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Effectiveness of policies in the adoption of electric vehicles

Organized by Delegação Regional do Centro e Alentejo (DRCA) da Ordem dos Economistas, Portuguese Association for Energy Economics (APEEN) and Spanish Association for Energy Economics (AEEE)

Lisbon, December 11, 2024 (hybrid)

The event was introduced by the President of DRCA of the Portuguese Economics Association (Ordem dos Economistas), Ana Brochado, together with the Presidents of the two Energy Economics Associations, Hugo Lucas (AEEE) and Jorge Sousa (APEEN). In their opening remarks, the three speakers pointed out the relevance of assessing efficiency and effectiveness of the different policies for the adoption of electromobility amongst mobility decarbonization solutions. Market diffusion rates have shown very different paces across the European Union, influenced not only by the socioeconomic preexisting conditions but also the implementation of different types of support mechanism within each Member State. Spain and Portugal, although both countries departed from a quite similar landscape, the different policy measures have resulted in diverging adoption rates to this day. However, most importantly, current frameworks have proven insufficient to continue the increase in adoption in the Iberian Peninsula, thus more comprehensive and innovative initiatives must be brought to the table.

The round table was then moderated by Jorge Vasconcelos, chairman of NEWES, regulation consultant to several international and national authorities, invited Professor at the Technical University of Lisbon, and alternate member of the Administrative Board of Agency for the Cooperation of Energy Regulators (ACER). The panel of experts was composed of (in intervention order) Patrick Plötz, Pablo Frías, and Hugo Pinto. Patrick Plötz is coordinator of Business Unit Energy Economics at the Fraunhofer Institute for Systems and Innovation Research ISI (Karlsruhe, Germany). His extensive research focuses on the electrification of transport, as well as energy system analysis and CO2 mitigation policies. Pablo Frías is Professor and Vice-Dean at the ICAI School of Engineering (Madrid, Spain), as well as researcher and director of the Observatory of Electric Vehicles and Sustainable Mobility (OVEMS) at the Institute for Research in Technology (IIT) of the same university. Hugo Pinto is the spokesperson for AMME - Associação dos Utilizadores e Promotores do Uso de Veículos Elétricos (Association of Users and Promoters of the Use of Electric Vehicles).

The presentation by Patrick Plötz summarized the findings in the work *How large is the effect of financial incentives on electric vehicle sales? – A global review and European analysis* (Müntzel et al., 2019), which analyzed how financial incentives influence the adoption of plug-in electric vehicles (PEVs) in 32 European countries from 2010 to 2017. Using panel data regressions, the researchers found that financial incentives and higher energy prices positively impacted PEV market share, with fiscal incentives driving a 5–7% relative sales increase.

To achieve high enough penetration rates in line with national goals of transport electrification, European countries are increasing rapidly the incentives amount. One promising lever to increase electrification rates of private vehicles pointed by Plötz is capturing the potential of company cars, given the taxation of the



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personal use of these cars is still low in Europe. It is worthwhile thinking about the effects of company car taxation schemes to differentiate between technologies chosen by employees, given federal budgets are tight and fiscal treatment should thus reflect the benefit these vehicles provide to the system.

Plötz also highlighted how a policy mix is better than single instruments, based not only on the economical incentives but also on regulation and information efforts. Moreover, these efforts increase efficacy when built within a coherent, trustable and clear framework, boosting awareness and adherence from consumers. In summary, the conclusions of the presentation by Plötz were: EV purchase rebates work (to the extent described), company cars are an interesting lever to increase rates more efficiently, the effect of better charging infrastructure is small compared to support schemes for the EV, it is always better to combine different instruments during the vehicle ownership period and not just at the purchase stage. Last but not least, large amounts of direct and indirect subsidies still persist for fossil fuels it is also important to reduce climate-damaging policies supporting the status quo.

The presentation by Pablo Frías focused on the electromobility landscape in Spain, which started by highlighting the importance of looking at the transition towards sustainable mobility from a broader perspective than the electrification itself, as mobility needs to be accessible, efficient and safe, not just environmentally sustainable. The electrification of private vehicles in Spain has somehow stagnated at 12% of the annual sales, concentrated within metropolitan and higher-income areas within the country. Among the main barriers hindering their uptake, Frías pointed out to need of real-time information of Charging Point Operators (CPOs) in a national manner where drivers can plan and compare, accompanied by the lack of interoperability between CPOs. Although progress is being made¹, there is also no consistent harmonized procedure to install charging infrastructure, while the application of the Alternative Fuels Infrastructure Regulation (AFIR) is somehow difficult to transpose to the regional and local level without any further national regulation supporting the process.

Frías then commented on the effectiveness of the MOVES, the main support scheme implemented in Spain, a direct aid to the purchase of the EV. Three consecutive MOVES plans have been implemented in Spain (since 2019), which have indeed increased the share of EVs in the market, although with little effectiveness with compared with other EU countries, more direct and targeted aids could be more effective in the future, simplify and expedite the application process, and eliminate the existing additional tax.. Moreover, the implementation of schemes which do not need the purchase of the vehicle, like leasing, could reach a broader spectrum of households with different levels of purchase power, like the French plan of Social Leasing which has proven a very successful instrument.

Finally, Frías made some final remarks on the importance of targeting financial efforts towards the modes that reach the majority of population, public transportation, as well as supporting Plötz conclusions on the coherence of policy frameworks and the way they could be transposed and materialized at a more regional or even local level.

Hugo Pinto was the last to intervene in the round table, and his talk went into detail about the Portuguese centralized recharging infrastructure system (Mobi.E). Although this framework is often praised as very

¹ Circular 1/2024, de 27 de septiembre, de la Comisión Nacional de los Mercados y la Competencia, por la que se establece la metodología y condiciones del acceso y de la conexión a las redes de transporte y distribución de las instalaciones de demanda de energía eléctrica.



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positive from the other Member States, according to Pinto, it has proven to be in some ways outdated for today's recharging infrastructure market in Portugal. Mobi.E effectively deals with the interoperability of the recharging infrastructure across the country, however, it makes the process too complicated for certain segments of users and jeopardizes the attractiveness to smaller CPOs.

In Portugal, an EV driver can go to any recharging point with their card provided by the supplier of their choice (any consumer can have more than one supplier card for this purpose). At the time of charging, the billing process will split into four different players: the supplier of electricity itself (chosen by the customer when obtaining the card), the CPO (which can, in turn, charge by the kWh in different ways), the Mobi.E platform, and the taxes share. Therefore, it becomes difficult for the driver to know their final bill at the time of charge, and in many cases, will receive the receipt even months later. For this reason, Pinto explains why Mobi.E has proven a very good platform to get the market started, but it is now falling behind the market speed, leaving out competitive smaller players that can't offer any "final price" tariffs to their clients, for instance. At a more mature stage of the market, from his point of view, Portugal would need to let the market work and reduce the influence of this centralized system taking what has been beneficial from it.

At the end of the round table, questions followed by the moderator Jorge Vasconcelos, and from the public as well. The first question concerned the fiscal reforms needed to support the intended goals of our countries. According to Plötz, sustainable mobility goals are indeed an opportunity to reconsider fiscal systems, timely to reduce the support to fossil fuels, which would then free part of the budget for subsidies in cleaner technologies. Frías also reiterated the importance of tackling those transport systems on which public administration has a higher influence: public and urban transport fleets (including taxis).

Another question focused on how the interoperability is managed in other countries of the EU. As an example, Plötz replied, the picture in Norway is now quite mixed. From a system in which every driver had a single card, the market has evolved towards every driver using several platforms (virtual cards) to charge their vehicle in response to dynamic pricing schemes, a similar evolution to the one proposed in Portugal. Also, we are now seeing how many CPOs interoperate with other CPOs in their neighboring countries ("roaming"), and some CPOs are even deploying infrastructure at a European level.

Finally, on the dichotomy between carrots to sticks to incentivize the purchase of electric vehicles, there was agreement that these two types of instruments complement each other. At this stage, where carrots have already reached a certain increase in sales but are no longer as effective, *malus* schemes are very probably going to be implemented, also motivated by tighter budgets for the energy transition. Other effective sticks being put into place, pointed out by Frías and Plötz, are Low Emissions Zones in metropolitan areas and any other type of access restriction, as well as fiscal schemes differentiated by technology of vehicles.

The session was then closed by the president of the Ordem dos Economistas, António Mendoça, who highlighted the importance of this discussion, which should bridge gaps between the Academia, public policy makers and industry. It is at this stage crucial to analyze the impact of the different policies in which a financial effort is being put, and to support those schemes driving society towards a decarbonized economy by 2050.