Abstract—In this paper, we suggest investment cost minimization of Autonomous-Electric Vehicles (A-EV) for tourist transportation service in tourist spot with consideration for number of A-EVs in charging station. On providing tourist transportation service with A-EVs to tourist, a large number of A-EVs may cause more user satisfaction and require more investment cost. Contrariwise a smaller number of A-EVs may cost little investment cost and less user satisfaction. In other words, there are trade-off relation between user’s satisfaction and investment cost. Also, A-EVs which is charging or waiting for charge in the tourist spot’s charging station can’t serve the transportation service on tourists. Therefore, we applied queueing modeling to minimization investor's investment cost for satisfying tourist's satisfaction by considering tourist’s waiting time constraint and the number of A-EVs in charging station. Tour operators and investors of tourist spot can obtain suitable number of A-EVS for their environment by using this minimization.

Keyword—Optimization, Queueing theory, Transportation service, Charging Station, Tourism

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