

Achieving Energy Reductions In Data Centers

IT, Critical Infrastructure And Facilities Management Solutions To Improve Energy Efficiency



SIEMENS


EMERSON
Network Power

The Challenge You Face Is Clear

Do More, While Using Less Energy

In government data centers, the trend toward rising energy costs and increased energy consumption has created a whole new set of challenges for agency IT executives and managers, including:

- New, more stringent legislative imperatives regarding energy efficiency
- Rapidly aging data centers are running out of room
- IT consolidations and increased cross-agency integration leading to high density computing
- Increasing service level demands
- Changing budgets

To help government agencies meet these difficult demands, Emerson Network Power has created a government data center team approach with its brands Liebert, ASCO and Aperture, and with one of the largest and most experienced government prime contractors with Energy-Savings Performance Contracts (ESPC), Siemens.

Through this strategic alliance between Emerson Network Power and Siemens, agency CIOs get an IT vendor-neutral approach to optimizing data center energy efficiency that starts with IT equipment and progresses to the support infrastructure. This holistic approach creates solutions that apply not just to the installation of new components, but also work seamlessly to manage energy efficiency within your legacy systems and existing components.

The Energy Reduction Requirements Facing Government Agencies Are Substantial.

There are many industry standards and government requirements for energy and environmental concerns that must be met:

- ENERGY STAR 
- ASHRAE Standards
- DoD “Green Procurement” Policy (GPP)
- 2003 National Defense Authorization Act (Section 314)
- 2007 Executive Order 13423: Strengthening Federal Environmental, Energy, and Transportation Management
- Energy Independence and Security Act of 2007 (EISA)



Your Best IT Partner Is Actually An ROI Team

Total IT Services That Provide High Level Collaboration and Maximum Savings

Today's federal agencies expect total IT services that deliver a healthy return on investment. With the strategic alliance between Emerson Network Power subsidiaries and Siemens, government IT executives and data center managers now receive optimized energy reduction solutions that provide a better return on investment.

This team approach bridges IT, critical infrastructure and building management systems to find solutions that reduce consumption while increasing efficiency.

Our strategic alliance gives the ability to manage the data center as a single entity by merging information about equipment and physical resources in an integrated, service-centric view. By starting with IT equipment and progressing to the support infrastructure, customers get an optimized data center that:

- Delivers desired availability
- Maximizes ROI
- Frees up data center floor space
- Reduces cooling demand
- Reduces and monitors power consumption
- Provides increased capacity for future growth



Our Collaborative Team Approach

Working together as one seamless solution, Emerson Network Power|Liebert, ASCO, and Siemens, present your network management system, your critical infrastructure and your building management system all under one pane of glass.

Through Aperture's Vista Software's one pane of glass, you can monitor and track trending, energy use and performance, and track MAC. You now have the ability to manage the data center as a single entity by merging information about equipment and physical resources in an integrated, single pane view to:

- Achieve significant improvements in impact analysis
- Provide proactive capacity planning
- Ensure availability
- Achieve world-class performance in IT operations.

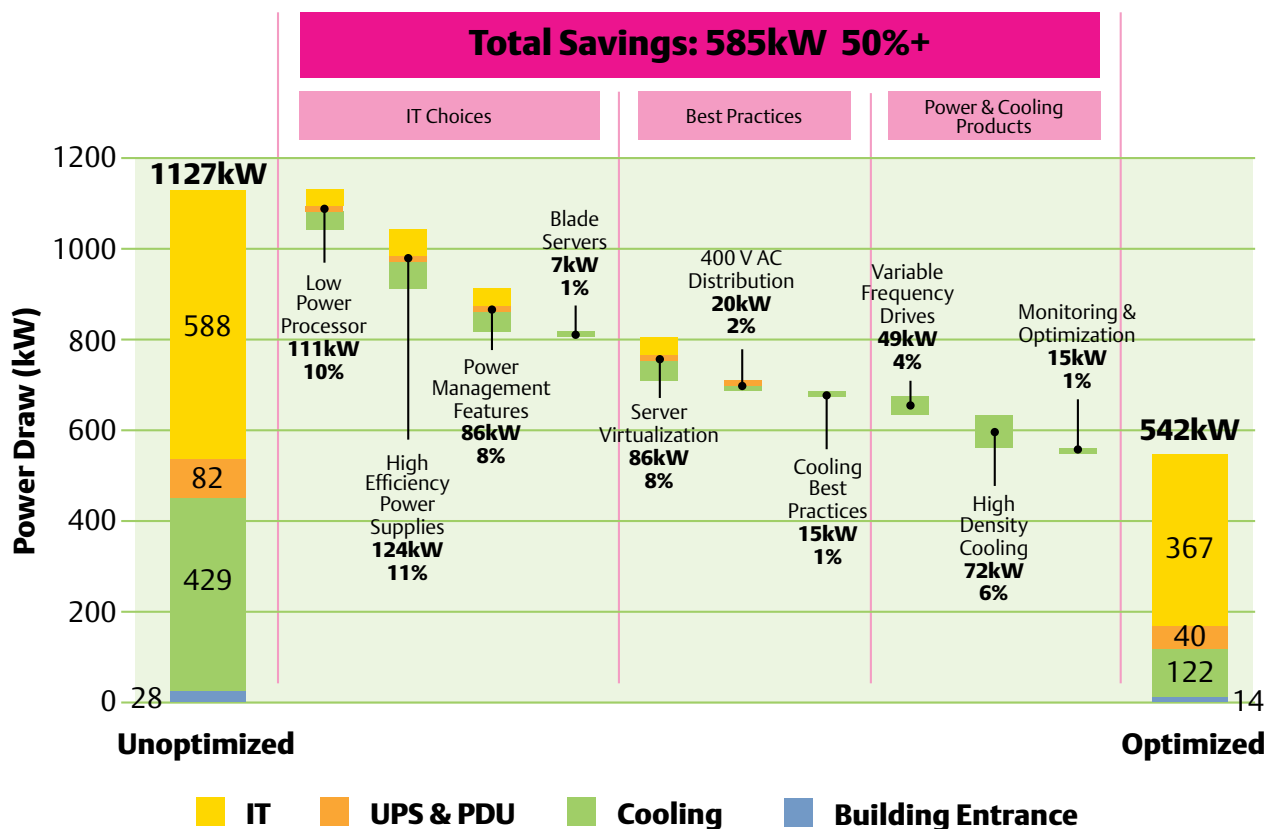
And because we have relationships with all the major network management system manufacturers, we can work with any customer preference to provide increased cost savings and avoid any disruption to operations.

Reduce Energy Usage, Increase ROI, Eliminate Growth Constraints

Benefits That Pay Back Both Today And Tomorrow

With our Government data center team approach, there are a number of actions that can significantly drive down energy consumption while freeing physical space and power and cooling capacity to support growth. Energy reduction strategy recommends the use of efficient IT technologies, specifically low power processors and high-efficiency power supplies that can be phased in as a part of the normal replacement cycle. Power management software should also be phased into applications where it is appropriate, as it may provide greater savings than any single technology.

IT consolidation projects play an important role in data center optimization. Both blade servers and virtualization contribute to energy savings and support a high density environment that facilitates true optimization. The final steps in the optimization strategy focus on infrastructure systems, employing a combination of best practices and efficient technologies to increase the efficiency of the power and cooling systems.



A Commitment To Efficiency And Reliability

Significant reductions in energy consumption without compromising the performance or availability of Enterprise systems, Continuity of Operations, or Disaster Recovery services.



Our team approach uses industry best practices to develop a comprehensive, tailored plan for optimizing IT and supply-side systems.

Energy Saving Action	Savings Independent Of Other Actions		Energy Logic Savings With The Cascade Effect			ROI
	Savings (kW)	Savings (%)	Savings (kW)	Savings (%)	Cumulative Savings (kW)	
Lower Power Processors	111	10%	111	10%	111	12 to 18 mo.
High-Efficiency Power Supplies	141	12%	124	11%	235	5 to 7 mo.
Power Management Features	125	11%	86	8%	321	Immediate
Blade Servers	8	1%	7	1%	328	TCO reduced 38%*
Server Virtualization	156	14%	86	8%	414	TCO reduced 63%**
415v Ac Power Distribution	34	3%	20	2%	434	2 to 3 mo.
Cooling Best Practices	24	2%	15	1%	449	4 to 6 mo.
Variable Capacity Cooling: Variable Speed Fan Drives	79	7%	49	4%	498	4 to 10 mo.
Supplemental Cooling	200	18%	72	6%	570	10 to 12 mo.
Monitoring And Optimization: Cooling Units Work As A Team	25	2%	15	1%	585	3 to 6 mo.

* Source for blade impact on TCO: IDC ** Source for virtualization impact on TCO: VMware © 2008 Emerson Network Power

Using The Model Of A 5,000-Square-Foot Data Center Consuming 1127 kW Of Power, The Actions Included In The Energy Logic Approach Work Together To Produce A 585 kW Reduction In Energy Use.

SIEMENS – An Emerson Network Power Teammate

Your agency's federal data center can benefit from our team approach with Siemens, an \$118B company that has served the world's largest and most respected companies for over 150 years with technical achievements, innovation, quality, and reliability. As a leader in the industry, Siemens is an Energy Savings Performance Contractor (ESPC) providing integrated products and services to the mission-critical market and delivers critical power through intelligent power distribution and controls, switchgear, and busway circuit protection.

With our team approach, agencies can bridge IT management, critical infrastructure and operations by connecting with Siemens's Building Automation System which monitors the critical points of various devices, allowing facilities management to report and trend data from a single front-end station.

As an authorized ESPC, Siemens can utilize ESPC and EUL (Enhanced Use Lease) contract mechanisms that offer specialized funding, and the most cost-effective processes for completing building upgrades.

Working with us as an ESPC, you can expect a single point of accountability, guarantee on project cost savings and equipment performance, and verification of annual energy savings through our monitoring program.

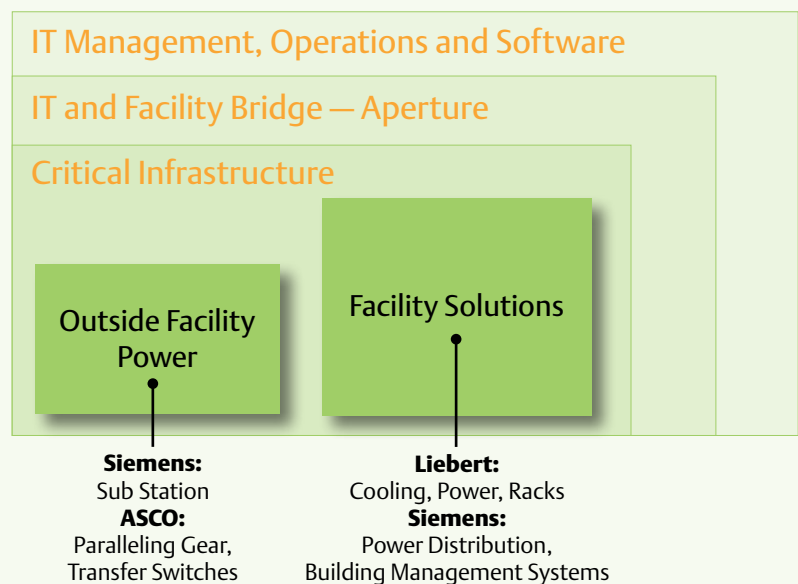
Siemens holds several ESPC contracts with a variety of federal agencies, including the Army, Navy, and Air Force. Examples include:

- U.S. Army Garrison-Vicenza, installed a new boiler plant
- The Space and Naval Warfare Systems Center, San Diego, CA, provided energy management solution, reducing energy and operating costs, while maintaining optimum occupant comfort and air quality
- The new DOE Super ESPC

Your Bridge To Maximizing Energy Efficiency

With rising energy prices, shrinking floor space and larger quantities of data being stored, the needs of federal data center and facilities managers are many:

- Meet energy efficiency and savings goals
- Plan for future growth and flexibility
- Ensure uncompromised protection of critical data
- Acquire complete solutions from assessment through monitoring and service.



Federal Data Center Team Approach Ensures Total IT Services

IT Management Operations and Software – One Pane of Glass

Improving Resource Utilization Through Real Time Monitoring

Aperture VISTA is an enterprise management system used by both IT and facilities groups within hundreds of organizations worldwide to implement a formal process framework to manage all equipment within their data centers.

By delivering an integrated, real-time view of all data center assets, Aperture helps companies take control of highly complex physical infrastructures including:

- equipment
- cooling
- space
- network
- power
- storage.

By implementing data center best practices and taking a holistic perspective to manage the operations of your data center infrastructure, you can realize greater efficiency through the direct optimization of data center resources according to the specific power and cooling profiles required. However, because many organizations lack quality information sources on power consumption and heat output, which causes operations to run well below the designed levels, we start with a site audit and benchmarking.

Measurement That Goes Beyond Calculation To Provide Understanding

But measurement must go beyond just calculating the ratios and into truly understanding the meaning of the findings. Better analysis, planning and execution of an energy efficient data center can only occur when the underlying relationships are understood and the data center is managed from a holistic perspective.

Aperture VISTA can help organizations not only determine where they stand with regards to standardized performance metrics, but also drill further down into the reasons behind the metrics, including how to best optimize the power and cooling infrastructure. Intelligent evaluations of high-density equipment, virtualization and ENERGY STAR-rated servers will justify the investment in energy efficient equipment.

Integrated Single Pane Of Glass Monitoring

Emerson Network Power Aperture®

Vista®:

- Data Center Planning And Management



Emerson Network Power Liebert

Liebert Site Scan Web:

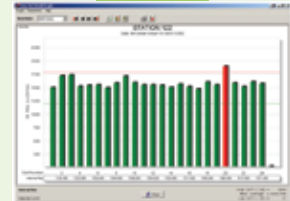
- Cooling (iCOM Control)
- UPS, PDU/STS (LDM)
- Rack-PDU
- Third Party



Emerson Network Power Albér™

Battery Monitoring:

- Wet Cell Batteries
- VR LA Batteries



Emerson Network Power ASCO®

PowerQuest:

- MV and LV Paralleling Switchgear (Power Meter and Breakers)
- ATS, Generators



Siemens Critical Power Group™

WinPM:

- MV, LV UPS and Distribution Switchgear (Power Meter And Breakers)
- PDU/STS, Third Party



Emerson Network Power Liebert Services

- Service And Preventative Maintenance



Siemens® Third Party Providers

- Lighting
- Comfort Cooling
- Elevator Controls
- Security



We Help You Get It Right

Right From The Start

Emerson is an EnergyStar company and the only organization in the systems protection industry that has a proven track record in systems support and an ability to provide the energy savings and environmentally sound solutions you demand. Our equipment meets the criteria to qualify for federal and state energy-saving incentive programs. Emerson Network Power brands include Liebert, ASCO, Knurr, Alber and Aperture.

Aperture is the premiere global provider of software for managing the physical infrastructure of data centers. Aperture's solutions enable organizations to visually manage their data centers and automate the critical processes necessary to meet today's data center challenges, while reducing operational risk and improving efficiency through the planning and management of data center resources and real-time monitoring of the environment.

Siemens serves the world's largest and most respected companies with power automation, monitoring and control system. Siemens' Building Automation System monitors the critical points of various devices, allowing facilities management to report and trend data from a single front-end station. Siemens' low-voltage switchgear built to ANSI standards distributes power at user voltage in a fully selective system.

Liebert Corporation

1050 Dearborn Drive
P.O. Box 29186
Columbus, Ohio 43229
800 877 9222 Phone (U.S. & Canada Only)
614 888 0246 Phone (Outside U.S.)
614 841 6022 FAX
liebert.com
EmersonNetworkPower.com

Aperture Technologies, Inc.

9 Riverbend Drive South
Stamford, CT 06907
800 346 6828 (U.S. & Canada Only)
203 357 0800 Phone (Outside U.S.)
203 357 0806 FAX
aperture.com

Siemens Energy and Automation, Inc.

Power Distribution Solutions
3333 Old Milton Parkway
Alpharetta, GA 30005
919 468 2320 (U.S. & Canada Only)
770 751 2000 Phone (Outside U.S.)
919 781 7936 FAX
siemens.com

While every precaution has been taken to ensure accuracy and completeness in this literature, Liebert Corporation assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

© 2009 Liebert Corporation. All rights reserved throughout the world. Specifications subject to change without notice.

Business-Critical Continuity, Emerson Network Power and the Emerson Network Power logo are trademarks and service marks of Emerson Electric Co. ©2009 Emerson Electric Co.

All names referred to are trademarks or registered trademarks of their respective owners.

® Liebert is a registered trademark of the Liebert Corporation.

SL-11225 (R04/09) Printed in USA

® Aperture and Aperture VISTA are registered trademarks of Aperture Technologies.

® Siemens is a registered trademark of Siemens AG