

Rare earth elements represent a fundamental aspect of energy storage technologies, particularly as we transition towards a more sustainable energy future. The intricate relationships between these elements, their ...

The rare earth hydrogen storage materials market is poised for significant growth, driven by the escalating demand for clean energy solutions and advancements in ...

Rare-earth-doped materials with abundant electronic energy levels are capable of emitting bright multicolor radiation and are therefore considered irreplaceable candidates for ...

Rare earth elements (REEs) including neodymium, dysprosium, and cerium enable six critical applications in renewable energy: high-efficiency wind turbine magnets, EV traction motors, thin-film solar cell coatings, lithium-ion battery ...

Abstract Rare earth elements (REs) exhibit special potential in hydrogen storage due to their hopeful properties. A facile and easy-to-operate preparation method is the ...

In this final post in my series on minerals critical to the energy transition I look at rare earth metals. The name "rare earths" is often used to describe all 15 elements comprising the lanthanide series on the periodic table ...

Rare earth elements are critical in renewable energy technologies like wind turbines, EV motors, and energy storage systems. They enable higher efficiency and performance in these systems.

The emergence of energy crisis and greenhouse effect has prompted people to develop energy storage equipment with excellent performance. Supercapacitors (SCs), also known as electrochemical capacitors, are widely studied for their ...

Despite this large literature, few articles focus on the challenges of rare earth in the energy transition concerning supply and demand. This paper will focus on examining the ...

BaTiO<sub>3</sub> ceramics are difficult to withstand high electric fields, so the energy storage density is relatively low, inhabiting their applications for miniaturized and lightweight ...

GeoTES systems provide daily and seasonal energy storage and can be used to deliver industrial process heating or cooling. GeoTES costs are predicted to be very low - once the wells have ...

EXECUTIVE SUMMARY The rare earths are of a group of 17 chemical elements, several of which are

critical for the energy transition. Neodymium, praseodymium, dysprosium and terbium are ...

This study presents a proposed interdisciplinary framework for developing ignition-resistant magnesium alloys and analyzing their combustion behavior. It focuses on ...

Hydrogen energy has become one of the most ideal energy sources due to zero pollution, but the difficulty of storage and transportation greatly limits the development of ...

Rare Earths (REs) are referred to as "industrial vitamins" and play an indispensable role in a variety of domains. This article reviews the applications of REs in traditional metallurgy, ...

This article reviews the applications of REs in traditional metallurgy, biomedicine, magnetism, luminescence, catalysis, and energy storage, where it is surprising to discover the infinite ...

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