

DECARBONISING

# TRANSPORT

EURELECTRIC'S PRIORITIES AND  
POLICY RECOMMENDATIONS

# WHAT IS EURELECTRIC'S TOOLKIT ON DECARBONISING TRANSPORT?

EURELECTRIC's Toolkit on Decarbonising Transport presents the power sector's priorities and key policy recommendations with regard to the different elements to achieve the decarbonisation of this key sector of the European economy, and the contribution of the electricity sector towards this goal.

In this context, we elaborate on the European power sector's vision and key policy recommendations for the decarbonisation of the transport sector, with explanations regarding our rationale behind such objectives.

We also outline what we see as the key drivers and enablers to achieve this objective: The relevant policies, instruments and mechanisms that should be reformed, adopted and implemented.

## ACKNOWLEDGEMENTS

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**The Union of the Electricity Industry – EURELECTRIC** – is the sector association representing the common interests of the electricity industry at pan-European level. Our work covers all major issues affecting our sector, from electricity generation and markets, to distribution networks, customers, as well as environment and sustainability issues. Our current members represent the electricity industry in over 30 European countries, including all EU Member States. We also have affiliates and associates on several other continents.

Our structure of expertise ensures that input to our policy positions, statements and in-depth reports comes from several hundred active experts working for power generators, supply companies and distribution system operators.

We have a permanent Secretariat based in Brussels, which is responsible for the overall organisation and coordination of EURELECTRIC's activities.

## The Decarbonisation of Transport through Electrification

Transport is responsible for about a quarter of EU greenhouse gas (GHG) emissions and is almost exclusively dependent on oil for fuel. It is the only major sector in the EU in which GHG emissions are still rising. Meanwhile, the transition of the power sector is leading to a much cleaner, interactive and customer-friendly electricity system. Electro-mobility is an essential part of the solution to Europe's transport and energy challenges of reducing GHG emissions, limiting air pollution and improving energy security.

To reach the overall 2050 decarbonisation objectives, GHG emissions from vehicles must reduce drastically aiming towards zero emissions by mid-century. According to current EU legislation, by 2021 the fleet average to be achieved by all new cars is 95g CO<sub>2</sub>/km, while the target for new vans is 147g CO<sub>2</sub>/km by 2020.<sup>1</sup>

If current trends continue, heavy duty vehicles (HDV) will become the largest source of transport emissions after 2030. Decarbonising HDVs is a challenge - several projects across the globe explore their electrification potential.

**The power sector has already come a long way in its transformation towards low carbon generation:** In 2014, the power sector generated 55% of all the EU's electricity from low carbon sources and the share increases every year.<sup>2</sup> As the power sector pursues carbon-neutrality by 2050, electricity becomes the obvious choice for driving the decarbonisation of the transport sector.

### Overcoming Barriers and Unlocking Catalysts for Electro-mobility

It is high time that electrification of transport becomes a prominent part of EU climate policy. With the Commission Strategy for Low-Emission Mobility several key issues are identified. EURELECTRIC puts forward the following recommendations and outlines the policy actions required to realise the potential of electro-mobility in the upcoming legislative agenda:

#### Create & implement a comprehensive EU strategy. This should entail:

- **CO<sub>2</sub> emissions standards:** More stringent CO<sub>2</sub> car, van and also truck standards for 2025 and 2030 are an essential element of the package of proposals to help Member States achieve their non-ETS targets for 2030. These will also send a strong political message while ensuring long-term investment and innovation. Standards must be ambitious, well verified and set on vehicles actually sold, not only on vehicles offered on the market. A CO<sub>2</sub> standard (in g CO<sub>2</sub>/km) is preferred over an efficiency standard (MJ/km), as the latter is only an indirect and approximate measure for GHG emissions. **The upcoming review of regulation setting CO<sub>2</sub> emission performance standards for light duty vehicles post-2020 should result in ambitious and stringent targets.**

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<sup>1</sup> [http://ec.europa.eu/clima/policies/transport/vehicles/index\\_en.htm](http://ec.europa.eu/clima/policies/transport/vehicles/index_en.htm).

<sup>2</sup> Source: EURELECTRIC: Power Statistics and Trends: The five dimensions of the Energy Union, December 2015.

- **Proper cost-benefit analysis:** It is clear that electrification of road transportation eliminates local emissions and, consequently, can vastly contribute to reducing health issues specifically in densely populated areas. It is therefore crucial that such benefits / avoided costs are taken into consideration in cost-benefit analyses. **This is critical for the legislative reviews and the overall Strategy for Low-Emission Mobility.**
- **Public charging access:** A serious barrier is the difficulty of access to charging infrastructure to those citizens who do not own a private garage to install a charging point. The EU must aid Member States in guaranteeing the possibility of charging in the street for citizens which do not have a private charging point. These systems should allow for roaming and avoid closed networks. Additionally, better interoperability standards are needed and payment mechanisms need improvement. **The Alternative Fuels Infrastructure Directive provisions set a framework, but ambitious national targets and swift implementation is required.**
- **Public procurement:** As the share of cars bought/leased by companies is high, public authorities should encourage the use of private procurement of EVs for commercial fleets. **The Clean Vehicle Directive review is central to achieve this.**

#### Reinforce policies at the Member State and local level, such as:

- **Quotas:** Some Member States already implemented or consider implementing quotas on alternative fuels. EURELECTRIC calls for ambitious targets and the inclusion of electricity in those quota systems in order to foster the market for electro-mobility and allow a long term perspective. **The review of the national policy framework plans on the implementation of the Alternative Fuels Infrastructure Directive is important here.**
- **Polluter pays principle reflected in fuel taxation:** The electricity sector is investing heavily to become carbon neutral, which can cause a competitive disadvantage compared to other energy carriers. In order to avoid this, other transport energy carriers should also pay for their GHG emissions and contribute to RES penetration. **This is an important part of the national policy framework plan reviews. Further, the Energy Taxation Directive is a key lever here, but not reflected in the Low-Emission Mobility Strategy.**

#### Unlock financial and non-financial incentives for electric vehicles:

- **Integrate EVs into grids via smart charging & appropriate tariffs:** Increasing numbers of electric vehicles will challenge the existing distribution grid with their demand for charging. **By coordinating the charging process, the risk of such technical bottlenecks can be overcome.** Furthermore, the flexibility that smart charging can provide will ultimately benefit customers through the reduction of energy costs and their access to new services. **EU and national regulators must adjust the current legislation to be more reflective of demand response needs.**
- **Promote charging infrastructure roll-out:** This is the key to overcoming customer's concerns about limited ranges for EVs. Along with improvements of batteries, large scale roll-out of charging infrastructure can address this challenge. **The charging infrastructure market should be organised as a competitive market.** Where the market is not developing properly by itself, a good option to accelerate the charging infrastructure roll-out is to organise a funded tender. Only, where the market does not respond to the tender DSOs should be allowed to take over responsibility for constructing, owning and technically operating the infrastructure as an extension of their regulated role.
- **Integrate electro-mobility in urban mobility:** Smart city projects should be linked to transportation plans without forgetting car-sharing and car-pooling.

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## The Benefits of Electrification of Transport

- 1. Reducing greenhouse gas emissions.** Due to the electricity generation's ability to become carbon-neutral, electrification becomes a core part of the solution to the EU's decarbonisation challenge. Battery electric vehicles (EVs) have zero tailpipe emissions. The electricity that powers EVs had an average carbon intensity of at 331g CO<sub>2</sub>/kWh in 2014, and is in continuous decline. Already today a standard EV consuming 15kWh per 100km is only responsible for 50g CO<sub>2</sub>/km. This is well below the 2021 EU target of 95g CO<sub>2</sub>/km for new cars.
- 2. Creating a win for customers:**
  - Much lower fuel cost due to the independence from oil. An average EV consumes about €3.75 worth of electricity for 100km driven.<sup>1</sup> An average diesel internal combustion engine costs ca. €6.06/100km.<sup>2</sup>
  - Lower maintenance cost than combustion engine vehicles make EVs economically attractive over their lifetime.
  - More than 100,000 electric vehicles in Europe are ready to offer flexibility services to the grid through their batteries. As customers become more involved in the larger energy system, their EVs can charge with own and locally produced solar power.
- 3. Enabling energy efficiency:** An electric vehicle can be three times more efficient (energy conversion) than a standard internal combustion engine. To illustrate, already today, assuming a hypothetical scenario of 100% car electrification, a net demand reduction of 137 Mtoe (million tons of oil equivalent) per year in the EU would be achieved.<sup>3</sup> Rail transport is the most energy efficient option: its specific energy consumption per transport unit is about a quarter of the consumption of road transport.
- 4. Improving air quality:** The transport sector remains a major source of air pollutants especially in big cities. Since EVs produce no tailpipe emissions, air quality will significantly improve, reducing the emissions of particulates, NO<sub>x</sub>, SO<sub>x</sub>, VOCs & ozone. Traffic congestion and noise pollution in cities can be reduced by electric public transport.
- 5. Increasing RES integration:** The share of renewable electricity produced in the EU is expected to rise from 28% in 2014 to around 50% in 2030. A large part of this will come from intermittent RES<sup>4</sup>. As a result, increasing flexibility will be needed, and can be provided via Smart Charging and Fast Charging. EV batteries can serve as a de-central storage system when they are charged over a longer period of time – a huge potential for flexibility for the entire energy system.
- 6. Strengthening security of supply** through diversification and storage:
  - By switching to electricity as a fuel, transport can become more energy efficient, reducing the demand for fuels (see point 3).
  - Electricity can be produced from different sources, thereby strengthening security of supply: the source energy to produce electricity can be exchanged depending on geopolitical/technological circumstances.

<sup>1</sup> Assuming average of 15kWh/100km at average electricity price of €0.25/kWh.

<sup>2</sup> Assuming average of 6l/100km (Volkswagen Golf 2.0 L4 DIESEL – consumption mode taken from Fuely.com) at average Diesel price of €1.01/l.

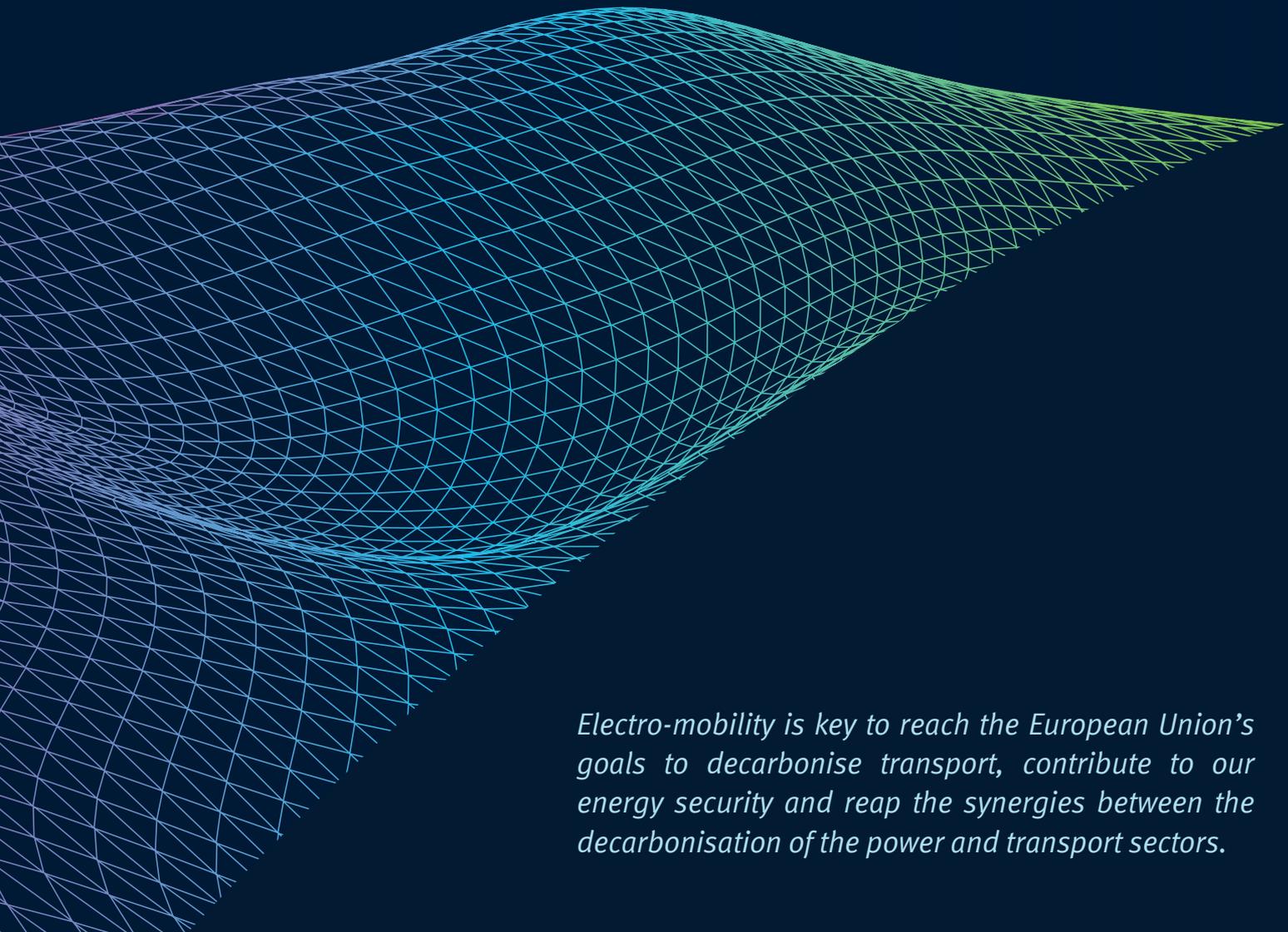
<sup>3</sup> EURELECTRIC data from Power Statistics and Trends: The five dimensions of the Energy Union, December 2015.

<sup>4</sup> European Commission SWD (2014) 15 final.

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*Electro-mobility is key to reach the European Union's goals to decarbonise transport, contribute to our energy security and reap the synergies between the decarbonisation of the power and transport sectors.*



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