Energy Audits –
What They Are, What They Deliver, and When They Make Sense for Your Facilities

By Kevin Day, PE, CEM, CCP, LEED AP

Rising energy costs, aging equipment, and occupant comfort complaints are challenges nearly every building owner and facilities team faces. Organizations are under increasing pressure to improve building performance while working within constrained budgets and limited resources.

Energy audits and existing building commissioning (EBCx) are two of the most effective tools available to address these challenges, but they're often misunderstood, misapplied, or treated as interchangeable. This blog is the first in a multi-part series designed to clarify those approaches and help organizations choose the right strategy at the right time.

This first blog focuses specifically on energy audits, what they are, what they uncover, and when they make the most sense as a starting point. The next blog in this series will explore existing building commissioning (EBCx), how it differs from energy audits, and how the two approaches work together to support long-term energy, operational, and capital planning goals.

THE PRESSURE TO DO MORE WITH LESS

Across campuses nationwide, facilities teams are being asked to do more with less. Aging infrastructure, deferred maintenance, and limited budgets all collide with ambitious sustainability and carbon-reduction goals. The expectation is clear: improve building performance and reduce energy costs, but without adding staff or increasing operational spending. For some organizations, that's where the real challenge begins.

As technology evolves, the push toward data-driven building performance has become the defining trend in facility management. Tools that monitor, analyze, and optimize system operations now give facility managers visibility that wasn't possible even a decade ago. But knowing where to begin, and which strategy delivers the best return, can feel overwhelming.

Energy audits are often the first step organizations consider. When applied appropriately, they provide critical insight into how buildings consume energy, where inefficiencies exist, and which opportunities warrant further attention. Understanding what an energy audit is (and what it is not) is essential for using it effectively and avoiding misaligned expectations.

ENERGY AUDIT: FINDING WHERE ENERGY IS WASTED

When a campus facilities team suspects a building isn't operating as efficiently as it could be, an energy audit is often the first logical step. Think of it as a diagnostic check-up for your building's energy systems, revealing where power, heating, and cooling are being wasted and where targeted improvements can make the biggest impact.

At its core, an energy audit evaluates how your building consumes energy across lighting, HVAC systems, plug loads, and the building envelope. The outcome is more than just a list of inefficiencies; it's a roadmap for action. The audit report typically identifies Energy Conservation Measures (ECMs), along with the estimated cost, energy savings, and payback period for each recommendation. This allows facilities leaders to make informed decisions that balance immediate operational savings with long-term capital goals.

THE THREE LEVELS OF ENERGY AUDITS

Not all energy audits are the same. Throughout this series, when we refer to energy audits, we're specifically talking about the ASHRAE Energy Audit framework, which outlines three distinct levels of analysis. Each level serves a different purpose, and understanding those differences is key to setting the right expectations and avoiding wasted effort or misaligned investments.

Energy audits begin with a Preliminary Energy-Use Analysis (PEA). This first step establishes the building's baseline Energy Use Intensity (EUI), a metric that normalizes annual energy consumption based on building square footage. By comparing the facility's EUI to similar campus buildings or national benchmarks, the energy auditor can identify whether the building is underperforming and set a target EUI that would represent realistic improvement goals.

From there, ASHRAE defines three progressively detailed levels of energy audits. Organizations can select the audit level that best aligns with their goals, budget, and decision-making needs. Each audit level builds on the prior level. Based on individual needs, an organization may stop after completing Level 1 or proceed to Levels 2 or 3. This tiered structure ensures that as the depth of analysis increases, it builds on a consistent and validated foundation.

Level 1 – Walk-through Survey

Purpose: Identify obvious inefficiencies and decide whether deeper analysis is warranted
While the PEA establishes a building's energy baseline using utility data, the Level 1 audit is the first on-site evaluation of how energy is actually being used. This is often where owners and facility teams begin to see why a building may be underperforming.

During a Level 1 audit, the auditor performs a visual inspection of major energy-consuming systems, such as HVAC equipment, lighting systems, domestic hot water systems, and building controls. Utility bills (typically electric, natural gas, and sometimes steam or chilled water) are reviewed to understand consumption patterns, seasonal trends, and demand charges.

The auditor also interviews operations and maintenance (O&M) staff to understand how systems are scheduled, controlled, and maintained, and to identify known issues such as comfort complaints, recurring alarms, or equipment that operates longer than necessary. Based on these observations, the auditor identifies initial Energy Conservation Measures (ECMs), which are typically low- or no-cost improvements like schedule adjustments, lighting upgrades, or minor control changes.

Level 1 audits are best suited for creating a short-term action list and determining whether more detailed analysis (Level 2 or Level 3) is justified.

Level 2 – Energy Survey and Analysis

Purpose: Quantify savings, costs, and priorities
With a Level 2 audit, the focus shifts from identifying opportunities to quantifying them. The auditor will perform engineering calculations to estimate how much energy each identified ECM would save, how those savings translate into utility cost reductions, and how changes in utility rates or demand charges may affect results. The ECMs identified during a Level 2 audit are analyzed in greater detail than what is typically provided for a Level 1 audit.

Level 2 also introduces a financial evaluation of each ECM, including estimated implementation costs, annual savings, and simple payback periods. This information allows facility managers and owners to prioritize improvements, compare options, and build a strong case for funding or internal approval.

This level is often the most practical for organizations planning near-term efficiency projects but not yet committing to major capital upgrades.

Level 3 – Detailed Engineering Analysis

Purpose: Support major capital decisions and financing
At the Level 3 stage, the audit becomes investment-grade, meaning the analysis is detailed and rigorous enough to support capital planning, external financing, or performance-based contracts.

A Level 3 audit fully develops and validates the most significant ECMs identified in Levels 1 and 2. This includes detailed field measurements, equipment performance testing, and advanced energy modeling to confirm savings assumptions and reduce financial risk.

The resulting documentation includes engineering-level calculations, clearly defined scopes of work, and refined cost estimates suitable for projects such as chiller replacements, central plant upgrades, envelope improvements, or large-scale controls modernization. Owners and lenders can rely on this level of analysis when making long-term infrastructure investments.

With this tiered approach to energy management, campus leaders can start with the level of analysis that fits their immediate needs, validate savings potential, and scale their investment over time in alignment with broader sustainability and capital planning goals.

WHEN AN ENERGY AUDIT MAKES SENSE

Energy audits are most valuable when organizations need a clearer understanding of how their buildings use energy and where meaningful improvements may be made. They are particularly well-suited for:

- Buildings with outdated, inefficient, or poorly documented systems, where original design intent has been lost over time
- Campuses with limited performance data or minimal building automation, making it difficult to diagnose issues without a structured assessment
- Institutions early in the process of developing an energy or sustainability strategy, where leadership needs insight before committing capital

When applied in the right context, the return can be significant. Energy audits commonly identify 10–20% potential energy savings, with many low-cost or operational improvements achieving paybacks of less than two years. These early wins are often driven by practical measures such as scheduling corrections, adding sensors, adjusting control sequences, eliminating unnecessary equipment runtime, or changes that improve performance without requiring major capital investment.

While energy audits are often discussed in terms of savings and efficiency, the cost of inaction is rarely acknowledged. Without a clear understanding of how buildings are performing, inefficiencies compound quietly, energy waste goes unnoticed, equipment operates beyond its intended limits, and comfort issues persist. Over time, deferred insight can lead to higher operating costs, shortened equipment life, reactive capital spending, and missed opportunities to address performance issues before they disrupt occupants or budgets. Choosing not to evaluate building performance is still a decision, one that often carries greater long-term risk than taking the time to understand it.

Understanding how energy audits work, and how the different audit levels align with specific goals, helps organizations make informed decisions without overcommitting time or capital too early. By selecting the appropriate level of analysis, campus leaders can uncover meaningful savings, reduce operational risk, and build a performance roadmap that supports long-term energy, sustainability, and capital planning objectives.

In the next blog in this series, we'll shift the focus to existing building commissioning (EBCx), what it is, how it differs from energy audits, and when it should be used to improve day-to-day building performance.

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