Data center energy storage 120 kWh



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With each new generation of datacenters, we strive to become more efficient and reduce impact on local energy and water resources. Power usage effectiveness (PUE) and water usage effectiveness (WUE) are key metrics relating to the efficient and sustainable operations of our datacenters. There are variables that can impact PUE and WUE--many of which relate to the location of the datacenter, including humidity of the climate and ambient temperatures in the region.

Power Usage Effectiveness, or PUE, is an industry metric that measures the energy efficiency of a datacenter. It considers things like powering, cooling, and operating the servers, data networks, and lights. PUE is measured by dividing the total energy needed for a datacenter facility, by the total energy used for computing. The closer the PUE number is to "1", the more efficient the datacenter.

Water Usage Effectiveness, or WUE, is another metric used to monitor the efficient and sustainable operations of datacenters. WUE looks at how a datacenter uses water relative to the electricity consumed and is measured in liters per kilowatt hour. Like PUE, there are variables that can impact WUE, such as datacenter locations being more arid or humid. WUE is measured by dividing the annual liters of water used for humidification and cooling, by the total annual kilowatt hours (kWh) used to power IT equipment.

The surge in power density to 100+ kW per rack in data centers is both an evolution and a revolution in the industry, signifying a shift in how we approach computing infrastructure, power management, and cooling technologies. This change reflects the industry's response to the growing demands of artificial intelligence (AI) and high-performance computing (HPC). In this article, we explore the evolution and revolution of power density through a brief history.



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