

How implementing the Clean Energy Package can foster electromobility

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Summary

The implementation by the member states of the Clean Energy Package offers an important opportunity at national level to push for a coherent regulatory framework on electromobility. The Clean Energy Package pushes member states to use building regulations to facilitate home-charging of EVs. Secondly and as the fleet of EVs grows, it will become crucial to enable drivers to charge their vehicles smartly: changes to the design of electricity markets empowers EV drivers to charge their cars more cheaply during off-peak hours or offer the flexibility of their EV battery to aggregators. Thirdly, the Clean Energy Package pushes fuel suppliers to increase the renewable share of transport fuels. Introducing a credit mechanism, whereby renewable electricity charged by EVs can contribute to achieving the targets in the Renewable Energy Directive, can offer a sustainable alternative to blending biofuels from energy crops in combustion engines. Finally, efficiency improvements in the transport sector - through electrification in particular - can be leveraged by member states to achieve their energy savings targets.

1. Ensuring that national policies are electromobility-ready

EVs are coming. This is no longer a question of 'if', but of 'how many'. Pushed by the EU's CO2 standards for cars and vans, car manufacturers are planning a surge of EV models. T&E anticipates that at least 5 million EVs will be sold annually by 2030. Shortly after 2024, EVs will already reach price-parity with conventional cars at the point of purchase. This price-parity will remove one of the last remaining obstacles for consumers to buy an EV. Work is underway to also ensure that there is publicly accessible charging infrastructure available to charge these cars. A review of the EU's Alternative Fuels Infrastructure Directive is underway.

There is, however, one crucial condition to be met to ensure that these millions of EVs will be easily integrated into the current energy/electricity system: the national implementation in the EU member states of the EU’s Clean Energy Package, which was finalised in mid-2019. The Clean Energy Package contains a number of provisions, which should help to make charging more cost-efficient and convenient for EV drivers. By implementing these rules (and where possible, going beyond the conservative compromises reached in Brussels), member states will develop a coherent policy framework that cannot only accommodate, but also foster a rapid uptake of EVs. Many national governments have started to discuss the transposition of the Clean Energy Package.

The briefing aims to provide an overview of the key provisions in the five pieces of EU law of the Clean Energy Package that can foster a rapid increase of electromobility: The Energy Performance of Buildings Directive (EPBD), the Market Design Directive and Regulation (MDD, MDR), the Renewable Energy Directive (RED) and the Energy Efficiency Directive (EDD). Where possible, the briefing suggests areas where higher ambition is feasible.

2. Energy Performance of Buildings Directive

The EPBD has always been about improving the energy performance of the buildings. The revised EPBD now spurs member states to develop a long-term renovation strategy to transform their building stock “into a highly energy efficient and decarbonised building stock by 2050”. One of the key innovations is that buildings are now seen as an integral part of the wider energy system. For example, the revised EPBD contains for the first time provisions on electro-mobility.

2.1. The EPBD can help the roll-out of home-charging infrastructure.

The deadline for implementing the EPBD is 10 March 2020. The key article for electro-mobility in EPBD is Art 8.3 in the EPBD Directive (EU) 2018/844. The European Commission has issued a Commission Recommendation (EU) 2019/1019 on building modernization to provide guidance to member states on how to implement this.

Scope	Building type	Initial 2016 Commission proposal	Final member state obligation
New buildings and buildings undergoing major renovation	<i>Non-residential buildings with more than 10 parking spaces</i>	From 2025, equip at least one of every ten parking spaces with a recharging point Mandatory smartness, i.e. reacting to grid/price signals	Ensure the installation of at least 1 recharging point Ensure the installation of ducting infrastructure for at least 1 in 5 parking spaces

	<i>Residential buildings with more than 10 parking spaces</i>	Require pre-cabling (ducting + wires) for every parking space. No mandatory smartness	Ensure the installation of ducting infrastructure for every parking space
Existing buildings	<i>Non-residential buildings with more than 20 parking spaces</i>	No requirements	Set out requirements for the installation of a minimum number of recharging points – applicable from 2025
All buildings	New and existing, regardless of the number of parking spaces	No requirements	Simplify the deployment of recharging points address possible regulatory barriers (e.g. permitting and approval procedures)

2.2 Potential for higher ambition in EPBD

For new commercial buildings and major renovations, the initial Commission proposal had suggested that at least one of every ten parking spaces is equipped with a recharging point. For new residential buildings, the Commission proposal required the pre-cabling (ducting + wires) to enable the installation of recharging points for all parking spaces at a later stage. Additionally, the Commission proposal had proposed a smartness requirement for the recharging points, which should have been “capable of starting and stopping charging in reaction to price and grid signals”. The smartness requirement in the EC proposal only applied to recharging points in commercial buildings. However, there is no reason not to introduce the same smartness requirement also for residential buildings to help consumers save money by smarter consumption, along with support for installation cost if necessary.

For existing buildings, the original Commission proposal had not proposed any requirements. The final version of the EPBD does force member states to address any building-related regulatory barriers that EV drivers may face. To comply with this, member states could introduce a ‘right to plug’ for those EV drivers, who are renters or owners in a multi-family apartment building. Under such a ‘right to plug’, EV drivers would need to pay for the installation of their recharging point, but the cost of pre-cabling would be shared between all owners (e.g. represented in the assembly of the condominium owners). This is particularly relevant for those markets, where a rapid growth of EV sales is anticipated.

3. Market Design Directive & Regulation

3.1. New market design will facilitate the grid integration of growing electricity demand from transport.

The deadline for implementing the market design framework is the end of 2020. Two pieces of legislation introduce some sweeping changes to the regulatory framework for electricity markets: the Market Design Directive (EU) 2019/944 (hereafter, MDD) and the Market Design Regulation (EU) 2019/943 (hereafter MDR). The ambition is to prepare the EU's electricity market to be ready to integrate more renewables and reward demand side flexibility, for example from EV batteries. The market design legislation strengthens the position of consumers by enabling them to help grid operators balance the grid, rewarding them for their demand side flexibility (e.g. by smart charging of EV or other smart appliances).

Smart charging will be needed to reduce the additional demand from EVs being charged at 'peak hours' and – as a result – drastically reduce the need for costly upgrades to the electricity grid. [T&E's 'Batteries on Wheels' report](#) shows that such smart charging can generate by 2040 a net benefit of more than EUR 1 billion per year in large EU member states like France and the UK: consumers' bills would be reduced, as infrastructure upgrade and fuel costs are avoided by means of smart charging. The reforms of the electricity market design can offer cheaper electricity through smarter rates to the millions of new EV drivers in the near future, helping them to avoid charging their EVs during periods of peak demand or take advantage of abundant electricity generation (e.g. charging in the middle of the day, when solar power generation is at its highest).

From smart meters to dynamic price contracts

To turn this into a reality, introducing smart energy metering systems will be a prerequisite. The MDD (article 19 MDD) strongly recommends member states to optimise the use of electricity by introducing smart metering systems. member states can delay the roll-out of smart meters, if their analysis shows that the costs outweigh the benefits.¹ But if smart metering systems are assessed positively, at least 80 % of final customers shall be equipped with smart meters either within seven years of the date of the positive assessment (or by 2024, if the cost-benefit analysis started before 4 July 2019). If member states decide not to roll out smart metering systems (yet), consumers have a right to request a smart meter ('while bearing the cost') and the smart meter needs to be installed within 4 months max (article 21 MDD).

¹ A 2012 Commission recommendation provides a methodology for this CBA analysis and also lays down minimum functional requirements. For example, smart meters need to be able to communicate readings directly to the customer and any third party designated by the consumer. In addition, smart meters need to be able to support advanced tariff systems as well as allow remote on/off control of the supply and/or flow or power limitation, which may be needed for handling technical grid emergencies.

The roll-out of smart metering systems opens up a wide range of opportunities to unlock the flexibility potential of EVs. Provided they have a smart meter installed, the MDD (article 11 MDD) offers consumers the right to conclude dynamic price contracts, which will enable EV drivers in particular to benefit from lower electricity prices during off-peak charging (e.g. overnight). In addition, all customers are free to purchase and sell electricity services by concluding an aggregation contract² and to do so without the consent of the final customer's electricity undertakings (article 13 MDD).

Aggregators will organise the flexible charging of EVs

The MDD (article 15 MDD) gives active consumers the right to generate, to store, consume and sell self-generated energy, without burdensome procedures and excessive charges. This new right enables consumers to offer their flexibility to an aggregator, a company that will offer the flexibility of the load of hundreds of EVs, heat pumps and other flexible electrical appliances on the wholesale electricity markets. In doing so, independent aggregators are key to create flexibility markets and improve choice and reduce costs for consumers. The role of aggregators is strengthened, as the MDD (article 17 MDD) requires that they be treated as equal market participants, on par with electricity suppliers. To enable aggregators to play their role, they shall have non-discriminatory access to the final customers' data, including metering and consumption data and data required for demand response and other services (article 23 MDD). Consumers of course need to agree to sharing their data.

Getting distribution networks ready for more EVs: connecting EV recharging points and network costs

Market Design also seeks to facilitate the connection of recharging points to the distribution grid. This applies to both publicly accessible and private recharging points (article 33 MDD). Distribution system operators shall in principle not own, develop, manage or operate recharging points for electric vehicles, as EV charging should be a demand-driven private enterprise. Only in exceptional circumstances, i.e. after a failed tendering procedure and provided that the recharging points are accessible to third parties, could a distribution system operator be allowed to own, develop, manage or operate recharging points. This exception is subject to a review every 5 years.

Charges related to grid costs are also relevant for EV adoption. Over the last 10 years, the share of the cost of electricity generation has dropped in the electricity bill of consumers. But consumers have not benefited from this cost reduction, as other components of their electricity bill have gone up: taxes and the promotion of renewable electricity (feed-in tariffs, green certificates, which are socialized among all consumers). In addition, network costs have also risen to about a third of the electricity bill. The MDR (article 18) stipulates that network charges – e.g. charges that grid operators raise for network reinforcements to integrate fast-charging recharging points, a parking of a company fleet of

² 'Aggregation' refers to multiple customer loads or generated electricity for sale, purchase or auction in any electricity market (article 2.18 MDD).

electric vans or an electric bus depot – shall reflect the real costs. A framework to approve network charges should be established on the basis of this principle and seek to better use existing grid capacity. To give a concrete example: a distribution system operator could argue that a growing share of EVs on its network will lead to local grid congestion and necessitate an increase of network charges to upgrade their network. An alternative could be to introduce time-differentiated network tariffs, which will – combined with flexible electricity pricing – also help avoid peaks in demand of EVs, lowering the network charges as a result. The new Market Design rules also require regulators to create a framework for distribution system operators to procure flexibility services, including congestion management, from e.g. aggregators (article 32 MDD). When distribution system operators update their local development plan, they need to consider how demand response and energy storage by electric vehicles can be used as an alternative to expanding the system to deal with high peaks in demand.

3.2. Potential for higher ambition in market design

Prosumers will be able to become actively involved in electricity markets via aggregators, but they will not be able to directly sell their self-generated electricity to other consumers (e.g. via peer to peer exchange). However, article 21 of the RED on ‘renewable self consumers’ does entitle consumers, which generate renewable electricity (e.g. rooftop installation of photovoltaic panels) to store and sell their excess production of renewable electricity, including by means of peer-to-peer trading arrangements. Renewables self-consumers located in the same building, including multi-apartment blocks, are entitled to jointly store and sell their excess production or arrange to share the renewable electricity onsite. In their transposition, national governments shall include this option of peer-to-peer exchanges.

4. Renewable Energy Directive

4.1. Renewable electricity charged in EVs should contribute to the renewable transport fuel targets.

The deadline for implementing the RED is the end of June 2021. The transposition of the revised RED offers an opportunity to start taking EVs seriously in fuel legislation and rely on electricity supplied to EVs to meet the binding 7% target for advanced renewable fuels that fuel suppliers need to reach. The combined effect of three factors will facilitate this. First of all, the rapid growth in EV sales. Secondly, a growing share of renewable electricity in the power generation mix. Thirdly, the RED includes a multiplier of 4 for renewable electricity, directly used in EVs. This multiplier is not only an accurate reflection of the higher efficiency of EVs over ICEs, but also helps to ensure their contribution to meeting the renewable transport targets.

In this context, suppliers of electricity to road transport should be enabled to sell renewable electricity credits to allow fossil fuel suppliers to meet their obligations under RED. The RED implementation offers member states an opportunity to meet their renewable transport targets, without having to resort to unsustainable, crop-based biofuels.

However, this will require the creation of a credit system, because renewable electricity is not a drop-in fuel - you cannot blend it - and it requires separate infrastructure in order to be deployed to the market. A credit mechanism will allow for an easy transfer of renewable obligations between fuel suppliers and start taking renewable electricity seriously as a transport fuel. Creating such a credit mechanism will be a major step forward for the 26 EU member states (except for the Netherlands and Germany), which have until now only introduced a compliance mechanism for the RED target that rewards only the use of liquid renewable alternatives - mainly biofuels.

More details on the main features of such credit mechanisms are available in [this T&E briefing](#).

4.2. Potential for higher ambition in RED

A credit mechanism that moves beyond the current biofuel-blending obligation and includes renewable electricity is a good start. But there are many more provisions in the RED that can help to push out energy crops. The RED allows member states to phase out the support given to food and energy crops under RED and countries should do so as soon as possible. If member states continue to support these crops, the RED introduces a cap at 2020 levels with a maximum of 7%. The RED allows countries to set lower limits and phase out more quickly certain biofuels, based on evidence about land use impacts (for instance, a lower limit on crop-based biodiesel, which will favour advanced, waste-based biofuels). Biofuels, which carry a high risk of land use impacts (palm oil), will be first frozen at their 2019 shares and, as of 2023, gradually phased down to be completely phased out in 2030 (although exemptions remain). T&E calls on member states to set the cap on energy crops as low as possible and bring forward the phase-out of high-ILUC risk palm oil. More details available in [this T&E briefing](#) on the national implementation of RED.

The RED also insists that the expected increase in demand for electricity in transport should be met with additional renewable electricity generation capacity. For the (renewable) electricity used to produce gaseous and liquid transport fuels of non-biological origin, member states should be aware that the Commission will develop a binding regulatory framework by the end of 2021.

5. Energy Efficiency Directive

5.1 Accelerating the transition to EVs can help member states achieve their energy savings targets.

The deadline for implementing the Energy Efficiency Directive (EED) is the end of June 2020. It is widely recognized that the principle of ‘putting energy efficiency first’ is a crucial component for any climate strategy to be effective. The EU has set a non-binding target of reducing by at least 32.5% the EU’s overall energy consumption through improvements in energy efficiency, by 2030. The Directive foresees also an energy savings obligation for each member State, equivalent to additional and new annual savings of around 0.7% of final energy consumption for the period 2014 to 2020 and of at least 0,8 % for the period 2021 to 2030 .

Energy savings from national measures improving the efficiency of transport can be used to meet the savings obligation, if specific conditions are met.³ For example, the energy savings generated by the promotion of more efficient vehicles, a modal shift to cycling, walking and collective transport, or mobility and urban planning that reduces demand for transport, can all be counted towards the target.

An example of an eligible transport policy in the field of promoting more efficient vehicles could be ambitious procurement policies for clean vehicles beyond what is required under the Clean Vehicles Directive (2019/1161). The Clean Vehicles Directive sets a mandatory minimum procurement target of 38.5% for e.g. the Netherlands for clean light-duty vehicles for 2025 and 2030, but the Dutch government could decide to start **procuring 100% zero-emission vehicles** from 2021. If that is the case, the Dutch government could count those savings towards its target in 2025 and 2030.

Another example of eligible policies are **scrappage schemes for old and inefficient cars and fleet replacement programmes**. member states can claim the energy savings, provided that the replacement of an old car takes place before the end of the expected lifetime of the vehicle, or before it would usually be replaced. The EED only allows savings to be estimated on the basis of the savings compared to the average efficiency of the fleet, not calculated on the basis of actual replacement. The average fleet efficiency is determined by the EU’s emission performance standards, currently in force. member states also need to provide evidence that the scrapped vehicles do not re-enter the second-hand market.

Apart from focusing on new vehicles, the EED also promotes **programmes to increase the efficiency of existing vehicles or reduce the reliance on car travel**. Lowering speed limits, promoting car-pooling and introducing a congestion charge and the resulting energy savings can be counted

³ Member states can still choose to exclude the transport sector from the scope of their national implementation of the EED.

towards the national efficiency target. A last set of transport-focused measures incentivizes member states to reduce the need for (car) travel and promote a modal shift in transport. Investments in public transport (including e.g. high-speed railways that provide alternatives to short-haul aviation), the promotion of teleworking, road charging based on the level of congestion and/or CO2 emissions, these are all policies, whose energy savings can be counted towards the national energy savings target.

Other important measures recognized by the EED, namely **energy or CO2 taxes**, will also help to clean up the transport sector. To be taken into account, these taxes need to at least exceed the minimum levels set by the Energy Taxation and the Directive on a common system for value added taxes. And the energy savings generated by energy or CO2 taxes will depend on how energy demand responds to an increase in energy prices. member states need to develop a calculation methodology to provide evidence for potential efficiency gains.

5.2. Potential for higher ambition in EED

One of the reasons for missing the 2020 energy efficiency overall target is because energy consumption in transport increased. Therefore, ambitious transport policies and measures can make a considerable contribution in reaching the 2030 energy efficiency target. By adopting ambitious policies to reduce the energy demand in the transport sector, more efficient, electrified vehicles can contribute significantly to achieving their energy savings target.

Further information

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