

The Location Problem of Electric Vehicle Charging Stations: A Case Study of Istanbul

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Abstract : Growing concerns about the increasing consumption of fossil energy and the improved recognition of environmental protection require sustainable road transportation technology. Electric vehicles (EVs) can contribute to improve environmental sustainability and to solve the energy problem with the right infrastructure. The problem of where to locate electric vehicle charging station can be grouped as decision-making problems because of including many criteria and alternatives that have to be considered simultaneously. The purpose of this paper is to present an integrated AHP and TOPSIS model to rank the optimal sites of EVs charging station in Istanbul, Turkey. Ten different candidate points and three decision criteria are identified. The performances of each candidate points with respect to criteria are obtained according to AHP calculations. These performances are used as an input for TOPSIS method to rank the candidate points. It is obtained accurate and robust results by integrating AHP and TOPSIS methods.

Keywords : electric vehicle charging station (EVCS), AHP, TOPSIS, location selection

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