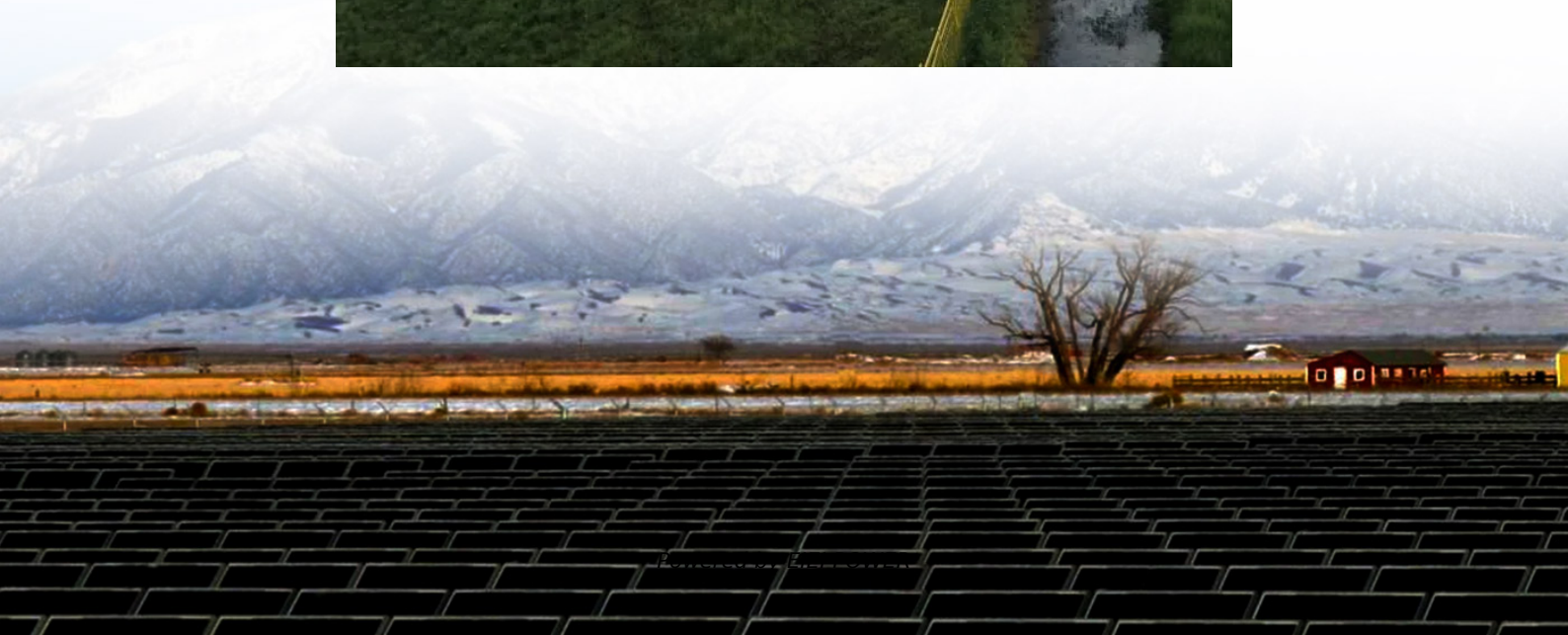


Energy storage liquid cooling system topology





Overview

What is the topology optimization design domain of liquid cooling plate?

As shown in Fig. 5(a), the topology optimization design domain of the liquid cooling plate is a uniformly heated heat source. The inlet flow rate of the topology optimized liquid cooling plate is set to 0.01 m/s, the temperature of the coolant is 293.15 K, and the outlet pressure is set to 0 Pa.

Is liquid cooling heat dissipation structure suitable for vehicle mounted energy storage batteries?

The thermal balance of the liquid cooling method is poor. Therefore, in response to these defects, the optimization design of the liquid cooling heat dissipation structure of vehicle mounted energy storage batteries is studied.

How can a bi-objective topology optimize a battery cooling system?

To minimize both the volumetrically average temperature of the battery pack and the energy dissipation of the cooling system, a bi-objective topology optimization model is constructed, and so five cooling plates with different flowing-channel topologies are designed.

Is topology optimization effective for designing heat sink geometries for natural convection cooling?

The results showed that topology optimization is an effective method for designing heat sink geometries for natural convection cooling. Yoon (2010) used a topology optimization formulation to create a heat sink structure using forced convection heat transfer.



Energy storage liquid cooling system topology



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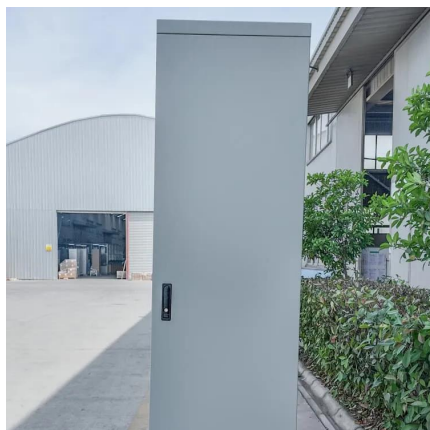


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