Youngmin Woo et al., J Fundam Renewable Energy Appl, 5:6
http://dx.doi.org/10.4172/2090-4541.C1.005

OMICS International
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International Conference on
Green Energy & Expo
September 21-23, 2015 Orlando, USA

Regarding on the gasoline equivalent fuel economy of the electric vehicles

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Energy consumption of an EV (Electric vehicle) can be compared with that of gasoline vehicles by EPA MPGe (Miles per gallon gasoline equivalent) ratings. However, the MPGe is flawed and gives much too big value since it is based on the equivalence of electric energy to the lower calorific value of gasoline fuel that is 8.905 kWh per L. Thus, the big values in the fuel economy labels of the EVs need to be corrected to give more reasonable values in accounting that the losses from batteries, inverters, motors and additional inefficiencies in real world driving just like in the thermal vehicles. As a result, a real world driving of a PHEV (Plug-in hybrid vehicle) gives an energy equivalence of 4.701 kWh per L gasoline that is only 52.8% of the original value in the calorific value consideration. The loss in the charging was about 10% and that in the PHEV fuel economy test was about 28%. Thus, remaining loss 20% is ascribed to the inefficiency from the vehicular losses.

Biography

Youngmin Woo has completed his PhD in 2007 from KAIST. He is a Senior Researcher at Korea Institute of Energy Research, a Government funded research organization. He has published more than 15 papers in reputed journals and his expertise lies in the internal combustion engines and alternative fuels including vehicular testing and assessments.

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