

Advancements and Growth in Charging Technologies for Electric Vehicles

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Abstract: Electric vehicle (EV) charging technologies come in a wide variety and are used in a variety of real-world settings. In concept of converter topologies, power levels, power flow orientations, and charging systems, this paper provides an overview of the current and EV charging technologies. Overview of principal charging technique is also discussed, with focus on highlighting a quick and efficient charging method for lithium ion batteries with the of extending cell cycle life and maintaining peak charging efficiency. The last section of this work uses a genetic algorithm to determine the ideal size of the charging systems and, based on a sensitivity analysis, the potential benefits of various charging methods and tactics the possible future trends in this field are finally valued.

Keywords: Electric vehicle

REFERENCES

- [1]. Rizvi SAA, Xin A, Masood A, Iqbal S, Ullah Jan M, Rehman H Electric vehicles and their impacts on integration into power grid a review in Conference on Energy Internet and Energy System Integration, IEEE, Vol.2, Issue 7, 2021, pp.10-15.
- [2]. Papadopoulos P, Cipcigan LM, Jenkins N Distribution networks with electric vehicles International Universities Power Engineering Conference, IJRPR, Vol.5, Issue 10, 2021, pp. 193-199.
- [3]. Longo M, Foadelli F, Yaici W Electric vehicles Integrated with renewable energy source for sustainable mobility. IRJIET, Vol.5, Issue 6,2021, pp.122-125.
- [4]. Ces T Transportation options in a carbon constrained world hybrids, plug-in hybrids, biofuels, fuel cell electric vehicles and battery electric vehicles. IRJIET, Vol.4, Issue 4, 2017, pp.3078-3081.
- [5]. Liu L, Kong F, Liu X, Peng Y, Wang Q A review Interacting with renewable energy in smart grid. Renew Sustain Energy. IJIR, Vol.2, Issue 2, 2017, pp .2653-2659.
- [6]. Pellitteri F, Caruso M, Castiglia V, Di Tommaso AO, Miceli R, Schirone L An inductive charger for automotive application. Conference of the Industrial Electronics Society IECON, IEEE, vol.4, 2020, pp.966-970.
- [7]. Tran VT, Sutanto D, Muttaqi KM The state of the art of battery charging infrastructure for electrical vehicles topologies, power control strategies, and future trend. Presented at the Australasian Universities Power Engineering Conference, AUPEC, Vol.8, Issue 12, 2018, pp. 88-92.
- [8]. Ammous M, Khater M, AlMuhaini M impact of vehicle-to-grid technology on the reliability of distribution systems. Conference and Exhibition, GCCCE, Vol.63, Issue 3, pp.269-270.
- [9]. Jiang Z, Tian H, Beshir MJ, Sibagatullin R, Mazloomzadeh. A Statistical analysis of electric vehicles charging, stations usage and impact on the grid. Power and Energy Society Innovative Smart Grid Technologies Conference, ISGT, Vol.2, Issue 1, 2017, pp.83-87.
- [10]. Tan KM, Ramachandaramurthy VK, Young JY Integration of electric vehicles in smart grid a review to grid technologies and optimization techniques. Renew Sustain Energy Rev. IJERT, Vol.4, Issue 21, 2021, pp.550-560.