IBM

IBM Data Centre and Facilities Strategy Services – data centre energy efficiency assessment

Highlights

- *Assesses energy usage by cooling, electrical and building systems*

- *Identifies opportunities to improve energy efficiency by comparing energy usage to a data centre energy-efficient standard*

- *Creates a business case, prioritising potential investments for energy savings*

- *Supports your efforts to report environmental performance and incentives for energy management*

Understanding the impact of data centre power and cooling demand

Data centre infrastructures are at a tipping point. Many major changes have occurred over the past five years that affect the operations of the data centre. High-density servers contain more computing capacity per square foot than ever before. While individual servers now use less power than traditional servers, the higher quantity of servers per square foot increases overall data centre energy demand. The higher density of servers also creates a greater need for cooling capacity, increasing the demand for energy even more.

To make matters worse, most data centre infrastructures were not built to handle today's growing need for power. New low-cost technologies like blade servers can consume 20 to 30 kilowatts of power per rack; while the average data centre that was designed 10 to 15 years ago can only support 2 to 3 kilowatts per rack. As technology continues to refresh every two to three years, many data centres may be forced to deal with their inability to support their installed server base.

Driven by increased consumption and increasing prices for electricity, energy costs are expected to rise more rapidly than the cost of acquiring new IT equipment. Addressing these challenges requires a better understanding of data centre energy consumption – not just of IT equipment, but also of the cooling, electrical and building systems that support your infrastructure. Often, there are tremendous opportunities to improve energy efficiency in these systems, which can represent up to 70 percent of data centre energy consumption.[1]

Managing the energy efficiency of these systems and implementing efficiency improvements can put you in a position to better control your power and cooling costs. Addressing energy efficiency can also help you redirect power to where you need it most – your IT equipment.

IBM Data Centre and Facilities Strategy Services – data centre energy efficiency assessment provides a comprehensive, fact-based analysis that prioritises tactical plans across your data centre to improve efficiency and reduce costs.

Focusing on business improvement
You can't manage what you can't see or what you do not measure. With the first step in the data centre energy efficiency assessment, IBM can help clients get the facts to understand their current energy consumption and peak energy demand. IBM visits your facility and gathers energy consumption data for data centre cooling, electrical and building systems. We look across the entire support infrastructure, including uninterruptible power supply (UPS) systems, chillers, pumps, fans, air distribution systems, fire alarm and fire suppression systems, and lighting systems. IBM can also look at the overall effectiveness of equipment operating procedures to determine how well you're managing energy usage.

Identifying strategies to help reduce energy consumption
Based on this analysis, we help you find the gaps where your current equipment may not be operating as efficiently as possible. We analyse the efficiency of transformers, electrical distribution systems, electrical power management systems and building management systems to determine whether or not you can efficiently get enough power to the right areas at the right time. We can help determine whether or not opportunities exist to free up energy capacity from non-IT systems that can be used for IT equipment instead.

We measure your data centre against a simple energy efficiency standard that compares total power consumption of the data centre to the power actually used by your IT equipment. This benchmark provides a marketplace comparison to understand your data centre's relative efficiency and demonstrates the potential range of improvement for efficiency projects.

Recommendations to improve efficiency are tailored to your facility and may include upgrades to or replacements for inefficient data centre infrastructure, changes to facilities operating procedures or the addition of new technologies. Cooling systems typically present the greatest opportunity for efficiency improvements, followed by electrical and building systems.[2]

Justifying the cost of energy efficiency projects

The assessment creates a business-case financial justification for efficiency improvements based on potential energy cost savings, prioritising potential investments to provide a return on investment (ROI). Based on your current level of energy use, IBM can also help you understand whether or not your infrastructure can scale to meet future demands.

Documenting your environmental performance

The final step is to produce a report that outlines data centre energy efficiency projects based on assessment facts, with ROI estimates based on expected energy savings. The report can help you demonstrate expected efficiency improvements, support applications for data centre incentives and environmental reporting, and move toward implementation for efficiency improvements.

Why IBM?

IBM is a leading global provider of data centre design, construction, relocation and optimisation services. IBM has built more than 30 million square feet of raised-floor data centres for clients worldwide. We currently manage more than 100 IBM data centres of six million square feet. Our structured methodology, intellectual capital and global reach position us to deliver superior, comprehensive data centre solutions. IBM has a strong ecosystem of data centre technology partners, including strategic relationships with major power and cooling equipment vendors that give us exceptional insight into industry trends and the data centre's changing energy needs. And unlike most data centre solutions providers, IBM manufactures a full suite of storage and server products, giving it a strong understanding of the infrastructure support needs of your IT equipment.

Beyond the data centre energy efficiency assessment, IBM also offers services to implement data centre efficiency improvements. We can help ensure that your data centres and facilities support your business needs – and that they are capable of scaling to support business growth. IBM services can cover all aspects of establishing and running data centres, from assessment and strategy to construction and management – virtually anywhere in the world.

For more information

To learn more about IBM Data Centre and Facilities Strategy Services – data centre energy efficiency assessment, contact your IBM representative or visit:

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