, energy and telecommunications through the integration of smart grid technologies.**
- **Support accelerating the deployment of alternative fuels infrastructure in the future EU multiannual financial framework and its related financial instruments, including the European Structural and Investment Funds, the new InvestEU programme, the revised Connecting Europe Facility and new Horizon Europe programme.**
- **Investment support should be targeting the goal of meeting at least 1 publicly accessible recharging point per 10 EVs target and smart charging technology deployment.**
- **Use the EU's energy taxation framework to incentivise the uptake of alternative fuels and remove the existing barriers.**
- **Make recharging infrastructures available to all EVs in a non-discriminatory manner, and in accordance with the relevant technical specifications of DAFI independently of the fast charging technology in case of high power charging infrastructure.**
- **Support solutions of energy storage and usage based on power-to-x technologies like power-to-liquid and power-to-gas (e-fuels) where today's technologies of storing the required amount of electrical energy are limited.**

Enabling actions in urban areas

Recently reviewed Energy Performance of Buildings Directive (EPBD) requires the installation of recharging points and ducting infrastructure in non-residential and residential buildings and that should encourage more widespread deployment than at present. When implementing the Directive, Member States should keep in mind that thanks to their demand response and storage capacity, EVs can help to increase the level of flexibility and consequently the level of Renewable Energy Sources (RES) in the future grid. Smartly managing the charging process is the issue: efficient off-peak charging and charging in peak hours only when there is plenty of RES should be the preferred options to charging. Charging points should be increasingly capable of adapting power charging levels in reaction to price and energy management system signals, or to conditions in the power system.

In addition, as the European Commission is looking into opportunities to promote fleet solutions for alternative fuels in urban areas, including the financing of urban projects with a focus on alternative fuels, we recommend that this support also addresses with high priority the deployment of smart charging technologies for fleets.

Recommendations for enabling actions in urban areas:

- **Member States should swiftly implement article 8 of the new Directive 2018/844/EU (EPBD) regarding the installation of recharging points and ducting infrastructure in buildings and facilitate the deployment of smart charging infrastructure from the outset.**

The European Technology Industries

- **The Commission should use its oversight to ensure timely and effective implementation and close remaining gaps via all possible routes, including the review of DAFI in 2020.**
- **Create incentives for workplace charging and charging solutions.**
- **Continue to remove regulatory barriers, including in tenancy laws and right to abode: there should be a charging point in every new or refurbished home as of 2019.**
- **Increase ambition in installing charging infrastructure in publicly accessible spaces (e.g. commercial parking garages, train stations, airports, etc.) through non-ambiguous, measurable requirements and targets in the DAFI.**
- **Incentivise EV circulation or parking in cities (free toll in big cities, parking for free on public road...).**

Increase consumer buy-in

The willingness of the consumers to switch to alternatively fuelled vehicles will largely depend on the easy access to the infrastructure and its affordability. We thus support the Commission in focusing on e-mobility services, in particular pricing for charging electric vehicles and want to stress **the importance of providing adequate and precise information to consumers about its bill.**

The payment services should make use of certified and interoperable measuring devices (smart meters) where technically feasible and economically reasonable, to have a sound basis for billing consumers according to the respective provisions of the DAFI.

In addition, we welcome the Commission's initiative to adopt an implementing act on fuel price comparison. However, we mind that application of adopted common methodology for alternative price comparison³ would raise serious issues for electric vehicles. A range of business models exists and will always exist for EV charging payments. These could be based on membership contracts with car purchasing or pay-as-you-go schemes at the machine. Importantly, payment will not be based entirely on kWh consumed, but must factor in the cost of infrastructure servicing and provisioning, which is different to traditional service stations for petrol or diesel. For example, a higher price is expected for fast charging in comparison to slow charging, since the service being provided will be factored in.

Providing a price comparison based on kWh with other fuels would be misleading and create confusion for consumers given the payment methods and how these are equated for EV charging. Therefore, we call on the Commission to revise the implementing act to ensure a range of business models for the operation and payment of EV charging can exist on the market. Any price comparison should be carefully considered to avoid the risk of blocking market deployment for EV charging infrastructure.

Recommendations for increasing consumer buy-in:

- **Consider the highest possible level of interoperability regarding publicly accessible recharging points.**
- **Promote the availability of data for location, real-time occupation, and utilisation of all charging stations in line with EU data protection and privacy rules.**
- **Promote a centralised, publicly available map of available charging infrastructure to increase consumer acceptance.**
- **Ensure that the payment services make use of intelligent metering systems where technically feasible and economically reasonable to have a sound basis for billing consumers.**

³ Commission Implementing Regulation (EU) 2018/732

Integrating electric vehicles into the electricity system

The Commission's Action Plan in our view rightly emphasises the need of smart charging technology. Indeed, an increasing uptake of e-mobility will increase electricity demand on the grid.

To invest efficiently into the electricity network, priority should be given to network management technology that would allow, for example, that charging takes place when networks are not constrained, and sufficient clean electricity is available. This also helps to have a better penetration of renewable energy. Therefore, smart charging technologies should be rolled out from the outset. In that respect, adopting and implementing chapter III of Electricity Directive, and article 15 on "Active Consumers" and article 17 on "Demand Response" in particular, will be essential.

Furthermore, we support Commission's position that Member States should ensure that the technologies that enable smart charging, such as smart meters, are rolled out.

In addition, we agree that already adopted and upcoming smart charging standards for electric vehicles (e.g. ISO 15118 and IEC 63110) must be applied as soon as the standards are effectively available and without the requirement of upgrading existing infrastructure.

Recommendations on the EVs integration into the electricity system:

- **As soon as these pending Clean Energy Package proposals are adopted, Member States should swiftly transpose them by adopting a supportive legislative framework for demand response and smart charging.**
- **Build in smart charging technologies for recharging points from the beginning.**
- **Set recommendations on the level of deployment of smart charging and require this information in NPFs during the next DAFI review.**
- **Define minimum standards for future charging stations in line with EU data protection and privacy rules (payment systems, protocols, data reporting, smart charging) to ensure the installation of future-proof charging stations (i.e. open access data and the ability to offer smart functions, such as variable electricity tariffs).**
- **For more details regarding e-mobility and smart charging, please see Orgalime position paper [here](#).**
- **For more details on connected intelligent transport systems, please see Orgalime position [here](#).**

3. Conclusion

Orgalime representing the European Technology Industries stands ready as a stakeholder to actively contribute to these important actions, which, in our view, will not only contribute to realising our transport, energy, climate and environmental objectives, but at the same time increase consumer satisfaction and overall societal well-being. Besides, such a proactive, innovative policy would also secure the EU's position as the home of leading-edge ICT-enabled industrial innovation, generating local jobs and growth in Europe.

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