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## IBM Tivoli Energizes Green Savings for the Data Center

On May 19, 2008, IBM Software announced several new updates for Tivoli Service Management that will provide data centers with increased business intelligence, modeling, inventory, and accounting abilities to visualize and control energy utilization.

This software suite will provide firms with the ability to view a consolidated view of data center assets, services, and costs from an energy perspective that will enforce corporate energy policies. Among these technological enablers will be dashboards that clearly display and chargeback energy usage and trends, asset management tools which demonstrate which assets and business workflows are responsible for maximizing usage and thermal production, and the ability to re-route business workloads based on Service Level Agreements (SLAs), data center thermal dynamics, and relative energy costs. This aggregation of data center-based energy tools and dashboards will allow firms to make business data decisions not only based on their SLAs and performance issues, but on energy and thermal issues that will minimize cooling costs and utility invoices.

### Business Context

In *The 2008 Aberdeen Report*, which surveyed over 4,600 companies, 47% of respondents indicated that they have a green initiative in place for 2008. These initiatives serve several purposes for companies: social responsibility, favorable customer relations, and cost-cutting measures that drive greater efficiencies. One aspect of consumption that green initiatives have focused on is energy usage in data centers. Since energy costs currently represent approximately 10% to 15% of IT budgets, companies are seeking toolsets to gain control and visibility over this major IT expense.

Aberdeen research in March 2008 for the *Green Initiatives: Lower Costs and Increasing Efficiency in the Data Center* Benchmark Report found that 24% of Best-in-Class companies used guidelines formulated by industry associations like the Green Grid (Figure 1). These guidelines provide a common scorecard for companies to gauge progress internally and within the industry and with their peers. Although the adoption of Green Grid guidelines is relatively low, Best-in-Class companies were significantly more likely to have awareness of these guidelines and use them as a standard to create more efficient data centers.

Best-in-Class companies were also far more likely to conduct formal energy audits compared to Industry Average and Laggard companies as a way of establishing a baseline of energy use in the data center. This baseline provided a crucial starting point for these companies to visualize and

### Market Alert

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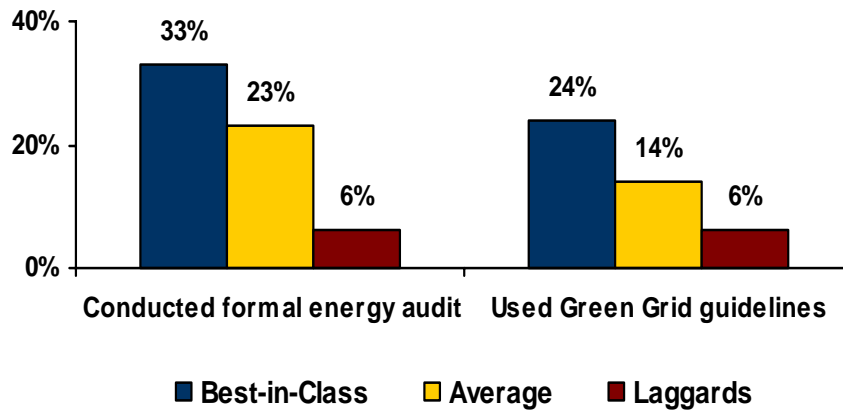
### Best-in-Class Defined

Best-in-Class companies with data center green initiatives were in the top 20% across four Key Performance Indicators (KPIs):

- ✓ 15% decrease in data center utilities cost
- ✓ 15% decrease in data center floor space
- ✓ 12% decrease in storage systems power consumption
- ✓ 2% decrease in storage systems cooling requirements

understand the entirety of their electricity usage, since companies are unable to manage their power usage without prior context. In addition, this audit provided a crucial step in allowing companies to project power usage, since a formal energy audit would provide the granularity of usage to allow companies to project based on future business needs, rather than simply assuming energy usage proportional to future growth.

**Figure 1: Measuring Infrastructure Efficiency**



Source: Aberdeen Group, January 2008

### The Importance of Monitoring Efficiency

The Green Grid's efficiency metrics are a good starting point for companies to establish their current energy use, but they do not address how efficiency data should be collected or monitored on a continuous basis. Continuous improvement of a company's energy efficiency requires a systematic approach to collecting and interpreting results.

IBM's Tivoli Suite provides an organization with the tools to track energy usage and efficiency in several different ways. By looking at the heat output of data center devices, Tivoli Maximo can determine which areas of the data center are overheated and working less efficiently. Once overheated areas are determined, the customer can determine whether the best strategy would be to cool sections of the data center, proactively re-route data traffic away from specific servers, re-diagram the data center to distribute heat, consolidate floor space, or replace inefficient hardware with newer, Green-friendly servers.

Tivoli's Business Service Manager provides a business analytic dashboard that controls energy usage based on predetermined service levels and provides remote visibility into brownouts and intelligent workload guidance based on the temperature in each area. In addition, servers can be brought online more quickly through the Provisioning Manager, which allows companies to provision servers to meet workload demand rather than keeping backup servers active during off-peak periods of use.

Finally, the actual cost and consumption of electricity can be tracked through the Tivoli Usage and Accounting Manager. This tool allows customers to set an initial benchmark for energy usage, which can then be used to track subsequent changes as the data center is reconfigured. It can also provide granular reporting on power consumption based on time, hardware, or services accessed. By doing so, companies can chargeback their electricity usage to better represent the usage that is needed to support each profit center or cost center. The visibility provided by these tools will result in greater accountability regarding the data center workload and more specificity in targeting solutions to reduce data center energy usage.

## Key Insights

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IBM's decision to focus on power consumption and management in the data center is indicative of a growing enterprise focus on green initiatives. This decision reflects current economic and geopolitical pressures to reduce energy usage. By doing so, companies are able to significantly contribute to the triple bottom line of reducing economic costs, supporting environmental causes through the reduction of energy needs, and potentially helping the local community by running a safer data center which is less taxing to the municipal grid.

As enterprise demands for data storage and management increase, the energy needs associated with the data center will only increase in kind. To respond to these demands, it is imperative that companies increase the use of energy efficient technologies. Best-in-Class companies commonly implemented these tools in their efforts to conserve facility space, control energy costs, and run more efficient data centers. In [Green Initiatives: Lower Costs and Increasing Efficiency in the Data Center](#) report, 33% of Best-in-Class respondents used energy efficient storage components, 30% used efficient facility designs, and 27% used energy conserving enclosures.

To determine which of these Best-in-Class technologies will provide the greatest effectiveness in lowering a company's data center utility expenses, companies can install a variety of software tools to provide business intelligence and real-time visibility to the challenges of data center energy usage. These tools can cover topics as diverse as asset management, usage management, server provisioning, thermal management, and utility expense management. By doing so companies can observe their own challenges, identify their most pressing pain points, and develop appropriate short-term and long-term solutions.

For more information on this or other research topics, please visit [www.aberdeen.com](http://www.aberdeen.com).

"There is something wrong with the current cooling system - it shuts down and we scratch our heads trying to figure out what's causing the problem or where it is."

~ IT Manager, Mid-Sized  
Financial Institution

### Related Research

[\*Green Initiatives: Lower Costs and Increasing Efficiency in the Data Center\*](#); January 2008

[\*How Can Best-in-Class TEM Practices Enhance Green Initiatives?\*](#); May 2008

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