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FACTORS INFLUENCING CONSUMER CHOICE OF ELECTRIC VEHICLE USE IN KUALA TERENGGANU, MALAYSIA

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ABSTRACT

Increasing awareness among the people and significant efforts to reduce their carbon footprint from daily travel activities are essential. Electric Vehicle (EV) is an alternative mode of travel that is energy-efficient and do not depend on fossil fuels. However, the adoption rate of EV in Malaysia, particularly in smaller urban like Kuala Terengganu, remains relatively low. Therefore, this study aims to determine the factors that can affect consumers' choice to use EV in Kuala Terengganu, Malaysia. This empirical study used a survey questionnaire distributed to 200 respondents in Kuala Terengganu, Malaysia. The data were analysed using descriptive and multiple regression analysis. The study findings revealed that Infrastructure Facilities, Consumer Income, and Consumer Knowledge have a significant impact on consumer choice of EV to reduce carbon footprints in Terengganu. However, the price of electric vehicle has no substantial impact on consumer choice for reduction of carbon footprint. It can be concluded that the price of EV, demographic profile of users, infrastructure facilities, and consumer knowledge are among the factors affecting consumers' decisions to use EV in Kuala Terengganu to reduce carbon footprint.

Introduction

The growth in the economic status and purchasing power of consumers around the world has boosted the mobility of the world population, resulting in substantial rise, especially in carbon footprint emissions. An increase in income is always positive nexus which leads to a higher level of ownership and use of car (Webster *et al.*, 1986a, 1986b). It also often results in increased frequency and distance of travel (Schafer, 2000). The first attempt to produce an Electric Vehicle (EV) with the first practical car was made in London by Thomas Parker in 1884. Although electric vehicles had later been replaced by fossil fuel-powered vehicles, commercial EVs are now making a comeback due to advances in battery and hybrid technologies along with growing environmental concerns (Motavalli, 2012).

Alternative Fuel Vehicle (AFV) can be categorised into several different categories such as Hybrid Electric Vehicle (HEV) and Battery Electric Vehicle (BEV). HEV is a combination of petrol and electric engines which are more environmentally friendly than Conventional Vehicle (CV), while BEV is considered as cars that do not use fully

combustion engine and free from harmful gas emissions that can pollute the environment. The appeal of HEV that has captured the attention of both governments and consumers stems from the substantial economic benefits and environmental advantages associated by cheap fuel (Gallagher & Muehlegger, 2011) and lower gas emissions compared to commercial vehicles (Adnan *et al.*, 2018). Therefore, widespread use of EV could lower carbon emissions, reduce associated local health risks, mitigate global warming (Aderibigbe & Gumbo, 2023), and encourage the use of renewable energy (Egbue & Long, 2012; Asghar *et al.*, 2021).

In line with that, the Malaysian government has launched the National Automotive Policy 2020 (NAP 2020) by former Malaysian Prime Minister, Tun Dr. Mahathir Mohamad at the Ministry of International Trade and Industry (MITI). This policy aligns with the National Automotive vision which aims to position Malaysia as a regional leader in manufacturing, engineering, technology, and sustainable development within the automotive sector. The NAP 2020 incorporates three new cutting-edge technology elements, namely the Next Generation Vehicle (NxGV), Mobility as a Service (MaaS), and Industrial Revolution 4.0 (Industry 4.0). According to Tun Dr. Mahathir Mohamad, vehicle technology is a critical development focus for the world's car manufacturers in enhancing vehicle safety as well as making mobility more intelligent and environmentally friendly.

In December 2023, 14 million electric vehicles were predicted to be sold in global market (IEA, 2024). For the first quarter of 2023, EVs' global sales value climbed by 25% (2.3 million) compared to previous year. One of key reasons for the significant growth in demand for EV is the vehicle's ability to reduce greenhouse gas emissions, making EV more environmentally friendly. Furthermore, the opportunity for more economical operating costs compared to conventional vehicles also contributes to the rise in demand, particularly due to the lower price of electricity compared to petrol or diesel.

Besides that, the Sustainable Development Goals (SDG) set by the United Nations General Assembly in 2015 have shifted consumers' perspective to choose battery-powered or hybrid cars over the conventional ones. The option aligns with SDG 13 that addresses climate change, effect of greenhouse gas emissions, and promoting the development of renewable energy. The global EV market was reported to be USD 287.36 billion in 2021 and is expected to grow to USD 1,318.22 billion in 2028 with a Compound Annual Growth Rate (CAGR) of 24.3%.

Malaysian government's unwavering dedication to sustainable mobility and green technology is evident in its policies to support SDG. For example, the import duty exemption for locally assembled EV components was offered until December 2023, which provided full excise and sales tax exemption for locally assembled vehicles in Completely Knocked Down (CKD) category and exemption for fully imported vehicles in Completely Built-Up (CBU) category until December 2025. In addition to that, tax deduction of up to RM300,000.00 for non-commercial electric vehicles and road tax exemption for EV are offered till end of December 2025.

Apart from that, the government also introduced National Energy Transition Roadmap (NETR) that aims to put Malaysia as a zero-carbon country by 2050. The plan also underlines the country's urgent need to make strides in promoting green mobility, with the main focus on the transition to green transport. This is because land transport in Malaysia is one of the main sources of carbon emissions reaching almost 55 million metric tonnes of carbon dioxide equivalent to 85% of carbon emissions in the transport sector. Besides that, the 2024 budget allocation of RM393.8 billion, among others, focused on the government's plans to drive sustainable growth in Environmental, Social, and Governance (ESG) aspects. According to Malaysian Economy Minister, Rafizi Ramli, a total of RM637 billion was budgeted towards renewable energy and

electric transport investments. The 2024 budget focused on two key aspects of sustainability management in the country in preparation for its transition to a carbon-neutral economy.

A comparative analysis by Abdullah *et al.* (2025) indicated that Malaysia lags behind neighbouring ASEAN countries in EV adoption, underscoring the need for improved incentives, infrastructure investments, and public education campaigns. Increasing awareness among the people and significant efforts to reduce their carbon footprint from daily travel activities are essential. Electric vehicle is an alternative mode of travel that is energy-efficient and do not depend on fossil fuels. However, the adoption rate of EV in Malaysia, particularly in smaller urban like Kuala Terengganu, remains relatively low. Due to that, identifying the factors influencing the use of electric vehicle is essential for regions like Kuala Terengganu to align with national sustainability objectives and promote widespread adoption of EV. Therefore, this study aims to determine the factors that can affect consumers' choice to use EV in Kuala Terengganu, Malaysia.

Literature Review

This section is divided into four key factors influencing consumers' choice on EV, with emphasis on Price Instruments, Consumer Income, Infrastructure Facilities, and Consumer Knowledge. The nexus between electric vehicles and carbon footprint reduction has been the subject of extensive empirical investigation in prior scholarly work. The pertinent factors are delineated below.

Price Instrument (PI)

From the cost of price, Abu-Al Keir (2020) highlighted the positive impact of price and fuel economy on consumer choice in making a purchase, the negative impact of brand image, and safety rating. Most of the key reference studies chosen by respondents are reasonable price levels when making choices to purchase EV. The definition of price level also differs by population group. Rasouli and Timmermans (2014) mentioned that the price of EV is significantly more expensive than a conventional vehicle. Most of previous studies included price as a factor in determining consumers' purchase decision. Majority of the study found that the purchase price has a negative and extremely significant impact on the usefulness of the EV. Previous research investigated this as a linear relationship, with a few extreme cases to capture the nonlinear effect by applying price logarithms.

Car size also affects segmentation in product pricing. Study by Jensen *et al.* (2013) revealed that purchasers of compact cars have higher satisfaction in terms of value of money. Individual who prefer used cars also agree that price is a main factor influencing their purchase decision (Jensen *et al.*, 2013; Hoen & Koetse, 2014). Some study involved operation cost, but mostly in slightly different formats measure. Study by Musti and Kockelman (2011) calculated energy cost as cost per 100 km for both fuel and price difference. Apart from that, scheduled of servicing costs were also considered (Hess *et al.*, 2012). All of these factors have negative impact on car purchasing decisions, giving EV an advantage over CV because EV typically has lower energy costs (Yang, 2014; Gai *et al.*, 2019). However, previous studies also highlighted that the initial EV price is higher than CV vehicles (Cecere *et al*., 2018).

Consumer Income (CI)

Based on past studies, many scholars have proposed that demographic factor can influence the consumption choice of goods such as income, aged, individuality, schooling, salary, and household number. These factors have substantial relationships with environmental attitude (Roberts, 1996; Roberts & Bacon, 1997). Newell and Green (1997) revealed a positive relationship between salary and conservationist attitude. The reason is that individuals with higher income levels may incur only a small increase in costs associated with the selection of eco-products. Furthermore, in terms of preference for substitute fuel cars, it was found that highly educated persons are more interested in EV compared to less educated ones (Jansson

et al., 2017; He *et al.*, 2018; Mukherjee & Ryan, 2020), while for green consumption, it was found that women participate more than men (Mukherjee & Ryan 2020). Previous studies also found that individuals from higher income level do not really consider energy cost (Helveston *et al.*, 2015; Valeri & Danielis, 2015; Junquera *et al.*, 2016). However, a study by Helveston *et al.* (2015) discovered that rich peoples in China are more responsive to higher energy costs.

Infrastructure Facilities (IF)

In this study, Infrastructure Facilities (IF) is one of the aspects that influence the preference of consumer choice in green transportation. Infrastructure facility refers to the availability of public charging stations for consumers to recharge their EV. Sperling and Kitamura (1986) suggested that the main reason that prevent exposure to electric vehicle use is due to the lack of infrastructure such as charging station. Limited charging facilities is one of the barriers why EVs are still minimally adopted, despite their low environmental impact and contribution to energy efficiency (Anegawa, 2010; Tarei *et al.*, 2021). Apart from that, shorter driving distances and long charging times are also among the reasons why the adoption of EVs among consumers is not widely accepted (Pearre *et al.*, 2011; She *et al.*, 2017). Fast charging facilities benefit EV users who have to travel long distance (Schroeder & Traber, 2012; Buhmann & Josep, 2023).

Consumer Knowledge (CK)

Consumer knowledge is important in decision making in consumer markets (Capraro, 2003). Knowledge and awareness have been used to anticipate product adoption or usage (Ratchford, 2001; Bettiga & Lamberti, 2018). Cullen and Allwood (2010) also noted that understanding future fuel energy efficiency is associated with the adoption of highly efficient energy technologies. As EVs are widely recognised as energy efficient products, consumers' knowledge of these products will inevitably influence purchase decisions among the consumer in their choice of using EVs. Previous studies conducted by Westin *et al.* (2018) and Singh *et al.* (2020) emphasised that education is a key factor in determining vehicles choice. According to behavioural science research, consumer knowledge significantly influences their decision-making on sustainable goods (Herberz *et al*., 2020; Rauh *et al*., 2020).

EV Impact on Reducing Carbon Footprint

Shahid *et al.* (2014) emphasised the need for energy efficient routes in the transport sector to reduce greenhouse gas emissions, while Okoth (2013) stressed on the importance of non-motorised transport for sustainability, proposing strategies to promote walking and cycling. These studies collectively highlighted the potential for consumer-driven change in the transport sector towards reducing global carbon footprint. The goal of this study is to determine the concern on environmental issues and consequently support the efforts to raise the awareness and provide voluntary assistance to resolve the environmental issues. Sensitivity to climate change issues, clean energy awareness, and energy conservation are dimensions that clearly demonstrate environmental concerns (Simsekoglu & Nayum, 2019). Therefore, the use of green modes of transport, such as hybrid vehicles and electric vehicles, is very important in helping to realise an environment free of carbon footprint or emissions of harmful gases, such as carbon monoxide, that can pollute the quality of the air. EVs have the potential to significantly reduce carbon footprint, especially when their charging is properly controlled (Vadium *et al.*, 2019; Vashishth *et al.*, 2024). However, on that note, the extent of carbon footprint reduction is debatable when the power to charge EVs comes from traditional fossil fuel sources (Ghosh, 2020). Despite this, EVs are generally more environmentally friendly than CVs, with BEVs being the most environmentally friendly because their carbon footprint emissions are low (Zhao *et al.*, 2023). Therefore, the widespread adoption of EVs, combined with the shift towards renewable energy sources can significantly reduce carbon footprint in the transport sector.

Research Method

Research Design

The study adopts a quantitative research design. A survey method was employed to gather primary data through a structured questionnaire. The survey instrument was designed to collect information on demographic profile, EV vehicle price levels, infrastructure facilities, consumer knowledge, and consumer income. Kuala Terengganu was selected as a study area based on the availability of basic transport infrastructure and recent interest in green technology adoption.

Survey Instrument

The questionnaire is a research instrument consisting of several questions aimed at collecting information from targeted respondents. According to Nardi (2018), the use of instruments is an effective method and provides data in quantitative form to gain general information. The prepared questionnaire has two parts. The first part is a questionnaire on demographic profile of the respondents. Among the demographic profiles of the respondents are gender, marital status, age, income, and education level of vehicle owners. The second part of the questionnaire is designed based on the type of variables consisting of factors that influence consumer preference in EV, namely vehicle price instrument, consumer income, availability of infrastructure, and consumer knowledge. This study identified the factors influencing consumer's choice in the use of green transportation, specifically for EVs, hence the use of price levels, infrastructure availability, environmental awareness, and others are considered in relation to the use of EVs to reduce carbon footprint.

All statements and questions in the second part of the questionnaire are attached to five Likert scales: (1) strongly disagree, (2) disagree, (3) not sure, (4) agree, and (5) strongly agree. This scale is used to obtain the reliability of the data collected. This method also assists the respondents to express more accurate information.

Surveying and Sampling Method

The target populations in this study are people living in the district of Kuala Terengganu because the availability of basic transport infrastructure and recent interest in green technology adoption within the region, which makes Kuala Terengganu to be a suitable and strategic location for evaluating the readiness and acceptance of EV among local residents. Respondents were randomly selected in the study whether they are current or non-current vehicle users, to see their preference in terms of EV use in the future. The target sample comprises respondents from different user group and diverse economic background, allowing for more comprehensive analysis. The study sets a total of 200 sample size. The data were collected through the distribution of questionnaires by hand to respondents to maximise return rate of the questionnaires. Purposive sampling technique was used in this study to obtain the number of respondents based on specific characteristics to answer the questionnaire. This sampling technique is widely used in primary research which is confined with less resources and time constraint (Stratton, 2024).

Data Analysis Methods

Descriptive analysis, confirmatory factor analysis, regression models, and empirical modelling were included in the data analysis methods of this study. Descriptive analysis uses mean frequency and percentage. This analysis is used to analyse demographic profile as shown in Table 1. Confirmatory factor analysis is used for instrument's validity test to determine whether the instrument used by the researcher can confirm the reliability of the variables asked to the respondents. Meanwhile, regression model is used to study the linear relationship between two dependent variables Y, with the independent variable X, in order to identify which independent variable has the most influence on the dependent variable. The use of empirical models aims to interpret the relationship between Price Instrument of EV (PI), Infrastructure Facilities (IF), Consumer Income (CI), and Consumer Knowledge (CK) as independent variables, and Reduction of Carbon Footprint (RFC) as a dependent variable. The empirical model is written in Equation (1).

$$RFCi = \beta_0 + \beta_1 PI_i + \beta_2 IF_i + \beta_3 CI_i + \beta_4 CK_i + \varepsilon_i \quad (1)$$

where:

RFC_i	= Reduction of carbon footprint for respondent i
PI_i	= Price instrument of EV for respondent i
IF_i	= Infrastructure facilities for respondent i
CI_i	= Consumer income for respondent i
CK_i	= Consumer knowledge for respondent i
$B_0, \beta_1, \beta_2, \beta_3, \beta_4$	= Unknown coefficient
ε	= Error term
i	= Observation respondent 1 till 200

Results and Discussions

Table 1 shows the demographic profile of respondents in this study.

Table 1: Demographic profile of respondents

Profile	Category	Respondents	Percentage (%)
Gender	Male	99	49.5
	Female	101	50.5
Marital status	Single	65	32.5
	Married	135	67.5
Age (years)	18–28	65	32.5
	29–39	69	34.5
	40–50	46	23.0
	More than 50	20	10.0
Ethnic group	Malay	190	95.0
	Chinese	10	5.0
	India	0	0
Education	SPM/certificate	66	33.0
	Diploma/STPM	37	18.5
	Bachelor's degree	97	48.5
Driving experience (years)	Less than 5	25	12.5
	5–10	59	29.5
	11–16	73	36.5
	More than 16	43	21.5
Employment	Private	67	33.5
	Government	86	43.0
	Retired	4	2.0
	Student	27	13.5
	Others	16	8.0
Income	Less than RM1,500.00	47	23.3
	RM1,500.00–RM3,000.00	85	42.7
	RM3,001.00–RM6,000.00	61	30.7
	More than RM6,000.00	7	3.3
Car ownership	Yes	185	92.5
	No	15	7.5

Source: Questionnaire

The results in Table 1 reveal that the highest respondents for gender distribution were female which accounted for 50.5% (101 respondents), while male respondent were 49.5% (99 respondents). For marital status distribution, majority of the respondents were married, which accounted for 67.5% (135 respondents), compared to single status respondents comprising 32.5% (65 respondents). The percentage of respondents from the age group of 29 to 39 years was the highest at 34.5%, followed by the 18 to 28 age group, which accounted for 32.5% (65 respondents), 40 to 50 age group at 23% (46 respondents), and the smallest group respondents were over 50 years at 10% (20 respondents). In terms of ethnic group profile, Malay respondents comprised 95.0% (190 respondents), followed by Chinese at 5% (10 respondents). There were no Indian respondents. This ethnic distribution is due to the fact that Terengganu has a majority population of Malay people.

For education level, nearly half of the respondents (48.5%) hold bachelor's degree, 33% have attained SPM or certificate level with secondary school qualification, and 18.5% have diploma or STPM holder. Regarding the respondents' employment, majority of them work in government sector (43%), followed by 33.5% in the private sector. A smaller segment consists of students (13.5%) and retirees (2.0%). The "others" category includes 8.0% of respondents who work for other jobs such as fisherman, self-employed, and run their own business. In terms of respondent's income distribution, the largest group income fell within the range of RM1,500.00 to RM3,000.00 (42.7%) per month, while 30.7% receive income between RM3,001.00 to RM6,000.00 per month, 23.3% of respondents earn income less than RM1,500.00 per month, and 3.3% of respondents earn monthly income more than RM6,000.00. For type of car ownership, 92.5% of respondents stated that they have their own vehicles and majority use conventional fuel-powered car, as EVs usage is still low among the community in Terengganu.

Table 2: Mean scores of consumer choice factors influencing the use of EVs

Variables	**Mean Score**	**Results**
Price Instrument	4.36	Completely support
Consumer Income	4.28	Completely support
Infrastructure Facilities	4.54	Completely support
Consumer Knowledge	4.50	Completely support
Average Value	**4.42**	**Completely support**

Table 2 shows the mean score of the consumer choice factors on the use of EV cars. Most respondent completely support that consumer choice factor on the use of EV. Factor such as Infrastructure Facilities shows the highest mean score of 4.54, while Consumer Income factor shows the lowest mean score of 4.28. The overall mean score value for the consumer choice factor on the use of EVs is 4.42. This demonstrates that the respondents strongly agree for each factor that influence consumer choice on the use of EV. This condition indicates that the instrument is in excellent condition and effective with consistently high levels of mean score. A lump sum or mean score can be used in real research (Bond & Fox, 2015).

Summary of regression output is presented in Table 3. R^2 value is shown at 0.628, indicating that the explanatory variables account for 63% of the variance in the dependent variable. The Durbin-Watson value of 2.017 suggests that there is no autocorrelation problem in the estimated regression. The overall significance test for the regression is also significant at 5%

level, demonstrating a statistically significant relationship between the independent variables (prices, infrastructure, consumer knowledge, and income) and the reduction of the carbon footprint in Terengganu.

For the dependent variable, which is the Reduction of Carbon Footprint, the independent variable of Price Instrument shows a negative value of -0.074 which indicates the value is not a significant influence on the dependent variable. Every study involves operation cost, but mostly in slightly different formats measure. The majority of studies measure either cost per 100 km or count of fuel efficiency and fuel price (Musti & Kockelman, 2011). Several studies also included scheduled operational costs (Hess *et al.*, 2012). All of these factors negatively affect the decision to purchase a car, which gives EV an advantage over CV since EV generally incur lower energy costs (Yang, 2014; Gai *et al.*, 2019). Hoen and Koetse (2014) and Jensen *et al.* (2013) also found that the marginal utility of energy cost for EV is higher than CV. In addition, people with higher income place lower importance on fuel cost (Helveston *et al.*, 2015; Junquera *et al.*, 2016; Valeri & Danielis, 2015). This is mainly due to the government incentive and subsidies. In many regions, governments offer incentives, tax credits, or subsidies to promote the adoption of EVs. These financial incentives can effectively reduce the net price paid by consumers, making the upfront cost less of a barrier.

Table 3: Regression test analysis results

Model	Coefficients	T	Sig.	Collinearity Test	Cronbach's Alpha
	B			VIF	
Constant	1.021**	2.295	0.023		
Price Instrument	-0.074	-1.262	0.209	1.204	0.663
Infrastructure Facilities	0.188**	2.647	0.009	1.572	0.692
Consumer Knowledge	0.526**	7.826	0.000	1.387	0.767
Consumer Income	0.076*	1.767	0.079	1.032	0.808
R^2	0.628				
F-statistics value	12.54**				
Durbin-Watson	2.017				

Note: DV-RCP is *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$.

The independent variable Infrastructure Facilities has a value of 0.188 and a significant value of 0.009, which is less than 0.05. Previous studies have shown that management infrastructure stress is one of the barriers why EVs are still less adopted, despite their lowest environmental impact and more transition to energy efficiency (Anegawa, 2010; Tarei *et al.*, 2021). Fast-charging infrastructure facilitates long-distance travel for EVs and helps boost demand in the EV market. (Schroeder & Traber, 2012; Buhmann & Josep, 2023). Infrastructure Facilities is significant because of convenience and accessibility. Consumers are more likely to consider EVs if charging stations are readily available along their daily commuting routes, workplaces, shopping centres, and other frequently visited locations. A dense network of charging facilities makes it easier to incorporate EVs into their daily routine without significant inconvenience. Therefore, adequate charging station infrastructure facilities are very important in encouraging the adoption of EV vehicles.

Next, the independent variable of Consumer Knowledge shows a positive value 0.526 and a significant value of less than 0.05, which is 0.000. This is in line with several past studies which have confirmed that high awareness in consumer environmental care greatly influences

the purchasing behaviour of environmentally friendly products (Herberz *et al.*, 2020; Rauh *et al.*, 2020). One of the key advantages of EVs is their potential to reduce greenhouse gas emissions and therefore contributes to less air pollution. Consumers who are knowledgeable about the environmental impact of different vehicle types are more inclined to choose EVs over conventional fuel-powered vehicles.

Meanwhile, the independent variable of Consumer Income has a significant influence on the Reduction of Carbon Footprint because the significant value is less than 0.10, which is 0.079. A study by Newell and Green (1997) showed a positive relationship between income and environmental behaviour. This is because individuals with higher income levels can bear the small increase in costs associated with choosing green products. The value of VIF expresses no multicollinearity problem between independent variables.

Conclusions

Based on the results of the survey and data analysis, the outcomes of this study contribute a better understanding in green technologies, which is EV in the automotive sectors. The study findings also provide rationales for accepting or rejecting EV usage by the public in Kuala Terengganu. Appropriate interventions can be undertaken to expedite the growth of energy efficient vehicles' use to reduce gas emissions into the environment. The outcomes of this study may be used as a baseline for further research to validate and develop a better model on the intention to use EVs in Malaysia.

To encourage the adoption of EV and subsequently reduce carbon footprint, policymakers and stakeholders should consider implementing a comprehensive strategy that addresses various factors influencing consumer choice. The government is suggested to give financial incentives and subsidies such as tax credits, rebates, or subsidies to make EVs more affordable for consumers. Incentives for installing home charging stations or purchasing used EVs is also recommended. Besides that, government can also play a significant role in infrastructure development to expand the public charging infrastructure which will ensure availability and accessibility of charging stations across the nation. By collaborating with private entities, the government can ensure the establishment of a robust and reliable charging network. Apart from that, government can mandate the inclusion of EV charging facilities in new construction projects and urban planning initiatives. The uplifting of EV charging facilities will help the extensive development in EV transport industry in parallel with the progress of developed countries.

The improved situation will encourage consumers to own EV, which leads to Malaysian community contribution in reducing carbon footprint, in line with SDG 13 which is to deal with climate change and its effects by controlling greenhouse gas production and encouraging the development of renewable energy. Apart from facilitating EV owners, it is also recommended for the government to implement higher taxes or fees on conventional fuel-powered vehicles to make EVs more cost-competitive.

The study has identified the relationship between factors that influence consumer choice in the use of electric vehicle in terms of Price Instrument, Consumer Income, Infrastructure Facilities, and Consumer Knowledge towards carbon footprint reduction in Kuala Terengganu, Malaysia, which is the second objective of the study. This study uses survey method by distributing questionnaires to 200 respondents who live in Kuala Terengganu. The study findings prove that the respondents who are in the category of stable employment within the age group of 29 to 39 years old with income between RM1,500.00 to RM3,000.00 are more interested to purchase EVs compared to others from different categories. Apart from that, the results also show that the respondents who own and use their own cars are currently using fuel-powered cars. The results of the data analysis also indicate that the factors influencing consumer choice in the use of EVs have a significant effect on carbon footprint reduction. This is because

those variables have positive relationship with CFR which is Consumer Income, Infrastructure Facilities, and Consumer Knowledge. However, Price Instrument has a negative relationship with Reduction of Carbon Footprint. Therefore, government authorities are expected to play a pivotal role in developing and implementing regulatory and operational initiatives that benefit the industry through innovation and collaborative efforts, so that existing challenges can be successfully resolved.

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Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article.

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