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### **Hybrid cars: part two of an article exploring alternative fuel cars.**

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This is an electronic version of an article published in the *Engineering Designer*, 34 (4). pp. 18-23, July/August 2008.

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# Have alternative fuel cars reached a 'tipping point' or are they just a fad?

The concluding part of a paper exploring the reasons for the recent wider adoption of the hybrid car



Part one discussed the role of fuel prices, technology and legislation in the wider adoption of alternative fuel cars.

## Availability

Although car companies are well predisposed to be able to produce a hybrid car, the product introduction to the market will still follow that which occurs with most new products. When an innovative new product is placed on the market, invariably, the purchase price that consumers have to pay is high but this falls after a period of time.

The introductory price is high to pay off the high cost of research and design that the company has been involved in. The product is at the start of the learning curve, so people are less familiar with the various techniques being used. At the start, the tooling used may be fairly basic and this takes time and further expense before tooling up for production takes place as the product moves from batch to mass production. Of course, large companies, or those confident of a significant share of the market, can miss out on some of these stages by moving straight to mass production.

High introductory promotion costs are required and these will be 'educating' the consumers as to the potential benefits of the new product. In the case of the Prius, Toyota stated that in one year of typical use, it would save one tonne of carbon dioxide being exhausted to the air in comparison to a 'normal' car. Being new onto the market with an innovation and few direct competitors (by definition), it is possible for a company to indulge in profit taking. This is a normal market strategy known as 'Skimming'.

Alternatively, if an organisation wishes to gain a large share of a market with a new product, it can charge a much more competitive price and this is called

'Penetration Marketing'. This can usually only be undertaken by large companies that can support themselves over this period of reduced financial return through the profitable sales of other products in their range. There is some evidence that Toyota have been following a Penetration Marketing strategy.

After a period of time, the customers know of the product and promotion is more of a 'reminder' and can be less intense and, therefore, the promotion budget for the product can be reduced. Training and learning will also be reduced and efficiency will rise and production tooling will be complete. At the same time, competition will move into the market and choice will force the prices down. These patterns occur with most new products, allowing for possible prediction of a 'static plateau', when most competing organisations are making the same product using the same level of technology. In the product lifecycle, the consumers move from being 'innovators' through 'early adopters' until the product becomes mature.

Although hybrid cars were, in theory, available from the 1970s, they were not introduced in significant numbers. It is





only in the last five years that Toyota, Lexus and Honda have felt sufficiently confident to offer these as part of their product range. Of course, a product can only achieve a 'tipping point' if it is available for people to buy. Even now, the cars available are priced at a level which is high for an average family saloon. The Lexus is a luxury car and priced as such and, therefore, out of the price range of most consumers. The Toyota is within more people's price range but is still considered an expensive vehicle. The lack of availability of a range of hybrid cars, over a wider range of prices, is one of the main reasons which prevent it reaching a 'tipping point'.

It is likely that other car manufacturers would be viewing the same parameters as us, which may then determine whether they also invest in a hybrid car. The technology currently used suggests that it is well within the current abilities of all of the large car manufacturers. Perhaps Ford are best placed as they also own an electric car company and therefore have access to electric traction technology.

*"In the case of the Prius, Toyota stated that in one year of typical use it would save one tonne of carbon dioxide being exhausted to the air in comparison to a 'normal' car"*

The hybrid car is still at the introductory phase and users are still innovators in the marketing sense, although in geographical areas like London the hybrid car is moving to the early adopter phase. Nonetheless, with reference to availability, there is clear evidence that neither the manufacturers nor the marketing departments have reached the point at which the hybrid car can be considered as a mature product.

This undermines the 'tipping point' of the hybrid car and also indicates difficulties for consumers to make the choice to purchase such cars, even if they made a decision from their own perspective and context.

## Consumption

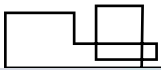
In 2005, Euro NCAP conducted a survey to identify the most important aspects influencing consumers when purchasing a car. Their findings revealed that the two key factors that influenced consumers' car choices were price and function. Once these were satisfied, the next key influences were safety, closely followed by reliability.

The survey also identified performance/road holding and running costs as aspects that came in third and fourth as having an influence on consumers' choice. Finally, other influences followed like: prestige and quality, styling, air conditioning, audio systems, and satellite navigation, but these were given much lower importance. Taking the results of this survey into consideration, it is evident that it is a complex process that positions hybrid cars in terms of a viable consumer choice.

Without a doubt, concern for the environment has grown over the past five years. Clear evidence of global warming and its links to the production of carbon dioxide have now been accepted, even in countries that were previously sceptical, such as the US or Australia. Increasingly, individuals are becoming concerned about their carbon footprint and are endeavouring to reduce their individual impact on pollution through recycling and by other means, albeit as small as investing in low energy light bulbs.

Nonetheless, a typical western car probably contributes the largest percentage to an average family's carbon footprint. Since the 1970s, in Europe, the standard of living has risen significantly. People tend to travel further and many people take foreign holidays in environmentally unfriendly aeroplanes. Train travel is growing but held back in the UK by a poor service and very high prices when compared to the rest of Europe. Therefore, when making their transportation decisions, there is growing complexity of choices as seen from an average consumer's point of view.

Many do not realise that much of the energy usage within a car comes through its initial construction and that they would have a greater effect on the environment



and pressing concerns than sustainable consumption. Although the purchase of a car might be high up on the list, purchase of a hybrid car would not necessarily constitute priority. The perception of its utility versus functionality and price would define how important such a purchase would be.

Furthermore, the current habits of consumers are often seen by them as barriers to change. In many instances, consumers themselves see it as rather inconvenient to change their purchasing habits. Thus, making a sustainable choice like buying a hybrid car could be seen as inconvenient, as consumers would consider such a choice not habitual. The concept of cost, on the other hand, is very complex. In the current economic climate, sustainable consumption is often perceived as more expensive. According to Holdsworth, 2003: "Cost often masks other barriers of inconvenience and lack of awareness. For example, public transport is often calculated as an extra expense, rather than an alternative to car ownership."

Finally, awareness of what constitutes sustainable consumption plays an important role in the way hybrid cars are seen as a viable transport option. Often consumers seem to have low awareness of their daily impact on the environment and sustainable consumption. In many cases, the concept of who is responsible for sustainable choices and who has the power to effect sustainable decisions comes into play when making decisions about what products to purchase. In the case of hybrid cars, far too many consumers see them simply as a potential 'green' alternative.

The complexity of sustainable

if they kept their existing cars longer, rather than purchasing new ones, even accepting that the newer cars would be more fuel efficient. General concern for the environment, which is fuelled by a daily diet of news shots of the melting icecap, could well encourage individuals to consider a hybrid car.

This may give them a feel-good factor that they are doing their bit to help the environment and may even win them 'brownie points' when parked outside their house as compared to their neighbours' cars. The reality is that they would be much higher on the environmental acceptance scale if they rode a bike or went by public transport.

So the question remains, can issues of sustainability ever motivate consumer choices? Pomfret (2005) argued in his presentation to the Sustainable Consumption Roundtable, that human beings as consumers are not interested in sustainability, however, as citizens they might be. He further points out that as consumers, people see sustainability as a threat, additional costs, or changes in legislation. Often products that are seen as 'green' are also perceived as unsuccessful (Pomfret, 2005). On the other hand, as citizens, people are willing to consider sustainable purchasing options. The Sustainable Consumption Roundtable reported in 2006 that, "... the business world and citizens are increasingly willing to embrace key aspects of a smarter, more sustainable lifestyle, but on one reassurance: that others, whether your neighbour at

*"The lack of availability of a range of hybrid cars, over a wider range of prices, is one of the main reasons which prevent it reaching a tipping point"*

home or your competitor in business, act likewise – the simple idea of 'I will if you will.'

In the view of sustainable consumption, what influences the 'tipping point' of hybrid cars are the following four factors: priority, habit and inconvenience, cost, and awareness (Holdsworth, 2003). Often consumers have far more immediate





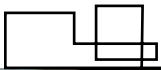
consumption and how it positions hybrid cars actually does not support the 'tipping point' of this product. On one hand, in the current climate of greater awareness around issues of sustainability, there is potential for hybrid cars to gain wider adoption. On the other hand, as highlighted above, the lack of willingness on the part of consumers to consider sustainability as a driving factor when making their purchasing choices still poses a significant barrier to the 'tipping point' of the hybrid cars.

## Conclusion

The answer to our question, whether alternative fuel cars have reached a 'tipping point' or are just a fad, is as complex as the context within which it is being posed. There is no one direct influence that could push the hybrid car to its 'tipping point'. Each of the influences that we have identified in our paper offer arguments for, as well as indicate barriers. Acting together they might position the hybrid car at an interim 'tipping point' as the only alternative solution, under the circumstances, seen from the perspective of action against climate change and promotion of sustainable development. The raising awareness of the environmental

*"General concern for the environment, which is fuelled by a daily diet of news shots of the melting icecap, could well encourage individuals to consider a hybrid car"*





impact of the products we produce and consume might outgrow other concerns.

Our paper has identified other areas of research that would contribute greatly to understanding how to affect change in this area of transportation within the parameters of sustainable development. We believe there is merit in finding out how much people's consumption of cars is linked to who they think they are as individuals, who they wish to be, or who they wish to be seen as. Also, people who construct their concepts around sustainability may have a lot to do with their own construction of identity as 'responsible citizens' which, in one way or the other, might have an impact on what they purchase and how.

The paper has revealed that there is no one particular aspect that can lead to a 'tipping point' of hybrid cars. It is also obvious that they are not just a fad. The overall problem stems from the fact that there is no strong leadership that would drive the adoption of hybrid cars. The car industry at present does not see any great demand, hence no need for any additional investment to bring it into

mass production.

On the other hand, there is still no great demand from the users' point of view. The numbers of consumers who would consider hybrid cars as an alternative sustainable option are not big enough to have much of an impact, especially in the light of other more sustainable solutions, such as public transport or bikes. Therefore, the 'tipping point' for hybrid cars may never come, as the technology and consumption patterns move on to more adequate sustainable solutions.

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