Dual energy storage motor

This study presents a bridge arm attached to the FESS motor"s neutral point and reconstructs the mathematical model after a phase-loss fault to assure the safe and dependable functioning of the FESS motor after such fault. To increase the fault tolerance in FESS motors with phase-loss faults, 3D-SVPWM technology was utilized to operate the motor. The ...

1 INTRODUCTION 1.1 Motivation. A good opportunity for the quick development of energy storage is created by the notion of a carbon-neutral aim. To promote the accomplishment of the carbon peak carbon-neutral goal, accelerating the development of a new form of electricity system with a significant portion of renewable energy has emerged as a critical priority.

Based on the analysis of the structure of dual-energy source storage system and the requirements of drive motor for the power of the battery and super capacitor under different operating ...

A patented bidirectional power converter was studied as an interface to connect the DC-bus of driving inverter, battery energy storage (BES), and ultracapacitor (UC) to solve the problem that the driving motor damages the battery life during acceleration and deceleration in electric vehicles (EVs). The proposed concept was to adopt a multiport switch to control the ...

In detail, various dual-motor configurations, and energy management strategies (EMSs) used in the literature are investigated and categorized. A comparison of the benefits and drawbacks of existing topologies and the EMSs of hybrid energy storage systems (HESSs) is also discussed. ... Dubois, M.R. Energy- and power-split management of dual ...

Prajof Prabhakaran, Vivek Kumar and Dastagri Reddy, "An Integrated Charger-Cum-Motor-Drive Power Converter with Dual Energy Storage System," Indian Patent, IPR Application No. 202241046349, 26 Aug. 2022. Status: Patent Granted, Patent number - 4 ...

PDF | On Oct 31, 2019, Zhongyue Zou and others published A Hybrid Energy Storage System for Dual-Motor Driven Electric Vehicles | Find, read and cite all the research you need on ResearchGate

This paper presents a Dual-Energy Storage System (DESS) using a combination of battery and UC as an onboard source for EV. An algorithm is proposed to split the required current ...

The current environmental problems are becoming more and more serious. In dense urban areas and areas with large populations, exhaust fumes from vehicles have become a major source of air pollution [1].According to a case study in Serbia, as the number of vehicles increased the emission of pollutants in the air increased accordingly, and research on energy ...

Dual energy storage motor

Abstract: IEEE VTS Motor Vehicles Challenge is an annual activity that is organized in cooperation with the IEEE Vehicle Power and Propulsion Conference (VPPC). This activity focuses primarily on energy management of electric vehicles (EVs). The challenge of this sixth event brings together two fundamental issues which are sizing and energy management of ...

Seawater batteries are unique energy storage systems for sustainable renewable energy storage by directly utilizing seawater as a source for converting electrical energy and chemical energy. This technology is a sustainable and cost-effective alternative to lithium-ion batteries, benefitting from seawater-abundant sodium as the charge-transfer ...

For high-performance Electric Vehicles (EVs) that operate under aggressive driving conditions, dual Energy Storage System (ESS) may be applied instead of battery-only ESS to reduce mass, volume or ...

The FESS employs an integrated electric motor/generator because of its dual functionality. It can operate as either a motor or a generator, depending on the system"s operating conditions. ... F. Control strategy of self-bearing dual stator solid rotor axial flux induction motor for flywheel energy storage. In Proceedings of the 2018 21st ...

Flywheel energy storage system (FESS), as one of the mechanical energy storage systems (MESSs), has the characteristics of high energy storage density, high energy conversion rate, rapid charge and discharge, clean and pollution-free, etc. Its essence is that the M/G drives the flywheel with large inertia to increase and decelerate to realize the conversion ...

inverter of motor, and the energy management syst em (EMS) [6,8,10]. Among them, BES is the most ... Figure 3 shows the architecture of the proposed converter integrated with dual-energy storage.

Abstract: Energy storage is an emerging technology that can enable the transition toward renewable-energy-based distributed generation, reducing peak power demand and the time difference between production and use. The energy storage could be implemented both at grid level (concentrated) or at user level (distributed). Chemical batteries represent the ...

Electrical Vehicles (EVs) require a mix of high power density and high energy density capable energy sources. The available individual energy sources like a battery, fuel cells, and ultracapacitor (UC) cannot meet both the energy and power demand. This paper presents a Dual-Energy Storage System (DESS) using a combination of battery and UC as an onboard source ...

Special Session #10: IEEE VTS Motor Vehicles Challenge - Sizing and Energy Management of Hybrid Dual-Energy Storage System for Electric Vehicles. Co-Organizer: Thanh Vo-Duy, Hanoi University of Science and Technology, Vietnam Co-Organizer: Jonathan Brembeck, German Aerospace Center (DLR), Germany

For the broader use of energy storage systems and reductions in energy ... the experimental results demonstrated sufficient performance of the dual-source EMU on electrified and non-electrified routes. ... drive powering each motored bogie are integrated into a single converter box accommodated underfloor with the traction motor. The battery ...

Sizing and Energy Management of Hybrid Dual-Energy Storage System for a Commercial Electric Vehicle. Objective Challenge. IEEE VTS Motor Vehicles Challenge is an annual activity that has been organized in cooperation with the IEEE Vehicle Power and Propulsion Conference (VPPC) since 2017. In this sixth event, two fundamental issues which are ...

To bring this implementation (also known as hybrid dual energy storage system (H-ESS)) to fruition, the battery cells and supercapacitor modules installed in the vehicle must be properly sized and ...

Prajof Prabhakaran, Vivek Kumar and Dastagri Reddy, "An Integrated Charger-Cum-Motor-Drive Power Converter with Dual Energy Storage System," Indian Patent, IPR Application No. 202241046349, 26 Aug. 2022. [Status: Filed, Published, and FER received].

Control strategy of MW flywheel energy storage system based on a six-phase permanent magnet synchronous motor. ... The implementation of the "dual carbon" goal, nationally in China, has accelerated the profound transformation of the energy industry, and the development and utilization of large-scale clean energy has become a basic global ...

inverter of motor, and the energy management system (EMS) [6,8,10]. Among them, BES is the most ... converter integrated BES/UC dual-energy storage was proposed, which had the capability to perform

1. Introduction. The high-performance servo drive systems, characterized by high precision, fast response and large torque, have been extensively utilized in many fields, such as robotics, aerospace, etc [1], [2].As the requirement for small self-weight and the demand for output precision grows higher, the direct-drive motor is gradually replacing the conventional ...

IEEE VTS Motor Vehicles Challenge is an annual activity that is organized in cooperation with the IEEE Vehicle Power and Propulsion Conference (VPPC). This activity focuses primarily on energy management of electric vehicles (EVs). The challenge of this sixth event brings together two fundamental issues which are sizing and energy management of ...

management of dual energy storage system for a three-wheel electric vehicle, IEEE Trans. Veh. ... In detail, various dual-motor configurations, and energy management strategies (EMSs) used in the ...

It is used to connect the operational inverter"s dc bus to dual-energy storage. Several BDCC switches have been distributed to supply particular voltages to ... Gao, Y., Wang, W., and Li, Y. (2019). "Optimization of

control strategy for dual-motor Coupling propulsion system based on dynamic Programming method," in 2019 3rd ...

Hybrid energy storage systems (HESSs) play a crucial role in enhancing the performance of electric vehicles (EVs). However, existing energy management optimization strategies (EMOS) have limitations in terms of ensuring an accurate and timely power supply from HESSs to EVs, leading to increased power loss and shortened battery lifespan. To ensure an ...