

Written submission by Electromobility

Electromobility UK¹ brings together UK companies and organisations who by their own efforts and joint working are driving the shift to net zero emissions through a transition to battery electric vehicles.

We applaud the UK commitment to net zero greenhouse gas emissions and recognise a shift to battery electric vehicles using renewable electricity will be the key solution for vehicles if we are going to meet these commitments. **We support the government's intention to only allow the sale zero emission cars and vans from 2035.** We note that the Committee on Climate Change's advice is that all forms of ICE vehicles should be phased out by 2032. Government has made the decision end the sale of petrol and diesel engines in 2030 but allow sales of hybrids between 2030 and 2035. They must implement policies that restrict sales of hybrid vehicles between 2030 and 2035 to those with a plug and a meaningful battery range. Battery electric vehicles already deliver more than a [third lower lifecycle CO2 emissions](#) in the UK compared to an equivalent vehicle with an engine and is the only technology that can [currently credibly](#) deliver the net zero objective, we must maximise the uptake of battery electric vehicles

Surface transport is the single biggest contributor to the UK's CO2 emissions. It is also one of the sectors to make the least progress in reducing emissions since 2008. Making rapid progress on decarbonising road transport should therefore be the Government's single biggest objective when developing policies to achieve its net zero ambition.

While progress has been far too slow, the technology now exists to facilitate the rapid decarbonisation of road transport. Hundreds of thousands of drivers are already driving battery electric vehicles in the UK and believe they are benefitting from an enhanced experience relative to their old petrol or diesel cars. From an environmental perspective, battery electric vehicles achieve significant reductions in transport CO2 emissions today. They also present the most viable solution for complete decarbonisation of vehicles. In addition, battery electric vehicles achieve considerable co-benefits in terms of tackling air pollution; supporting increasingly renewable electricity grids; the creation of jobs and wealth; and improving the UK's energy security.

Electromobility UK would emphasise 5 key points in relation to policy to support only allowing the sale of zero emission cars and vans from 2035:

¹ Nissan Motor (GB), Renault UK, Tesla, Octopus Electric Vehicles & Energy, Chargepoint, ABB, Transport & Environment, National Grid

1. A long-term target without complementary short-term actions to accelerate the market for zero emission vehicles would be ineffective. The government will need to establish a clear trajectory with interim milestones with regulations requiring rapidly rising sales of zero emission vehicles complemented by policies that facilitate meeting these.
2. Ending the sale of new cars with engines will transform the UK vehicle market and eventually the vehicle parc. There are no insurmountable problems preventing the goal being reached with the right policy framework but to achieve the target what happens in the next few years will be crucial. Securing a “flying start” will be essential and to do so the government must:
 - a. Provide an attractive package of purchase incentives including: reforming 1st year vehicle excise duty to create a clear tax differential for zero emission vehicles; retain (in the short-term) grants for zero emission vehicles and developing a phase out plan that minimises market disruption; maintaining attractive company car benefit in kind rates to drive demand for zero emission vehicles.
 - b. Establish a “right to charge” for all users of electric cars including placing a responsibility on local authorities to procure adequate, appropriate, accessible and affordable charging points for residents, businesses and visitors to the area. This should be achieved by: working with existing privately-held sites such as retail locations; facilitating the installation of kerbside chargers; and by government confirming changes to Building Regulations to facilitate charging in multi-occupancy dwelling and at commercial locations through the planning regime. There are over 100 councils with less than [10 chargers per 100,000 residents](#) and only 12% of EV owners have access to on-street residential charging.
 - c. Support the connection to and reinforcement of electricity grid infrastructure, both at transmission and distribution level, where there is economic or environmental benefit for EV charging infrastructure to be installed. Where appropriate, support investment in infrastructure ahead of need, to encourage further EV uptake by removing barriers to EV uptake around range anxiety and ensuring level playing field.
 - d. Ensure that the UK’s post-Brexit CO2 regime reflects and supports the UK’s scale of ambition guaranteeing the continuing supply of a range of electric cars into the UK market.
 - e. Implement legislation to require public owned fleets to shift to zero emission vehicles by 2030.
 - f. Reform the Renewable Transport Fuel Obligation into a Renewable Transport Energy Obligation where electricity can participate to provide a market-based mechanism to support public chargepoints²

² See Annex 1 for an overview of the proposal

3. Electromobility UK would like a phase out of cars with engines at the earliest feasible date. The S-uptake curves below illustrate the implications of a range of phase-out dates on the required EV uptake. The suite of policies needed to achieve an earlier phase-out are the same but would require a much more aggressive implementation. For example; a 2032 phase out date requires nearly 4 in 10 new cars sold in 2025 to be ZEVs compared to 1 in 4 cars for a 2035 phase out; current CO2 regulations require less than 1 in 10 new cars to be zero emission in 2025. An earlier phase out date will only be achieved if the government immediately scales up the support available to enable the transition immediately.

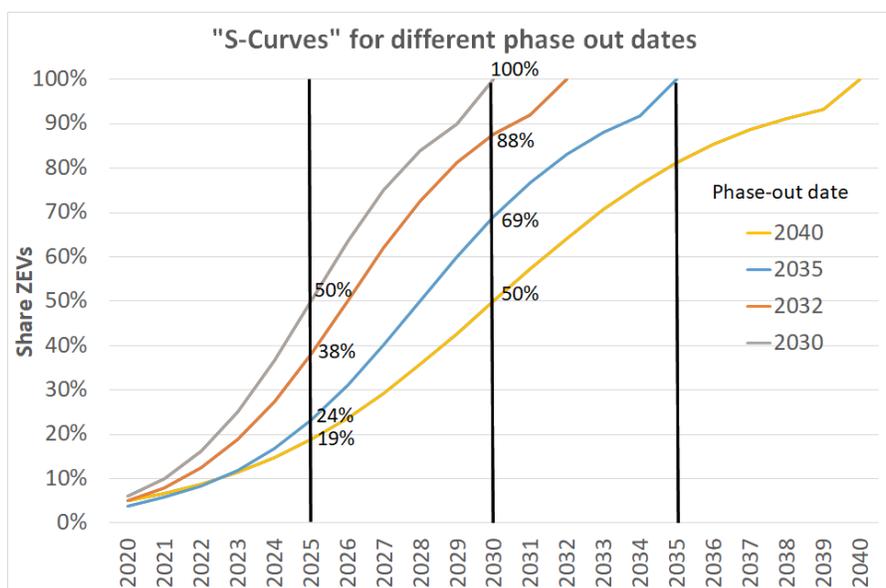


Figure 1: Source - Original analysis by T&E

4. The climate benefits of an earlier phase out date are obvious, but there are also wider benefits:
- There are numerous [studies](#) highlighting the economic and employment benefits of a shift to battery electric vehicles. By adopting an early phase out of ICE cars the UK will develop the largest market for BEVs in Europe encouraging manufacturing of vehicles and cells in the UK and creating high skilled jobs in the automotive sector. Secondly, the required investment in charging infrastructure and grid upgrades will also [create jobs](#). Thirdly, the reduced running costs and total costs of ownership of BEVs compared to ICE vehicles will boost UK household spending in other economic sectors with more domestic value-added and higher employment intensity.
 - With a 2035 phase out date (and trajectory as indicated above) there would be 19 million zero emission cars on the UK's roads by 2035 out of a fleet of around [32 million cars today](#). This is 4 million more low and zero emission cars than would be seen on the roads under the current 2040 phase out. The availability of vehicles for the second and third hand markets therefore improves appreciably. This is important as battery electric vehicles will have much lower maintenance

and running costs benefiting less affluent segments of the population that do not purchase new cars.

- c. The transition will occur more quickly and therefore the use of services for zero emission cars (like charging) will increase more rapidly whilst those for legacy cars with engines (like petrol pumps) will decline more quickly. This will have economic benefits in terms of higher utilisation rates more quickly for electric car services and a shorter period to retain uncompetitive legacy services.
- d. An early phase out of ICE cars will help to improve the UK's unacceptable air pollution. There are estimated to be up to 36,000 premature deaths from air pollution in the UK and traffic is a major contributor. There is also compelling [evidence](#) of increased mortality from Coronavirus in areas of high air pollution. In addition, air pollution is likely to worsen the symptoms of patients recovering from the virus.

A green recovery involving a rapid shift to battery electric vehicles is one of the most effective ways to achieve both economic growth and a more resilient economy. The ICE phase out is the single most important policy initiative to decarbonise road transport, but will only be delivered if it is complemented by the short term initiatives highlighted in this paper. In the immediate term, there are several steps government could take to create jobs through electric vehicles:

1. Investment in charging infrastructure and grid upgrades, including changes to the RTFO to create a market-based mechanism that represents a sustainable revenue stream to support chargepoint operators.
2. Add the potential to install cabling to enable the easy installation of EV home charging points alongside the initiative to insulate homes.
3. Include 1st year VED in BIK payments – this both raises revenue and further incentivises BEV uptake.
4. Extend the Project Rapid, announcing future rapid charging funds beyond Motorway Service Areas and the Strategic Road Network to other distribution network bottlenecks. At present there is insufficient funding to cover the whole country.
5. Taking measures to secure better quality charging experience such as mandating uptime for network operators and supporting or requiring networks to be interoperable.

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Annex 1: The Renewable Transport Fuel Obligation and international casestudies of the inclusion of electricity and reforms to include electricity.

What is the Renewable Transport Fuel Obligation (RTFO)?

- First implemented in 2005, the RTFO is an obligation on suppliers of fossil petrol and diesel to supply renewable fuel, in practice biofuels, to the UK market.
- The scheme works by setting an annual obligation on suppliers to supply “renewablefuels” in practice biofuels. Currently at 9.75% of total transport fuel in 2020 to 12.4% in 2032. In subsequent years suppliers' obligation levels will remain at the 2032 level.
- Fuel suppliers meet this obligation by supplying renewable fuel or purchasing renewable transport fuel certificates (RTFCs) from other suppliers.
- RTFCs are issued to suppliers of sustainable renewable transport fuel and this trading mechanism enables obligated suppliers to meet their obligation in a cost-effective manner. There is also a buy-out price for compliance (currently set at 50p/litre).
- Implemented in the UK in 2005 as a result of the EU Renewable Energy Directive I as secondary legislation from Energy Act 2004. Other European countries have their own equivalent versions.

Overview

- The RTFO must be transformed into a Renewable Transport Energy Obligation (RTEO) to allow the inclusion of renewable electricity. As the name implies, the RTFO currently focuses on renewable fuels, i.e. biofuels. This stems from a time when non-combustion renewable energies were not considered realistic in transport. An illustration of this is in 2010, five years after the RTFO was implemented, we had just 247 EVs in the UK. EVs were not considered viable. Now, we have over half a million plug in vehicles³; it is time to update regulation and treat all forms of renewable energy equally, not just the ones that come in the form of fuel. Electricity is now a form of renewable transport energy and therefore must be included within a RTFO / RTEO for consistency.
- With electricity inclusion the government may wish to increase the overall RTFO target⁴, if they wish to protect biofuels.
- There is precedent for electricity inclusion in national “RTFO type” instruments - The Netherlands and Germany updated their schemes to include electricity in 2015 and 2017 respectively. France and Belgium also plan to do so. California has a similar instrument (country casestudies are included later).
- There are no sustainable revenue streams supporting chargepoint operators, only small grants, which are time limited. Inclusion of electricity in the RTFO would create a market-based mechanism, providing a sustainable revenue stream to chargepoint operators until at least 2032 under the current policy.
- **Benefits:** In addition to the point of updating for consistency, enabling electricity to generate RTFCs / Renewable Transport Energy Certificates delivers additional benefits:

³ Pure battery and plug in hybrids

⁴ We understand there is an argument around the investment case to date within the biofuels industry, although we note the inclusion of electricity under the motor fuel regulations previously that were ended in 2020. Therefore, in the interests of stability for sustainable biofuels that should help reduce the CO2 emissions from remaining ICEs and harder to electrify areas such as aviation, the overall RTFO target should be increased. This would have the ultimate effect of reducing the volume of fossil-based transport fuels, which is consistent with achieving net zero and interim carbon budgets.

- (1) Improves the business case for chargepoints (and EVs dependent on design),
- (2) Sustainably supports EV uptake through a market-based mechanism, reducing the need for continuous grants.
- (3) enables biofuels and electricity to complement one another within one policy mechanism to decarbonise transport fuel in the ultimate aim of net zero

How does electricity inclusion in an RTFO instrument work?

In order to reach the RTFO target (currently 9.75%) obligated fuel suppliers must blend biofuels into petrol or diesel themselves, buy credits from others who blend, or “buy out” and pay government 50p/litre. By including electricity in the scheme, chargepoint operators providing electricity into EVs would generate credits towards the target, therefore providing a sustainable revenue stream for chargepoints. On the basis the government would want to protect biofuels contribution they could consider increasing the target. As a point of reference The Netherlands allowed electricity to participate in this manner in 2015 and their target is 16.4% as compared to our target of 9.75%⁵

Chargepoint operators⁶ use invoices of their electricity suppliers and/or their own metering systems to establish kWhs of renewable energy delivered to road vehicles in a year. These kWhs are then input to the same credit platform biofuel suppliers are currently using. A multiple of four should be applied to account for the powertrain efficiency factor; an additional multiplier should be applied to account for the fact that not all electricity is renewable (currently 42% of energy is generated by renewables in the UK). As only the renewable energy percentage is eligible for a certificate there is value in CPOs ensuring they have a green tariff.

Credit systems for renewable electricity in transport

We need to make our existing policies work harder, if we are to meet net zero and our interim 2035 target of a 78% reduction. **The Netherlands** made the change from RTFO to RTEO, by including electricity in its ‘biotickets’ system, in 2015. Public chargepoint operators generate credits for the use of the renewable component of electricity only in its chargepoints. These can be used for compliance alongside biofuel blending. Their 2020 target is 16.4%, which is far higher than the UK’s current 9.75% or even the UK’s proposed 2032 target of 12.4%. Notably their CO2 emissions reduction targets are in fact lower than the UK’s at 49% by 2030 (due to rise to 55%) compared to the UK’s of 78% by 2035. Given this target we must update existing policies to work harder for transport as a key polluting sector in the UK.

Although we have left the European Union it is noteworthy that as part of the implementation of the RED II Directive⁷, more Member States are planning to include electricity in their compliance schemes, we must avoid being left behind:

- France has approved including electricity used at public chargepoints- although it will be in force as of 2022.
- Germany is planning significant reforms of its current system, which included electricity from 2017. It will resemble the Dutch system but with an additional feature for home charging. From 2022 a default amount of kWh credits will be provided to owners of electric cars. Third

⁵ Note the UK target is volume based and The Netherlands is an energy based target

⁶ This option specifically looks to target revenue for chargepoints as chargepoints are deemed a blocker. However, RTFCs could also be generated for each sale of an EV, and could be sold for compliance therefore

⁷ Noting The RTFO originated from the European Renewable Energy Directive

parties will act as aggregators of these credits and have the ability to sell them to fuel suppliers. This is another key mechanism to encourage the uptake of electric mobility. The beneficiaries of these credits can be CPOs, car manufacturers or energy companies. Their scheme promotes competition to give consumers the best offering in return for credits.

A system also exists in California. This was the first jurisdiction to introduce this type of system through its Low Carbon Fuel Standard (LCFS).

Further country specific information

Netherlands

The Dutch system allows companies that supply electricity to electric vehicles and that have "connections to the electricity grid exclusively for this purpose" to generate renewable energy credits, meaning charging points operators (CPO).

Renewable electricity can be exchanged as a renewable energy unit (HBE), calculated from the amount of electricity supplied to electric vehicles to which the percentage of renewable electricity in the European mix is applied, which is then subject to a multiplier of to account for EV efficiency.

The system covers only a small part of the electricity used in transport as it does not cover domestic charging but is increasingly helping investment in electrification and in particular charging infrastructure uptake.

<https://www.emissionsauthority.nl/topics/claiming-deliveries---energy-for-transport/claiming-delivery-of-renewable-energy/claiming-delivery-of-electricity>

Germany

Germany introduced a compliance mechanism (38th BImSchV) where utilities providing electricity for EVs can generate and transfer credits to obligated parties such as fuel suppliers, to reduce their GHG emissions.

Both public and private charging are now included for the purpose of generating credits for renewable electricity use. Chargepoints used by the public will generate credits based on actual use of an EV charger. This originates from the amount of renewable electricity used to charge EVs.

For private charging (e.g. workplaces, homes, car parks), a fixed amount of consumption is estimated for an EV per year (around 2 MWh). This works by assigning the owners of EVs, be that an individual or a fleet, 2MWh of credit value annually. This can then be transferred to a "3rd party" to aggregate. This could be a Chargepoint operator, manufacturer or energy company. Customers should expect a value proposition in return for their credits. The intent is to drive competition between 3rd parties to give the consumer best value.

This system does not cover nor meter the actual electricity used in transport, except in the case of public charging.

<https://www.umweltbundesamt.de/themen/verkehr-laerm/kraft-betriebsstoffe/vollzug-38-bimschv-anrechnung-von-strom-fuer#berichtspflichten>

California

In California, the Low Carbon Fuel Standard policy introduced an obligation on fuel suppliers to reduce the greenhouse gas intensity by 10% by 2020 for all fuels sold in the state and a crediting system that also covers renewable electricity supplied in transport.

Several entities can generate credits for electricity supplied both for public and private charging. For residential charging, the administrative authority (CARB) provides state estimates and assigns credits to energy suppliers, but with the possibility for other subjects like vehicle manufacturers to obtain additional credits if they demonstrate the possibility of counting the electricity actually supplied for charging electric vehicles at home, for example through on-board metering devices. Data from the vehicle must be able to differentiate between residential and public charging to prevent double counting, for example by Geofencing (vehicle location information being utilized to identify and exclude charging sessions occurred at public stations). For public charging, several parties can participate in the mechanism, such as car manufacturers, charging point operators, EV fleet operators.

This mechanism covers a broad amount of the energy used in transport and provides incentives to support electrification without government subsidies.

<https://ww2.arb.ca.gov/resources/documents/lcfs-electricity-and-hydrogen-provisions>
