Extended range electric vehicle energy storage

A smart battery electric vehicle control framework is proposed in this paper. The specific controller empowers ceaseless observation and management of the battery"s state with the scope of extending the vehicle"s driving range under varying temperature and driving pattern conditions. The proposed method utilizes an incorporated scheme for dealing with a crossover ...

The efficiency and dynamics of hybrid electric vehicles are inherently linked to effective energy management strategies. However, complexity is heightened due to uncertainty and variations in real driving conditions. This article introduces an innovative strategy for extended-range electric vehicles, grounded in the optimization of driving cycles, prediction of ...

Therefore, the extended-range electric vehicle (EREV) is viewed as a promising solution which has long cruising range and high fuel efficiency [1]. An EREV has a range extender (usually an ...

DOI: 10.1016/j.est.2023.106802 Corpus ID: 256716730; Optimization of energy management strategy for extended range electric vehicles using multi-island genetic algorithm @article{Xu2023OptimizationOE, title={Optimization of energy management strategy for extended range electric vehicles using multi-island genetic algorithm}, author={Yonghong Xu and ...

The power battery configuration of an extended-range electric vehicle directly affects the overall performance of the vehicle. Optimization of the output voltage of the power battery can improve the overall power and economy of the vehicle to ensure its safe operation. Factors affecting the output voltage of power batteries under different operating conditions, ...

Downloadable (with restrictions)! To address the urgent environmental challenges of transportation related air pollution and energy shortage, hybrid electric vehicles (HEV) and battery electric vehicles (BEV) with potential for higher energy efficiency are gaining in popularity and gradually replacing those conventional vehicles. Extended range electric vehicle (EREV) is a ...

Range extended electric vehicles (REEVs) offer a solution to the limited range of pure electric vehicles by incorporating an additional energy source. ... Based on Pontryagin minimum principle, Yi et al. 39 proposed a hybrid energy storage electric vehicle EMS considering battery degradation, conducted cycle life tests on the battery and ...

Energy storage systems using the electric vehicle (EV) retired batteries have significant socio-economic and environmental benefits and can facilitate the progress toward net-zero carbon emissions. Based on the patented active battery control ideas, this article proposed new available power and energy analysis for battery energy

storage systems (BESS) using ...

Running battery electric vehicles with extended range: Coupling cost and energy analysis. Author links open overlay panel Chen Yang. Show more. Add to Mendeley. ... Long-range, low-cost electric vehicles enabled by robust energy storage. MRS Energy Sustain, 2 (1) (2015), p. 2. Google Scholar [55]

Based on the working characteristic of the engine and the generator, a coordination control strategy of Auxiliary Power Unit (APU) is studied for a range extended electric vehicle (RE-EV) and the incremental PID and feedback PID control algorithms are used to achieve speed control in the APU test bench.

The vehicle investigated in this paper is a range-extended electric bus that includes a 2.0-L four-cylinder diesel engine, a generator, a permanent magnet synchronous motor, a transmission system, an energy storage system (ESS), and other components.

Recently, extended-range electric vehicles are a new solution to energy shortage and environmental pollution, which effectively increases the range of electric vehicles, extends the battery life ...

Emissions from the transportation sector are significant contributors to climate change and health problems because of the common use of gasoline vehicles. Countries in the world are attempting to transition away from gasoline vehicles and to electric vehicles (EVs), in order to reduce emissions. However, there are several practical limitations with EVs, one of ...

These days, many systems and configurations of extended-range electric vehicles (EREVs) have been proposed to recover energy. ... Solar Energy Storage Extended Range (SES-ER) Solar photovoltaic ...

The extended-range electric vehicle (E-REV) can solve the problems of short driving range and long charging time of pure electric vehicles, but it is necessary to control the engine working points and allocate the power of the energy sources reasonably. In order to improve the fuel economy of the vehicle, an energy management strategy (EMS) that can ...

We find that by deploying roughly 20% of range-extended vehicles with a modest all-electric range of 33 miles, parcel distributors can save energy costs by up to 17% while incurring less than 0.5% ...

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