

# Impacts of Introducing Next-Generation Vehicles in Japan

Seiichiro Kimura

Energy Analysis Division of I<sup>2</sup>CNER, Kyushu University

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To implement a discussion on impacts, various data related with social situation, science and technology, human emotions etc., are required. These input data such as technology, definitions, conditions and modeling, should be prepared carefully because they reveal large influence on the estimated results. However the estimated results sometimes possess uncertainty and draw apart from reality. In previous dies, forecast and assessment studies were often conducted as national projects and modeling studies were mainly done by several institutes and researchers. For instance, WtW (Well to Wheel) analysis for Next-Generation vehicles in Japan market was studied by JHFC (Japan Hydrogen & Fuel Cell Demonstration) project from 2002 to 2010 [1]. On the other hand, some modeling methods were discussed by Ito et al. [2], Kinugasa et al. [3], Ichinohe and Endo [4,5] and Kanenari et al. [6]. All past research on estimating impacts have also recognized that it is important to set realistic conditions for energy efficiency of energy systems, but they had no options rather than using data under ideal conditions.

A method was proposed where more realistic data could be applied for estimation [7]. The study had focused on vehicle sector and the mark points were to statistically consider the amount of energy consumption that hadn't been considered in a driving mode. At present, one third of energy is consumed for not-driving purpose in passenger vehicles.

Fig.1 shows an estimation result of energy saving effect if all passenger cars are replaced with Next-Generation Vehicles such as Fuel Cell Vehicle, Battery Electric Vehicles, Hybrid Electric Vehicles and Natural Gas Vehicles. The amount of impact by those vehicles could be predicted in calculated distribution according to the considered range of conditions and data.

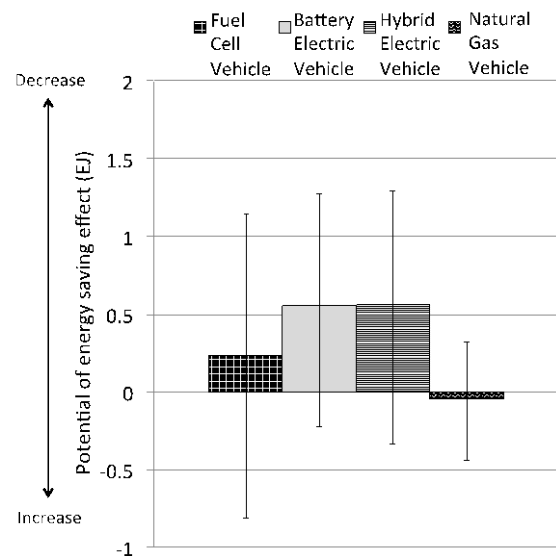


Fig.1 An example of estimation results under a realistic condition. (\*In the case hydrogen and electricity are produced by Natural gas.)

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