

# Lessons Learned from Promoting a Technology-Based Energy Efficiency Program

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## ABSTRACT

The EPA ENERGY STAR label is widely recognized as the symbol for energy-efficient office equipment and appliances. Not as well known are a number of EPA ENERGY STAR energy-efficiency efforts geared towards commercial and industrial entities. One of the most successful EPA energy efficiency efforts is the ENERGY STAR power management program – which helps organizations activate settings that automatically placed inactive computers into a low-power sleep-mode. For the past seven years, EPA has approached organizations, pitched the power management concept, and helped organizations implement the program through free and low-cost network software tools. The program is responsible for implementing power management on hundreds of organizations leading to millions of dollars in energy savings. During this time, valuable lessons were learned on how a single energy efficiency program could be pitched and sold to a variety of different audiences within an organization (e.g., energy manager, IT administrator, upper management) as well as different types of organizations (e.g., businesses, non-profits, federal government, higher education, schools, states, and utilities). This paper will examine how a fluid framework of different messaging, technical support techniques, and outreach allowed this program to appeal to so many different audiences. Lessons learned from these experiences will help energy-efficiency advocates sell energy efficiency programs, often highly technical like power management, to senior management.

## Background

The EPA ENERGY STAR label is widely recognized as the symbol for energy-efficient office equipment, windows and appliances. The most recent survey indicated that 74 percent of households recognized the ENERGY STAR label and that 76 percent of households had a high or general understanding of the label's purpose.<sup>1</sup>

Not as well known are a number of EPA ENERGY STAR energy-efficiency efforts geared towards commercial and industrial entities. One of the most successful EPA energy efficiency efforts is the ENERGY STAR power management program – which helps organizations activate settings that automatically placed inactive computers into a low-power sleep-mode. For the past eight years, EPA has approached organizations, pitched the power management concept, and helped organizations implement the program through low-cost network software tools. The program is responsible for implementing power management on hundreds of organizations leading to millions of dollars in energy savings. Over the years, the program adjusted to a shifting landscape of viable technological solutions and stakeholder enthusiasm for power management.

During this time, valuable lessons were learned on how a single energy efficiency program could be pitched and sold to different audiences within an organization and different

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<sup>1</sup> “National Awareness of ENERGY STAR 2007”. [http://www.cee1.org/eval/2007\\_ES\\_survey\\_rep.pdf](http://www.cee1.org/eval/2007_ES_survey_rep.pdf)

organizations. This paper will examine how a fluid framework of different messaging, technical support techniques, and outreach allowed this program to appeal to so many different audiences. Lessons learned from these experiences will help energy-efficiency advocates sell energy efficiency programs, often highly technical like power management.

## **EPA Power Management Effort Overview**

The program began in 2001 when EPA recognized that although ENERGY STAR qualified computers and monitors were required to automatically enter low-power sleep modes, this setting was rarely activated. Although manufacturers were complying with this stipulation, organizations purchasing these computers, through their in-house IT departments or outsourced IT service provider, would ultimately disable these settings.

For the first few years of the program, EPA focused exclusively on the activating the “monitor shut down” function at organizations through a campaign called the Million Monitor Drive. Monitor shut down, also known as monitor power management (MPM), placed your monitor into a low-power sleep mode after a period of inactivity. EPA ENERGY STAR conceived, developed, and promoted a MPM program that:

- Employed a sophisticated set of outreach materials (posters, desktop leave behinds, and mouse-pads) to educate the end users.
- Publicized the effort through outreach at industry and trade association conferences and placement of articles in IT and energy efficiency trade publications and direct sales calls.
- Developed a website to distribute free software called EZ Save, that automatically activated MPM throughout your network for IT managers, calculate cost savings from MPM, and view case studies.
- Encouraged participation through a PR campaign called the Million Monitor Drive and provided template material to publicize an organization’s efforts.

The outreach program was highly successful activating MPM and always met its annual goal of getting commitments from organizations to activate monitor power management at over 1 million computers annually. Eventually, in part due to the efforts of the EPA ENERGY STAR program and by improvements in computer technology, MPM had become much more common in businesses. Today, corporate IT departments have recognized MPM’s stability, ease of corporate-wide activation, and end-user acceptance.

A few years ago, EPA ENERGY STAR began a new effort to get organizations to realize the huge energy savings potential of computer power management (CPM), where the computer (hard drive, CPU, etc.) sleep settings are activated as well.<sup>2</sup> Although IT managers were reluctant to implement CPM, the savings opportunities were enormous because:

- **Computer Are Left on Continuously.** Due to perceived security risks, many businesses leave their computers on 24 hours a day so network administrators can quickly send out software updates and security patches.

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<sup>2</sup> “Computer Power Management – It’s Time to Wake Up”, 2006 ACEEE Summer Study, Authors: Steve Ryan, EPA, Robert Huang and David Korn, Cadmus Group, Mike Walker, Beacon Consultants, and Thomas Bolioli, Terra Novum.

- New Computers Use Much More Energy. New computers use twice the energy of old ones due to faster processors and video cards. For example, years ago a Dell Optiplex used 35 watts of power compared to 70 watts today.
- CPM was stable. In the past, CPM was unstable due to hardware and software compatibility issues. Pentium IV computers running Windows 2000 and XP were capable of entering sleeping and waking up reliably.
- IT managers could now centrally CPM through network tools. EPA had developed the next generation power management tool, called EZ GPO, which used the group policy object/ active directory to centrally manage CPM settings. In addition, other commercial tools, with a greater degree of sophistication than EZ GPO, were being offered in the marketplace.

Since 2006, the landscape for CPM implementation has changed dramatically. Table 1 below summarizes the differences between 2006 and 2009. Given the increased interest in CPM from IT managers, software developers, MSFT, and utilities, outreach was not as important to the program as providing technical support.

<b>Table 1: Differences Across the CPM Implementation Landscape in 2006 and 2009</b>	
<b>2006</b>	<b>2009</b>
Little interest among IT managers	Budding interest among IT managers
Few 3rd party CPM software solutions	Numerous 3rd party CPM software solutions
Microsoft seemingly unconcerned about Windows CPM limitations	Microsoft develops ENERGY STAR power management configuration pack, partners w/ Verdiem (a developer of tools to activate power management) and develops environment micro site
Little interest in CPM as an EE among utilities	Utilities beginning to offer CPM incentives
IT staff concerned about managing add'l 3rd party software like EZ GPO	3rd party solutions more acceptable to IT decision makers
Green IT not in media	Green IT has received considerable attention

Despite the changes in technology focus (CPM vs. MPM) and massive shift in stakeholder interest, the core of the program has remained the same. As of today, the program's components include:

- Spreading the word through technical presentations at IT conferences.
- Developing and distributing free software called EZ GPO that automatically activated CPM throughout your network for IT managers.
- Providing a website that serves as a technical compendium of solutions that includes public domain and private sector CPM solutions, technical case studies, and savings calculator.
- Encouraging participation through a PR effort called the Low Carbon IT campaign and provided template material to publicize an organization's efforts.

In less than a year, the Low Carbon IT campaign has received commitments from over 100 organizations to power manage over 600,000 computers to prevent emissions of over 300 million lbs of carbon dioxide.

## **Lessons Learned**

A number of important principles were learned during implementation of the ENERGY STAR power management program for the past eight years.

### **Understand and Embrace the Differences in Organizations**

The ENERGY STAR power management effort focused on large computer-intensive organizations and found two major types:

- **Balkanized Large Organizations.** Universities, state government and school districts often lacked an organizational structure for IT. Frustratingly, each department within a university, agency within state government, or individual school within a district had to be approached separately as a single organizational entity did not exist that could set IT policy. On a brighter note, these entities' lack of structure, especially individual university departments, proved to be excellent sites to first attempt power management when no other organizations would embrace the concept.
- **Structured Large Organizations.** Federal government entities and large corporations, although often times having a CIO capable of setting IT policy, were risk averse and required multiple calls, meetings, analysis, and references before even a power management pilot could be conducted. On a brighter note, large federal entities and large corporations, when finally convinced, have the capacity and the IT expertise to quickly implement power management across a huge number of computers all at once. Large corporations also better understood the value of integrating power management into their corporate sustainability efforts.

### **Exercise Patience in Your Outreach Efforts**

As mentioned above, outreach efforts for this program, especially for large organizations, would sometimes entail staying in touch with an organization for months and sometimes years to bring a power management project from concept to actual implementation. Despite the enormous savings, quick paybacks, and ease of implementation, power management, and energy efficiency efforts in general, will never be high priority items because it does not help an organization's core mission. Power management does not help the school educate the children, the widget company sell more widgets, or the government entity govern more effectively. Our outreach efforts focused on patience and building long-term relationships, recognizing that the power management concept is generally inserted at the bottom of to-do pile.

### **Make Your Program Appeal to Appropriate Target Audiences Within an Organization**

The ENERGY STAR power management program was designed to appeal to the different points of contact within an organization beyond the energy-efficiency or green advocate. We recognized that convincing the energy manager or in-house energy efficiency advocate is only a first step and that these organizational champions for power management would have to present the value proposition to both the IT manager and upper management.

By far the most difficult party to convince to implement power management is the IT manager. Overworked and understaffed, the IT manager reaps none of the benefit (cost savings are rarely returned back to IT departments) and has the most to lose (precious time that could be spent doing his primary job functions). For the IT manager, the program provided network tools and technical support from experts to help him understand power management and its technical challenges and implement power management in a cost-effective manner. In addition, we made the most effective use of the IT manager's time by ensuring that our technical support experts were present at all meetings involving the IT manager.

In order to appeal to upper management, the program would provide custom business cases with estimates of ROI and payback based on the organizations number of computers, cost of electricity and current use of computers. In addition, we would provide template press releases to help them easily publicize their efforts. Most recently we have worked with Verizon in promoting their efforts through a case study and public service announcement. In the past, GE was part of a story on National Public Radio on MPM and Verizon is currently participating in a public service announcement regarding their CPM efforts.

### **Be Willing to Adjust Your Program**

After promoting MPM to hundreds of organizations for a number of years, we recognized that most organizations, partly due to our efforts but also due to a change in default settings on computers, were embracing MPM. We understood that MPM was becoming very commonplace and began to embark on a much more challenging effort to promote CPM. As shown in Table 1, the CPM landscape has itself shifted in the past three years as many different stakeholders are promoting Green IT and new CPM technical solutions are being offered by software makers. Although maintaining the Low Carbon IT outreach and PR campaign, the ENERGY STAR power management website was changed to serve as a single technical compendium of information regarding CPM as a means to embrace the efforts of others.<sup>3</sup> All the different software solutions from small third-party vendors are listed. Advances in the way Microsoft and Intel were making CPM implementation easier were also tied to the ENERGY STAR power management website. Interested parties can go to the website to obtain technically sound, unbiased overview of the power management implementation options and a simple means to estimate their savings.

### **Continually Improve Your Core Technology Offering**

More so than with other energy efficiency tools, a network software tool has to be continually updated and monitored for its ability to work effectively. For example, Windows XP Service Pack 3 led to the EZ GPO tool being ineffective for certain types of user groups. The problem had to be quickly diagnosed and the core code rewritten. With Windows Vista and Server 2008, the ability to activate power management has been integrated into Microsoft's core functionality and the EZ GPO tool will not be needed in the future after a complete shift to Vista occurs.<sup>4</sup> With this in mind, future plans for EPA ENERGY STAR may include a tool that diagnoses the "insomnia" issue – computers set to sleep that will not due to software and hardware incompatibility – that we believe could lead to enormous savings.

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<sup>3</sup> [www.energystar.gov/lowcarbonit](http://www.energystar.gov/lowcarbonit)

<sup>4</sup> Vista was still only 23% of market share as of February 2009. ([www.tgdaily.com/content/view/full/41581/113/](http://www.tgdaily.com/content/view/full/41581/113/))

## **Develop Relationships with Those Organizations That Can Solve the Problem**

Despite working on power management for the past 8 years, EPA has always recognized that offering network tools and recognition to organizations power managing their computers would never actually solve the problem. Only through a collaborative effort of virtually every facet of the IT industry could the problems inherent in power management be solved. For years, EPA and Microsoft and the major PC makers have worked to make power management more reliable, easier to implement and understand. The latest reflection of these relationships is the Power Management IT Summit, jointly sponsored by EPA and Climate Savers – an IT industry group devoted to Green IT.<sup>5</sup> Through promoting power management and having an understanding of the in the field difficulties in implementation, EPA played a valuable role in improving power management functions in the Microsoft operating system through the years. Other energy efficiency campaigns should be encouraged to bring their wisdom (e.g., data on the inefficiency of certain products or processes, identification of customer attitudes and biases that hold back an efficient product or process) to industry in a non-confrontational manner that emphasized the positive aspects (e.g., saving your customers money, green PR) of solving and energy efficiency issue in their products.

## **Conclusions**

Based on lessons learned from a long-running successful EPA ENERGY STAR power management program, the authors conclude that a number of core principles will lead to effective energy-efficiency promotion program.

- Understand and Embrace the Differences in Organizations
- Exercise Patience in Your Outreach Efforts
- Make Your Program Appeal to Appropriate Target Audiences Within an Organization
- Be Willing to Adjust Your Program
- Continually Improve Your Core Technology Offering
- Develop Relationships with Those Organizations That Can Solve the Problem

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<sup>5</sup> <http://www.climatesaverscomputing.org/>