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Review of electric vehicle energy storage and management system : Standards , issues , and challenges

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Abstract**Author keywords****Indexed keywords****Funding details****Abstract**

Renewable energy is in high demand for a balanced ecosystem. There are different types of energy storage systems available for long-term energy storage, lithium-ion battery is one of the most powerful and being a popular choice of storage. This review paper discusses various aspects of lithium-ion batteries based on a review of 420 published research papers at the initial stage through 101 published research articles that have been finally reviewed. This review paper focuses on several topics, including electrical vehicle (EV) systems, energy management systems, challenges and issues, and the conclusions and recommendations for future work. EV systems discuss all components that are included in producing the lithium-ion battery. The energy storage section contains the batteries, super capacitors, fuel cells, hybrid storage, power, temperature, and heat management. Energy management systems consider battery monitoring for current and voltage, battery charge-discharge control, estimation and protection, cell equalization. This paper's challenges and issues discuss some of the critical aspects of lithium-ion batteries, including temperature and safety, life-cycle and memory effects, environmental effects, and recycling processes. The conclusion and recommendation of this paper indicate the future scope of research. This review paper can provide the lithium-ion battery's insight, overall synopsis and contribution, and further research directions to the EV system. © 2021 Elsevier Ltd

Author keywords

Electric vehicle; Energy storage systems; Lithium-ion batteries; Super capacitor

Engineering controlled terms

Battery management systems; Electric discharges; Electric vehicles; Energy management systems; Energy storage; Fuel cells; Fuel storage; Ions; Life cycle; Storage management; Supercapacitor

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