

## عنوان مقاله:

Research on the principle and structure of a new energy storage technology called vacuum pipeline

## محل انتشار:

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## خلاصه مقاله:

Except for pumped storage, other existing electric energy storage technologies are difficult to achieve large-capacity energy storage and not easy to simultaneously meet the requirements in terms of site selection, cost, efficiency, and response. For this end, this paper combines the advantages of maglev technology and vacuum technology, proposes a new type of mechanical large-capacity energy storage technology which is vacuum pipeline maglev energy storage. Based on the idea of vacuum pipeline maglev energy storage technology, we have constructed a case system of vacuum pipeline magnetic maglev energy storage technology. The key technical parameters of the energy storage system, such as the maglev train's weight ratio and speed per hour, the mode of levitation and guidance, the car-track structure, the type and size of the vacuum pipeline, the type of the motor, the process of charging with acceleration, the process of no-load with uniform-speed and the process of generating electricity with deceleration were studied. On this basis, the energy storage capacity and cost of the vacuum pipeline maglev energy storage system were obtained through analysis. By comparing the energy storage capacity and cost of Fengning Pumped Storage Power Station in, the advantages of vacuum pipeline maglev energy storage technology in economy and technology were verified. Finally, based on the technical characteristics of the vacuum pipeline maglev energy storage system, we analyzed its broad applications in renewable energy power consumption, optimization and upgrade of distribution network structure, urban emergency power supply and pulse power supply.

## کلمات کلیدی:

Vacuum pipeline maglev energy storage, large-scale energy storage technology, energy storage cost

## لینک ثابت مقاله در پایگاه سیویلیکا:

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