Contribution to the EC strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050.

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March 2019

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On 28 November 2018, the European Commission presented its strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050 which proposed an objective of net-zero emissions for transport by 2050.

The Platform for Electro-mobility:

1) welcomes this strategy and endorses the objective of a complete decarbonisation of transport by 2050. Such a transformation of the mobility sector will be driven by electro-mobility, which is already a cost-efficient and fast enabler of the decarbonisation of transport.

2) endorses the Commission vision that meeting the Paris agreement goal is possible with current technologies and those close to deployment; that it is in Europe's interest to stop spending on fossil fuel imports and invest in meaningful improvements to the daily lives of all Europeans.[1]

3) acknowledges that all transport modes should contribute to the decarbonisation of our mobility system and that it "requires a system approach with low and zero emission vehicles, strong increase in rail network capacity, and a much more efficient organisation of the transport system, based on digitalisation; incentives for behavioural changes; alternative fuels and smart infrastructure; and global commitments. All this driven by innovation and investments."[2]

Electro-mobility is a major enabler of climate neutrality and therefore deserves support through the right policy framework and budgetary tools, as outlined in this paper.

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[1] Based on statement by Miguel Arias Cañete, Commissioner for Climate Action and Energy, on 28 November 2018
[2] Statement by Violeta Bulc, Commissioner for Transport, on 28 November 2018

I.   Electro-mobility is the best solution to achieving carbon neutrality in Europe by 2050

With steadily growing emissions, ambitious policies and decisive actions in the transport sector will be required to reverse this trend. In all European Commission's scenarios reducing greenhouse gases emissions by -80% to -100% by 2050, electro-mobility stands as the most promising solution to decarbonise passenger and freight transport. In the same scenarios, the share of renewable electricity will range from 81% to 85% (wind and solar alone from 65% to 72%), in line with the power sector commitment to decarbonise "well before 2050"[3]. Electric vehicles will therefore be powered by clean electricity.

Deep transport decarbonisation also comes with great potential for industrial and business development, and a net increase in employment in the construction, electricity, services and most manufacturing sectors[4]. European companies already design and produce state-of-the-art electric motors, energy management systems, powertrains and chargers. Additional jobs can thus be created in the industrial value chain and lead to net economic benefits in battery and charger manufacturing, installation and operation, maintenance of recharging points, grid connection, grid reinforcement and increased electricity generation.

The head start taken by China and South Korea in battery manufacturing is not definitive and can be challenged. With a strong focus on e-mobility more than 200,000 net additional jobs by 2030 can be created in the European economy[5].

II.   Technologies are developing rapidly and direct electrification of road, rail, air and maritime transport modes present many opportunities

Electrification is one of the most cost-efficient solutions to decarbonise transport. Driven by falling costs of batteries, the total cost of ownership (TCO) decreases fast. Current trends show that the 4-year cost of running an electric vehicle in the EU should match that of a petrol car by 2024. In several European countries the TCO of EVs should reach cost parity sooner, as of 2021[6]. For trucks, as soon as 2030, the 5-year running cost for an electrified truck could be more than 30% lower than even the most efficient diesel truck[7]. While in some cases, the TCO of electric buses is already lower than for diesel vehicles[8], the average TCO in the EU should be on par with traditional buses in the next few years[9].

Electric technologies are the most energy-efficient way to decarbonise mobility systems. For road transport, the European Commission's net-zero scenarios rely on the complete phase-out of internal

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[3] Eurelectric, Decarbonisation pathways, 2018, retrieved from: https://www.eurelectric.org/policy-areas/electrification/
[4] Powering a new value chain in the automotive sector, AIE, 2018
[5] Harrison P. 2018, Fueling Europe's Future's : How the transition from oil strengthens the economy
[6] How much does ownership on an electric car cost European consumers?, BEUC, 2018.
[7] Trucking into a Greener Future, Cambridge Econometrics, Element Energy, 2018.
[8] Retrieved from: https://about.bnef.com/blog/electric-buses-cities-driving-towards-cleaner-air-lower-co2/
[9] Retrieved from: https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/whats-sparking-electric-vehicle-adoption-in-the-truck-industry

combustion engine (ICE) vehicles in the rolling light-duty vehicle fleet by 2050[10], accompanied by earlier measures to restrict and ban older ICE vehicles.

Electrification also plays a large role in decarbonising the heavy-duty vehicles (HDVs) sector. To achieve net-zero GHG emissions by 2050, 30% of trucks sold in the EU by 2030 should be zero-emission vehicles (ZEVs). This also implies that technologies such as battery-electric HDVs and Electric Road Systems become dominant by 2040[11].

For rail, all Commission scenarios foresee an electrification rate between 87 to 95% in passenger rail and 77 to 89% in freight rail, in line with the steady electrification trend of the sector.

Aviation and shipping must play their part in decarbonising transport and contributing to the efforts to achieve a net-zero EU economy. A combination of existing battery-electric and green fuel cell electric solutions, should be the path for decarbonising those two sectors, supplemented by other measures like slow-steaming and an efficient ship design. Shore-side electricity is already a viable decarbonisation solution for docked ship in harbours. While the first electric ferries are now in operation in Iceland[12], Norway[13], Sweden and Denmark[14], the air travel industry aims also at offering zero-emission short-haul flights by 2030[15]. The first hybrid aircrafts are currently being designed[16] and should be tested in the coming years on long-haul journeys.

At city level, multimodality based on a broad range of public and private electric transport modes, such as electric scooters, bikes, cars, buses, trains, trams, and metros will help citizens reach their destination in the most cost-effective way, while reducing both congestion and local air pollution. Multi-modal shared electric mobility schemes should be sought in close cooperation with local authorities.

III.   **Policy recommendations for the long-term decarbonisation of mobility in Europe**

The Platform urges Member States to support the European Commission's most ambitious vision and to translate it into reality by establishing a goal of climate neutrality by 2050. This implies going beyond traditional climate and energy policy silos and using the full range of tools at the EU's disposal. The Platform for Electro-mobility therefore calls on European and national policy-makers to support the following policy recommendations:

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[10] European Commission, 2050 long-term strategy on climate action, analysis accompanying the Communication, p 119.
[11] https://www.transportenvironment.org/publications/roadmap-climate-friendly-land-freight-and-buses-europe
[12] Retrieved from: https://www.maritimejournal.com/news101/vessel-build-and-maintenance/ship-and-boatbuilding/icelands-first-electric-ferry
[13] https://electrek.co/2018/02/03/all-electric-ferry-cuts-emission-cost/
[14] https://electrek.co/2017/08/24/all-electric-ferries-abb/
[15] https://edition.cnn.com/travel/article/electric-easyjet-planes-intl/index.html
[16] Retrieved from: https://www.rolls-royce.com/media/our-stories/insights/2018/paul-stein-talks-about-e-fan-x.aspx

Large-scale electrification of passengers and goods mobility should be driven and supported by a stable long-term regulatory framework.

1. The EU should set intermediate, sectoral CO_2 reduction targets for EU transport to put it on a firm trajectory to net-zero emissions – full decarbonisation – by 2050. For the EU transport as a whole, including international aviation and maritime transport, the EU should set GHG reduction targets of 25% by 2030 and 65% by 2040 compared to 1990 levels (with a revision clause for the 2040 target)[17][18].

2. The EU should ensure proper implementation of the Electricity Market Design. The development of dynamic pricing contracts, time-varying network tariffs and the means for consumers to react to them (e.g. smart meters) will drive smart charging practices in line with grid requirements.

3. The EU should develop an integrated vision of the decarbonisation of transport and energy, through sound implementation of the Renewable Energy Directive, a proper framework on the additionality of renewables in transport and the development of dedicated incentives to renewable charging solutions.

4. Taxation is a central driver for the decarbonisation of transport and it is essential that EU's taxation rules are aligned with its decarbonisation commitment.

5. In the next decade, the EU should support the full decarbonisation of public fleet and exclude fossil fuel technologies, which cannot be considered as "clean"[19]. Integrated policies should support the parallel development of decarbonised electricity and electric mobility.

Investments in supporting and smart infrastructure are needed

6. Smart charging infrastructure should be rolled out to encourage e-mobility uptake[20]. It will bring flexibility to transmission and distribution grids and support the integration of renewable electricity[21].

7. Smart charging should be enabled through proper implementation of the Electricity market rules. Well-functioning smart electricity markets should unlock the full potential of demand-side response and market access for aggregators of distributed energy resources.

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[17] How to Decarbonise European Transport by 2050, Transport & Environment, 2018.
[18] EU transport's CO_2 emissions are currently on track to increase by 4% for 1990-2030 and to only decrease by 21% for 1990-2050. The above proposed EU transport (incl. maritime and shipping) CO_2 reduction target of 25% for 1990-2030 would translate into a reduction of 41% for 2016-30. REF T&E study.
[19] Platform for Electro-mobility, Public fleets to move towards zero-emissions vehicles, position paper, 2019.
[20] Platform for Electro-mobility, Tapping the Value of Smart Charging, position paper, 2018.
[21] A 160 million EVs by 2030 would provide sufficient battery capacity in major markets to support the deployment of renewables at large-scale (IRENA (2017), Electric Vehicles: technology brief, International Renewable Energy Agency)

8. The harmonisation of communication protocols for electric charging stations should be completed.

9. The review of the Alternative Fuels Infrastructure Directive (AFID) should ensure that EU-wide coverage is proportionate to EV market uptake and prioritises zero-emission mobility. Interoperability and adequate maintenance of charging points should ensure seamless access to EV charging networks across Europe.

10. The currently aspirational target of at least one charging point every 60 km[22] on the TEN-T Core Network should be brought forward from 2025 to 2022 and made binding. In addition, binding targets should be set for the TEN-T Comprehensive network with full coverage (one site every 60 or 100 km) mandated by 2025.

11. Public charging infrastructure roll out is key to supporting the e-mobility transition. To ensure an efficient deployment of charging infrastructure, demand-driven mechanisms should be supported, drawing on the Dutch approach[23].

12. The deployment of smart charging points and dynamic charging infrastructure should receive adequate EU public funding, notably in the upcoming 2021-2027 Multiannual Financial Framework, through instruments like CEF, InvestEU, the new Innovation Fund and include robust climate proofing mechanisms[24]. This should be complemented by private financing whenever possible. The ongoing work on a European classification of activities that are considered sustainable for investment purposes (taxonomy) is an important milestone to better earmark and secure private capital.

13. Member States should spell out provisions in their National Energy and Climate Plans for 2030 to increase power system flexibility and ramp up grid investments in line with their 2050 renewable trajectories.

Electro-mobility is paving the road for a competitive and inclusive transition for EU citizens

14. Lithium-ion rechargeable batteries are a key component for electric vehicles. The Platform therefore supports the development of a system that differentiates batteries based on their performances, induced emissions, social impact and environmental footprint, as well as safe recycling.

15. Last-mile deliveries for local logistics should incentivise zero-emission vehicles, including cargo bikes, autonomous delivery robots and drones.

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[22] Retrieved from: https://publications.europa.eu/en/publication-detail/-/publication/1533ba56-094e-11e7-8a35-01aa75ed71a1

[23] Under the so-called Dutch approach, EV drivers can ask the local government to implement accessible on-street public infrastructure in a particular quarter in case no other private or commercial options are available.

[24] Electromobility Platform - Joint Position Paper on the Multiannual Financial Framework

16. Transforming mobility creates new job opportunities. EU funding will be needed to support investment in regions that rely heavily on fossil fuel industries. Companies and governments should work together to identify the new skills necessary and appropriate retraining programs that are needed to achieve the carbon neutrality transition.

17. European and national decision-makers should work with e-mobility stakeholders to identify and overcome non-technical barriers to market readiness for new technologies. This includes mechanisms to support consumers' uptake of electro-mobility innovations and ensure social inclusion of lower income households.

The Platform for Electro-mobility unites organisations from across civil society, industries, and transport modes. Its members are committed to promote electro-mobility and strive to collectively develop solutions to electrify European transport, and to promote those solutions to the EU institutions and Member States.

The Platform is working to create a sustainable, multimodal transport system in which people and goods are predominantly moved across land in Europe using sustainable electricity. The aim of the Platform is

to drive the development and implementation of sustainable European Union policies, programmes and initiatives to move people and goods by electricity https://www.platformelectromobility.eu