

Bonneville Power Administration Power Management Implementation



SUMMARY

Bonneville Power Administration determined a solution was required to apply an enterprise power management solution to all eligible computers that was cost, time and labor effective.

BPA chose and successfully implemented Microsoft System Center Configuration Manager 2007 R3.

This document outlines the decision making process that lead to using SCCM 2007 R3, the implementation process and challenges and lessons learned.

Our intention is to share this information with other agencies who are embarking on an enterprise wide power management solution.

SCCM 2007 R3 SELECTION AND IMPLEMENTATION

The Challenge

Bonneville Power Administration was seeking a better way to reduce carbon footprint and overall power consumption not only pursuant to EO 13514 but as a leader in environmental stewardship in the Pacific Northwest.

Drivers:

Background: BPA established a Sustainability Team in December 2009. The mission statement is to support and encourage innovative, cost-effective business practices that reduce BPA's effect on the environment, conserve resources and cut greenhouse gas emissions. The BPA Sustainability Team uses the Federal Electronics Challenge to set targets for Electronics Stewardship goals under EO 13514.

Executive Order (E.O.) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* (October 5, 2009), sets federal sustainability goals in a number of areas, including electronics stewardship. E.O. 13514 mandates that Federal agencies:

- Ensure procurement preference of EPEAT registered, ENERGY STAR qualified, and FEMP designated products
- Enable power management, duplex printing, and other environmentally preferable features on electronics
- Use environmentally sound disposition practices for surplus and excess electronics
- Implement best management practices for servers and data centers

Power Management is addressed in the FEC Mandatory Life Cycle Activity Operations and Maintenance:

Ensure that ENERGY STAR power management features are enabled on 100 percent of non-exempt computers (desktops and laptops) and monitors.

OPTIONS CONSIDERED

BPA considered several options during the initial stages. As a Federal Agency keeping costs low and security high are always front and foremost in any IT implementation.

Solutions that BPA considered:

Group Policy Objects (<http://technet.microsoft.com/en-us/magazine/dd252731.aspx>)

1E NightWatchman (<http://www.1e.com/softwareproducts/nightwatchman/index.aspx>)

IBM BigFix Power Management (Tivoli Endpoint Manager for Power Management
http://www-01.ibm.com/software/tivoli/products/endpoint-power-mgmt/?s_pkg=bfwmm)

Microsoft System Center Configuration Manager (SCCM) 2007 R3 Power Management
(<http://www.microsoft.com/systemcenter/en/us/configuration-manager/cm-r3-power-management.aspx>)

THE DECISION TO USE SCCM 2007 R3

BPA chose Microsoft System Center Configuration Manager 2007 R3 Power Management based on the following factors:

- Feasibility:
 - BPA IT policy requires that all incoming applications go through rigorous security testing. Since SCCM 2007 R2 version was already approved for use in the agency the majority of this process had already been completed.
 - R3 was already an in-flight patch upgrade planned at BPA on its existing in-place infrastructure. No additional Change Management was required.
 - Staff was already quite familiar with SCCM so the only training needed was on R3 specifics.
- Reliability:
 - SCCM is already a proven, reliable configuration management product in BPA's infrastructure and has been heavily utilized at BPA for over ten years.

APPLICATION IMPLEMENTATION

BPA was utilizing existing Microsoft System Center Configuration Manager 2007 R2 Infrastructure to manage all computers. As a planned rollout the upgrade to R3 followed BPA established Change Management processes.

SCCM Site Servers were first to have the R3 release applied. Next, all relevant servers and finally all eligible workstations. The implementation was carried out with the assumption that all desktops were eligible unless the SCCM team was notified otherwise.

Desktop Support staff were informed of the upgrade and the expectation was that they would supply lists of non-eligible desktops, which they did. These desktops were security monitoring systems, 24/7 critical business systems, systems that ran required processes that could not be interrupted even if there was no mouse/keyboard activity. Additionally, desktop support and help desk staff were in the initial test groups so they would be able to know first hand what the experience of the client community would be.

Several methods of communication to the client community were utilized prior to the patch rollout. Articles were posted in the BPA communication website, emails were forwarded from the Help Desk, notification was sent via management chains. The website includes a blog section which was monitored and responses posted to people's concerns.

POWER MANAGEMENT SETTINGS

BPA computers and monitors are put into STANDBY at predetermined times after no activity is detected by the system.

Between 6 am and 6 pm computers are put in to STANDBY after 60 minutes and monitors are put into STANDBY after 20 minutes.

After hours, which is 6 pm to 6 am, the time is 10 minutes for both computers and monitors.

These settings are locked down by central SCCM administration and stay enabled during all times that the computer or laptop is attached to the BPA network and reachable by the SCCM application.

REPORTING IMPLEMENTATION

Trending and base lining of computers current power consumption began immediately after implementation, beginning with SCCM support staff, the FEC and Sustainability Team members, desktop and help desk support staff.

Based on the data gathered and industry best-practices for SCCM 2007 R3, Power Management Plans were then selected and implemented across a sample test bed of computers.

Further trending and reporting was done to verify that the goals of reduction of power consumption and carbon footprint were being satisfied by these new plans.

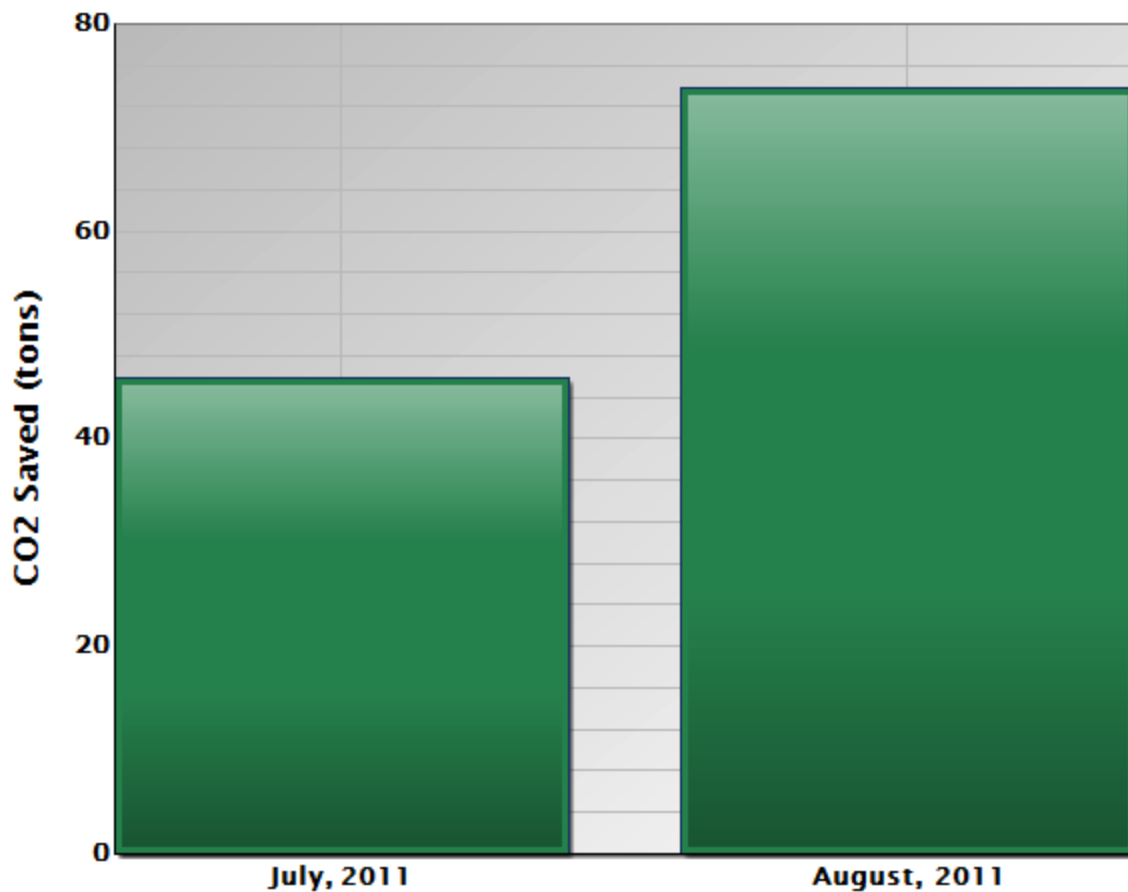
LESSONS LEARNED

Whereas our implementation was successful, here are items that will ensure the easiest and quickest path forward for implementation.

- Perform a comprehensive communication campaign to engage employees through education to drive awareness. Especially include support staff in the very beginning.
- Make Power Management policy part of your communications plan so policy backs up electronics stewardship implementations with minimal resistance.
- Have a reasonable testing and feedback period, at least 30 – 60 days.
- Form an early adopters test group that is representative of each client group to ensure optimal readiness and comfort with the process.

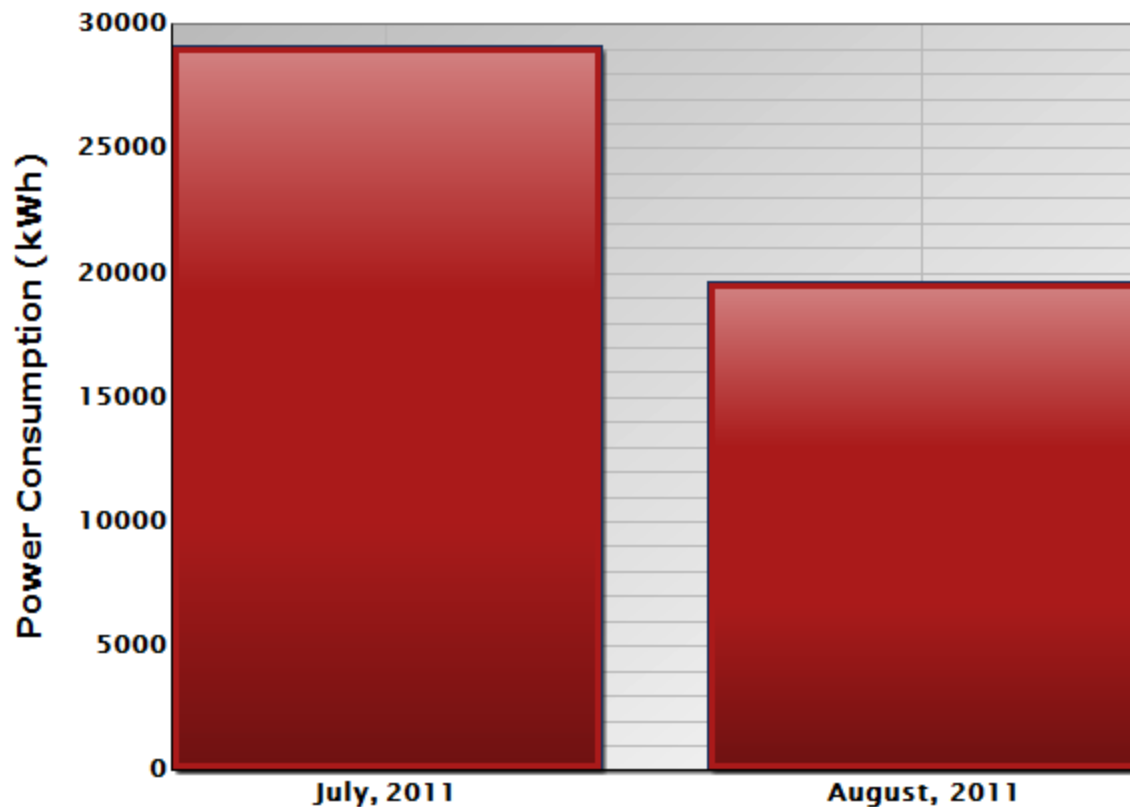
INITIAL RESULTS

Comparing July 2011 (Prior to implementation) and August 2011 (Post implementation) we have saved approximately 32 tons of CO₂. We expect this to increase as we fine tune the program.



INITIAL RESULTS

Comparing July 2011
(Prior to implementation)
and August 2011
(Post implementation) we
we have reduced power
consumption by 10,000
Kwh



NEXT STEPS

Employee training on manual activation of power management features

Role based provisioning refinement

Further research on how to implement with more critical systems

Create a metric from the collection of data and refine implementation especially in those systems that may be able to be shifted from exempt to not exempt.

Further deployment of Insomnia, the application used at BPA for very temporary suspension of power management for times when a system needs to be kept alive to run a long process without keyboard or mouse activity.

REFERENCES

For more information about Microsoft System Center Configuration Manager 2007 R3 Power Management, please see the following Microsoft web sites at:

- <http://technet.microsoft.com/en-us/library/ff977066.aspx>
- <http://www.microsoft.com/systemcenter/en/us/configuration-manager/cm-r3-power-management.aspx>
- http://download.microsoft.com/download/9/5/8/9585975A-BA17-4029-8265-D0BDB7B4FBF2/SystemCenter_ConfigMgrR3_PowerMgmt_datash eet.pdf

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