

Land acquisition for pumped storage power station



Overview

China proposed the goal of carbon peak by 2030 and carbon neutrality by 2060 at the 75th session of the United Nations General Assembly. Accelerating the development of clean energy is the key to achieve this carbon peak and neutrality goal. However, large-scale grid connection of new energy brings great challenges to the stable and safe operation of power grid. As a regulating power source and energy storage power source, pumped hydro energy storage (PHES) has strong regulating ability and is characterized as a reliable operation with broad prospects for development. However, the current field-survey-based method of site selection for PHES is time consuming, labour intensive, and costly. Improper site selection would cause ecological environment damages among other problems. A scheme or protocol that enables the automated site selection of PHES is therefore urgently required. The objective of this study was therefore to develop a new tool based on digital elevation model (DEM) and geographic information system (GIS) hydrological analysis function to screen out the potential PHES sites. ArcGIS, as a leading geospatial software, provides a set of geoprocessing (GP) tools for raster analysis. ArcPy is a Python package that runs in the ArcGIS environment. It can quickly invoke existing tools in ArcGIS to create custom extension modules. In this study, ArcPy was used to screen the site of PHES based on reservoir capacity and dam height, etc. Taking the southern Shaanxi Province, China as an e...

Article Content

(PDF) Design of Infrastructure for Pumped Storage Power Station ...

Through the comprehensive evaluation and analysis of construction land based on GIS, from the perspective of adaptability of power station construction to mountain creek pit ...

A Review of Pumped Hydro Storage Systems

In 2023, the Ministry of Power issued “Guidelines on Promoting the Development of Pumped Storage Power”, which aims to facilitate the deployment of PHS systems by implementing policies that include setting construction deadlines ...

Investigation of Pumped Storage Power Station Construction ...

In order to achieve safe, stable and economic operation of the power system, pumped storage power stations should be decentralized as much as possible, which is ...

Multi-method combination site selection of pumped storage ...

In this paper, considering the important function of pumped-storage power station (PPS) in promoting the “source-grid-load-storage” synergy and complement in the construction ...

Pumped Storage Hydro

ENGIE, through First Hydro Company, owns and operates two pumped storage hydropower plants in the Snowdonia region of Wales. The plants are considered critical national ...

Pumped-storage renovation for grid-scale, long-duration energy ...

a, Schematic of pumped-storage renovation.b, Short-duration energy storage, which can be provided by reservoirs with a water storage capacity of at least several hours.c, ...

Research and Application of BIM + GIS Information Technology ...

Research and Application of BIM + GIS Information Technology for Land Acquisition and Resettlement of Pumped Storage Power Station April 2022 DOI: ...

Benefit comprehensive evaluation for pumped storage power ...

It refers to the capital investment of PSPS for rural revitalization, including the subsidy resettlement cost for immigrants due to the land acquisition of PSPS construction, the ...

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