Site selection for the electric vehicle energy storage industrial park

How to select a sustainable electric vehicle charging station?
The optimal site selection of electric vehicle charging station was studied from sustainability perspective in this paper. To select the sustainable EVCS site,an evaluation index systemfor EVCS site selection was built,which consists of three pillars of sustainability,namely environment criteria,economy criteria and society criteria.

What is electric vehicle charging station (EVCs)?
As the energy provider of electric vehicle, electric vehicle charging station (EVCS) is the foundation of electric vehicle industry development. Efficient, convenient and economic EVCS can enhance the willingness to buy of consumers and promote the industry development.

How are EVCs sites selected?
Four sub-criteria affiliated with the society criteriaare finally selected for EVCS site selection. Harmonization of EVCS with the development planning of urban road network and power grid (C8): Refers to the coordination with main artery,inlet and outlet,residential areas,urban main functional areas,and the stable supply of electric power.

Why is EVCs site selection important?
Efficient,convenient and economic EVCS can enhance the willingness to buy of consumers and promote the industry development. As the preliminary work of EVCS construction,the EVCS site selection is quite important in the whole life cycle,which has significant impacts on the service quality and operational efficiency of EVCS.

Why is electric vehicle a major development trend of new energy automobiles?
With the continuous improvement of battery capacity and economies,electric vehicle has become the main development tendency of new energy automobiles. Meanwhile,if taking the appropriate charging mode,electric vehicle can shift the power peak load,provide spinning reserve and improve the penetration of renewable energy power.

Which EVCs site is best?
Finally,the EVCS site alternatives were ranked by employing fuzzy TOPSIS method. The result shows EVCS site A2located at Changping district in Beijing obtains the highest ranking score and should be selected as the optimal site. Meanwhile,the environmental and social criteria are paid more attentions from decision makers than economic criteria.

Using integrated modeling and mathematical optimization in a GIS operating system, the results showed that the proposed model can select suitable locations for charge ...

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The island is well-positioned to supply the energy needs of electric vehicle charging stations through solar power plants, particularly by considering and utilizing fuel ...

Developing electric vehicle (EV) energy storage technology is a strategic position from which the automotive industry can achieve low-carbon growth, thereby promoting the green transformation of the energy industry in China. This paper will reveal the opportunities, challenges, and strategies in relation to developing EV energy storage. First, this paper ...

The optimal GIS-based site selection revealed that 9.82 % of the island area has the highest suitability for locating the solar EV charge station. For a more detailed and accurate site selection, the final suitability map was reclassified to nine levels from 1 (worst) to 9 (best). The results indicated that the vicinity of two main squares of ...

The optimal site selection of electric vehicle charging station was studied from sustainability perspective in this paper. To select the sustainable EVCS site, an evaluation ...

Electric-vehicle batteries may help store renewable energy to help make it a practical reality for power grids, potentially meeting grid demands for energy storage by as early as 2030, a new study ...

Fuzzy TOPSIS has been used in many practical issues such as supplier evaluation and selection in supply chain management (Chen et al., 2006), optimal site selection of electric vehicle charging ...

The island is well-positioned to supply the energy needs of electric vehicle charging stations through solar power plants, particularly by considering and utilizing fuel-efficient and optimized vehicles. Also, it demonstrates that the island, by opting for fuel-efficient vehicles and using solar energy, can support electric vehicles used in ...

Accordingly, the site selection for EVCS is a multi-objective decision making problem. Nevertheless, the current studies on the EV predominantly focus on the following fields: battery management [1, 2, 3, 4], ...

CBRE has undertaken a comprehensive analysis of EV manufacturing clusters and related factors to provide recommendations for EV automotive and related parts companies for site selection; ...

The selection and management of energy resources, energy storage, and storage management system are crucial for future EV technologies [23]. Providing advanced facilities in an EV requires managing energy

resources, choosing energy storage systems (ESSs), balancing the charge of the storage cell, and preventing anomalies. The objectives of the review present ...

Energy storage systems play a crucial role in the overall performance of hybrid electric vehicles. Therefore, the state of the art in energy storage systems for hybrid electric vehicles is discussed in this paper along ...

In the context of global CO 2 mitigation, electric vehicles (EV) have been developing rapidly in recent years. Global EV sales have grown from 0.7 million in 2015 to 3.2 million in 2020, with market penetration rate increasing from 0.8% to 4% [1].As the world"s largest EV market, China"s EV sales have grown from 0.3 million in 2015 to 1.4 million in 2020, ...

To solve the problem, our paper proposes a Geographic Information System (GIS)-based AHP method to find optimal locations of electric vehicle charging stations (EVCSs) in Nanshan District,...

Apart from the selection of an energy storage system, another major part to enhance the EV is its charging. The fast charging schemes save battery charging time and reduce the battery size. The recent growth in power semiconductor, topology and intelligent charging control techniques reduce the expenditure of fast charging. In addition to the types of electric ...

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