

A woman with dark hair, wearing a light-colored collared shirt, is holding a white pot containing a lush green fern. The background is a blurred office setting with a computer monitor displaying blue light. A light blue horizontal bar is overlaid on the bottom left of the image, containing the text.

**IT energy efficiency for small  
and mid-size businesses:**  
Good for business and the environment

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### Highlights

- *Most small and mid-size firms say energy is their largest cost increase over the past two years.*
- *More than 1 in 3 firms believe information technology (IT) accounts for 10 to 50 percent of their total energy costs.*
- *Over 65 percent of firms in most industries say energy efficiency is key criteria when considering new IT investments.*
- *More than 1 in 2 small and mid-size healthcare providers and manufacturers have an environmental policy in place today.*

### Introduction

Propelled by swelling energy costs, many corporations today find themselves embarking on new conservation and “green” initiatives. According to the U.S. Energy Information Administration, global energy supplies will remain tight for the foreseeable future, keeping worldwide energy prices very high through 2008.<sup>1</sup>

Over the past several years, information technology (IT) has become a significant contributor to rising energy consumption among businesses. In the last decade many corporations heavily invested in powerful IT capabilities, often ignoring how efficiently these capabilities consumed energy. Today many firms are taking a closer look.

In addition to mitigating energy costs, major corporations are also looking to “green” initiatives to generate new business. Whether it’s investing in alternative energy markets or manufacturing more energy efficient products, “going green” can also be good for business.

But what does all of this mean for small and mid-size businesses? How do energy costs compare to other cost increases these firms have seen over the past two years? How big a factor is IT and what are these firms doing about it? And how is concern about the environment impacting everyday business policies for small and mid-size firms?

To find answers to these questions, IBM interviewed over 1,100 executives across ten markets in Europe, Asia and the Americas. These executives hold IT leadership roles at companies employing between 50 and 500 people. The small and mid-size firms interviewed include manufacturers, financial services firms, retailers, healthcare providers, professional and IT services companies and hospitality providers.

## Reducing the energy bill

### Challenge

Consistently adding new servers to keep up with growing demand, Devon Health Services found its data center circuit breakers unable to handle any additional energy throughput.

### Solution

Instead of bringing in more energy from the street, Devon Health consolidated multiple aging servers onto an IBM BladeCenter® connected to a new storage area network.

### Results

Devon Health retired enough physical servers that energy was no longer an issue, while targeting an additional 28 for consolidation. Devon also reduced the number of racks and consoles in its data center from seven to two.

[Learn more](#)

## Costs on the rise

As small and mid-size firms expand into new markets and evolve in today's globally interconnected economy, opportunities abound. Any firm with a game-changing innovation and internet bandwidth can reach new markets regardless of their size or location.

But with this tremendous opportunity and global reach come new challenges. Computing and information demands are increasing exponentially each year, and companies require new, expanded IT capabilities. This means more equipment, producing more heat and consuming more energy. With inexpensive energy virtually non-existent today, firms find themselves at a juncture.

Among some of today's skyrocketing costs — like payroll, employee benefits and supplies — most small and mid-size firms see energy rising the quickest. Nearly one out of two firms interviewed say energy represents one of their largest cost increases over the past two years. In food and hospitality 50 percent of firms say it is their largest cost increase.

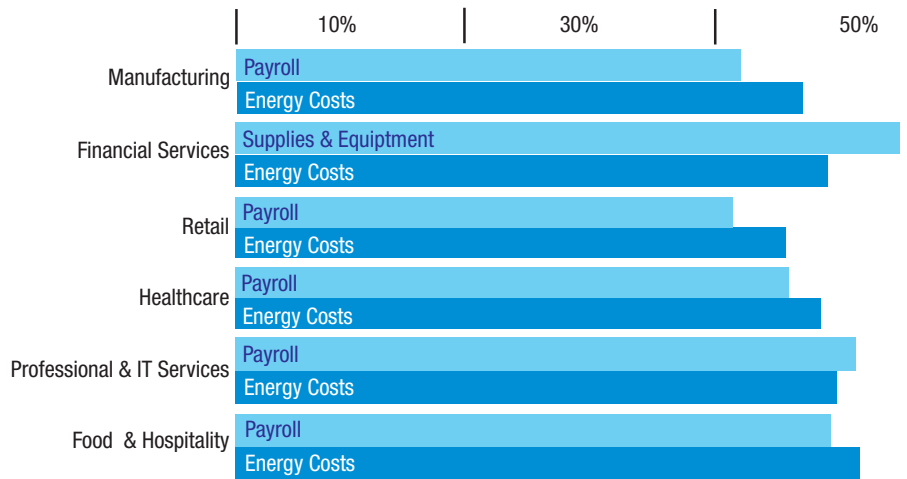


Figure 1: Largest cost increases for small and midsize firms over the past 24 months

In addition to energy, many firms also say employee payroll costs have risen sharply over the past two years as well. In financial services large cost increases outside of energy also include office supplies and equipment.

## Clearly directing resources

### Challenge

With energy and cooling costs rising, *Alog Solucoes de Tecnologia Ltda* needed to increase hosting capacity for its growing customer base.

### Solution

Avoiding additional energy costs and floor space, IBM Business Partner Open Systems Solutions helped *Alog* implement an IBM BladeCenter solution, equipped with IBM Director Software.

### Results

Reducing its IT footprint while increasing hosting capacity, *Alog* estimates a 30 to 50 percent reduction in energy and cooling costs. The IBM Director Software provides more control and visibility of IT resources and utilization.

As energy costs increase, an underutilized IT infrastructure can often be a significant contributor to unnecessary consumption. Approximately one out of three firms interviewed believe IT accounts for 10 to 50 percent of their total energy costs.

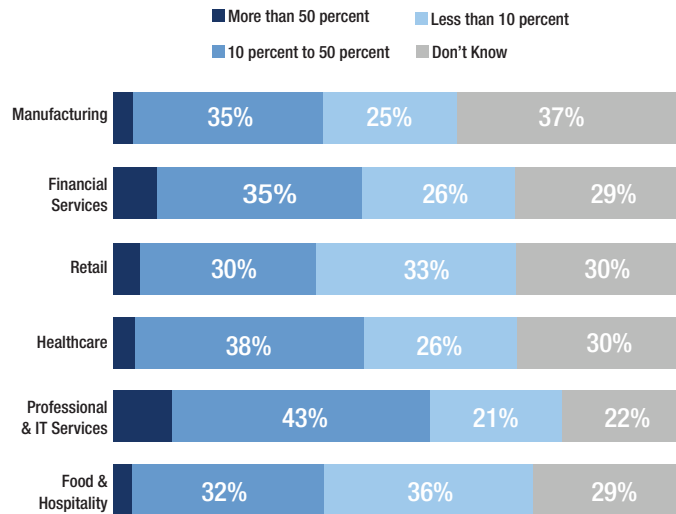


Figure 2: Percentage of total energy costs related to information technology

Some firms don't know how much their IT infrastructure contributes to total energy costs. More than one out of four firms interviewed – outside of professional and IT services — could not quantify how much IT contributes to their total energy costs.

For some firms this can be a result of a flat internal facilities rate. For example, a marketing department that occupies 1,200 square feet of office space is charged the same internal facilities rate as the IT department. Although they both occupy the same amount of space, a data center or server room can consume up to 10 to 30 times more energy.

### The benefits of a “green” IT infrastructure

Most data centers or server rooms today make inefficient use of the energy they consume. Some industry estimates reveal that more than 50 percent of the energy used in a data center or server room goes to power and cool equipment rather than computations and processing.

**One doing the work of several**

**Challenge**

Experiencing a decline in server performance, Wallace Hardware Co. needed a powerful new platform to run its core business applications.

**Solution**

Working with IBM Business Partner InfoSystems, Wallace Hardware implemented a new IBM System p5™ Express server. Equipped with logical partitioning and virtualization capabilities, the server is capable of running multiple operating environments simultaneously.

**Results**

Instead of multiple machines running different operating environments, Wallace Hardware is now capable of running several of its applications on one machine, reducing complexity and significantly lowering total cost of ownership.

To combat this, approximately one out of four small and mid-size firms in most industries are evaluating the utilization and performance rates of their server and storage equipment.

This can help uncover inefficiencies on several levels, from room power and cooling to individual system utilization. New opportunities to decrease occupied floor space in the data center or server room also can be identified.

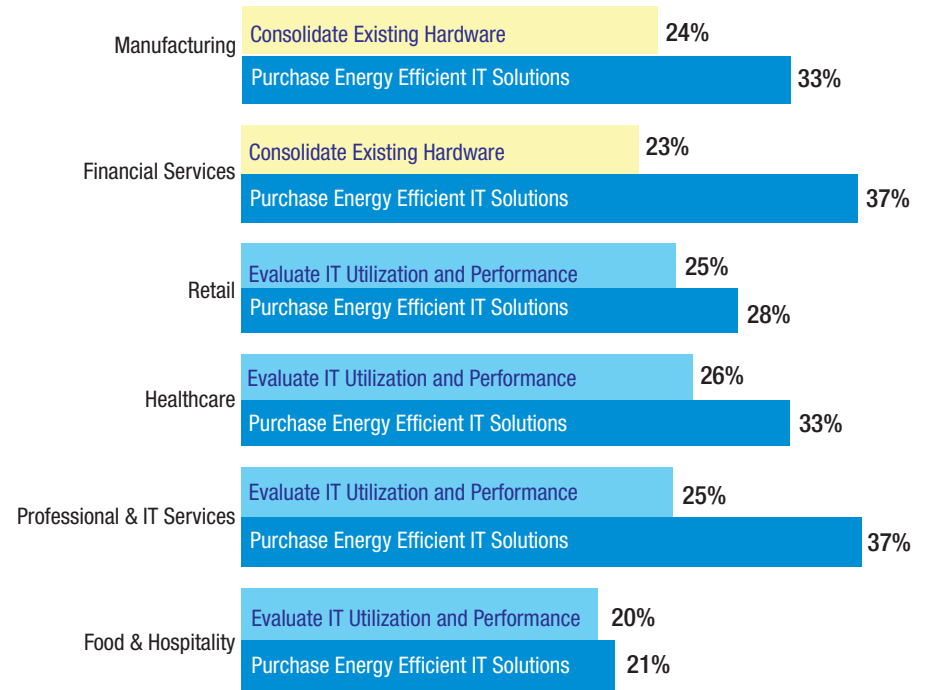


Figure 3: Actions or planned actions to increase IT energy efficiency

Another one out of three firms — outside of food and hospitality — will purchase more energy efficient IT solutions. These solutions can include a range of components from virtualization capabilities for increased utilization to new liquid cooling technologies to prevent overheating. Some solutions also include active energy management software to better manage resources and utilization rates across an IT infrastructure.

### Simplifying things

**Challenge**

Looking to simplify its existing IT infrastructure, *Oceanic Worldwide* wanted to spend more time designing and manufacturing scuba diving and snorkeling equipment.

**Solution**

IBM Business Partner Meridian IT helped *Oceanic* use micro-partitioning technology to consolidate three servers on to a single IBM System i™, running two operating systems.

**Results**

Now *Oceanic* runs multiple applications on just one server including: printing, order tracking, shipping, financials and inventory. The simplified IT environment has also reduced energy consumption.

[Learn more](#)

When considering new IT investments, over 65 percent of firms — outside of healthcare — indicate that energy efficiency is “important” to “extremely important.” Decision criteria around energy efficiency can take many different forms.

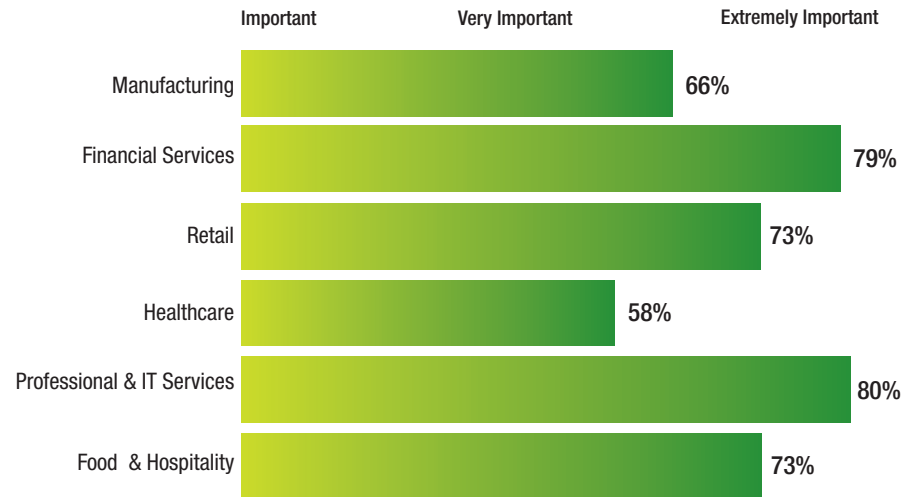


Figure 4: Importance of energy efficiency in the IT purchase decision process

For some firms, the criteria could be system features that reduce power to idle logic. For others, it might be virtualization capabilities to run multiple operating systems and applications simultaneously. Regardless, energy efficiency is fast becoming a key factor for small and mid-size firms looking to make new IT investments.

**Near-term and strategic changes**

Changes to IT capabilities are part of a larger plan of action to reduce energy consumption and costs. These actions are taking two forms for many small and mid-size firms — near-term measures and strategic changes.

Near-term Measures	Strategic Changes
Switch energy providers or renegotiate current contract	Purchase or use more energy-efficient IT equipment
Turn off all non-essential equipment after hours	Outsource high energy consumption activities such as: IT, manufacturing, transport, etc.
Purchase more energy-efficient lighting	Purchase or use hybrid cars/trucks
Keep tighter control on thermostats for heating and cooling	Move business to more energy-efficient building or office space
Replace air filters on a regular basis	Install solar panels on your building
Insulate water heaters and supply pipes	Replace aging HVAC systems with new energy-efficient models

Figure 5: Near-term and strategic changes to reduce overall energy consumption

## Green from old machines

### Challenge

Retiring small quantities of laptop computers each quarter, a global public relations consultancy found most vendors unwilling to accept fewer than 25 units.

### Solution

Rather than storing old assets, the firm turned to IBM Asset Recovery Solutions, which requires no minimum quantities.

### Results

Realizing value from their retired hardware, this firm now applies credit toward future IT purchases, and avoids disk overwrite processes that can take up to three hours per machine.

[Learn more](#)

The near-term measures focus on actions with immediate impact, such as turning off non-essential equipment after hours and installing new lighting. For the IT department, this can include setting power-down policies for equipment outside of the data center or server room like personal workstations, printers and laptops.

Strategic changes are also gaining momentum among the firms surveyed. Initiatives outside of IT range from purchasing hybrid truck fleets to replacing aging HVAC systems. Some small and mid-size firms are even considering more forward-looking changes. For example, approximately 12 percent of firms in healthcare and food and hospitality have or will install solar panels on their buildings.

### Taking a stance on the environment

Many firms focus their energy efficiency initiatives on lowering operational expenses through smarter use of energy. But behind these financial and operational goals, it also comes down to concern about the environment.

Nearly one out of two manufacturers, healthcare providers and food and hospitality providers have an environmental policy in place today. Whether the policy mandates recycling or caps energy consumption, firms can achieve not only cost savings, but also improved public image and play a role in meaningful conservation.

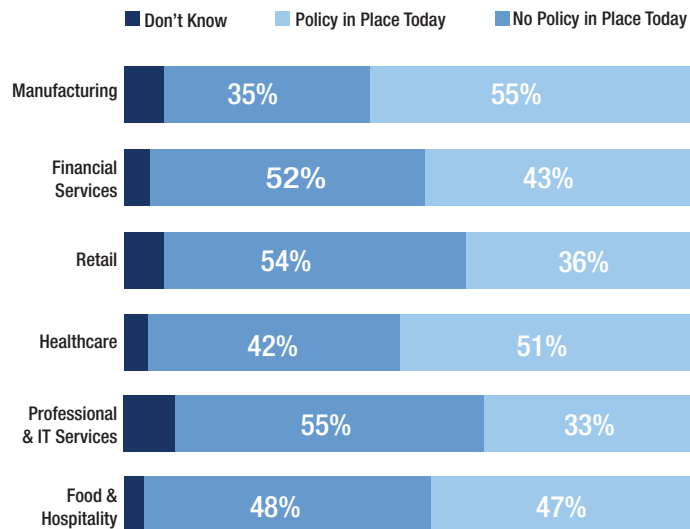
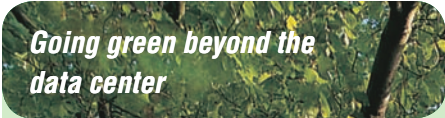


Figure 6: Firms that have an environmental policy in place today



**Going green beyond the data center**

*From intelligent energy grids to more affordable solar equipment, IBM is helping bring to fruition a range of new "smart energy" technologies.*

*IBM is working with multiple energy providers to make digital metering and real-time energy consumption tools as easy and accessible as online banking.*

*The Beacon Institute and IBM are building a new system to monitor New York's Hudson River through an integrated network of sensors, robotics and computational technology. Upon completion the network will enable scientists to predict environmental impact much the same way weather is forecasted today.*

*For both residential and commercial consumers, IBM recently invented a new process to make solar panels more efficient and affordable by re-purposing scrap semiconductor wafers.*

The IT department can also play a role by responsibly disposing old equipment and assets. Whether the equipment is a personal computer, networking device or server, firms can avoid sending these devices off to the landfill.

Repurchase or buyback services can refurbish and sell off excess equipment. In many instances, old IT assets can earn credit toward future investments. For assets with no market value, these services can securely erase data and recycle the equipment components.

**Agenda for change**

IT is steadily adding to the large energy cost increases small and mid-size firms are facing. As these firms rely on more powerful IT capabilities to reach new customers, it is imperative that they also focus on how an IT infrastructure consumes energy and utilizes resources.

To contend with spiraling energy costs, many firms have made or will make changes to their IT infrastructure in the coming year. Small and mid-size firms are evaluating and identifying opportunities to consolidate older, underutilized equipment. Many firms are also looking to more efficient IT investments that can assume multiple workloads to reduce energy consumption and heat-production in a data center or server room.

- |  |  |
|--|--|
| <p><b>1. Diagnose</b><br/>Evaluate your server room or data center energy demand, efficiency and capacity from an equipment and facility perspective</p> | <p><b>2. Build</b><br/>Move your hardware from a non-secure environment, such as a closet or standard office space, to avoid overheating, unprotected power and lack of overall security</p> |
| <p><b>3. Virtualize</b><br/>Consolidate your workloads onto fewer machines to increase utilization and reduce energy consumption</p>                     | <p><b>4. Manage</b><br/>Implement capabilities to actively monitor energy usage and help better manage resources across your IT infrastructure</p>   |
| <p><b>5. Cool</b><br/>Adopt cost-effective techniques to cool your server room or data center without adding additional air conditioning equipment</p>   | <p><b>6. Dispose</b><br/>Dispose of outdated or end-of-lease assets like servers and laptops through environmentally friendly IT resale or recycling programs</p>                            |

*Figure 7: Strategy for implementing an IT energy efficiency initiative*



***For more information***

*IBM and IBM Business Partners have solutions that can help small and mid-size firms make their IT infrastructure energy efficient. Optimizing computing environments of all different sizes has both benefits to the bottom line and the planet.*

[Learn more](#)

Concern about the environment — coupled with rising energy costs increases — are leading many firms to implement environmental policies. Nearly one out of two manufacturers, healthcare providers and food and hospitality providers have a policy in place today.

From near-term changes like power-down policies to environmental policies for equipment disposal, firms are taking action today. In the end, “going green” not only helps the environment, but can also help keep firms operating in the black.



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