



# Data center energy storage project requirements

How much energy does a data center need?

For example, a 15,000 square foot data center with IT equipment operating at 100 W/sf requires 13,140 MWh of energy annually for the IT equipment. If the UPS system supplying that power has its efficiency improved from 90% to 95%, the annual energy bill will be reduced by 768,421 kWh, or about \$110,000 at \$0.14 /kWh.

How can a data center be more energy efficient?

Taxes, incentives and regulations: Some locations incentivize design of more sustainable energy efficient data centers by promoting investment in renewable power, energy storage systems, district heating or other methods of energy reuse either through grants, tax credits or regulations.

What is the most energy-efficient data center design?

This guide concludes with a section on metrics and benchmarking values by which a data center and its systems energy efficiency can be evaluated. No design guide can offer "the most energy-efficient" data center design but the guidelines that follow offer suggestions that provide efficiency benefits for a wide variety of data center scenarios.

Why do data center developers need battery energy storage systems?

As a result, data center developers are working toward innovative solutions to meet the growing energy demands of their facilities while also reducing their carbon footprint. Battery Energy Storage Systems (BESS) are emerging as a critical component of modern data center infrastructure.

How much energy does a data center use at 95°F/C?

We estimate a CoP of 2.2 can be attained for a typical data center exporting heat at 95°F/C, implying that the PUE would increase to at least 1.5; however, the overall lifecycle impact can still be favorable, as discussed below. Figure 1.1: Data center energy use (Luo et al., 2019) Design for More Efficient Data Centers

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How effective is energy-usage management in a data center?

Ongoing energy-usage management can only be effective if sufficient metering is in place. There are many aspects to monitoring the energy performance of a data center that are necessary to ensure that the facility maintains the high efficiency that was carefully sought out in the design process.

While the pace and characteristics of data center electricity demand can present challenges in an evolving power system, targeted actions can help the United States maintain a reliable, ...

Sizing the electrical service for a data center or data room requires an understanding of the amount of



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electricity required by the cooling system, the UPS system, and the critical IT loads. ...

This Data Center Best Practices Guide has been created to provide viable alternatives to inefficient data center design and operating practices and address energy efficiency retrofit ...

For immediate impact, the Secretary should convene energy utilities, data center developers and operators, and other key stakeholders to start active dialog on how to address current ...

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Data centers can consume 100 to 200 times as much electricity as standard office spaces. With such large power consumption, they are prime targets for energy efficient design measures ...



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