

Consumer buying behavior of hybrid vehicles

[Entertainment](#), [Movie](#)



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With their pollution level rising day by day caused by the emission from conventional vehicles, many government bodies have put in effort to enforce emission control policy since the late of 1960, and it is becoming strict with the EURO committee being the leader until today, where their emission policy and grading system being accepted or referenced worldwide even in Malaysia. The grading system based of emission cleanliness as of today is from Euro 1 to Euro 6, where Euro 1 being the worst emission standard and Euro 6 being the environmental friendly.

This is the scene where most modern vehicles are fitted with catalytic converter since late 1975, a simple device that can reduce the harmful emission such as un-burn hydrocarbon and carbon monoxide by converting them into cleaner substances such as oxygen and hydrogen through chemical catalyst effect within (Tony & Andrew, 2006). The effect of this is that the rise of the awareness of fuel efficiency, as many will further relate that if fuel efficiency can be increased, then the emission can be further improved, as well as to reduce wastage.

Many automobile makers has since then began development of fuel efficient engine in order to make a stand, and consequently lead to the trend of Hybrid Electric Vehicle (HEV). 2 Problem Statement However, emission is only one environmental factor as there is other factor which bothers a driver financial aspect, the fuel and its prices. No matter the fuel is expensive and cheap, if one can travel further with a given set amount of fuel, then one can certainly save him/her somemoney(Tony & Andrew, 2006).

And back to the environmental area, fossil fuel is non-renewable energy resources and depletion is certainly inevitable. This is why in recent years, many western automobile makers started to look into building fuel efficient vehicles, by building fuel efficient engines through various ways, most notably by downsizing the engine displacement and compensate it with force induction such as low pressure turbocharger. The effect of this implementation is that using a smaller capacity engine but can achieve the power delivery of a high capacity engine, yet with lower fuel consumption.

However back in the eastern automobile industry, where the Japanese being the leader they had something else in mind, not only they wanted fuel efficiency but at the same time they wished to maximize the go green concept. Henceforth they come up with the idea of hybrid vehicle, where in general terms a vehicle is powered by 2 sources of input, which is a normal internal combustion engine, supported by an additional electric motor which requires special battery pack.

The advantages of this implementation is that the fuel consumption and emission is superior over the formal, while the drawback is the maintenance

and cost of replacement for faulty battery pack is very expensive. With the hybrid being the hot trend now given the promising sales figures from European countries and the USA, generally the maintenance factor is not an issue for them, however in this research we need to find out the factors that influence a buyer into considering, buying a hybrid vehicle over here in Malaysia, as the hybrid trend is still very new here in Malaysia, generally starting on the year of 2006 where Honda introduces Civic Hybrid. However with the recent tax exemption on hybrid vehicles from the Malaysia government, the trend seems to be changing positively and now we have several models from Honda and Toyota to offer in response to the policy.

3 Research Objectives

a) What are the factors that influence consumer into considering a hybrid vehicle?

b) What are the factors that support consumer into buying a hybrid vehicle?

) What are the factors that consumer worries about when purchasing a hybrid vehicle?

4 Significance of the Study

This study into the factors that affect the buying decision of hybrid vehicles in Malaysia could project the trend and acceptance of hybrid vehicles here in Malaysia. With that information, local automobile makers can consider into developing our own hybrid vehicles to offer the local markets a broader choice, as well as to stay competitive in the market. Additionally, this will be a good catalyst to spark off “Go Green” concept into consumers’ mind that is beneficial to the restoration and perseverance of the environment.

Scope of the Study

In this research, we will first take a general look and introduction into both the low pressure force induction technology and the hybrid technology further then compare and contrast the pros and cons in detail. With both concept understood, we will begin to focus on the trend of

hybrid vehicles here in Malaysia, finding out the factors that support or deter the acceptance of hybrid vehicle through questionnaire aimed at hybrid owners and potential hybrid owners, from then we can know what are the main factors and concern of buyer upon making a decision for a hybrid vehicle, and then conclude what can be done to further increase the acceptance level of hybrid vehicles. Literature Review According to Markel & Simpson (2006), the implementation of hybrid electric vehicles can effectively reduce petroleum consumption up to 30% when compared to conventional vehicle, however a fully plug-in hybrid electric vehicle shall be undergo development to further improve the savings and reduce the wastage, as current hybrid electric vehicles uses electric motor powered by battery pack to assist the engine, which is costly when one needs to replace, and it did not provide much desired power.

The manufacturer can of course put in a bigger battery pack to punch out better power and durability, but with every 15% of improvement the cost is nearly doubled.

This issue is also mentioned before way back in year 2001, where the development of hybrid vehicles began with the aim in providing a superior fuel efficiency vehicles with minimal wastage and pollutants emitted, in prior to address two major problems (Allella et al, 2001): a) Consumption of fuel : World petroleum reserves and residues are unlikely able to sustain against the ever growing necessity of consumption b)Pollution: Generally referred to the harmful emission that can damage the environmentalhealth

The most common hybrid vehicle design is found within the famous Japanese automobile makers, respectively the Honda & the Toyota. The idea is to fit an electric motor powered by a battery pack that will recharge itself using the lost energy during the braking procedure, to assist a smaller capacity conventional engine in acceleration. With the motor assistant, the engine need not work and rev up that hard to get the vehicle moving therefore fuel consumption can be lowered. When certain conditions are met, the vehicles may also run solely on the electric motor itself most probably during low speed cruising.

Putting the vehicle design aside, as stated by Kuo & Wang (2011), the disciplinary in driving, as well as the climate is major factor in reducing fuel consumption. Kuo & Wang pointed out that in countries that have tropical climate, such as those near to the equator, tend to have higher fuel consumption index compared to other countries with 4 seasons climate, this is mainly due to the fact that fuel burns better and more efficient when the air temperature is colder, as colder air is more dense and henceforth carries more oxygen molecules.

Other than that, since the temperature is generally high throughout the year for tropical climate countries, drivers tend to switch on the air-conditioner (A/C) most of the time to withstand the hot weather, and A/C draws power from the engine to power up the compressor and cooling coil, therefore it results in loss of power from engine and leads to higher fuel consumption. On the disciplinary side, traveling below or way above the optimum speed of

a vehicle, usually around 90KM/H to 110KM/H will affect the fuel consumption, where most drivers tend to speed when the chances arise.

One should also try to plan their traveling route ahead, in order to avoid unnecessary traffic congestion which can result in poor fuel consumption, as start-stop driving proven to have 60% increased fuel consumption compared to smooth non-stop driving. This is generally experienced by most drivers that they can achieve better mileage if they travel on the highway often.

Research Methodology 1 Theoretical Framework [pic] 2 Generation of

Hypothesis Assume that) H0 = Null Hypothesis (No relationship between IV & DV) b) H1 = Alternative Hypothesis (Significant relationship between IV &

DV) | H1 | H0 - There is no relationship between maintenance and purchase decision of hybrid vehicles. | | H1 - There is significant relationship between

maintenance and purchase decision of hybrid vehicles. | | H2 | H0 - There is no relationship between fuel consumption and purchase decision of hybrid

vehicles. | | H1 - There is significant relationship between fuel consumption and purchase decision of hybrid vehicles. | | H3 | H0 - There is no

relationship between tax exemption and purchase decision of hybrid

vehicles. | | H1 - There is significant relationship between tax exemption and purchase decision of hybrid vehicles. | | H4 | H0 - There is no

relationship between personal view and purchase decision of hybrid vehicles.

| | H1 - There is significant relationship between personal view and

purchase decision of hybrid vehicles. Conclusion In conclusion, no matter it is

partial hybrid or fully plug-in hybrid, the main objectives are to prolong the sustainability of petroleum through improved fuel consumption. By going

green, the hybrid technology can also help in reducing wastage and

guarantee cleaner emission that can contribute to better environmental health and quality. Therefore with all the benefits and savings, we should try to adopt and embrace the implementation of hybrid vehicles. However, there is still room for improvement given the hybrid technology is still new within a decade of time.

Government should come out with policy that can help greatly in promoting the adaptation of this green technology. Reference: 1) Allella et al, (2001), Negative Log-gamma Distribution for Data Uncertainty Modeling in Reliability Analysis of Complex System Methodology and Robustness, International Journal of Quality and Reliability Management, Vol. 18, Napoli, Italy. 2) Allela et al, (2005), Optimal Reliability Allocation Under Uncertain Conditions With Application to Hybrid Vehicle Design [Online], International Journal of Quality and Reliability Management, Vol. 22, Napoli, Italy. Available from (www.emeraldinsight.com/0265-671X.htm) [Accessed June 6 2011] 3) Apaydin O. & Gonullu MT, (2008), Emission Control With Route Optimization In Solid Waste Collection Process, Vol. 33, Sadhana. 4) Davis S. & Diegel S, (2004), Transportation Energy Databook, 24th Edition. 5) Duval M, (2004), Advanced Batteries for Electric Drive Vehicles, EPRI. 6) Hirsch et al, (2005), Peaking of World Oil Production: Impacts, Risks, and Mitigation. 7) Kuo Y. & Wang CC, (2011), Optimizing the VRP by Minimizing Fuel Consumption [Online], International Journal of Management of Environmental Quality, Vol. 2. Available from (www.emeraldinsight.com/1477-7835.htm) [Accessed 8 June 2011] 8) Markel T. & Simpson A, (2005), Energy Storage Considerations for Grid-Charged Hybrid Electric Vehicles, IEEE Vehicular Technologies Conference, Chicago, IL. 9) Markel T. & Simpson A, (2006), Plug-In Hybrid

<https://assignbuster.com/consumer-buying-behavior-of-hybrid-vehicles/>

Electric Vehicle Energy Storage System Design [Online], National Renewable Energy Laboratory, available from (<http://www.nrel.gov/vehiclesandfuels/vsa/pdfs/39614.pdf>) [Accessed 8 June 2011]