



# CIVITAS INSIGHT

## E-mobility: From strategy to legislation

The European Union regulatory framework regarding alternative fuels and clean vehicles for private and public transport has become more and more substantial over the last years. This can be attributed to health concerns due to air pollution and growing awareness of the impacts of climate change. Electromobility is of specific interest in this regard, as it can contribute to reducing harmful emissions.



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## How the EU defines vehicles

Road vehicles are regulated depending on their mass and purpose. Under the current consolidated approach for type-approved vehicles<sup>1</sup>, the main categories are the following:

- Category M: vehicles carrying passengers;
- Category N: vehicles carrying goods;
- Category L: vehicles with less than four wheels;<sup>2</sup>
- Category T: agricultural and forestry tractors and their trailers.
- Vehicles that belong to category M or N are classified as:
  - Light-duty vehicles (passenger cars and vans) or;
  - Heavy-duty vehicles (trucks, buses, and coaches).

It should be noted from the outset that there is no precise definition of a 'clean' vehicle (apart from the Clean Vehicle Directive hereafter) and there is debate as to what exactly is an 'electric' vehicle<sup>3</sup>. Type-approved vehicles are subject to legislation defining emission limits and test procedures applicable.

### Defining emission limits

**Light vehicles:** For passenger cars, the European Union has regulated emissions of carbon dioxide (CO<sub>2</sub>) since 1970<sup>4</sup>, with the latest standards having been adopted in 2009<sup>5</sup>. This regulation establishes CO<sub>2</sub> emissions performance requirements for new passenger cars with a specific target of 130 grams of CO<sub>2</sub> per kilometre for every new vehicle since 2010, and aims to slowly reduce this limit to 95 grams of CO<sub>2</sub> per kilometre by 2020<sup>6</sup>. Car manufacturers are responsible for meeting this target across their whole fleet, paying a premium into the European Union budget if they fail to do so<sup>7</sup>. In 2011, similar EU legislation for light-duty vehicles including vans was introduced<sup>8</sup>, with a target of 175 g/km by 2017 and 147 g/km by 2020. From a governance perspective, type-approval emissions limits have been adopted known as the Euro VI Standards.<sup>9</sup> This regulation details the authorised emissions from gaseous pollutants and hydrocarbons calculated from all light vehicles,<sup>10</sup> and therefore is the technical basis of local authorities' Low Emission Schemes.

<sup>1</sup> As indicated by the type-approval framework directive 2007/46: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32007L0046>

<sup>2</sup> Not covered by this insight, L category vehicles are detailed in Regulation 168/2013: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R0168>

<sup>3</sup> The main issue residing in hybrid vehicle and their respective category. At the current stage, they are subject to exemption of the hereunder mentioned legislation while using fossil fuels.

<sup>4</sup> First Directive 70/220 on measures to be taken against air pollution by emission from motor vehicles: <http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:31970L0220>; Revised in 1998: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31998L0069>

<sup>5</sup> Regulation 443/2009 for emission performance standards in an integrated approach to reduce CO<sub>2</sub> emissions from light-duty vehicles: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32009R0443>

<sup>6</sup> Ref Article 1 and Annex 1 of the aforementioned Regulation

<sup>7</sup> Ref Article 9 of the aforementioned Regulation unless the derogation applies (Article 11)

<sup>8</sup> Regulation 510/2011: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:3A32011R0510>. This regulation was reviewed in 2014 by the Regulation 253/2014 without changing the 2020 targets: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:3A32014R0253>

<sup>9</sup> Regulation 715/2007 on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles and on access to vehicle repair and maintenance information: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008R0692>

<sup>10</sup> Apart from biofuels and hybrids (fossil+hydrogen/electric or diesel/biodiesel) which are not subject to them (Ref. Annex 1 Figure 1.2.4)





**Heavy-duty vehicles:** Although the first EU directive to regulate EU emissions from heavy vehicles was adopted in 1988<sup>11</sup>, Euro VI Standards for heavy vehicles were progressively developed between 1992 and 2009<sup>12</sup> and constitute the backbone of the general approach to type-approval emissions limits for motor vehicles.<sup>13</sup> As heavy vehicles are almost always fitted with diesel engines, the European Union regulates the reduction of emissions of nitrogen oxides (NOx), particulate matter (PM) and particulate numbers (PN). The 2009 regulation also details the acceptable emission limits for total hydrocarbon (THC), non-methane hydrocarbons (NMHC), methane (CH<sub>4</sub>) and ammonia (NH<sub>3</sub>). As with the light vehicle regulation, the 2009 regulation for HDVs constitutes the basis for local authorities' Low Emission Schemes. This regulation is also in alignment with national schemes that have been constituted by the Eurovignette regulation which was introduced in 1999<sup>14</sup>, with its latest version adopted in 2011<sup>15</sup>. A full map of toll systems in the EU is publicly accessible<sup>16</sup>, and its application by Member States is on a voluntary basis.

## Defining a test cycle for type-approval procedures

Emissions are measured using a standardised test cycle that is designed to simulate driving. These test cycles assess the ability for one vehicle to cope with emission limits as defined by existing legislations for light and heavy vehicles. The objective of this standardisation is that once approved in one country, a vehicle can be then sold throughout the EU without further testing.

There are two major differences in test cycles for light and heavy vehicles:

- Data collection: the standards for heavy-duty vehicles are defined by energy output (g/kWh) and cannot be directly compared with the standards for light vehicles which are defined in terms of distance (g/km).
- The technical cycle used (transient and stationary cycles).<sup>17</sup>

Those laboratory tests were recently complemented for light passenger and duty vehicles in order to take into account real driving conditions while introducing flexibility to take into account external elements such as climate conditions or a user's driving patterns, under the Real-Driving Emission Test Regulation<sup>18</sup>.

<sup>11</sup> Directive 88/77/EC: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31988L0077>

<sup>12</sup> Regulation 595/2009 on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information. This was modified in Regulation 582/2011 by the Commission, the latest Euro VI limits being described in Annex XV (p 163): <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:167:0001:0168:en:PDF>

<sup>13</sup> Ibid Directive 715/2007 – Annex I, Table 1 & 2

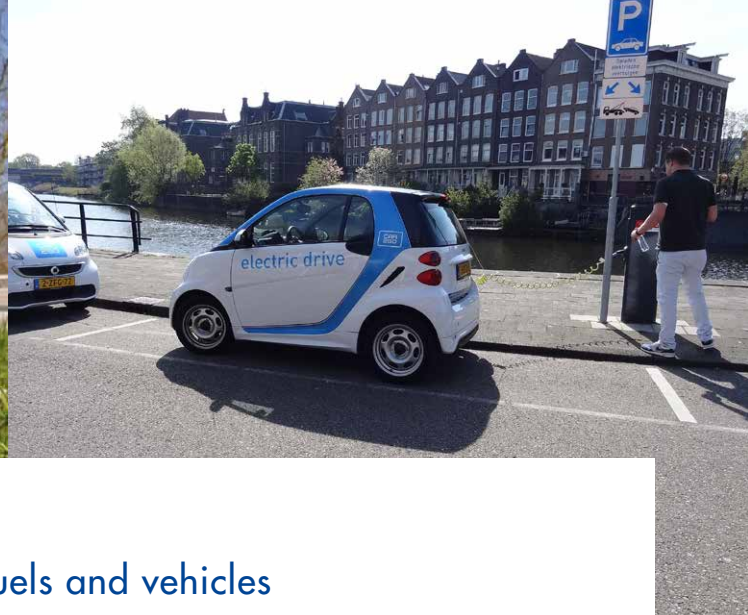
<sup>14</sup> Directive 1999/62/EC: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:31999L0062>

<sup>15</sup> Directive 2011/76/EU: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32011L0076>

<sup>16</sup> [http://ec.europa.eu/transport/modes/road/road\\_charging/doc/hgv\\_charging.jpg](http://ec.europa.eu/transport/modes/road/road_charging/doc/hgv_charging.jpg)

<sup>17</sup> ETC (European Transient Cycle): This simulates the different transient driving conditions between urban, rural road and motorway journeys. ESC (European Stationary Cycle): This tests the engine on a dynamometer in 13 steady state modes for a certain duration.

<sup>18</sup> Regulation XXX/2016 amending regulation 692/2008



## EU strategic goals and targets for clean fuels and vehicles

The European Union moved toward specific targets for the use of renewable energy:

- A ten percent renewable source target for the final consumption of energy in transport in each Member State by 2020<sup>19</sup>, which is in line with the adopted 2020 Climate and Energy Package<sup>20</sup> and more precisely Article 3 §4 of the Energy Directive (2009/28) on the promotion of the use of energy from renewable sources;

- Halving the use of conventionally-fueled cars in urban transport by 2030 and phasing them out in cities by 2050. This is according to the mid-term review in 2011 of the Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system (hereafter the TWP) which sets out Ten Goals to achieve by 2030/2050 for the transport sector as well as providing the EU with a clear roadmap as to what should be achieved in the transport sector through several targeted actions;<sup>21</sup>

- Achieving essentially CO<sub>2</sub>-free city logistics in major urban centres by 2030. This was also mentioned under Action 1 of the TWP, and in accordance with Action 33, which sets a strategy for near zero-emission urban

logistics by 2030, bringing together aspects of land planning, rail and river access, business practices and information, charging and vehicle technology standards;

- Fully-interoperable charging/refueling infrastructure for zero or near to zero emissions vehicles. Although no clear targets were mentioned under the TWP, this document nonetheless states that the European Commission will act to introduce rules on the interoperability of charging infrastructure for clean vehicles including guidelines and standards for refueling infrastructures;

- The promotion of public-private partnerships to provide new financing mechanisms for cities in collaboration with the private sector and Member States, as stressed by Action 38 of the TWP.<sup>22</sup>

Moreover, an Initiative Report from the European Parliament in July 2015<sup>23</sup> also stressed the need to promote electromobility and electric public transport systems coupled with the introduction of renewable energy sources in electricity generation, giving priority to the further electrification of the rail network and the promotion of tramways, electric buses and trolleybuses, battery electric cars, smaller electric vehicles, e-bikes and small electric boats. It also stresses the potential of modern aerial tramways (cable cars), as an inexpensive and easy-to-build means of transportation, to expand the capacity of urban public transport systems. These elements might be integrated in the future Sustainable Urban Mobility Plan (SUMP) Guidelines review in 2017. Following up on the TWP, these actions and objectives were translated into three separate frameworks that are closely tied to the electromobility topic.



<sup>19</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0028&from=EN>

<sup>20</sup> [http://ec.europa.eu/clima/policies/strategies/2020/documentation\\_en.htm](http://ec.europa.eu/clima/policies/strategies/2020/documentation_en.htm)

<sup>21</sup> Action 1 specifies this target. <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0144>

<sup>22</sup> While acknowledging that not all projects are suitable for this mechanism and to participate in designing new financing instruments for the transport sector. In a way, the TWP already assesses the need for new solutions as public investment would not cover the whole cost of the new technology required for electromobility, both from the vehicles and the infrastructure point of view.

<sup>23</sup> <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A8-2015-0246+0+DOC+PDF+V0/EN>



# Laad hier je elektrische wagen op

Image: © Walter Koehn - GfPA.com

The first framework is the Urban Mobility Package published in December 2013 by the European Commission, which includes the communication, 'Together towards competitive and resource-efficient urban mobility' and is complemented by an annex that sets out the concept of SUMPs, as well as four staff working documents on urban logistics, urban access regulations, deployment of Intelligent Transport Systems (ITS) solutions in urban areas, and urban road safety. This framework introduces a global set of policy recommendations and guidelines for Member States, regions and cities. It also links with the SUMP Guidelines, which were presented in 2015 by the European Commission<sup>24</sup>.

The second framework is the Clean Power for Transport package<sup>25</sup> which aims to tackle the issue of what should come first regarding developing new transport vehicles with alternative fuels and the corresponding infrastructures required. This framework specifically

addresses electromobility as one of the alternative renewable sources for future transportation, alongside hydrogen, liquid biofuels, synthetic and paraffinic fuels (e.g. gas to liquid), liquefied petroleum gas (LPG), natural gas, including bio-methane, in gaseous (CNG) and liquefied form (LNG).

The third framework is electromobility as a source of energy and the overall decarbonisation of transport. In February 2015, the European Commission published its Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy<sup>26</sup> where it lays down 15 actions points scheduled for the next three years. Action 11 specifically addresses energy efficiency and decarbonisation in the transport sector and the progressive switch to alternative fuels as well as the integration of energy and transport systems. This will, in turn, be further detailed within the expected decarbonisation of transport package, foreseen in June 2016.<sup>27</sup>

## Concrete applicable legislation for clean fuels and vehicles, with focus on electromobility

### Clean Power for Transport and the Directive on alternative fuel infrastructure deployment

The adopted 'Directive on the deployment of alternative fuels infrastructure' (2014) aims to ensure the build-up of alternative fuel infrastructure and the implementation of common technical specifications for this infrastructure in the Union. Its objective is to facilitate the work of market forces and contribute with this initiative to economic growth in Europe. The main measures proposed concern recharging points for electric vehicles, the development of a hydrogen network and refueling with LNG and CNG. For electromobility, the overall objective is to have publicly accessible recharging points built by 2020 in

order to allow the circulation of electric vehicles across the EU, both in urban and suburban areas and on the TEN-T Core Network, with an appropriate number of charging points publicly accessible for electric cars by January 2021, i.e. one point for every ten electric cars. The target number of publicly-accessible recharging points is therefore ten percent of the total number of recharging points. Member States have until November 2016 to submit their National Policy Framework to the European Commission, which will detail how each country will ensure that such an appropriate number of recharging points will be accessible to the public by 31 December 2020. These National Plans will also encourage Member States to detail additional actions to support private recharging points, such as in building construction.

<sup>24</sup> [http://www.eltis.org/sites/eltis/files/guidelines-developing-and-implementing-a-ump\\_final\\_web\\_jan2014b.pdf](http://www.eltis.org/sites/eltis/files/guidelines-developing-and-implementing-a-ump_final_web_jan2014b.pdf)

<sup>25</sup> [http://ec.europa.eu/transport/themes/urban/cpt/index\\_en.htm](http://ec.europa.eu/transport/themes/urban/cpt/index_en.htm)

<sup>26</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2015:0080:FIN>

<sup>27</sup> See Third chapter



The aim is to put in place a critical mass of charging points so that companies will mass produce electric vehicles at reasonable prices.

Additionally, electromobility for private transportation will require common standards. Currently, there are two main different types of charging points in Europe (Type 2 and the CHAdeMO type<sup>28</sup>), and the EC has proposed to have common standards for electric charging points across Europe designed and implemented by December 2015. This will ensure that electric vehicles can circulate freely across the EU. To end uncertainty in the market, the Commission has announced the use of the Type 2 plug as the common standard for the whole of Europe. According to the Commission, Member States will be able to implement these changes without necessarily involving public spending if they use the wide range of measures available to mobilise private investment. As regards charging infrastructure, EU policy does not elaborate the business models for this particular issue, but includes statements on involving the private sector in financing transport projects (see section below on funding). In January 2016, a comprehensive report of the implementation and good practices of the Alternative Fuels Infrastructure Directive was published in order to support Member States with good practices across Europe, including examples already being deployed in European cities.<sup>29</sup>

Although, as electric recharging infrastructure is growing in Europe, especially in urban areas, actors should start working on common protocol formats and identifiers in Europe so that users can have an easy access to recharging infrastructure in all countries. The European Commission is working on this matter through the Sustainable Transport Forum of which recommendations should be published by the end of 2016.

## The public fleet: Clean Vehicle Directive

The Clean Vehicle Directive<sup>30</sup> (hereafter referred as 'CVD') aims at a broad market introduction of clean and energy-efficient vehicles to improve the environmental performance of the transport sector. It requires that environmental impacts linked to the operation over the lifetime of vehicles are taken into account in public procurement decisions. It defines common rules on how to monetise impacts and calculate the operational lifetime costs for energy consumption, CO<sub>2</sub> emissions and pollutant emissions (NO<sub>x</sub>, NMHC, PM) of vehicles. The lifetime mileage is multiplied by the corresponding value of energy consumption or emissions per kilometre and by the respective cost per unit of energy or emission.

The vehicles referred to in this Directive are listed in Annex 3 of the CVD Regulation, and are essentially:

- Passenger cars with a maximum capacity of less than eight passenger seats,
- Light commercial vehicles with a maximum capacity of less than 3.5 tons;
- Heavy good vehicles with a maximum capacity of more than 3.5 tons;
- Buses and coaches with more than eight seats (no maximum mass).<sup>31</sup>



<sup>28</sup> General overview of all different types of standards: [https://en.wikipedia.org/wiki/IEC\\_62196](https://en.wikipedia.org/wiki/IEC_62196)

<sup>29</sup> <http://ec.europa.eu/transport/themes/urban/studies/doc/2016-01-alternative-fuels-implementation-good-practices.pdf>

<sup>30</sup> Regulation 2009/33 <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0033>

<sup>31</sup> Per reference to Annex II of the 2007/46 framework directive on type approval of motor vehicles and their trailers and of systems, components and separate technical units for such vehicles: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32007L0046> (last page of the document)





The entities referred to under this directive are public bodies but also public service operators as defined under the Public Service Obligation Directive<sup>32</sup>. The Directive should also in principle apply to companies contracted by public authorities to provide various services, such as road maintenance, waste disposal or transport services for the elderly/disabled.<sup>33</sup> The Directive states that the requirements of the CVD should apply to contracts over a certain threshold i.e. where contracting authorities or contracting entities are under an obligation to apply above-threshold procurement procedures<sup>34</sup>, which stand at EUR 134,000 for central government authorities and EUR 207,000 for sub-central contracting authorities. For operators performing public service obligations (PSOs), the threshold is to be decided by Member States, but cannot exceed the threshold values set out in the Public Procurement Directives.<sup>35</sup> However, Member States are also able to set thresholds lower than those outlined above, whereas in other cases procurers may choose to apply the requirements of the CVD to all contracts (i.e. those below an agreed threshold), even in the absence of a formal requirement.

The requirement laid down under the CVD for contracting authorities or entities to take into account the energy and environmental impacts when procuring road transport vehicles are mandatory. There are three ways of complying:

- High standards in the procurement tender: Set technical specifications for energy and environmental performance in the documentation for the procurement of road transport vehicles;
- Inclusion of external cost performance as a criterion in the tendering procedure: Include energy and environmental impacts in the purchasing decision by using energy and environmental impacts as award criteria as part of a procurement procedure;
- Internalising external costs: Include energy and environmental impacts in the purchasing decision by monetising them in accordance with methodology provided in the Directive.<sup>36</sup>

This Directive will potentially be reviewed by 2017 (see next chapter Point 2).

To give further clarity over the mechanism of this Directive, ancillary measures have been foreseen to support cities in technical set up and design of public procurement through the Clean Vehicle Portal<sup>37</sup>. It covers everything from passenger cars, light- and heavy-duty vehicles to buses. It provides information on the different technologies and on energy consumption and emissions of the vehicles available on European markets. It gives an overview of existing procurement rules and incentive schemes for clean and energy-efficient vehicles in the different Member States, and offers support to joint public procurement.



32 Regulation 1370/2007 currently under review: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32007R1370>

33 As per reference to Article 2 b) of the 2004/17 and 2004/18

34 Article 3 of directive 2014/25 and 2014/24, repealing previous directive 2004/17 and 2004/18

35 2014/25 Directive on coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2014:134:0001:0113:en:PDF>; 2014/24 Directive on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts: [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L:2014\\_094\\_R\\_0065\\_01](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L:2014_094_R_0065_01)

36 Further detail on the procedure are laid down in Article 6 of the Directive and calculation for energy, emission and lifetime mileage costs are listed in the Annex of the directive.

37 <http://www.cleanvehicle.eu/>



## Future outlook

### The global strategy: the communication on decarbonisation of transport

In February 2016, the European Commissioner for Climate Action and Energy, Miguel Arias Cañete, gave a global overview of the Communication on the decarbonisation of transport scheduled for June 2016 on the EU's climate and energy policies after COP21. This strategic paper will indicate how the transport sector can contribute to achieving a 30 percent reduction in emissions, and will be organised around three levers:

- Improvements in efficiency of vehicles: mainly through the setting of emissions standards for cars and vans and the review of the test cycles;
- Management of road transport activity (including the shift to other modes, charging systems, intelligent transport systems, etc.);
- Decarbonisation of fuels, including alternative fuels and an electrification strategy.

The Commission will make additional proposals to reshape the design of the electricity markets which could also overcome the current issues faced by local authorities in building charging infrastructure, given that, most of the time, no framework exists for public authorities to resell the energy provided to electric vehicles.

### Clean Vehicle Directive Revision

In 2015, an Impact Assessment of the implementation of the CVD was undertaken by a contractor of the European Commission. The results were publicly announced in early October 2015.<sup>38</sup> This is in line with the revision of the CVD which is expected by 2017. The recommendations in the evaluation were as follows:

- A clearer definition of a 'clean vehicle' potentially leading to revise the calculation and to balance cost-benefits between technologies in order to avoid hindering the air quality targets under the Ambient Air Quality Directive;

- Broadening the scope of application of this directive to private companies subcontracted by public authorities to undertake public services, including those with a major transport component such as waste disposal, elderly/disabled transport services or road maintenance;

- Clarification as to the implications of the new public procurement Directives of 2014<sup>39</sup> on the CVD's scope, especially in terms of the definition of public entities.<sup>40</sup>

### The Alternative Fuels Directive

**National Plans:** In November 2016, Member States will present their National Policy Framework, which will constitute the basis for the European Commission to publish and regularly update information on the national targets and objectives submitted by each Member State. By November 2017, Member States are expected to comply with technical specifications set out in Annex II on normal and high power recharging points for motor vehicles, with the exclusion of wireless or inductive units. By end 2018, the European Commission can possibly adopt an Action Plan to further achieve the use of alternative fuels for transport.

**Technical specifications:** CEN/CENELEC is responsible for adopting the standards for charging infrastructures. CEN/CENELEC is expected to come to a formal agreement in 2016 regarding wireless charging, battery swapping for motor vehicles, recharging points for L-category motor vehicles and electric buses, as well interoperability in terms of data formats and protocols, and access to data.

**Strengthening mapping and exchange of good practices:** the European Alternative Fuels Observatory: The European Alternative Fuels Observatory<sup>41</sup> is a European Commission-funded initiative, which provides open and free information to support Member States with the implementation of EU Directive 2014/94 on the deployment of alternative fuels infrastructure.

<sup>38</sup> <http://ec.europa.eu/transport/facts-fundings/evaluations/doc/2015-09-21-ex-post-evaluation-directive-2009-33-ec.pdf>

<sup>39</sup> 2014/24 and 2014/25 repealing Directives 2004/17 and 2004/18

<sup>40</sup> Article 4 paragraphs 2&3 of Directive 2014/25 substantially modify the conception of what a contracting entity is in the current Clean Vehicle Directive.

<sup>41</sup> [www.eafo.eu](http://www.eafo.eu)





The aim of this project is to give clarification of incentives and electric, hydrogen and natural gas development in Europe, EFTA members and Turkey. The observatory will provide relevant data, information, news and other publications focusing on national data as well as some regional and local examples. It takes into account data for charging infrastructure, policy and fiscal incentives and industry deployments for cars falling under the scope of Directive 2014/94. While the EAFO website is not yet accessible, the third newsletter gives a preview of the evolution of the personal electric vehicle (PEV) market, with a preview of the breakdown between battery electric vehicles (BEVs) and plug-in hybrids. It also looks at some initial 2016 data, with Europe's best selling electric vehicles in January 2016.

**Inductive charging infrastructure:** The main policy reference is the European Roadmap for Electrification of Road Transport<sup>42</sup> (currently 2nd Edition) published by the technology platforms EPOSS, ERTRAC and SMARTGRIDS. This makes reference to inductive charging as well as BEVs for public transport.

## Light vehicles

For vans, the European Commission will review the current applicable regulation in order to set targets beyond 2020. A similar approach is currently been taken for light passenger cars.<sup>43</sup> In April 2015, an evaluation was published evaluating the purpose of reviewing both regulations<sup>44</sup>. The global conclusion of this evaluation was to speed up CO<sub>2</sub> emissions reductions by mostly revising the current type-approval test cycles (NEDC) and to further take into account the consideration of the lifecycle and embedded emissions in full during the entire manufacturing/disposal period.

## Heavy-duty vehicles

A revision of Eurovignette is scheduled within the Road Package that will be proposed by the European Commission during autumn of 2016. However, a heavy-duty vehicle fuel consumption and CO<sub>2</sub> emissions directive could be proposed in the near future. Following the finalisation of the simulation tool VECTO<sup>45</sup> (Vehicle Energy Consumption Calculation Tool), the European Commission could use it as a basis to certify and monitor fuel economy and the CO<sub>2</sub> emissions of heavy-duty vehicles.

## Test-cycle for type-approval procedures

The Real Driving Emission test includes a randomised test cycle and the use of portable emission measurement systems (called PEMS) on Particle Numbers and Nitrogen Oxides (NOx). This new procedure will have to be implemented by September 2017 for new types of vehicles and by September 2009 for all new vehicles by Member States and National Type-Approval Authorities. Furthermore, the CO<sub>2</sub> and NOx measurements will also be improved by the Worldwide harmonized Light vehicles Test Procedure (WLTP)<sup>46</sup> in its future different phases<sup>47</sup>.

## Type-approval Directive

The Framework Directive (2007/46/EC) detailing type-approved vehicles is currently under a repeal procedure and will be replaced by a new regulation currently being scrutinised by the Council and the European Parliament.<sup>48</sup> The aim of this new regulation will be to strengthen the type-approval controls by ensuring effective enforcement and market surveillance, the quality of testing and by introducing EU oversight in the type-approval process.

<sup>42</sup> European Green Vehicles Initiative, June

<sup>43</sup> For more information for the following part 4-7, please refer to the Annex for further details

<sup>44</sup> [http://ec.europa.eu/clima/policies/transport/vehicles/docs/evaluation\\_ldv\\_co2\\_regs\\_en.pdf](http://ec.europa.eu/clima/policies/transport/vehicles/docs/evaluation_ldv_co2_regs_en.pdf)

<sup>45</sup> JRC full report on VECTO: [http://ec.europa.eu/clima/policies/transport/vehicles/heavy/docs/hdv\\_co2\\_certification\\_en.pdf](http://ec.europa.eu/clima/policies/transport/vehicles/heavy/docs/hdv_co2_certification_en.pdf)

<sup>46</sup> The Joint Research Centre of the European Commission published a report in September 2015 in which they tested 21 euro 4-6 light vehicles using some of the WLTP tests and comparing them to the NEDC tests. The results showed that there would be a significant difference in terms NOx emission from gasoline vehicle and CO emission from diesel vehicle. Further information: <https://ec.europa.eu/jrc/en/publication/gaseous-emissions-light-duty-vehicles-moving-nedc-new-wltp-test-procedure>

<sup>47</sup> Depending on the latest development at the United Nation World Forum for Harmonization of Vehicle Regulations (WP29) and the transformation from a Global Technical Regulation into a United Nation Regulation. The initial phase in for the EU is by September 2017 and a full implementation by September 2018.

<sup>48</sup> COM/2016/031: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52016PC0031>



Topic	Document	Content / Revision	Expected timeframe	Commitment
Decarbonisation of Transport	New communication	General provision for all Directives with the aim of reducing CO <sub>2</sub> emission and strengthen EU independence to fossil fuels.	June 2016	30% transport CO <sub>2</sub> emission reduction by 2030 in the EU
AFI Directive	Implementation	Charging infrastructure deployment	November 2016: Presentation of Member States' National Framework Plan November 2016: interoperable electric recharging infrastructure and guidelines to develop alternative fuels in cities.	1/10 publicly available charging infrastructure for light-duty vehicles in each Member State
	Action Plan (EC)	Possibly adopting further action to boost charging infrastructure across the EU	End 2018	Unknown at this stage
Clean Vehicle Directive	Yes – Following the Impact Assessment from 2015	Possibly clearer definition of 'clean vehicle' and 'public entities' and scope of application to subcontracted private companies	By 2017	Include / calculate energy and environmental impacts of transport procurement solutions
Light-Duty Vehicle CO <sub>2</sub>	Not at this stage			By 2020: 80g/km NO <sub>x</sub> and 95 g/km CO <sub>2</sub> for light cars, 147 g/km CO <sub>2</sub> for vans
HDV CO <sub>2</sub>	New CO <sub>2</sub> monitoring	Certification of CO <sub>2</sub> emission for HDV	Possibly in the Road Package (fall 2016)	Unknown at this stage
Test-cycle	Real Driving Emissions Test implementation and Worldwide Harmonized Light-Duty Vehicles Test Procedure further development	Higher quality test for gaseous pollutant and CO <sub>2</sub> emission level; better adapted to real-driving conditions and patterns.	RDE Tests: full implementation by September 2019; WLTP full implementation by September 2018	
Type-approval	Yes – under Codecision procedure	More market surveillance, strengthening the quality of testing and EU oversight in type-approval process	Expected by end of 2017	None at this stage





Laden beenden/abbrechen:  
1. Karte stecken und entnehmen  
2. Kabel abstecken

+1

## European funding available for electromobility

The section on 'strengthening funding' of the Action Plan on Urban Mobility explains that: 'Investment is often needed in infrastructure, vehicles, new technologies, improved services, etc. Most of the expense is covered by local, regional or national sources. The growing need for funding complex transport systems and the likely decrease in the availability of public financing are the main challenges for the future. The use of EU funding, including European Investment Bank instruments, can provide significant incentives and help leverage private funds. In the short term, the Commission can help authorities and stakeholders to explore existing funding opportunities and develop innovative public-private partnership schemes.'

### Heavy infrastructure deployment: The European Structural Investment Funds

**European Structural and Investment Funds:** Within the Multi-Annual Financial Framework, European Structural Investment funds account for EUR 454 billion for the 2014-2020 period (EUR 637 billion with Member States contribution). This is divided into seven investment areas, one of which is the European Regional Development Fund (ERDF).<sup>49</sup> The role of the ERDF is to reinforce economic, social and territorial cohesion by addressing the main regional imbalances in the Union. Priority financing is aimed at research, information and communication technologies, small and medium sized enterprises (SMEs) and the low-carbon economy. Infrastructure continues to play a role, notably in less-developed regions.<sup>50</sup> Urban mobility and alternative fuels are covered under either:

- Thematic Objective 4: "Low-carbon economy" aims at supporting a shift towards a low-carbon economy by promoting low-carbon strategies, including sustainable urban mobility.

- Thematic Objective 7: "Sustainable transport" aims at promoting sustainable transport and removing bottlenecks by investing in TEN-T, environment-friendly and low-carbon transport systems and interoperable railway systems;

Furthermore, Article 7 of the ERDF regulation foresees support to sustainable urban development through strategies for integrated action.

European Territorial Cooperation, better known as Interreg, is one of the two goals of cohesion policy and provides a framework for the implementation of joint actions and policy exchanges between national, regional and local actors from different Member States. It is built around three strands of cooperation: cross-border (Interreg A), transnational (Interreg B) and interregional (Interreg C), with a global budget of EUR 10.1 billion invested in over 100 cooperation programmes between regions and territorial, social and economic partners. Depending on their geographic location, European cities can apply to the following specific schemes to develop soft measures toward electromobility:

- Cross-border: Interreg V-A<sup>51</sup> and projects under the Instrument for Pre-Accession and the European Neighborhood Instrument;<sup>52</sup>

- Transnational: Interreg V-B,<sup>53</sup> covering larger areas of co-operation such as the Baltic Sea, Alpine and Mediterranean regions;

- The interregional co-operation programme, INTERREG Europe<sup>54</sup>, and the networking programme Urbact III,<sup>55</sup> which cover all 28 Member States of the EU. They provide a framework for exchanging experiences between regional and local bodies in different countries.

<sup>49</sup> EU Regulation 1301/2013: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:347:0289:0302:EN:PDF>

<sup>50</sup> All information regarding the ESIF from national and local perspective, including beneficiaries, managing authorities and partnership agreements are available here: [http://ec.europa.eu/regional\\_policy/en/atlas/](http://ec.europa.eu/regional_policy/en/atlas/)

<sup>51</sup> [http://ec.europa.eu/regional\\_policy/en/policy/cooperation/european-territorial/cross-border/](http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/cross-border/)

<sup>52</sup> [http://ec.europa.eu/regional\\_policy/en/policy/cooperation/european-territorial/outside-the-eu/](http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/outside-the-eu/)

<sup>53</sup> [http://ec.europa.eu/regional\\_policy/en/policy/cooperation/european-territorial/trans-national/](http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/trans-national/)

<sup>54</sup> <http://www.interreg4c.eu/interreg-europe/interreg-europe-new/>

<sup>55</sup> <http://urbact.eu/>



**European Local Energy Assistance (ELENA):** Run by the European Investment Bank, the ELENA joint initiative<sup>56</sup> helps local and regional authorities to prepare energy efficiency or renewable energy projects with a global budget of EUR 1.6 billion. It specifically addresses the expertise required for infrastructure projects, such as feasibility and market studies, structuring programmes, business plans, energy audits, the preparation of tendering procedures and contractual arrangements, and project implementation units. To be eligible, a project should have total costs above EUR 30 million, but the grouping of small projects into a larger investment programme is also allowed. ELENA covers up to 90 percent of the overall project's technical support costs.

**JASPERS Programme and FI-Compass:** The JASPERS programme<sup>57</sup> gives technical assistance to prepare high quality projects to be financed by the European Structural and Investment Funds in the new Member States. It focuses on major projects with total eligible costs exceeding EUR 75 million. The assistance may cover project preparation, independent quality review, and capacity building including a Competence Centre, and implementation. FI-Compass gives advisory services on financial instruments under the European Structural and Investment Funds.<sup>58</sup>

**Further supporting electromobility on a revenue-based operation: JESSICA:** In order to sustain a local project in the future which would ultimately generate revenue in the long term, Structural Investment Funds projects are supported by Financial Instruments<sup>59</sup> of the European Investment Bank. For electromobility, the main financial instrument is the Joint European Support for Sustainable Investment in City Areas (JESSICA) which covers sustainable urban renewal projects by offering equity instruments, loans and guarantees.

## Hard infrastructure and soft policy investment

### **The European Fund for Strategic Investment (EFSI):**

Adopted in June 2015, the European Fund for Strategic Investment aims at boosting growth and competitiveness in Europe through a public-private investment approach. Managed by the European Investment Bank (EIB), it allows for infrastructure, innovation and SME projects for a total investment of EUR 315 billion, built on EUR 16 billion from the European Union Guarantee and EUR five billion from the EIB. Deployed in the second semester of 2015, the EFSI focuses on operations which address market failures or sub-optimal investment situations. It can finance economically and technically viable and bankable projects. Open to local and regional authorities, it can support both hard infrastructure (land value capture mechanism for transportation services) and soft policy measures (SUMP) as long as public-private partnerships are involved. It can also support investments in public transport rolling stock or -charging points for electric vehicles. Cities and regions can request a free pre-check of their project for eligibility at the European Investment Advisory Hubs or directly at their national bank representation. In the short term, regional advisory hubs will also be created to assist cities locally in their project proposals and to help determine the adequate funding source.<sup>60 61</sup>

### **Connecting Europe Facility (CEF):**

Under the European Union Trans-European Network for Transport Regulation review in 2013<sup>62</sup>, 30 axes were identified as eligible for European funding<sup>63</sup> within the adopted financial support that constitutes the Connecting Europe Facility Programme<sup>64 65</sup>. With a total budget of EUR 26.25 billion (out of which EUR 11.305 billion are available only to cohesion countries), the CEF foresees two types of measures: heavy investment for pre-identified "global

<sup>56</sup> More information on the EIB website: <http://www.eib.org/products/advising/elena/index.htm>

<sup>57</sup> More information on the Jaspers Programme: <http://www.jaspers-europa-info.org>

<sup>58</sup> More information: <https://www.fi-compass.eu>

<sup>59</sup> More information on EIB Financial Instruments: <http://www.eib.org/products/blending/esif/index.htm>

<sup>60</sup> More information: <http://www.eib.org/eiah/index.htm>

<sup>61</sup> Public-Private Partnership follow specific rules of accountability. Cities are invited to have a look at the EPEC website documents related to PPPs: <http://www.eib.org/epec/>

<sup>62</sup> Regulation 1315/2013: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013R1315>

<sup>63</sup> Full map: [https://ec.europa.eu/inea/sites/inea/files/download/maps/overview/progress\\_report\\_2011\\_ongoing\\_projects.pdf](https://ec.europa.eu/inea/sites/inea/files/download/maps/overview/progress_report_2011_ongoing_projects.pdf)

<sup>64</sup> More information is available on the INEA website: <https://ec.europa.eu/inea/en/connecting-europe-facility>

<sup>65</sup> Regulation 1316/2013: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32013R1316>





projects<sup>66</sup> (construction work, upgrade, line extension) as well as soft measures (preparatory studies, studies with pilot activities, and demonstration activities). The CEF works on the basis of an annual call for proposal and can cover up to 50 percent of eligible costs.

#### **Horizon 2020: demonstration and research analysis:**

Under Horizon 2020, several options exist for cities to study and exchange good practices related to electromobility.

■ **CIVITAS<sup>67</sup>:** Created in 2002, the CIVITAS Initiative is now in its fourth phase, called CIVITAS PLUS II. With a budget of EUR 66.5 million dedicated to the promotion of sustainable urban mobility in cities, this funding stream is intended to support research activities aimed at enhancing best practice exchange, site visits and testing new innovative measures in living laboratories. It is a 100 percent funding stream.

■ **Smart Cities and Communities<sup>68</sup>:** Initiated in July 2012, the European Innovation Partnership for Smart Cities and Communities brings together regions, cities, industry and research organizations. The EIP was accompanied with the Partnership's Strategic Implementation Plan<sup>69</sup> (releasing EUR 200 million under Horizon 2020 for the next two years to create smart cities) and an Operational Implementation Plan<sup>70</sup> (OIP) adopted in October 2013. The OIP contains 12 priority areas, each of them broken down into several potential actions, which impact on transport systems in urban areas. Under the Priority Area "Sustainable Urban Mobility", seven priority actions are foreseen all of which include an electromobility component<sup>71</sup>. The Strategic Implementation Plan foresees the implementation of Lighthouse Projects which are considered as large scale demonstration projects between two to three lead cities and industry, involving also 'follower' cities, who commit to replicate the project locally, once the demonstration project has completed. The eligibility and ratio of costs reimbursements will vary according to the general Horizon 2020 rules and the type of project.

■ **Green Vehicles Initiative<sup>72</sup>:** The European Green Vehicles Initiative (EGVI) is a contractual public-private partnership dedicated to delivering green vehicles and mobility system solutions which address future societal, environmental and economic challenges. With a focus on the energy efficiency of vehicles and alternative powertrains, the EGVI aims at accelerating research, development and the demonstration of technologies allowing the efficient use of clean energies in road transport. Three rounds of biennial calls for proposals are expected to be launched within the EGVI in the period 2014-2020. The funding level depends on the type of project, either collaborative projects (EU consortium for research action / under Research and Innovation Action [100 percent funding] or Innovative Action [70 percent funding]) and Coordination and Support Actions (support for research activities and best practice exchange).

**LIFE programme:** The LIFE programme<sup>73</sup> is an EU funding instrument for environment and climate action. The 2014-2017 work programme includes a thematic priority on "air quality and emissions, including the urban environment."

**European Energy Efficiency Fund:** The European Energy Efficiency Fund<sup>74</sup> is an investment fund focusing on energy efficiency, small-scale renewable energy, and clean urban transport projects. It targets municipal, local and regional authorities and public and private entities acting on behalf of those authorities.

**Fuel Cell and Hydrogen Joint Undertaking:** The European Commission, the Industry and the Research institutions finance the development of hydrogen as a transport fuel and a source of energy. Calls are regularly published<sup>75</sup>.

66 Per Reference to Annex 1 of regulation 1316/2013

67 More information on the CIVITAS website: <http://www.civitas.eu/>

68 Ongoing call for proposal related to smart cities can be found here: <http://bit.ly/1Qjzch>

69 [http://ec.europa.eu/eip/smartcities/files/sip\\_final\\_en.pdf](http://ec.europa.eu/eip/smartcities/files/sip_final_en.pdf)

70 [http://ec.europa.eu/eip/smartcities/files/operational-implementation-plan-oip-v2\\_en.pdf](http://ec.europa.eu/eip/smartcities/files/operational-implementation-plan-oip-v2_en.pdf)

71 Page 7 of the OIP.

72 All the calls are published on the European Commission's portal for research, CORDIS and are available for consultation on the EGVI website: <http://www.egvi.eu/funding/calls-for-proposals>

73 More information: <http://ec.europa.eu/environment/life/funding/life.htm>

74 More information: <http://www.eeef.eu/home.html>

75 More information: <http://www.fch.europa.eu>



[www.civitas.eu](http://www.civitas.eu)

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