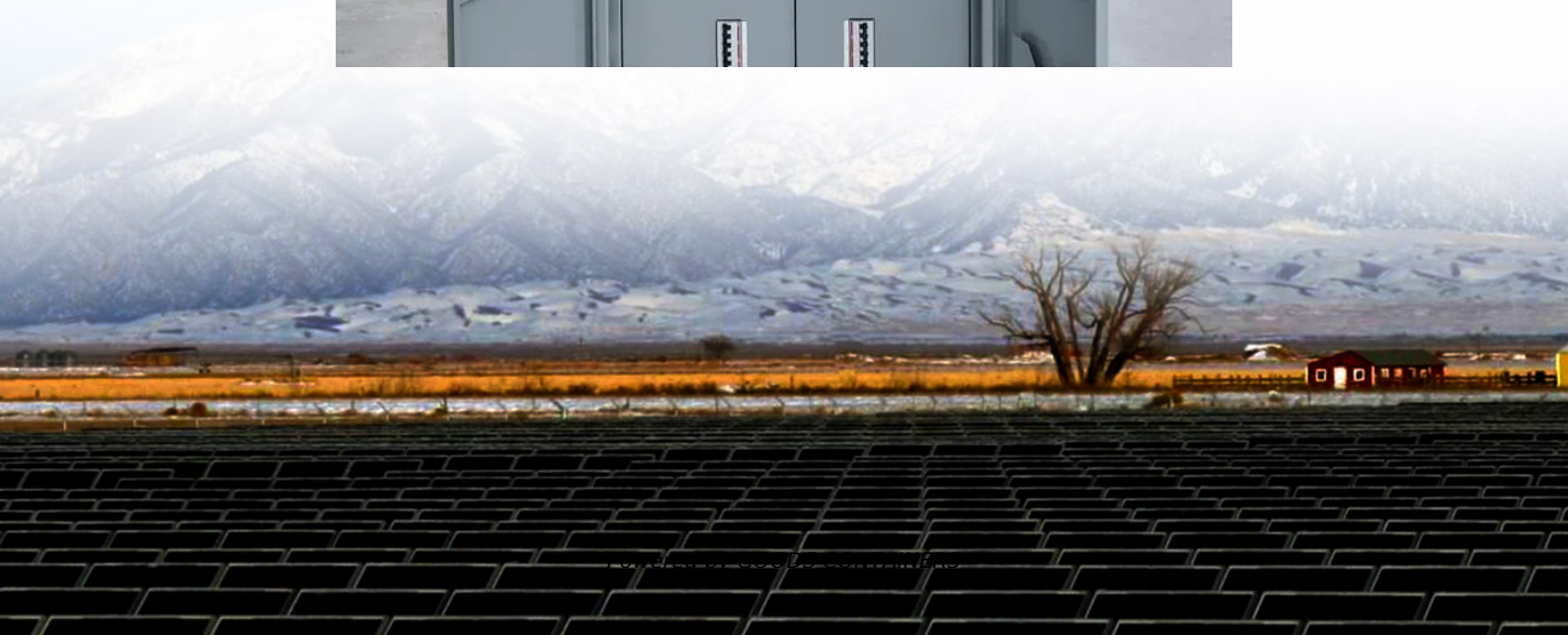


Small thermal energy storage equipment





Overview

What is thermal energy storage?

Thermal Energy Storage (TES) can store thermal energy directly and at a large capacity. The most common TES systems are direct sensible, latent heat, and thermo-chemical storages. Their energy source is either solar thermal or industrial waste heat, where the end-use of these systems is for heating, drying and cooling purposes .

What are the different types of energy storage systems?

There exist several methods to store renewable heat or electricity. In Fig. 1, we have classified these energy storage systems into four categories of mechanical, electrical, chemical, and thermal storages.

What is electro-thermal energy storage (ETEs)?

As an alternative, we introduce a new modular electro-thermal energy storage (ETES) technology that is suitable for various storage needs. This storage unit can utilise various thermal storage materials (thermal oil, molten salt, and sand) at high capacities and improved efficiencies.

What is the best thermal storage material for ETEs?

Among the studied thermal materials, sand provides the best thermal storage performance for the ETES. This is because sand has a wide operating temperature range, and it takes low energy to charge the storage, which results in a high-efficiency output.



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