

# ***ENVIRONMENTAL VALUATION OF THE BENEFITS OF ELECTRIC VEHICLES AND THEIR COST BENEFIT ANALYSIS IN DEVELOPING COUNTRIES IN THE CASE OF TURKEY***

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## **Overview**

Electric vehicle is a new phenomenon for transportation nowadays. Instead of petrol cars people start to use electric vehicles. There are many reasons about it, but the most important reason is that electric vehicles are totally environmental friendly in the end use of energy. Petrol cars use fossil fuels in order to produce energy; however, this process generates greenhouse gases (GHG) which is one of the reasons for global warming. Electric cars try to reduce GHG emissions from the transportation sector. For example; in Turkey transportation sector is the second biggest source for GHG after energy industry. Moreover road transportation is the main source for producing GHG in the transportation sector.

As the importance of the environment friendly products increases day by day, electric vehicles will become a big part of human life in the near future. Like Tesla, there are a lot of enterprises on this sector. Nevertheless, this sector still needs a lot of developments to reach an optimal level.

In addition to technological developments there should be infrastructural investments for the electric vehicles too. Since the electric vehicles a new technology into the daily life, charge stations have to be built in order to gas stations. This means that transportation sector needs a fundamental change dramatically.

Although the electrical vehicles are seen environmental friendly, they need some vital investments as well. In other words, countries should pay for the electrical cars to decrease GHG emissions from transportation sector.

This paper organized as follows: the expenses of electric vehicles are calculated. These expenses, namely the cost of the electric vehicles, have to be estimated properly because countries can transfer the money into another solving mechanism which provides more benefits than the electric vehicles. In addition to this, benefits of electric vehicles are considered as well. Environmental valuation method is used to estimate the positive improvements on environment. Finally, cost benefit analysis is applied to all of the expenses and gains.

## **Methods**

Cost-Benefit Analysis and Environmental Valuation are the main methods.

## **Results**

In the first possible outcome, cost benefit analysis can show negative results, which means that the investment of the electric vehicles for the developing countries like Turkey is not really necessary for now. They can spend their effort into other solutions for the environment. After several years with the help of increasing technology and developing facilities on the country, the electric vehicles might be more efficient.

In the second one, costs and benefits can have the same value more or less. It shows that this investment won't change a lot from the economical perspective. Therefore, next step will be directly related with the decision makers. If they believe that this investment will have more benefits in the future, they probably start to spend their money for the electrical vehicles. Nonetheless, they can decide on waiting for a while because developing technology can adapt the country to the electric vehicles economically.

For the final issue, benefits can be much more than the costs. Namely, the electric vehicles have a lot advantages for the country. Thus, depending on the national economy, country can take a step forward for this sector.

## **Conclusions**

In all of the outcomes direct values remain almost the same; but social benefits will have a vital role on these calculations. Although it is thought that non-use values can be worthless for developing countries, benefits on health status are still important for these countries. For instance, health expenses of Turkey are 5% of its economy. A meaningful decrease in health expenses thanks to the electric vehicles will create positive cost benefit analysis on behalf of the electric vehicles.

## **References**

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