

Liquid Cooling Energy Storage Cabinet Analysis





Overview

Is indirect liquid cooling a viable solution for cabinet power density reduction?

Indirect liquid cooling is currently the main cooling method for the cabinet power density of 20 to 50 kW per cabinet. An integrated energy storage batteries (ESB) and waste heat-driven cooling/power generation system was proposed in this study for energy saving and operating cost reduction.

What is the total energy consumption of a liquid cooling data center?

The total energy consumption includes the energy consumptions of the cabinets, uninterruptible power supply (UPS), cooling system, lighting system, power transfer, and distribution system. The PUE of the liquid cooling data centers can usually be reduced to below 1.3 [6, 7].

Why do liquid cooling data centers need energy-saving retrofitting?

However, for places with high ambient temperatures like Shenzhen, its liquid cooling PUE may still be higher than 1.3, and this is why the local liquid cooling data centers need energy-saving retrofitting to meet local policies for PUE in Shenzhen.

How much energy is saved by 1000 cabinets?

Maximum energy saving reaches 90.8 GWh/year with 1000 cabinets. Maximum net present value reaches 998 million CNY. Huge energy consumption of data centers has become a concern with the demand for greater computing power. Indirect liquid cooling is currently the main cooling method for the cabinet power density of 20 to 50 kW per cabinet.



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Liquid cooling energy storage cabinets use dielectric fluid circulation to maintain battery cells within $\pm 1.5^{\circ}\text{C}$ of target temperature. This isn't your granddad's radiator system - we're talking ...

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