Schematic diagram of magnetic energy battery system

What is a magnetic energy battery?

The magnetic energy battery,as described in the present invention,consists of a cylindrical permanent magnet (1) with magnetized end planar surfaces,forming a vortex magnetic field (2) inside the main body of the battery. The battery includes a casing and both a positive and negative terminal.

What is the magnetic energy battery according to claim 1?

Claim 1 defines the magnetic energy batteryas having a solid cylindrical permanent magnet (1)with a concentric eddy freak magnetic field (2) inside,and a circular ring oriented perpendicular to the cylindrical axis.

What is superconducting magnetic energy storage (SMES)?

(1) When the short is opened,the stored energy is transferred in part or totally to a load by lowering the current of the coil via negative voltage (positive voltage charges the magnet). The Superconducting Magnetic Energy Storage (SMES) is thus a current source[2,3]. It is the "dual" of a capacitor,which is a voltage source.

How do energy storage systems work?

For an energy storage device,two quantities are important: the energy and the power. The energy is given by the product of the mean power and the discharging time. The diagrams,which compare different energy storage systems,generally plot the discharging time versus power.

How does the battery generate electricity?

The battery generates electricity by using an eddy magnetic field formed inside a solid cylindrical permanent magnet to persuade the magnetic field of the moving electrons to orientate along the axis of the vortex magnetic field and generate electromotive force.

What is a NaS battery?

A NaS battery,also known as a sodium-sulfur (NaS) battery,uses sodium (Na) and sulfur (S) as its main components. A solid ceramic,sodium alumina,separates the electrodes and serves as the electrolyte in this type of battery.

Fig. 12.1 shows a schematic diagram of a studied IACMG system operating at a frequency of 50 Hz and a voltage of 230 V (per phase RMS). The IACMG system includes four IIDG units, three lines, and locally connected loads viz. resistive (R)/inductive (RL), constant power load (CPL), rectifier interfaced active load (RIAL), and dynamic induction ...

Schematic diagram of the interconnected power system with the SMES. ?????????????????????????? ???????????,??????????????

toroidal magnet. Upon discharge, energy is withdrawn from the magnet and converted to AC power. Figure 21.1 is a schematic diagram of a SMES system. The components include a DC coil, a power conditioning system (PCS) required to convert between DC and AC, and a refrigeration system to hold the superconductor at low temperature. The inverter ...

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a) Schematic illustration of a battery with a magnetic control component. The yellow module represents Cu foam. The blue module represents the PDMS film. b) Schematic illustration of...

In this paper, we present the modeling and simulation of different energy storage systems including Li-ion, lead-acid, nickel cadmium (Ni-Cd), nickel-metal hybrid (Ni-Mh), and supercapacitor...

Magnetic field energy harvesting (MFEH) is a method by which a system can harness an ambient, alternating magnetic field in order to scavenge energy. Presented in this article is a...

The SMES system consists of four main components or subsystems shown schematically in Figure 1: Superconducting magnet with its supporting structure. Cryogenic system (cryostat, ...

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The core of the manufacturing method of a magnetic energy battery is to magnetize a solid cylindrical permanent magnet according to requirements, and generate a ...

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In Fig. 1, the battery module is an energy storage component in the battery system, which is composed of multiple battery cells that are connected either in series or in parallel. When any of ...

Figure 1: Schematic illustration of the four categories and associated EST..... Figure 2: Graphic demonstration of the workflow and purpose of each part. .... Figure 3: Figure demonstrating the technology readiness level (TRL) of the

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In general, an SMES system is composed of four parts, which are the superconducting coil with the magnet (SCM), the power conditioning system (PCS), cryogenics system (CS), and controller, as shown in Fig. 1. The functions of each part can be described briefly as follows. a) The SCM is used to store the dc electrical energy.

This review introduces the application of magnetic fields in lithium-based batteries (including Li-ion batteries, Li-S batteries, and Li-O 2 batteries) and the five main mechanisms involved in promoting performance. This figure reveals the influence of the magnetic field on the anode and cathode of the battery, the key materials involved, and the trajectory of the lithium ...

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