

A Computable General Equilibrium Analysis on the Effect of Increasing Electric Vehicle Adoption Rate in Korea

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Abstract

Since the Paris Agreement(2015), many countries around the world are making efforts to reduce greenhouse gas emission: Shutting down aged coal power plants, expanding renewable power generation such as solar or wind, using demand response as a power system resource and promoting electric vehicles.

Especially, to encourage electric vehicle(EV) adoption, many countries have run technical support system and subsidy program and invested in expanding public charging infrastructure. Based on the global trends, BNEF(Bloomberg New Energy Finance) analyzed that EV sales volume will surge between 2025 and 2030 and will reach 54% of new car sales and 33% of total number of cars in the world by 2040[1].

The Korean government is making efforts to increase the EV adoption rate. But thorough study about the economical effect of increasing EV adoption rate has not been made - the EV policies in Korea has generally focused on the environmental issues and power system stability issues. In this paper, computable general equilibrium(CGE) model is used to analyze the economic effect of increasing EV adoption rate in Korean economy. The method developed in this paper can also be used in analyzing the economic effect of an energy policy on a society such as municipality, smart city and etc.

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Keywords: *Electric Vehicle, Computable General Equilibrium Analysis, CGE model, Social Accounting Matrix*

References

[1] Electric Vehicle Outlook 2017, Bloomberg New Energy Finance, July 2017

Biography

Seong-joong Kim was received B.A. and B.S. degrees in Philosophy and Electrical Engineering at the Seoul National University. He is currently pursuing the Ph.D. degree in Electrical Engineering of the Seoul National University. His special field of interest includes power market statistics, power systems and energy policy.