

The current study presents a comprehensive approach for optimizing the power distribution control and design of a Fuel Cell Hybrid Electric Vehicle (FCHEV) equipped with a ...

Fortunately, with the development of energy storage technology, the application of energy storage system (ESS) in traction power supply system (TPSS) is receiving attention for ...

A thorough analysis of the energy management techniques used in EVs regarding storage capacity and consumption has been provided [9]. The systems of EVs, including the ...

Through SOC feedback, the output power of the battery is adjusted in real time to prevent overcharge and overdischarge. Ref. [7] adopted a fuzzy controller to control the ...

EEMD technology is used to decompose the unbalanced power signal in the system, and realize the power distribution of super capacitor and battery according to the ...

Secondly, the use of prediction results from the energy storage power output combined with a two-layer fuzzy controller enables advanced control of the energy storage ...

In order to promptly rectify power imbalances, the system-level energy storage device known as the Hybrid Energy Storage System (HESS) is equipped with a battery and ...

The optimization objectives of HESS fuzzy control power distribution are as follows: After the suppression, the fluctuation power outside the target is minimized: ... Establish a fuzzy controller to modify and optimize the ...

N Azieroh Arman, T Logenthiran and WL Woo, (2015) "Intelligent Energy Management of Distributed Energy Storage Systems in Microgrid" in IEEE PES Innovative ...

Energy management in fuel cell hybrid electric vehicles (FCHEVs) is essential for optimizing the performance of multiple energy sources and ensuring the economic viability of ...

Currently, the high-power pulse power loads represented by electromagnetic launchers, rail guns, and high-power radars are increasingly widely used on ships ...

Economical functioning, utilizing DP and MPC algorithms for power distribution and optimization of energy storage systems. Ensuring economical operation and power balance ...

power and the power allocated by hybrid energy storage; then the double fuzzy control algorithm is used to optimize the state of charge of supercapacitor and lithium battery, ...

The fuzzy controller is used to optimize the distribution power of the hybrid energy storage system, to control the charge and discharge of the energy storage device reasonably. ...

A novel control-operational scenario was proposed for a small-scale micro-grid based on the energy and power distribution management methods employing renewable ...

In order to utilize wind power efficiently and smooth out wind power fluctuations, the power allocation, coordinated control and parameter optimization considering the State of ...

Lead-Acid battery and Super-capacitor (that constitutes the Hybrid Energy Storage System) have been connected in parallel to DC bus with the DC-DC converter. Two separate ...

This EMS uses i) fuzzy logic control to guarantee the state of charge of the energy storage system (ESS) at the desired range, ii) model predictive control (MPC) to define the ...

High penetration of renewable energy resources into distribution networks induces frequency and voltage fluctuations to the power grids. Unlike high-voltage transmission lines, ...

Many investigations on the hybrid energy storage system's ability to lessen the variability of new energy production have been conducted [10], [11]. [12] utilized HHT ...

At the same time, various energy management systems (EMS) have been presented to handle the complexity of HESS [17] and the nonlinearities of the power ...

Renewable generation based hybrid power system control using fractional order-fuzzy controller. ... (Pan and Das, 2016) which are minimized by the use of the load frequency ...

Fuzzy logic was used as a close-loop control structure to control the DC/DC converters in the topology, whilst a rule-based control strategy was used to control the operating states of the hybrid...

Compared with the traditional hybrid energy storage system (HESS) control method, this method can use the ensemble empirical mode decomposition (EEMD) and fuzzy control ...

A micro-grid consisting of distributed generation resources (DGRs) with a hybrid energy storage system (HESS) composed of batteries and super-capacitors was studied. A ...

Fuzzy control hybrid energy storage power distribution

In order to realize an optimal power distribution in double-sources energy system of hybrid electric vehicles (HEVs) or Plug-in hybrid electric vehicles (PHEVs)

This paper deals with the control system development for a hybrid energy storage system, consisting of a battery and a supercapacitor, for a through-the-road-parallel hybrid electric vehicle.

Research results demonstrate that compared to traditional fuzzy control strategies, the optimized fuzzy control strategy stabilizes the SOC fluctuation range and reduces energy losses.

Fuzzy based hybrid models used in renewable energy systems are categorized based on the techniques used ... [110] have proposed a genetic algorithm based fuzzy logic ...

The results showed that this method can make full use of ultra-capacitors, stabilize the output of the battery, and reduce the temperature rise of the system. Wang et al. [95] ...

Integrating advanced optimization technologies into the modeling and control of HESS can realize the optimization of power distribution and energy control to improve energy ...

Abstract: In order to give full play to the advantages of high energy density of battery and high power density of supercapacitor, a fuzzy logic-based variable time constant second-order high ...

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