

Accenture Smart Building Solutions

Optimizing Building Management and
Improving Energy Efficiency

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Accenture Smart Building Solutions represent the convergence of building-controls technology and information management—a chance to reduce total heating, ventilating and air conditioning (HVAC) costs by 25 percent or more.

Buildings consume approximately 40 percent of the world's energy — far more than what is used by the transportation sector.¹ And regardless of age, nearly every building—office complexes, hotels, hospitals, manufacturing plants, retail stores—wastes energy. Complicating matters further, buildings, tenants and building equipment represent a complex, interdependent system. Every structure runs differently, even when constructed or run by the same organization. Plus, energy consumption profiles and concerns differ not only across locations and structures, but with seasons and occupancy levels. Advanced energy-saving solutions must therefore cater to time as well as place.

Fortunately, there are broad opportunities to reduce a building's energy usage; and this is where Accenture Smart Building Solutions come in:

Accenture Smart Building Solutions work together to form a comprehensive energy-management service. The suite of solutions help companies reduce energy consumption, emissions and costs by capturing all energy-relevant information from a building's systems, providing an analysis of that information and clearly articulating savings opportunities. Captured data is then used to adjust building systems to increase energy efficiency. Accenture Smart Building Solutions represent the convergence of building-controls technology and information management—a chance to reduce total heating, ventilating and air conditioning (HVAC) costs by 25 percent or more.

Accenture Smart Building Solutions complement, rather than replace, existing building management systems and enterprise environmental management systems by adding a variety of benefits and capabilities:

- Advanced measurement and verification: to measure the impact of energy efficiency initiatives.
- 24/7 centralized remote monitoring: to maintain optimal building operation across a company's real estate portfolio.
- Predictive analytics: to help ensure proactive maintenance and optimization of equipment operation levels.
- Supervisory control capabilities: to help building operators automatically rectify issues via keystrokes, based on pre-defined business rules.
- Energy modeling capabilities: to help companies plan and manage energy demand via an automated demand response program.

1. Source: The World Business Council for Sustainable Development (WBCSD).

How Accenture Smart Building Solutions Work

Buildings are data-rich environments that contain valuable information about operations and performance. The challenge is extracting this data and understanding how it affects building operations and performance. We utilize Accenture Smart Building Solutions to address this challenge by accumulating valuable data from any building, analyzing the resulting information and constructing energy solutions based on the structure's unique profile. It's a complete package—tools, people and engineering relationships—for maximizing data visibility and control right down to the sensor level. And contrary to most energy-reduction initiatives, Accenture Smart Building Solutions require no expensive or disruptive capital retrofits. Everything works with, and enhances the value of energy- and building-management systems by capturing, communicating and leveraging information generated by existing technology.

Our guiding principle behind Accenture Smart Building Solutions is that energy consumption is a data-management

challenge more than a hardware issue: Companies must know everything they can about how they are consuming energy before they can decide what to do about conserving energy. Toward this end, Accenture Smart Building Solutions:

- Capture and leverage existing data to optimize the health of every machine that heats, cools or moves liquids, air and other gasses. Information is drawn from building systems every 60 seconds to capture and assess all relevant data points.
- Generate actionable insights via a customized portal. This enables building operators to make timely correction and control decisions.
- Instill an energy efficiency mindset throughout the organization. This culture-focused assistance is key to making improvements sustainable.
- Use open-IP architecture (completely vendor and protocol independent) and advanced data analytics to make energy management improvements ongoing. The idea is to help

commercial building owners keep energy usage low, while maintaining or improving occupant comfort.

- Extend energy-saving success by linking with other Accenture services such as energy bill auditing, sustainable procurement, sustainable supply chain management, green IT and energy management services.

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Accenture Smart Building Solutions: Integrated Offerings

Accenture Smart Building Solutions work together or independently.

Enterprise Energy Management

Interactive, web-based tools track, analyze and report metered data through "dashboard" snapshots of portfolio energy performance and trends. These are prioritized by building type and key performance indicators (e.g., kBtu per square foot per year).

Potential benefit: up to 3 percent reduction in HVAC energy consumption.

Operational Guidelines

Accenture helps clients maximize visibility into their building's compliance with standard operating procedures (setpoints, schedules, etc.). We use interactive web-based reporting that enables filtering, sorting and Excel-based downloading

of results. Building managers gain the ability to enforce operational guidelines across hundreds of buildings.

Potential benefit: 4 percent to 8 percent reduction in HVAC energy consumption.

Automatic Fault Detection Diagnosis and Impact

Automatic fault detection capabilities enabled by Accenture Smart Building Solutions provide a prioritized and actionable view into dozens of building equipment faults across a company's real estate portfolio. With this service, companies gain the opportunity to reduce the frequency and impact of faults such as unbalanced airflows, broken dampers, control component failures or degradation, air-cooled condenser fouling, and valve leakage.

Potential benefit: 10 percent to 15 percent savings in HVAC energy consumption.

Supervisory Control

Supervisory control is about correlating and integrating information from all building equipment to ensure that comfort, temperature, humidity and ventilation requirements are met in the most energy-efficient way. Previously gathered fault information is utilized to ensure that run times of inefficient equipment are minimized.

Potential benefit: 8 percent to 12 percent reduction in HVAC energy consumption. Additional savings of 2 percent to 5 percent are achievable by automating setpoint temperature changes.



Benefits Delivered

Lower energy costs are the most obvious reward associated with optimal energy management. And these HVAC cost reductions are frequently large enough—often 25 percent or more—to make the initiative worthwhile.

However, Accenture Smart Building Solutions drive a host of other improvements, such as reducing carbon emissions, increasing tenant comfort and reducing equipment downtime. They help make buildings and building personnel smarter about energy conservation and with the right tools, the right information and the right training, more efficiencies are added over time. It's continuous improvement. A good example is that, by working with Accenture, companies may be able to forecast their energy needs more accurately and thus cost-effectively. Equipment life may also increase, which can reduce maintenance costs, lessen capital expenditures and avoid many unforeseen and potentially critical failures.

Simple, readily achieved compliance is another advantage, as are the benefits associated with sustainability certifications (e.g. Energy Star); applications for tax and utility company incentives; and greater loyalty from customers who are concerned about carbon emissions.

All this happens without major capital investments. The key is Accenture's use and optimization of companies' existing sensor and control infrastructures.


Accenture Smart Building Solutions require no expensive or disruptive capital retrofits. They work with, and enhance, the value of, energy- and building-management systems by capturing, communicating and leveraging information generated by existing tools.

A Clean Solution to a Complicated, Multi-faceted Problem

Raising the energy efficiency of a building or building portfolio is complicated. However, Accenture Smart Buildings Solutions are a clear and timely response. Without building or buying new systems, companies can leverage Accenture Smart Building Solutions to:

- Identify energy consumption problems.
- Analyze the cost and environmental impact of those problems.
- Understand the nature and potential benefit of various remediation options.
- Implement energy-saving improvements.
- Measure the ongoing benefit of those enhancements.
- Drive continuous improvements in energy usage.

With potential HVAC cost-savings of 25 percent or more, many companies find that the cost-recovery period associated with Accenture Smart Building Solutions is remarkably short. Payback durations will certainly vary, but myriad outcomes are widely probable: Energy usage and costs will fall. Carbon emissions will decrease. Tenants' comfort levels will rise. Maintenance events and concerns will diminish. And companies' energy-related knowledge and capabilities will increase over time.



Common energy management concerns of building owners and managers

- "We spend far too much time addressing hot and cold calls."
- "We know that our energy consumption is excessive. But we can't quantify the problem enough to get funding."
- "Vendors keep suggesting equipment upgrades, but these efforts cost too much."
- "Our building management system sends out too many unnecessary alarms."
- "There isn't enough data visibility to know what is wrong with the equipment until it breaks."
- "We aren't able to see how equipment is operating all the time."

Accenture Smart Building Solutions address, and potentially remediate, each of these concerns.

About Accenture Sustainability Services

Accenture Sustainability Services helps organizations achieve substantial improvement in performance and value for their stakeholders. We help clients leverage their assets and capabilities to drive innovation and profitable growth while striving for a positive economic, environmental and social impact. We work with clients across industries and geographies to integrate sustainability approaches into their business strategies, operating models and critical processes. Our holistic approach encompasses strategy, design and execution to increase revenue, reduce cost, manage risk and enhance brand, reputation and intangible assets. We also help clients develop deep insights on sustainability issues based on our ongoing investments in research, including recent studies on consumer expectations and global executive opinion on corporate sustainability and climate change. Visit www.accenture.com/sustainability.com

About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with approximately 211,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US\$21.6 billion for the fiscal year ended Aug. 31, 2010. Its home page is www.accenture.com.

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Accenture is committed to helping forward-thinking Organizations position sustainability as a key lever to long-term success. To find out more about how Accenture can help you meet your sustainability imperatives and chart a course toward high performance, visit www.accenture.com/sustainability or contact us at sustainability@accenture.com.

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