

# Case study about hydro cars

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## Executive Summary

With the growing demand for environmentally friendly products in the market today, many companies are now strengthening their Research and Development (R&D) in order to address such requirements for their loyal customers. From food industry to big manufacturing industry like cars, it has been a big investment and decision to make for these industries to adopt the need for protecting our environment for the future generations. In this paper, it provides an in-depth study on how hydro cars starting to create buzz in the car manufacturing industry. This is the challenge that truly provides bigger impact in our future. With pollution and ozone layer starting to create unstable climate all over the world, such as extreme heat and cold which affects the health as well as the other living things around us, these has been a no stopping for industries which not only help the environment but also can contribute to business superiority and later on market supremacy.

This is what some of the known car manufacturer's in the world, like Honda, Mazda and BMW has carefully starting to move closer of achieving through continuous research and development as well as testing for almost a decade now. The main focus of this paper is to provide a conceptual support on the case that was provided in the paper that carefully addresses issues as well as development regarding hydro cars in the world. It will also provide some meaningful and related information that relates to science and technology, the health, political and economic factors. In other words readers and future researcher may also find this research paper a good starting point on understanding some of the basics, situations currently happening, initiatives and factors that are affecting this hydro cars development and studies.

## Case Study about Hydro Cars

### Introduction

The competition in the car industry these days are becoming more and more competitive. Technology and price are usually the main reasons. But with the emergence of hydro cars, competition creates a different outlook that is why most car manufacturers continue to invest on conducting research and testing on the benefits of hydro cars. In fact it was already launched to some highly industrialized countries like the US, and in Europe as well as in Asia like in Japan and Korea where cars are not only being studied but already being distributed to the buying public, but only with very minimal production. That is why the main purpose of this paper is to really find out if hydro cars are a viable option in the economy as well as for the public, like in terms of safety and security as well as cost.

### Assumptions

In this paper there will be no financial data to be presented; instead it will focus on current developments and issues that hydro car industry is currently doing. Added to that are some scholarly articles that relates to the continuous study of the study and its effect, particularly in macroeconomics, management, etc. Lastly, is to provide current initiatives and development from some of the most trusted car manufacturing company in the world.

### Situation Analysis

Presently, hydro cars have been studied closely by a number of car manufacturing companies, most specially in the side of viability for the public. This is also the reason why hydro cars are not yet formally launched

in the market. Like for example one of the simplest questions is that where can drivers fuel up their hydro cars? Because, for some countries, they might have enough, but does this can be like commonly stationed gasoline station which sometimes has their presence at least every 5 kilometers interval. Other questions also like how can this be fair against cars who used gasoline or diesel, exactly how far it can go if in case I will use or purchase hydro cars? This was also what made BMW-H2R model not yet launched to the public. It has been said that even that BMW has created the car for barely 10 months, they are still not confident that it will still work for their customers. And they even mentioned that in order to say that they are ready for it, will take more than 10 years, which means that, BMW as one of the well-known car manufacturing company would not gamble and do a drastic move of providing it to the market. Not only it will be a big cost and at the same time, other factors such as safety is important to addressed. Another main concern for the public is hydrogen filling station; it is very obvious that this is much of a concern for most, the availability of hydrogen most specially for long drive getaways like in the US will be a main issue.

Unlike for Europe where most highly industrialized countries has already adopted it and even make used of the car itself and constructed a manageable number of filling station which made it so easy and acceptable for them. It was dated, January 24, 2005, when BMW launched a biofuel car which again works for hydrogen as well as for petroleum and these is employ in BMW 7 Series sedans. That is why in Europe as it continuously adopt and popularity of hydro cars are happening in some of its major cities where filling stations were also developed has been administered even by its

government. While in the US, it just started to look into this matter, in 2004, where in that time the President Bush while formally giving his State of the Nation Address, at that point, provided \$318 million for the Energy Department to work on the viability of Hydro cars in the country.

This was mainly a very straightforward decision that helped find and study some important aspects within the economic scale and environmental scale as well in adopting this kind of advancement in the transportation industry as well as most especially in the environment. And he even mentioned and very optimistic to that mass hydro cars will be used in the US by 2020. (Wald, M, 2004). It was even followed up by having a \$190 million project in developing hydro filling station in major cities in the US and again this project was assigned to the US Department of Energy. California through its good Governor, has also initiated of providing a good plan regarding hydro cars and how it may help the entire state not only in its economic development but also improved its environment since it was considered as one of the most polluted state in the US.

### SWOT Analysis

To start with the strength, it is obviously that hydro cars provide better effect in the environment. But first, it is necessary to understand what does hydrogen cars exactly look like and also what does hydrogen economy means. One of the car company that launch the first hydro car is Honda in California through the assistance of one well-respected research institute, Los Alamos National Laboratory and these institution continuously conducted study for almost 3 decades now. Based from LANI, " Hydrogen & Fuel Cell Research at Los Alamos has made significant technological advances in <https://assignbuster.com/case-study-about-hydro-cars/>

Polymer Electrolyte Membrane (PEM) fuel cells, Direct Methanol Fuel Cells (DMFC), and related technologies such as the electrolyzer (a fuel cell in reverse, liberating hydrogen from electricity and pure water).” Unlike other ordinary powered cars, hydro cars has zero emission technology system which provides zero pollution in the environment since it was air is being produced and not liquid. And this may alleviate the long time problem on oil. (Hydrogen Cars, n. d.). The other terms that must be clear is the hydrogen economy, it simply refers to the future economic effect of country of nation applying hydrogen energy.

Hydro cars also provides distance, like in the case of a test done in France where the BMW hydrogen cars with its build in bi-fuel efficiency, with its standard 215 miles and once it runs out hydrogen power, it will immediately shift to fuel, where it add additional 500 miles. Secondly in terms of reserves and abundance, hydro cars have it, since it is one natural energy that can even store for future use. It also enhanced the environment by eliminating pollution, and also provides power and stability in the performance of the car provided it employs latest technological advancement like bi-fuel and others. (Brown J, n. d). This benefit of providing a big help in the environment was seen by the US Government as the administration has found out that like problems with pollution that affects a number of Americans who afflicted with related illness like respiratory diseases are much higher that the investment that can be made for hydro cars, which will truly reduce pollution problems. With this the president even supported it and allocated \$1. 7 billion for the development of the initial car and fuel station and that was called freedom cars and freedom fuel. (‘ Can Hydrogen-

Fueled Cars Really Save the Environment, n. d.). Safety and Refueling practicality are still two of the top most weakness of hydro cars; there are still problems on how to effectively secure these typical hydro cars. These are already common to LPG gas where it also does the same as hydro cars, which in some of its findings that if not properly installed it may be subject for explosions and fire.

The other one is refueling practicality, unlike in regular fuel station, where you can see a bunch of stations almost the minimum is about 5 kilometers interval. But in Germany, since through the priority set by the government itself, the project has moved up to a point that it already reaches acceptance in its community. (Hydrogen Powered Cars Will Never Work, 2007). In terms of opportunities, there are definitely many opportunities that may be considered and one is for the government to provide subsidy or backup to this kind of project. This can help a country in studying more of its benefit and making it more adoptable to the environment of the country. Take for instance in the case of Norway, where it has supported its country and even look for other global institution in conducting a careful study in its viability to its own country. (Statistics Norway advises against subsidizing hydrogen cars, n. d.). Secondly, it may also be an opportunity for the country to enhanced its knowledge in terms of science and technology which will be beneficial for future researches, like what came out as a scientific findings where it can impact the earth's surface, it can contribute to positive effect if effectively applied but on the other hand if not like leakage happens, it can also provide negative impact in the earth surface as the California Institute

of Technology reported it. (Hydrogen economy might impact Earth's stratosphere, study shows, 2003).

In terms of threat, still the main threat are fuel companies where it still at the dominant end of its proper establishment to the public. Another one is threat for high cost of investment, it may continue to go high, most specially the faith of its application continues to be not as acceptable and as fuel still used as the main source for power and energy for the economy. The last threat is with regards to its non-cooperation and focus by big car manufacturing companies, which will leave all this effort of introducing it into failure.

### Competitor Analysis

At the moment even though there are proven studies that hydrogen has been a breakthrough for the environment, there are still some studies most specially in its viability in the global economy. This is also why its main competitor which is the natural gas still being used as the primary source of energy. Starting with the study that was conducted in South Central Alaska Natural Gas is that there are many developments that are going on, first it was proven that natural gas reserves will be available until 2025. There will also be expected shortage by 2009 and this will be due to the ordinary seasonal swing of demand that will also be projected by that year. While that was a very important anticipation or concern to look at, on the other hand, there was also a discovery of a new source of gas at Ninilchik and Happy Valley fields on the Kenai Peninsula. With the large amount of supply for low-cost gas has allowed Alaska to export some of its reserved abroad like in Japan where large amount of natural gas is needed to power up their

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industrial power plant. (Thomas, C., Doughty, T., Faulder, D. ; Hite, D, 2004). One of the most recent study which gives a better stand for natural gas which was about fertilized microbes makes natural gas fast, based on the study, scientist was able to convert heavy amount of oil into usable methane in just two years, which usually takes thousand of years. (Borenstein, S, 2007).

#### Statement of Alternative options

Still one of the alternatives is fuel and the slightly focused study on battery. The latter might not be that as a good alternative as further study might need to be considered. Fuel is still the main alternative and other emerging green fuels around the market. This is very important that it needs to be performed. Like take for example in the case of the US, where it provides an alternative advise for its major public that while waiting for hydro cars, it is better to apply these government advises to help reduce pollution and improved mobility and that helps increase health awareness as well. Strategies such as reduce the number of vehicle; instead encourage people to walk if near to the office. But the following are the most complete guide that the US Government has released as a better alternative, like reducing the number of cars in the road and encourage the public if possible to walk going to the office not only better for the health but also can help reduce traffic and pollution. (Cars, Air Pollutionand Health, n. d.).

#### Recommendation

Just like what the US has initiated, I will still highly recommend using the standard fueled powered cars, wince there are no clear and effective and

proven study of the viability of hydro cars. But, the study and research must go on and there should be deeper study that needs to be conducted, like more technical and more safety related issues should be addressed.

### Company Analysis

For Honda, Mazda and BMW as three of the most popular car manufacturing companies. What they are currently doing must continue but again the main focus on safety and affordability should be considered in order to have a more effective implementation and release of information can be done.

### Stakeholder Analysis

For stakeholder, as based on the case, investing big amounts and sometimes it does not only cost for millions but billions is enough to say that it should be carefully studied and analyzed its effect to the business. This is most specially for the stakeholders where big burden of allocating financial support and huge investments is needed.

Macro-Environmental Analysis (Economic, Social-Cultural, Political, Technological, Geographic, Demographic)

To start with economic, hydro cars has a big potential in improving the economy, as there will be better management of energy and power in case hydro cars will reach the time it will be sure that it will be fine and affordable for the market. This was clearly stated that the over-potential of fuel may still be present if in case there will be no careful study and effective research that may be conducted for hydro cars. (' Current Status of Hydrogen storage, 2005). For social0cultural, it also creates a big impact in improving the mobility of humans as it will be healthier environment will come soon.

Technological, no question it also enhanced the skills and knowledge and could even raised the technological level of one country. And lastly are geographic and demographics, more and more people may be benefited from it and that will be expected to happen probably count another 10 to 15 years from now.

#### Reason for rejecting other option

Rejecting battery powered and hydro powered cars at this time, is mainly due to again lack of safety study and prioritization to cost. This is the main reason that affects my decision in rejecting these options and still recommends fuel powered cars and reduces the use of cars.

#### Sustainable Competitive Advantage

Since car manufacturing companies is the main subject for these changes, it is important that they will continue to perform their competitive advantage. And this should again not mainly focus on hydro research but still improving the fuel powered cars. Designs may also be a factor that can be continuously exploited for competitive advantage.

#### Conclusion

In this paper it clearly shows that even hydro cars and hydro economy proven to be very efficient for the economy and at the same time environment friendly, still there are many things that need to study. First, in terms of security and safety, it was clearly stated in this paper that it was not yet proven yet if hydro cars are safe for the general public. Second, in terms of its viability in the local economy of a country, this is due to its very expensive cost, that is why highly industrialized and developed countries are

the ones who are currently applied for it. Lastly, is with regards to its availability for the public, since it is not only car that is needed to be studied here but also its consumables like filling stations, etc. That is why in this paper it is clear that natural gas with some of its own recent developments remains to be the most desirable source of energy and best suited for cars and this will continue until issues stated earlier will be addressed seriously.

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