

# Go Green in ICT

By Richard Hodges, founder of GreenIT, and Walker White, VP of technology at BDNA

## Strategies for Green Computing

Rising energy costs, an economic slowdown and environmental awareness have introduced serious strategic challenges to enterprises worldwide, prompting searches for efficiency and cost reductions across the board, including in IT. Enterprises that don't alter their ways and challenge their IT organizations to operate in more ecological-friendly ways will miss key opportunities to increase IT efficiencies and reduce costs via the implementation of greener IT solutions.

There are a variety of new and existing technologies available that aid in green IT, such as virtualization and more efficient hardware that demand less power and cooling. However, changes in processes and current infrastructure can also improve efficiency that leverages existing infrastructure and culminate in not only a greener environment, but an improved bottom line.

Developing an overall green IT strategy that identifies opportunities for greater efficiency and areas that would benefit from new technology or improved processes can be difficult without visibility and transparency into the state of the existing IT infrastructure. This article will discuss how organizations can develop a green IT strategy through visibility into existing IT assets and state of the overall IT environment.

## Why Green ICT?

Information and Communication Technology systems (ICT) should be a core element of any organization's green strategy. However, they are often not explicitly recognized or incorporated into most sustainability plans. There is significant opportunity to capture value by designing and implementing a sensible green element within the ICT realm.

ICT systems typically account for about 25 percent of direct electricity use in commercial office buildings, and in energy inefficient buildings or locations with a high density of IT gear, that figure may be as high as 60 percent to 70 percent.

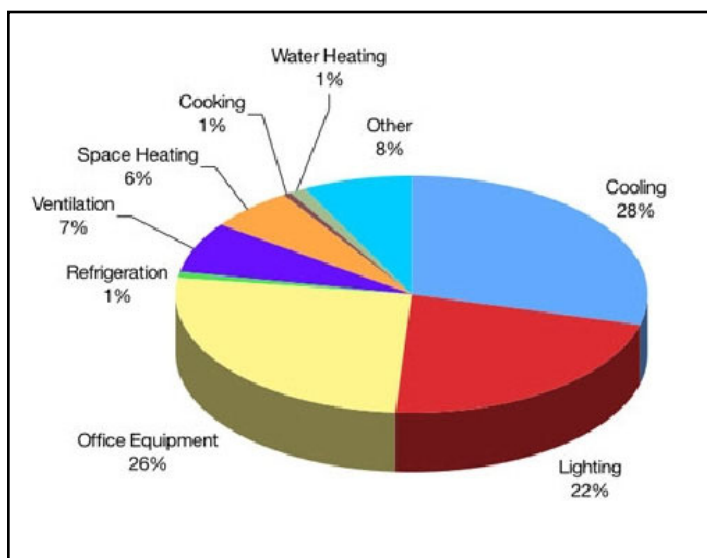
On a global scale, some analyst reports have calculated that ICT represents 2 percent to 2.5 percent of the total global carbon emissions, equivalent to the global aviation industry. But, for the more advanced and technologically-centered economies of the US, Japan and Europe, the number is more likely on the order of 5 percent to 6 percent and growing at double-digit rates. The ICT industry's carbon footprint is expected to triple during the period from 2002 to 2020. Japan's METI has forecasted that by 2025 ICT will consume 20 percent of all electricity in Japan.

Achieving the greening of ICT is a very viable and high-value first step in any green strategy. The impact of a greener ICT is multi-fold:

- Smaller physical footprint (e.g. smaller and more modern data centers)
- Lower carbon footprint (updated devices)
- Lower heating/cooling costs
- Compliance with government regulations
- Good marketing

We should note that from a holistic view, "greening" IT is not just about reducing direct power consumption. With a personal computer, for example, 60 to 80 percent or more of the lifecycle carbon footprint of the device comes in fact from the manufacturing of the device. IT equipment and consumer electronics are very energy and materials intensive in manufacturing, have short life spans and become toxic e-waste at the end of their useful lives.

Achieving "true green" requires a methodical, process driven approach to avoid "robbing Peter to pay Paul" and resulting in higher, rather than lower, costs and greater emissions. The optimization of green ICT resources requires thinking about the ITC



process from end-to-end and ensuring that value capture opportunities are identified in every phase of their lifecycle.

### How to Go Green in ICT

The greening of ICT systems can be achieved in many different ways, including:

- Improving usage of what you already have: maximizing utilization of current IT assets and putting in place disciplined asset management policies;
- Consolidating servers, data centers, storage into more efficient physical plants and hardware;
- Using new technologies such as virtualization to improve use of all hardware assets.

Generally, a combination of all the above is required to achieve comprehensive results. This entails putting in place a plan that identifies the sources of opportunities, defines the critical challenges and success factors and tracks measurable progress toward the defined goal in a timely fashion.

Typically, such plans require a “top down” approach and the executive leadership and sponsorship of senior executives.

The first step generally involves the least amount of effort and spend and can achieve a substantial outcome in a short time period and can be frequently driven from within IT itself, with minimal big-bang oversight.

### Zeroing In: Improve Asset Utilization

Improving asset utilization involves a multi-step process.

- Step 1: Establish baseline inventory of all existing assets.
- Step 2: Analyze current asset infrastructure and utilization, including:
  - Power consumption ratings for servers, storage, etc.
  - Physical age of existing assets (i.e. older assets are less energy efficient)
  - Total utilization load of current servers
  - Power management setting policies for PCs and monitors (e.g. are they on 24x7?)
  - Printer availability and printing policies (e.g. single-sided vs. dual-sided printing)
- Step 3: Develop optimization goals and approaches for each of the categories, including:
  - Load consolidation on fewer servers; retirement of older servers
  - Power management guidelines for desktops and laptops
  - Upgrading of existing equipment to extend lifecycle
  - Printing resource guidelines
  - Print device consolidation
  - Data center operations, cooling and power supply
- Step 4: Implement new policies through:
  - Definition
  - Communication
  - Execution
  - Tracking
  - Enforcement
- Step 5: Monitor results and adapt objectives and policies based on outcomes.

### Case in Point: City and County of San Francisco Green ICT Program

In 2007, the Department of Technology of the city and county of San Francisco launched a green ICT project to support the city’s ambitious eco-responsibility goals, such as reducing greenhouse gas emissions 80 percent by 2050, reducing municipal energy use 10 percent by 2012, becoming a “zero-waste” city with 100 percent landfill diversion by 2020 and implementing the “Precautionary Principal” adopted by the city for potential exposure to toxic substances.

The city’s initial baseline analysis indicated that desktop computers and printer resources were the best initial opportunities for achieving significant environmental and financial pay-backs. This year, the CIO and Department of Technology developed a systematic plan for achieving specific near-term goals for those systems, as well as longer-term goals for data center energy efficiency.

For example, the IT operations San Francisco is planning to implement desktop power management for PC’s, consolidate print resources, purchase only EPEAT certified new PC’s, cut data center power consumption and extend the useful lives of existing equipment. San Francisco also plans to make use of the IT to enable eco-benefits through other programs such as Urban telemedicine, telework, efficient building management, and the city’s unique EcoMap project.

In summary, the greening of ICT has diverse benefits that can create substantial value. The “low hanging fruit” involves assessing current IT resources and their utilization and optimizing asset efficiency.

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