Review of: "Assessing Reliability and Economic Viability of Different EV Charging Station Configurations"

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Potential competing interests: No potential competing interests to declare.

This paper focuses on assessing the reliability and economic viability of different configurations of Electric Vehicle (EV) charging stations. With the increasing popularity of EVs, the development of charging infrastructure is crucial, but maintaining reliability remains challenging. The study proposes a novel 56-ported design with uniform and non-uniform port arrangements to enhance reliability. The paper evaluates the failure rates and maintenance costs of charging stations based on port arrangements using a binomial distribution method. Results show that uniform port configurations offer better charging facilities with lower failure rates and maintenance costs compared to non-uniform systems. The document also highlights the importance of voltage stability in EV charging stations and emphasizes the need to balance reliability and cost for efficient deployment of charging infrastructure. Ultimately, the research aims to contribute to the development of resilient and economically viable EV charging networks to support the transition towards cleaner transportation options.

It is better if the authors elaborate on the following issues. How does the proposed methodology for assessing the reliability probability of EV charging stations based on uniform and non-uniform port arrangements help increase efficiency? Can you provide more details on how the methodology takes into account the fluctuating operational conditions of electric vehicles and customer demands to optimize the capacity and functionality of charging stations? Please add the following very relevant references.

_____'Electric Vehicles – The Mobile Portion of the Smart Grid', Chapter of the book 'Smart Grid: Networking, Data Management and Business Models' CRC Press, https://doi.org/10.1201/b19664, 2017

_____"Futuristic Model of Electric Vehicle Charging Queues," 2016 3rd International Conference on Signal Processing and Integrated Networks (SPIN), Noida, India, 2016, pp. 789-794, doi: 10.1109/SPIN.2016.7566721.