Software for testing the performance of energy storage charging piles

What is energy storage charging pile equipment?

Design of Energy Storage Charging Pile Equipment The main function of the control device of the energy storage charging pile is to facilitate the user to charge the electric vehicle and to charge the energy storage battery as far as possible when the electricity price is at the valley period.

What data is collected by a charging pile?

The data collected by the charging pile mainly include the ambient temperature and humidity, GPS information of the location of the charging pile, charging voltage and current, user information, vehicle battery information, and driving conditions . The network layer is the Internet, the mobile Internet, and the Internet of Things.

What is a charging pile monitoring platform?

The monitoring platform is designed to provide auxiliary tools for the management and maintenance of charging piles,to ensure their safe operation. Since the existing monitoring platform mainly applies blockchain technology . Generally,the charging pile provides two charging methods: conventional charging and fast charging.

Can battery energy storage technology be applied to EV charging piles?

In this paper, the battery energy storage technology is applied to the traditional EV (electric vehicle) charging piles to build a new EV charging pile with integrated charging, discharging, and storage; Multisim software is used to build an EV charging model in order to simulate the charge control guidance module.

Is online monitoring a safe operation of charging piles?

Finally,by comparing with the normal data of charging piles,the visual online monitoring results of charging piles were obtained,and it is concluded that the platform can provide decision support for the safe operation of charging piles.

How does a charging pile work?

The charging pile determines whether the power supply interface is fully connected with the charging pile by detecting the voltage of the detection point. Multisim software was used to build an EV charging model,and the process of output and detection of control guidance signal were simulated and verified.

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The photovoltaic-storage charging station consists of photovoltaic power generation, energy storage and electric vehicle charging piles, and the operation mode of which is shown in Fig. 1. The energy of the system is provided by photovoltaic power generation devices to meet the charging needs of electric vehicles. It stores excess electricity ...

The proposed method reduces the peak-to-valley ratio of typical loads by 52.8 % compared to the original algorithm, effectively allocates charging piles to store electric power resources during off-peak periods, reduces user charging costs by 16.83 %-26.3 %, and increases Charging pile revenue.

In this paper, we propose a dynamic energy management system (EMS) for a solar-and-energy storage-integrated charging station, taking into consideration EV charging demand, solar power generation, status of energy storage system (ESS), contract capacity, and the electricity price of EV charging in real-time to optimize economic efficiency, based on a ...

The photovoltaic-energy storage-integrated charging station (PV-ES-I CS), as an emerging electric vehicle (EV) charging infrastructure, plays a crucial role in carbon reduction and alleviating ...

Reference [23] optimizes the charging and discharging power of energy storage systems using a quadratic programming mathematical model, combined with a genetic algorithm, to derive ...

In this paper, an online platform for monitoring charging pile operation safety was constructed from three aspects: hardware, database, and software functions using big data and related technologies.

The simulation results of this paper show that: (1) Enough output power can be provided to meet the design and use requirements of the energy-storage charging pile; (2) the control guidance...

The distribution and scale of charging piles needs to consider the power allocation and environmental adaptability of charging piles. Through the multi-objective optimization modeling, the heuristic algorithm is used to analyze the distribution strategy of charging piles in the region, and the distribution of charging piles is determined to meet the ...

The MHIHHO algorithm optimizes the charging pile"s discharge power and discharge time, as well as the energy storage"s charging and discharging rates and times, to maximize the charging pile"s revenue and

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minimize the user"s charging costs.

These defects make the real availability of charging piles put into operation in the market very low, and it is difficult to meet the charging needs of a large number of charged ...

To solve this problem, this research chooses to develop a simulation testing platform for charging pile control system based on semi-physical simulation technology. A fully ...

and storage; Multisim software is used to build an EV charging model in order to simulate the charge control guidance module. On this basis, combined with the research of new technologies such as ...

For the large-scale prediction of EV charging energy, it is necessary to maintain high model performances to improve the average prediction accuracy, despite the significant variations in the ratio of the number of EVs used for testing and training (referred to as the testing/training ratio). In this context, real-world operating data of several light-duty EVs ...

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