**Developing the Plus Point and Minus Point in Reference to Electric Car**

**Introduction**

To promote the technology's promptly adoption, this report has been written for analysing the benefits and drawbacks with some suggestions to the government. With the tendency regarding eco-friendly and petroleum price hikes, electric cars (EV) have becoming popular in worldwide in the past decades. Yet, some problems lead to EV cannot be accepted by the people who living in particular areas due to facing different kinds of inconveniences or difficulties. This report first described three upsides and downsides of EV, separately. Subsequently, it explored the three recommendations to solve issues from the disadvantages.

**Positive Aspects of EV**

The new car type of electric car (EV) brings a lot of plus points to the society. It is not surprise that EV has contributed a lot in the aspect of environmentally friendly, including improving noise pollution, air pollution, and climate change. Air pollution issue can be declined due to the release location of fine dust. It will be changed from city central area to lightly populated area (Helmers & Weiss, 2016, p. 9). On the other hand, according to Ghosh (2020, p. 1), internal combustion engine (ICE) discharge different types of gas, such as CO and CO2 that directly caused greenhouse effect and global warming. Therefore, replacing traditional gasoline cars to EV may be an effective solution of current environmental pollution. Furthermore, urban transportation is one of important basic instruments in a nation, despite it is hard to balance community convenience and conserve nature resources. However, there is another evidence that reach up to 75% of users who do not use personal cars after subscribing the car sharing serves in French in 2013. Because of the convenience, people can use it regardless of travel, work, entertainment (Ait-Ouahmed et al., 2018 p. 368). In addition, surprisingly, EV can help decrease the cost of gas and hydrogen fuel. One research by Kern and Kigle (2022, p. 704) noticed that both of gas and hydrogen-fired power stations reducing the electricity generation, which result from EV’s property of bidirectional charging, leading saving the fees in term of European electricity power system. Eventually, EV is not only having benefit in protecting the space where people and animal living, it also improves the transport system, and save the electronic spading for a country.

**Negative Aspects of EV**

With the advantages, EV also has several negative effects make people have no wishes to own it. Driving distance is one of main point when people consider using EV (Guo et al., 2018, p. 1). Drivers have been used to refuel their cars in service station or petrol station around anywhere for many decades. In contrast, currently, there is not common in EV charging station as gas station up till the present moment. As a result, the car’s battery needs a good capacity to afford a whole trip wherever the car owner wants to. The other disadvantage is that charging safety. Rechargeable lithium-ion battery is wildly used in many modern products, for example electronic devices and EVs. Zhang et al. (2022, p. 1) examined most serious problem of safety is catching fire by overcharging; furthermore, ten of fire happened in China within five mouths in 2021 while EVs were charged. Thus, this is a safety problem regarding the parts of EV to be reckoned with. Finally, comparing with normal traditional internal combustion engine vehicle (ICEV), EV has higher price in the market and people often consider about it before pay money. Danielis et al. (2018, p.271) have noted that EV prices can more at least 1.5 times than ICEV’s prices in Italy. In sum up, even though EV has becoming popular in people’s live, it still has some drawbacks.

**Conclusion**

It has been shown that each three of bright sides and dark sides will influence people assuming EV instate of traditional ICEV. People tend to use EV due to the cars containing outstanding capability on cost and convenience, also environmentally- safe. On the other side, the main three disadvantages of battery capability, charging safety as well as accessibility can lead to people do not desire to use EV at the present situation. Hence, if the government promotes the following suggestions, these negative effects might be improved in the future.

**Recommendations**

The following three suggestions have been written to the government in other to accelerate the adoption of the technology. The first solution for charging convenience is that except for installation charging station in residential district, it can also be placed on the motorways which are not near the city centre. In case the car unpredict running out of power, the drivers still can charge efficiently on the way within 20 minutes (Ghosh, 2020, p. 4). In addition, serious charging safety is the other issue of EV, but it can be resolved through developing the system of EV charging safety. Based on the research by Zhang et al. (2022, p. 1), the functions of the system are warming and fault diagnosis, which can give warning instantly before the fire accident, as well as identify the types of faults for a future analysing. Alongside with, if the local government can abolish subsidies for people who bought EV cars, the sales figure of EV may go to increase. There is a survey regarding to government incentives has done in Europe by Vilchez et al. (2019, p. 10), it clearly shown that a lot of participants think the subsidies form the government are important; and most of them consider the relative incentives are useful. Meanwhile, it also has been suggested that the government can put the measure to become a public policy of enhancing the air pollution around the city, for the incentives can be adopted easier. In summary, these recommendations might be helpful to overcome the issues of EV.

**References**

Ait-Ouahmed, A., Josselin, D., & Zhou, F. (2018). Relocation optimization of electric cars in one-way car-sharing systems: modeling, exact solving and heuristics algorithms.

*International Journal of Geographical Information Science*, *32*(2), 367–398.

<https://doi.org/10.1080/13658816.2017.1372762>

Danielis, R., Giansoldati, M., & Rotaris, L. (2018). A probabilistic total cost of ownership model to evaluate the current and future prospects of electric cars uptake in Italy. *Energy Policy*, *119*, 268–281. <https://doi.org/10.1016/j.enpol.2018.04.024>

Ghosh, A. (2020). Possibilities and challenges for the inclusion of the electric vehicle (EV) to reduce the carbon footprint in the transport sector: A review. *Energies (Basel)*,

*13*(10), 2602. <https://doi.org/10.3390/en13102602>

Guo, F., Yang, J., & Lu, J. (2018). The battery charging station location problem: Impact of users’ range anxiety and distance convenience. *Transportation Research Part E-logistics and Transportation Review*, *114*, 1–18.

<https://doi.org/10.1016/j.tre.2018.03.014>

Helmers, E., & Weiss, M. H. (2017). Advances and critical aspects in the life-cycle assessment of battery electric cars. *Energy and Emission Control Technologies*, *5*, 1–18.

<https://doi.org/10.2147/eect.s60408>

Kern, T., & Kigle, S. (2022). Modeling and evaluating bidirectionally chargeable electric vehicles in the future European energy system. *Energy Reports*, *8*, 694–708.

<https://doi.org/10.1016/j.egyr.2022.10.277>

Vilchez, J. J. G., Smyth, A., Kelleher, L., Lu, H., Rohr, C., Harrison, G., & Thiel, C. (2019). Electric car purchase price as a factor determining consumers’ choice and their views on incentives in Europe. *Sustainability*, *11*(22), 6357.

<https://doi.org/10.3390/su11226357>

Zhang, L., Gao, T., Cai, G., & Hai, K. L. (2022). Research on electric vehicle charging safety warning model based on back propagation neural network optimized by improved gray wolf algorithm. *Journal of Energy Storage*, *49*, 104092.

<https://doi.org/10.1016/j.est.2022.104092>

