

Cisco EnergyWise: Enabling End-to-End Enterprise Control over Electricity Costs and Carbon Emissions



Business Overview

Energy consumption is a fundamental concern of most organizations. The light we use in our workspace; the heating and cooling systems for offices, factories, or retail space; telephones and printers; and desktop or data center computers all consume energy. In response to rising energy costs, government directives, and environmental concerns, businesses are focusing on understanding and controlling their energy usage.

More than 70 percent of the electricity consumed in the United States* is used in office buildings. Within the office, lighting and office equipment account for almost 46 percent of consumption. Estimates suggest that PCs left powered on are only in use for 9 to 15 percent of the time.

In the United Kingdom**, enterprises and public bodies spending around £500k per annum on electricity must join the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme, with new league tables due in 2011/12. And in Europe, China, Japan and many other countries, national schemes and energy regulations are starting to be introduced.

Improving operational efficiency and reducing operational costs can set an organization on the way to lower its TCO and to be more sustainable.

Business Challenge

The deployment of individual management systems dedicated to managing each class of power-consuming device within a building results in a large number of systems that need to be integrated to perform coordination of events for power management, which is difficult to achieve.

Many organizations are now seeking solutions to:

- Reduce energy consumption
- Cut operational costs and improve efficiency
- Comply with energy regulation and legislation

* Electricity use in offices: <http://www.eere.energy.gov/>

** <http://www.carbontrust.co.uk/policy-legislation/business-public-sector/pages/carbon-reduction-commitment.aspx>

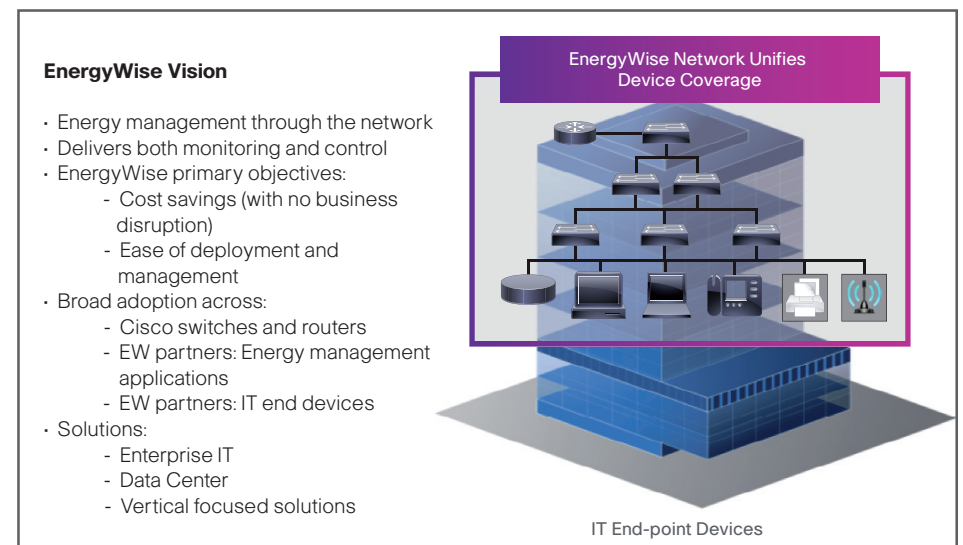
- Reduce and remove energy management silos
- Bridge the gap between IT and facility management

Developing a sound business model for energy management requires the pervasive power of the network to meet the new challenges of sustainability.

Cisco Business Energy Management

Enterprise-wide energy management and coordination of energy consumption are primary requirements, and it is the Cisco® IP network acting as an energy control plane that allows these disparate systems to communicate in a synchronized fashion, resulting in greater visibility and granularity of measurement of energy consumption. Using the network as a control plane for energy reduces complexity and costs and assures power savings.

The cornerstone of Cisco's Business Energy Management solution is Cisco EnergyWise, an innovative architecture that enables companywide energy monitoring, reporting, and management.





Cisco EnergyWise: Power Management Without Borders

Cisco EnergyWise is an energy management protocol based on Cisco IOS® Software for monitoring, controlling, and reporting the energy use of information technology (IT) and facilities equipment. It is available and configurable across the entire current Cisco Catalyst® switching and Cisco Integrated Services Router Generation 2 (ISR G2) routing portfolio. Cisco EnergyWise is also supported through a broad range of Power over Ethernet (PoE) devices such as IP phones, wireless access points, security cameras, door access systems, and virtual desktop thin and zero client infrastructures, as well as across a wide range of third-party IP-enabled devices and submeters.

Cisco EnergyWise enables companies to measure and manage the power consumption of network infrastructure and network-attached devices, thereby reducing power consumption to realize increased cost savings, and potentially affecting any powered device.

Cisco EnergyWise encompasses a highly intelligent network-based approach to communicate messages that measure and control energy between management applications and endpoints. The network discovers Cisco EnergyWise manageable devices and enables the monitoring of power consumption. Following standard business guidelines to reduce overall power consumption, the network implements these policy-based applications. EnergyWise uses a unique domain-naming system to query and summarize information from large sets of devices, making it simpler than traditional network management capabilities.

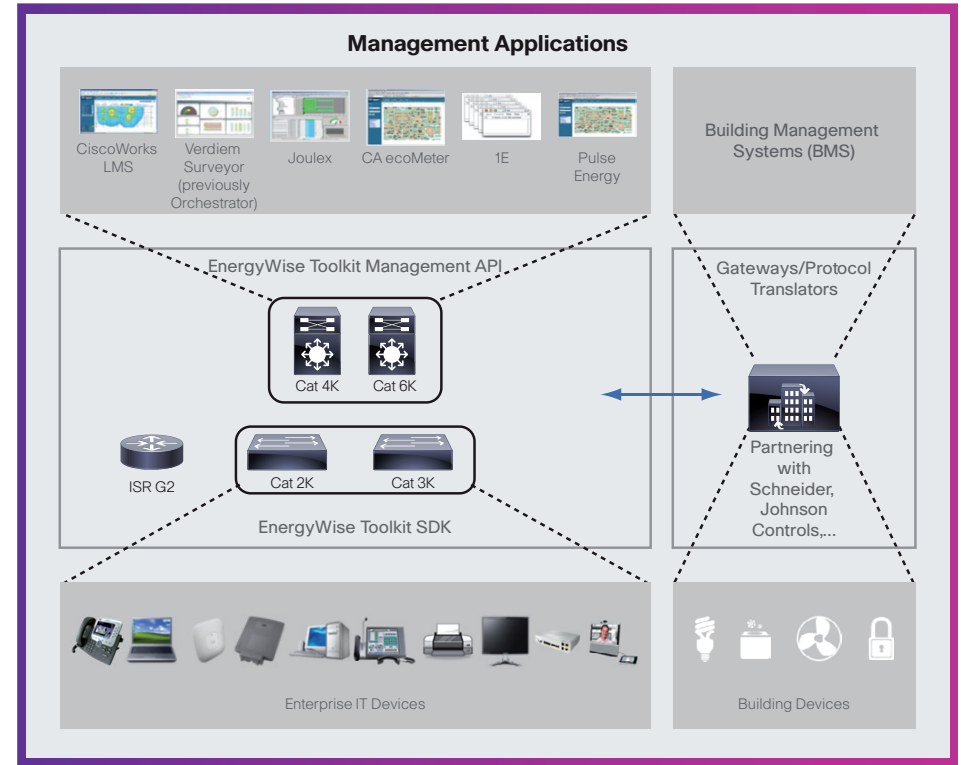
Cisco EnergyWise networkwide policies can then be developed to control device power management, eliminating the need for separate IT and building energy systems across different enterprise borders to be able to work with each other.

What Are the Benefits of Cisco EnergyWise?

Cisco EnergyWise monitors, manages, and reduces energy consumption and delivers three primary benefits:

- Creating visibility into how electricity is consumed within your organizations and locations
- Allowing you to turn off devices from always on to always available based on user or organization requirements
- Allowing you to reduce power consumption while maintaining business productivity

Figure 1. Cisco EnergyWise Architecture



Cisco EnergyWise Partner Ecosystem

Cisco is transforming companywide energy management by partnering with industry leaders, enabling customers to harness the value of their networks to create greater operational efficiency and to promote cost savings. The Cisco EnergyWise partner ecosystem brings together the leaders of building management systems, energy management applications, PCs, and lighting systems across the globe to produce and promote end-to-end architectural solutions and managed energy services for the complete energy management needs for enterprises.



Cisco EnergyWise has an open architecture to encourage innovation and integration among application and technology partners through the Cisco EnergyWise Developer network. The Cisco EnergyWise software toolkit allows third-party application and device partners to integrate with Cisco EnergyWise and communicate with endpoints and each other using the Cisco IP network as the underlying fabric.

The toolkit includes:

- EnergyWise management application programming interface (MAPI) for applications to monitor, control, and report power consumption information from any EnergyWise enabled end device.
- EnergyWise endpoint software development kit (SDK) to enable end points to send power consumption information to management applications. The SDK clients also provide the mechanism used by MAPI applications for controlling endpoint energy use.

The Cisco EnergyWise API and SDK are standards based and free allowing any partners and developers to participate in the integration and improvement efforts. The EnergyWise partner ecosystem continues to expand; and include industry leaders as well as up and coming startups. For the complete range of EnergyWise developer network ecosystem partners, visit <http://developer.cisco.com/web/esdk/home>.

Why Cisco?

- Cisco EnergyWise and joint partner solutions help customers lower their TCO and achieve their sustainability goals. These solutions accelerate the convergence of facility and IT energy management, resulting in simplified infrastructures, greater efficiency, and more savings.
- Cisco not only delivers the most comprehensive enterprise campus IT energy management solutions, but also extends its reach into data centers and beyond.
- Cisco EnergyWise is designed to integrate future devices, network applications, and management tools to accommodate evolving organizational requirements and facilitate unrivalled customer choice.

For more information, visit <http://www.cisco.com/go/energywise>.