THE ELECTRIC CAR IS NO SOLUTION*

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1. **Introduction**

The accumulation of greenhouse gases in the atmosphere is one of the main human causes that affect climate change (Mercado, 2024), and transport is the main source of greenhouse gas emissions. Just behind China, the United States is among the countries that produce the most tonnes of CO2, having reached 6.11 billion tonnes in 2014 (Hannah, R., Max, R & Pablo, R., 2020). If we focus on per capita emissions, the USA remains at the top of the rankings. Since 1950, cumulative CO2 emissions have quadrupled (Hannah, R., Max, R & Pablo, R., 2020). In the US, transport accounts for the second largest share of 2021 emissions, at 28.5%, after electricity and heating (US EPA, 2023).

This seems logical, given that oil, gas and coal are the fuels that produce the most CO2 (Hannah, R., Max, R & Pablo, R., 2020). Although France was the cradle of the invention of the car, the

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USA is the main player in the worldwide development of this means of transport. This is true, in particular, thanks to the Ford model T, and the introduction of Fordism: an assembly line, standardization of the vehicles produced and higher wages for workers (Anonyme AMT, 2020). Americans had a culture of travelling by car, because it was relatively cheap, both the price of the car and the petrol.

Subsequently, the important role of the car in the USA can be explained by the country's urban layout, which tends to favor the residential suburbs to the detriment of the city center. To look at concrete numbers, around 20% of American households have three or more cars, 30% have two, 30% have one and just under 10% have none at all (Lesley, B., 2019). In terms of kilometers travelled by car per person per year, the USA is also ahead of all other countries. Conversely, the use of public transport is less than 10% in most American cities, except in New York, where it is 20% (Lesley, B., 2019).

With all these details, it is easy to see why the car plays such an important role in the USA, accounting for a large proportion of CO2 emissions (Lesley, B., 2019). Given the failure of public transport to replace cars, the alternative of the electric car is surfacing. Will electric vehicles solve the problem of CO2 emissions? To answer this question, we look at the various political views on the subject and the economic balance sheet. We draw on studies carried out in Europe, given that the electric car already has a very important place on that continent compared with others, and that in 2021 the European Commission decided on a climate plan banning the sale of petrol and diesel cars by 2035 (Serge, M., 2023), with the aim of forcing the use of electric cars onto the market. The reaction of the various political parties to this decision shows that there are major differences of opinion.

In section II we examine the view of the left-wing parties. Section III is devoted to an explanation of their political rivals, the right-wing political parties. The burden of section IV is to highlight some of the flaws of this solution. The views of the Libertarian Party on this matter are the subject of section V and we conclude in section VI.

2. **Left-wing political parties**

The left-wing political parties are in favor of the use of electric cars. This is especially true of the European Commission. First, the left-wing parties emphasize the environmental and social benefits. They see the electric vehicle as an essential solution for combating climate change[1] and reducing air pollution. Electric cars produce no exhaust emissions when they are running, unlike their petrol counterparts. As a result, they reduce dependence on fossil fuels, as the electricity used is generally generated from cleaner energy sources such as renewables. These cars are also often more energy efficient than combustion engine vehicles, using less energy to cover the same distance (Philippe, S., 2022).

Left-wing parties emphasize policies to support the adoption of electric vehicles, such as tax, purchase subsidies and investment in recharging infrastructure (Nicolas, M., 2021). In fact, the success of electric car sales in France is due to a favorable tax system: no TVS (company vehicle tax) for companies, and a purchase bonus of up to €6,000 for models with a selling price of up to €45,000 (Nicolas, M., 2021). In Norway, the electric car is also associated with several practical advantages, such as being allowed to use bus lanes until a few years ago. The incentives have worked so well in Norway that in 2020, for the first time, sales of electric cars exceeded half of the market, with 54%, to which should be added 20% of plug-in hybrid models (Nicolas, M., 2021).

These considerations also highlight the potential economic benefits of the transition to electric cars, such as the creation of jobs in the renewable energy sector. On average, driving 100 kilometers in

[1] During the 1960s, the indictment was global cooling as caused by capitalism, and the verdict was guilty. But then came a few years of warming, and by the 1990s the left was blaming free enterprise for that, too. Then, came some cooling again, and like broken field runners, the left blamed private property rights and profits for that, too. This turned out to be a much better claim, since temperature is always changing, and no further changes in blame were needed. For more on the difficulties with global warming, see Barron, 2021; Corrigan, 2008; Gordon, 2009; McMaken, 2015; Murphy, 2009; Reisman, 2007A, 2007B. For the problems with temperature change as a problem in need of rectification, see Gordon, 2021; Holcombe, 2014; Hülsmann, 2020; Mathews, 2022; McMaken, 2019; Rectenwald, 2022

an electric car costs around €2.2 in electricity, compared with €12 in petrol for an equivalent model (Philipe, S., 2022). With an equation like that, the more kilometers you cover in a year, the more attractive it is financially to drive an electric car. The advantage is even greater if you generate your own electricity.

Electric cars also wear out less quickly because there are fewer wearing parts to change regularly, such as the non-existent gearbox and regenerative braking, which reduces maintenance costs (Philipe, S. 2022). In addition, left-wing parties are promoting an inclusive approach to ensure that disadvantaged groups also benefit from this transition, for example by supporting access to second-hand electric vehicles or developing vocational training programs and for jobs linked to electric mobility.

3. **Right wing political parties**

What is the point of view of the right-wing parties, which are more cautious about electric cars, putting more emphasis on economic considerations and preserving the interests of the traditional car industry. Buyers of electric cars primarily enjoy fiscal benefits, such as tax exemption. However, these benefits are being eroded and the message seems clear: once the incentive phase to prime the pump is over, there is no reason why electric cars should not be taxed like other cars, whatever the country.[2] In Australia, since July 2021, electric automobile owners have been charged a tax of $0.025 per kilometer driven (Nicolas, M., 2021). Changing the market by suspending the tax and then reintroducing it has affected the balance of this market, and demand for electric cars is falling.

A study by the Plateforme Filière Automobile (PFA) predicts considerable job losses in France, estimated at between 65,000 and 100,000 between now and 2030, not counting the additional job losses expected up to 2035 (Serge, M., 2023) due to this source. Volkswagen is a case in point. It has announced the redundancy of 269 employees at a German plant, and the fate of a further 2,000

[2] Unless, that is, watermelonism (green on the outside, but red on the inside), does not continue to prevail in most woke countries.

temporary jobs is still uncertain. The German manufacturer claims that the fall in demand is linked to the end of aid granted for the purchase of company electric cars. These accounted for 70% of production at the plant. The German brand has invested €1.2 billion to convert the plant to electric power. The outlook for this German brand is not good (Valentin, C., 2023, September 18). In the USA, Donald Trump has spoken out on this issue and believes that abandoning combustion engines would be "a transition to endless unemployment and inflation" (Valentin, C., 2023, October 3). If he wins the election in November 2024, and becomes president, this will further undermine the prospects for this type of product.

4. **Drawbacks of electric vehicles**

On the other hand, in terms of individual economic considerations, a majority of the population is financially incapable of buying a new electric car, and is also faced with the absence of a second-hand market for these vehicles. The average price of an electric car is 30% higher than that of a combustion engine car (Serge, M., 2023). This situation is confirmed in Norway, where the best-selling model is the Audi SUV, with a base price of around €71,900 (Nicolas, M., 2021). Given that Norway has the most attractive incentives for owning electric cars, the clientele mainly affected remains the well-off.

Norway was also singled out by an IMF report, which suggested that its government could better target its subsidies to improve their impact on the environment (Nicolas, M., 2021). On the economic front, left-wing parties argue that electric charging is cheaper than a full tank of petrol. However, not all electric car buyers have a private charging point at their home. If they have to recharge at public pay stations, there could be situations where, mathematically, it would be more expensive to go electric, given that some charging networks offer dissuasive prices (Philipe, S, 2022).

There is also the question of the electric car's efficiency and the loss of energy that takes place while driving the vehicle. Indeed, to take our reference point, a gasoline-powered car is 8% efficient. In the case of the electric car, only 2% of energy is lost when charging

the battery. Seen from this angle, this waste is very minimal. Counting also the loss of the motor friction, tire friction, drag, acceleration and breaking, the balance sheet closes with 71% efficiency. At first glance, this figure is definitely superior to that of a gasoline-powered car.

However, we must also consider where the electricity used for recharging comes from. From coal as a starting point, we have to subtract Carnot loss,[3] heat loss and the electricity, which is not 100% efficient either. Taking these factors into account, a recharged car, without even having been used, has already lost 73% of its efficiency. Considering the same mechanical elements above, the electric car ends up with 20% efficiency. This figure is still higher than for a gasoline-powered alternative, but it has fallen drastically if we look at all the components in the power generation and transmission process. The efficiency of the electric car is therefore less appealing (Anat, B., 2024).

What is more, the right-wing parties are not convinced of the environmental justification for the European Commission's decision. The manufacture of an electric car and its battery is currently considered to cause CO2 emissions of the order of double those of a similar vehicle with an internal combustion engine (Serge, M., 2023). The reason for this is the complexity of battery manufacture. In particular, they require the use of various metals such as lithium, demand for which is set to increase by a factor of 15 to 20, cobalt (Serge, M., 2023), which currently has to be mined in the Congo Kinshasa under appalling environmental and social conditions, and nickel, the richness of which is already being exploited. Finally, there are various metals known as "rare earths", for which China has a virtual single seller status and is the only country to master the entire chain from mining to batteries.

The massive and compulsory program to replace existing internal combustion engine cars with electric cars can only begin to be

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[3] https://www.google.com/search?q=carnot+loss&rlz=1C1CHBD_enUS796US796&oq=Carnot+loss&gs_lcrp=EgZjaHJvbWUqBwgAEAAYgAQyBwgAEAAYgAQyDQgBEAAYhgMYgAQYigUyDQgCEAAYhgMYgAQYigUyDQgDEAAYhgMYgAQYigUyCggEEAAYgAQYogQyCggFEAAYgAQYogTSAQg1MTMxajBqNKgCALACAA&sourceid=chrome&ie=UTF-8

justified[4] if the overall carbon footprint of electric vehicles is significantly lower than that of internal combustion engine vehicles. If we want to calculate this, many factors need to be taken into account, such as the CO2 emissions that occur when batteries are manufactured, which depend on the power of the battery and the energy mix of the country that manufactures it. It is wrong to talk about zero-emission electric cars, as many drivers claim in their advertising. An electric vehicle consumes electricity, the production of which results in CO2 emissions. For example, in Poland, where 88% of electricity is produced from fossil fuels, mainly coal, electric cars are run on coal (Serge, M., 2023). Two studies by the University of Liège and the University of Eindhoven show that in Europe, a vehicle is only beneficial in terms of CO2 emissions once it has been driven a minimum of 80,000 km (Serge, M., 2023). Some experts even claim more than 300,000 km (Serge, M., 2023) is needed for this result to obtain. In any case, this raises the question of battery life, which is also at the heart of the debate.

5. **The Libertarian Party**

The Libertarian Party also has an opinion on this debate. This party believes that individual freedom is absolute, and that the role of the state should be reduced to a strict minimum. Based on these values, libertarians are opposed to the European Commission's ban on petrol-driven cars, as this decision runs counter to individual freedom. Moreover, this party places its trust in the natural regulation of the market based on supply and demand. The introduction of incentives for the use of electric cars, particularly in the form of tax exemption, and the subsequent reduction of these incentives, disrupt the natural functioning of the market. This has resulted in many employees being made redundant due to a lack of demand for electric cars, which have become too expensive, as well as negative balance sheets for certain brands that have

[4] On the grounds of temperature change or global warming, against which we look askance; see supra.

spent considerable sums adapting their businesses to the electric format (Valentin, C., 2023, September 18).

In addition, the ban on petrol-powered cars is turning the European market into a boulevard for China. With nearly half of all electric cars produced in that country, Europe will soon be inundated with Chinese cars, particularly in the middle and lower ranges. With its technological lead and the economies of scale afforded by the size of its market, Europe is likely to have to fall back on the top end of the range alone. Not that there is anything untoward about such phenomena. The world is a richer place when comparative advantage is allowed to function.[5]

Further, manufacturing vehicles in China, where 65% of electricity comes from coal, will produce even more carbon than doing so in Europe. The compulsory switch to electric cars is therefore likely to have a disastrous overall carbon footprint, while exacerbating the scale of job losses in Europe. That continent is thus organizing the suicide of a sector of its industrial economy. As a reminder, Germany, at the last moment, under pressure from its industrialists, tried to block this European decision. It was at least able to negotiate conditional exemptions that will enable it to maintain industrial capacity in the internal combustion engine sector (Serge, M., 2023). On this subject, the Czech Alexandr Vondra describes the supporters of this ban as "gravediggers of the automotive industry". In the USA, a majority of Republican Party members claim that "Joe Biden is ceding jobs and the country's security to China" (Valentin, C., 2023, October 4).

There is yet another libertarian concern. Where is private property in all of this? So far, it is neither here nor there. However, privatization of the highway and roadway systems of a nation is one of the most basic building blocks of this philosophy (Block, 2009). How would such an initiative impact the choice of electronic or gas fueled automobiles?

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[5] For the case in favor of free trade, Bastiat, 1848A, 1848B; Block, 1976, ch. 23, 2013, ch. 2, 2018; Block, Horton and Walker, 1998; Brown, 1987; Epstein, 2016; Folsum, 1996; Friedman and Friedman, 1997; Gwartney, et. al, 1976; Hazlitt, 1946, ch. 11; Krasnozhon, Simpson and Block, 2015; Landsburg, 2008; McGee, 1994A, 1994B; Mises, 1927; Ricardo, 1821; Smith, 1776;

The answer is not at all straightforward. Under libertarianism, pollution from cars[6] is not a "market failure" or any such thing as it is depicted in mainstream economic literature.[7] Rather it is an instance of trespass (Rothbard, 1982): unwanted soot, or particles, or pollutants, are deposited upon the private property of victims.

What is the libertarian solution for this rights violation? It is to sue the perpetrators, and seek a court order for the initiator to cease such an imposition, an injunction. Who should be sued? Each and every vehicle owner? Certainly not. There is in jurisprudence a definitive concept called de minimus: the law does not take cognizance of trifles.[8] Not only that, but from a non-libertarian pragmatic point of view, it would not be viable to sue millions of motorists. Instead, the plaintiff would sue the private road owner.[9] He, in turn, charges his customers, the motorists, based upon how heavily they contribute to this nuisance. He will allow heavy smoke-producing gas-guzzlers onto his property, but at a much higher price, for example.

Here is where free enterprise and competition enter the analysis. Highway entrepreneurs will tend to charge prices to customers that reflect their actual contribution to pollution. If they guess wrong as to this matter, they will tend to lose profits and become more vulnerable to losses and eventual bankruptcy. In this way, the market, not politicians nor bureaucrats, will address and solve the issue of whether, and in what proportion, electric and traditional automobiles will be employed. If the former are less vulnerable to lawsuits, more of them will be used; ditto for the latter. In this way, the "magic of the market" will make this determination.

It is important to acknowledge the fact that when discussing externalities, we have so far referred only to pollution rather than the contribution to the greenhouse effect. These are distinct issues. While both phenomena may be caused by either technology, they

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[6] Or from any other source

[7] https://socratic.org/questions/why-pollution-is-an-example-of-market-failure

[8] If it did, we could all be found guilty of exhaling carbon dioxide not only into the atmosphere, but onto the private and personal property (lungs) of others

[9] In like manner, if the nextdoor night club is making too much noise at 3am, you do not enmesh each and every party-goer in a law suit; rather, you sue the nightclub owner for disturbing the peace.

are not the same. Pollution involves the emission of harmful substances to human health, whereas CO2 is essential for plant life and the flourishing of biological systems. A separate issue is that CO2 is also alleged to contribute to the greenhouse effect.[10]

6. **Conclusion**

Based on these different points of view and their arguments in favor of the use of electric cars, we conclude firstly that a forced switch to electric cars is far from being a solution that will contribute to reducing greenhouse gas emissions. Nor is it compatible with the doctrine of economic freedom. However, whether we should abandon electric cars or leave this model on the market is a question that cannot be answered at present. The answer depends on many factors, such as the life of the batteries, the components and emissions used in their manufacture, the origin of the electricity in each country that powers the electric car, and the selling price of these vehicles.

In recent years, the adoption of electric cars has been increasing, partly due to the growing prevalence of solar panels on household roofs, enabling owners to refill their vehicles with private charging stations at home. In this case, the use of an electric car fulfills its role of reducing CO2 emissions. However, the issue of the polluting battery manufacture has still not been resolved, and of course not everyone has had the opportunity to install solar panels on their house. In the end, the best solution is to let the market decide the fate of electric cars, while trying to develop this technology.

What are the implications of this paper for public policy? Our remarks suggest a public policy of laissez faire capitalism, and protection of private property rights.

Are there any limitations of our study? Of course there are, there always are. It would be helpful if we had more case examples than the ones we offer in this paper. Our recommendations for further research is that this take place.

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[10] We are grateful to a referee for suggesting these excellent points to us.

Conflict of interest

The authors declare that they have no conflict of interest.

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