



RESEARCH REPORT:
*Integrating Energy and
Facility Management*

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INTRODUCTION

Leading Organizations are Integrating Energy and Facility Management for Deeper Cost Savings

Across North America, facility and energy executives are under pressure to deliver ever greater levels of performance with flat or very slowly growing budgets. These challenging conditions have led facility executives to review strategies and seek new ways to increase performance. While implementation varies by organization, most facility executives are already pursuing the integration of energy and facility management for deeper cost savings to at least some degree.

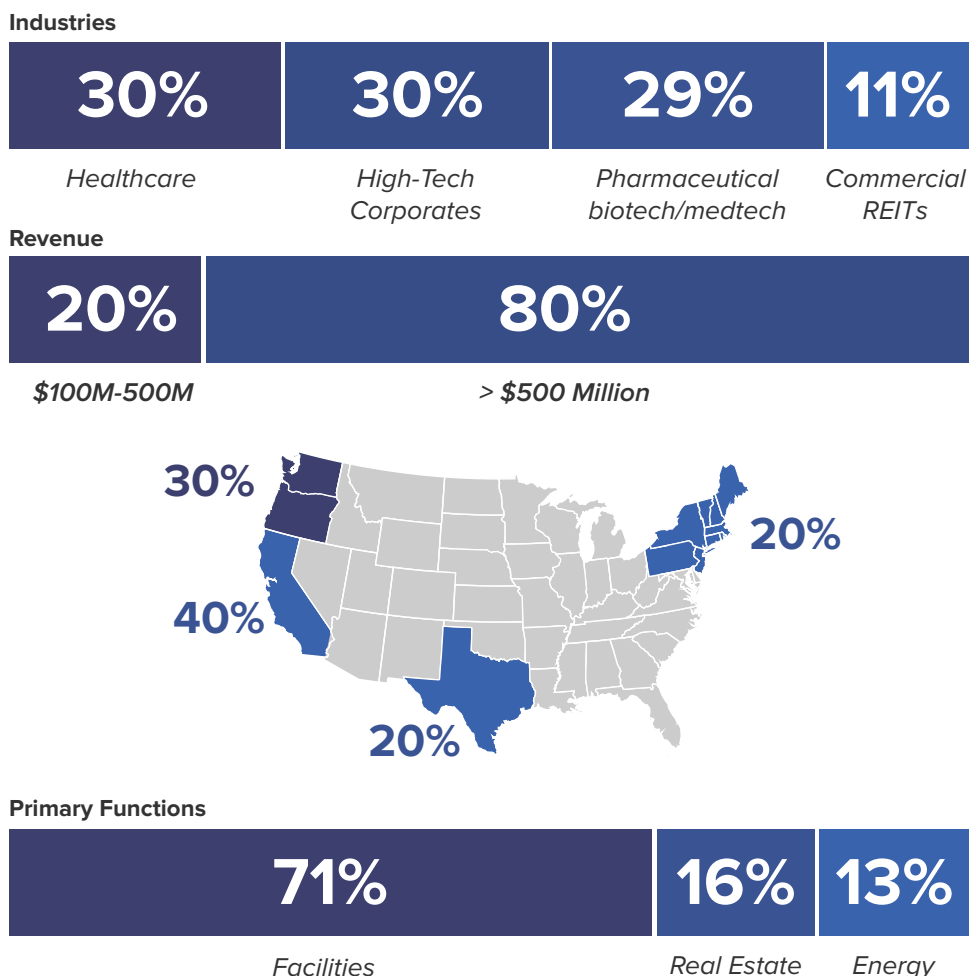
Given the potential to unlock new savings, how exactly are businesses integrating energy and facilities management today? And what are the business benefits of integrating energy and facilities management which are already being realized?

Verdantix

To answer these questions, we commissioned independent analyst firm Verdantix to undertake independent, anonymized phone interviews with 100 energy and facilities executives in owner-occupied buildings across the United States. Respondents spanned four industry sectors and came primarily from firms with more than \$500 million in annual revenues (see **Figure 1**).

Respondents were interviewed about how energy and facilities processes are managed within their organization, the barriers to integration, and the benefits of an integrated approach.

Figure 1
Interviewee Profiles



SECTION 1

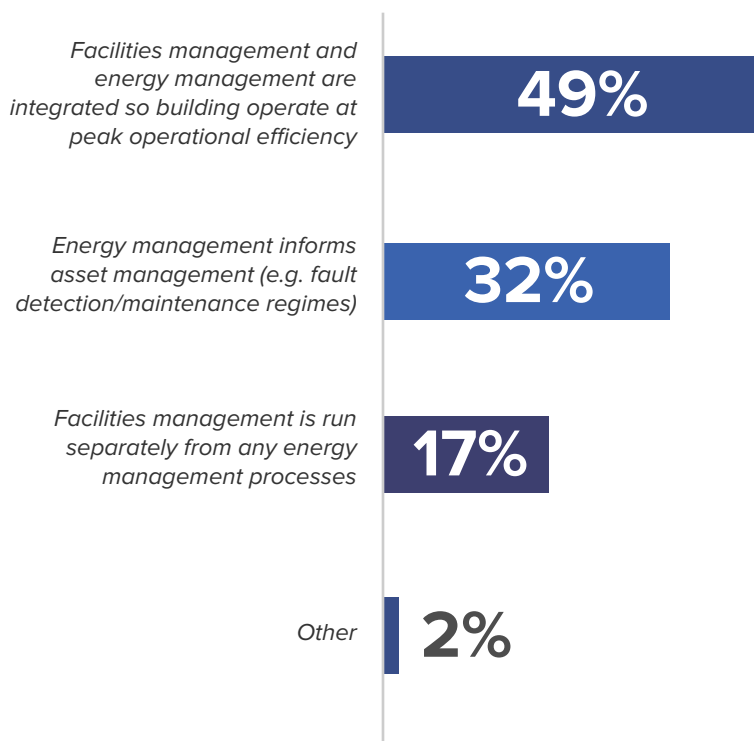
Firms Are At Different Stages Of The Facilities Optimization Journey

The primary finding from this study is that although reducing building operating costs is highly relevant for most facilities and real estate managers, organizations have made varying levels of progress in benefiting from integrated energy and facilities management. An analysis of the interview results show firms are at different stages of maturity, which can be broadly grouped into:

Figure 2

Half of respondents are integrating energy and facilities management to help buildings operate more efficiently

“Which of the following statements best describes how energy management and facilities management works together at your firm overall?” (select all that apply)



49% Facilities optimization Leaders.

Almost half of the 100 organizations we interviewed told us they are already realizing the benefits of connecting energy management and facilities management, to make buildings operate at peak efficiency (see **Figure 2**). How does this work in practice? These firms both enable collaboration between different teams and are using data platforms that bring energy and facilities data streams together.

One firm we interviewed is using a smart building system which incorporates a Fault Detection and Diagnostics (FDD) system to help it make informed decisions across equipment upgrades based on the payback across both energy and maintenance spend – which often account for a similar magnitude of spend. Additional examples are highlighted below. In addition, however, given what constitutes a leader is always changing, even firms leading the way are also continuing to look for the next step.

32% **Opportunists exploring the benefits of integrated energy and facilities management.**

Around one-third of the interviewees are taking a more opportunist approach, such as using energy data to identify failing equipment, when energy consumption exceeds pre-set parameters.

These firms are also exploring other tactical opportunities for cost efficiencies, such as scheduling lighting and HVAC operations around building occupancy.

17% **Laggards yet to explore the benefits of integrated energy and facilities management.**

We heard from the remaining 17% of interviewees that facilities management processes are run separately from any energy management processes.

These firms continue to take an approach to managing buildings that is based on meeting compliance requirements and achieving cost savings within specific departments.

SECTION 2

Integrating Energy And Facilities Management Delivers Reduced Energy And Maintenance Spend

The interviews show that businesses are at different stages of maturity in terms of integrating energy and facilities management and have not yet converged on a set of standardized best practices. The benefits of an integrated approach cited by interviewees include:

Enhanced building and energy cost savings.

Driving down operational costs is a shared objective across both energy management and facilities management functions. With this in mind, we heard that harmonizing the two practices is helping organizations achieve a greater level of cost savings; it requires organizations to move from a focus on improving the short-term performance of specific functions, to consider the impact on building-wide costs when deciding on investments and upgrades.

For example, maintenance managers focusing on short-term reductions on service costs may lose sight of the effects of maintenance practices on energy consumption and building performance. Looking at the broader market, one firm benefiting from an integrated approach across asset, energy and maintenance is hotel chain *Extended Stay America*. It leverages predictive maintenance software capabilities to optimize the operations of buildings, while reducing energy costs and increasing customer comfort and satisfaction.

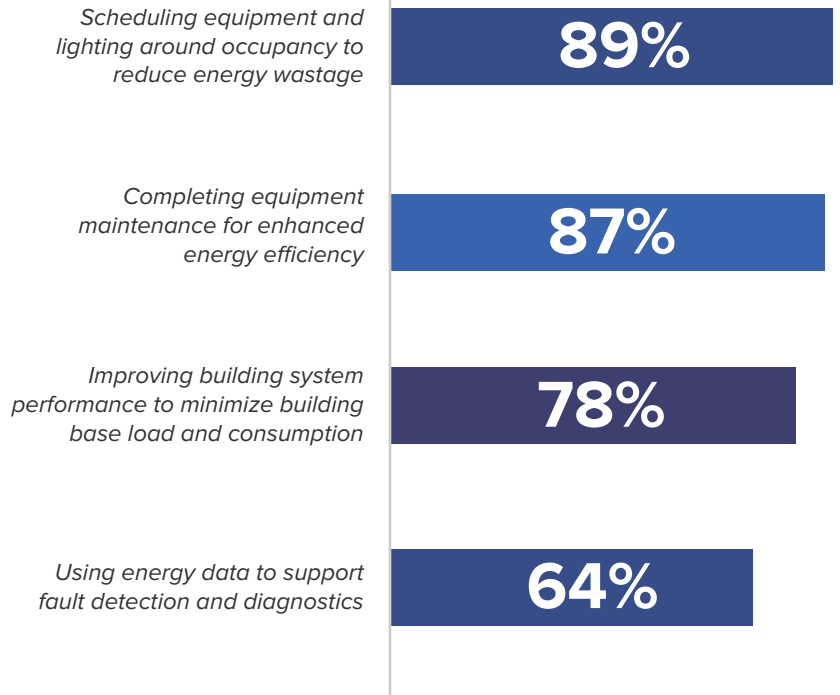
Improved fault detection using energy signals.

Our interviewees are starting to adopt practices around using energy consumption data as signals to infer faults or the degradation of equipment, with 64% of interviewees already implementing this approach (see **Figure 3**). For example monitoring the real-time energy consumption of assets such as roof-top units, HVAC, motors, and fans can help energy and facilities managers identify faults or underperforming equipment. When this is tied to an FDD system or CMMS, – it can automate the identification of faults and generation of work orders. The early identification of performance degradation can help organizations avoid surprise repairs, which interrupt business and can disrupt cash flow within consumer facing sectors.

Figure 3

There are opportunities for organizations to leverage energy data to support fault detection and diagnostics

**“What processes are taking place at your organization?”
(select all that apply)**



Optimized maintenance programs.

For decades, maintenance programs have been based on reactive requests or scheduled around the calendar year. Today, there are opportunities to smarten-up maintenance programs using just-in-time or predictive approaches based on energy consumption profiles or condition analysis using sensors. For example, at the 21-story **Phillip Burton Federal Building**, the integration of preventive maintenance with ongoing commissioning and energy efficiency retrofits have helped the building management team *cut electricity use by 26% and natural gas use by 41%*.



Phillip Burton Federal Building

Increased occupant comfort and well-being.

Across the energy management and facilities management functions, there has been increasing interest in maintaining and improving occupant well-being, while driving operational efficiency. This theme has been brought into focus through the WELL Building Standard in the U.S. In the UK, the Global Real Estate Sustainability Benchmark (GRESB) launched a Health & Well-being Module in 2016, to evaluate and benchmarks actions by property companies and funds to promote the health and well-being of employees. This approach has the potential to reduce absentee rates – for example the Sanofi Genzyme’s headquarters in the US found that by optimizing variables such as air quality, temperature and office design, sick time was reduced by 5%, 88% of employees reported improved well-being, and 72% of employees reported improved alertness and productivity.

Optimizing variables such as air quality, temperature and office design:



Source: Schneider Electric
<http://www2.schneider-electric.com/documents/support/white-papers/buildings/Why-Invest-in-High-Performance-Green-Buildings.pdf>

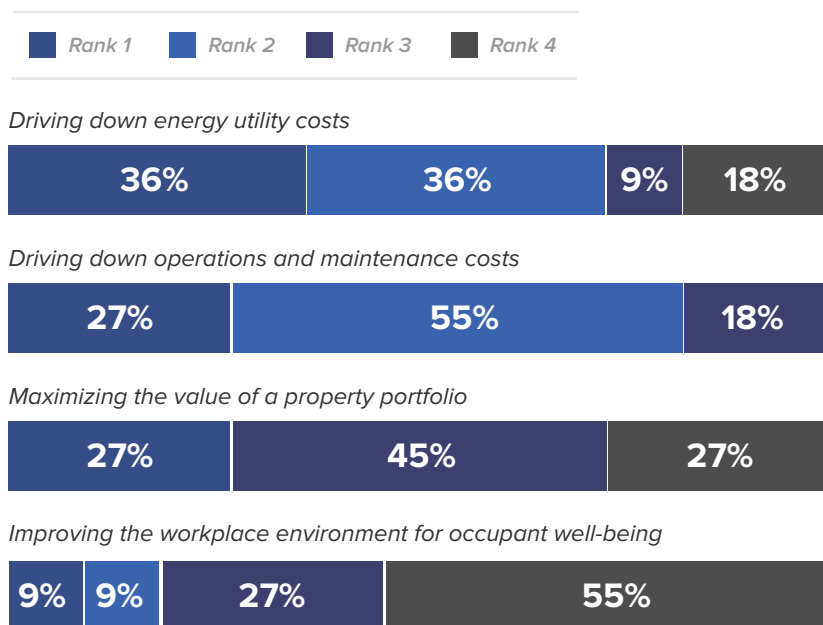
Maintained benefits of high-performance building investments.

Many large organizations – particularly tech firms and consumer-facing brands - are investing in highly energy efficient and sustainable buildings as they look to showcase their green credentials and attract employee talent based on ‘cutting edge’ technology. Notable examples include PNC Financial Services Group’s new headquarters in Pittsburgh and Apple’s Campus 2 being developed in California. Maintaining the expected performance of such buildings requires an approach based on the continuous commissioning of building and energy management systems.

Figure 4

Commercial Real Estate Investment Trusts are keen to drive down operating costs, while improving the value of property portfolios

“Rank the importance for improving performance across the following areas at your organization in the next financial year (Rank from 1-4, with 1 being most important)”



Maximized net operating income.

Commercial real estate investment trusts are keen to maximize net operating incomes based on driving performance across a number of areas such as operational efficiency and ensuring building tenancy occupancy rates (see Figure 4). This often requires a multi-dimensional strategy – witness Tishman Speyer, investing to improve performance across energy, water efficiency and facilities operations so it can recertify to LEED and pass on cost savings to tenants at its ‘The Franklin’ skyscraper located in Chicago.

SECTION 3

Organizations Risk Missing Out On Facility Savings With a Siloed Approach to Energy and Facility Management

While half of the interviewees are making progress on their journey for integrated energy and facilities optimization, benefiting from enhanced facility savings and improved fault detection, other firms are missing out. What are the top barriers preventing organizations from successfully integrating energy and facility management practices? From our interviewees, we heard the most significant barriers to integrating energy and facilities management are:

Lack of coordination across energy and facilities teams.

Fifty-six percent of our interviewees highlighted departmental silos as a key factor holding back the integration of energy and facilities management at their organization (see **Figure 5**). This challenge is often driven by the fact different teams lead facilities and energy management strategies, and in some instances, energy strategies are developed by sustainability functions that are separate from the FM organization. This lack of coordination is also seen via outsourcing approaches – with our interviewees commonly outsourcing facilities management practices such as building maintenance and grounds maintenance, but tending to keep energy efficiency practices in-house (see **Figure 6** on next page)

Figure 5

A range of factors are hindering the full integration of energy and facilities management

“How significant are the following factors in preventing your organisation effectively integrating facilities management and energy management?”

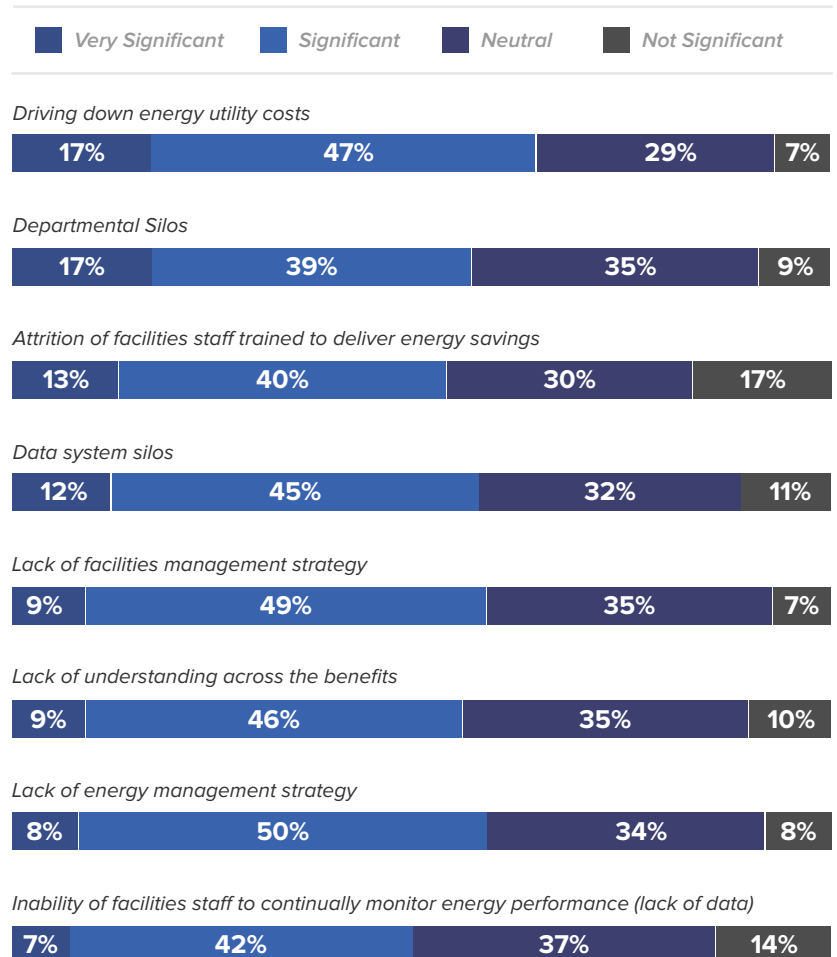
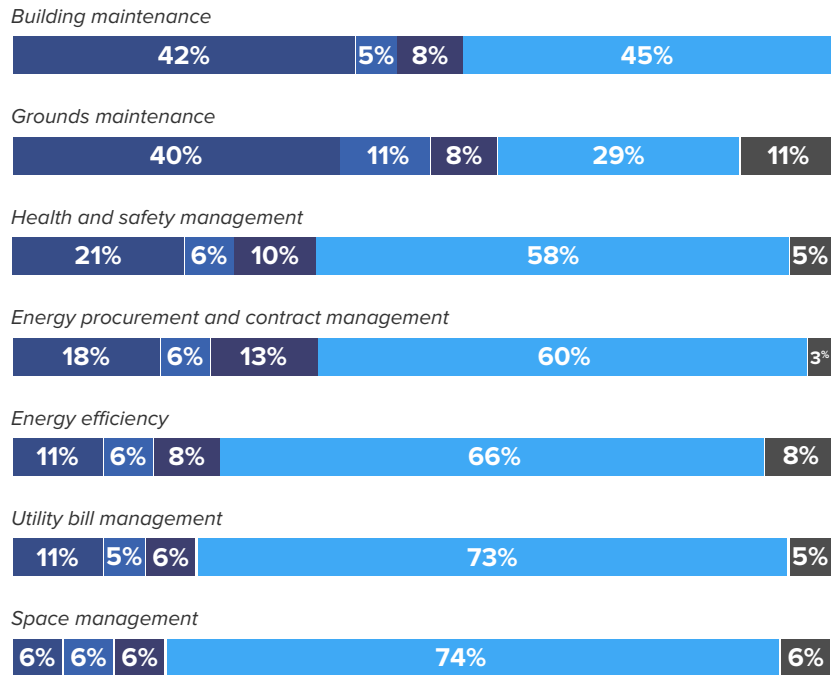


Figure 6

Firms commonly outsource tactical areas of facilities management – there is less momentum behind outsourcing for energy efficiency

“Which of the following services, if any, do you currently outsource on an ongoing basis? And which of these services are you considering outsourcing in the future?” (select all that apply)



Limited data on energy consumption and building performance.

Investment programs within integrated energy and facilities strategies must be based on accurate and trustworthy data to firstly identify attractive projects, and secondly ensure that target ROIs are achieved once the projects have been implemented. Our interviewees believe one major hurdle is a lack of granular data on energy consumption and lack of data on building systems performance. For example, 86% of interviewees believe that their organization needs to install more energy data collection devices, while 82% of respondents believe that their organizations should install systems to collect more data on building performance.

Disparate data collection systems for energy and building performance.

Another challenge on the data front is siloed data management systems. Sixty-four percent of organizations are looking for greater integration across energy and facilities data systems to help them uncover new patterns and associations with respect to energy and building assets. Extracting this data is often challenging due to the range of equipment from different manufacturers, made in different years and to different specifications – all providing data in a multitude of formats.

Lack of a strategic approach to facilities optimization.

Across the board, our interviewees believe there are opportunities for more integrated thinking with respect to energy and facilities – 86% of interviewees believe their firm could improve the coordination of energy management with facilities management strategies (see **Figure 7**).

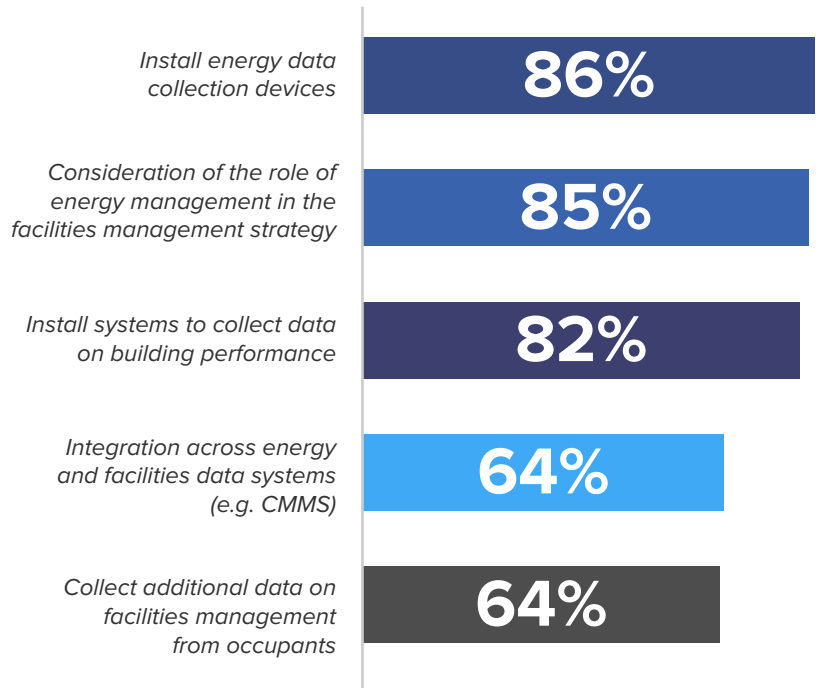
Lack of time for more strategic approaches.

Sixty-four percent of our interviewee stated that lack of staff resources are either significant or very significant barrier for integrating energy and facilities management. In deeper conversations, we heard that while many organizations acknowledge the potential benefits of an integrated approach, facility managers are often busy responding to more urgent activities such as reactive maintenance activities and ensuring compliance, to spend time on more strategic activities.

Figure 7

Organizations identified a wide range of improvement areas to bring energy management and facilities management closer together

“What steps do you believe your organization needs to take to improve the integration of facilities management and energy management?” (select all that apply)



SECTION 4

Four Steps for Integrating Energy and Facilities Management

There are several hurdles facilities and energy managers need to clear before they can operate their buildings more efficiently. Firms at different stages of maturity can take a series of steps to help them progress on the path to more integrated energy and facilities management:

1

Ensure energy and facilities management strategies are aligned.

Our interviews show that the lack of an integrated strategy and silos between different teams are blockers for the integration of energy and facilities management. Developing a facilities optimization strategy will require a facility-wide decision-making approach considering the impact of facility-wide and lifecycle costs. Facilities optimization also requires an approach that links in business metrics not usually factored in real estate and facilities decisions such as well-being and comfort. When developing such strategies, facilities and energy managers should involve a range of stakeholders, such as staff, site managers, asset owners, managing agents and tenants to ensure that integrated programs can become embedded into daily operations so savings are maintained in the long term. Outsourced providers that are able to support these integrated approaches on an ongoing basis can also accelerate adoption of best practices.

2

Leverage a software system to gain a single, holistic view of all energy assets.

To run energy management programs and prioritize facilities improvement projects, organizations need a consolidated and normalized view into energy consumption from sources such as energy meters and sub-meters. To do this efficiently requires an enterprise-level software application – trying to complete this task manually or via spreadsheets will consume vast amounts of time as data needs be cleansed and organized before analyses can be run to identify operational improvement opportunities. There are hundreds of enterprise energy management software applications available in the market that can help automate these tasks.

3

Bring in expert partners that add value.

Many organizations work with outsourced facilities management providers as they look to reduce the operating costs of buildings. The interviews show that there are opportunities for organizations to work with outsourced providers that have capabilities to integrate energy and facilities management within their services to open up further cost savings. Today, many of the largest facilities management firms have launched energy management capabilities by establishing small energy services teams. Buyers should question potential facilities management partners about the extent to which they are truly integrating energy and facilities management in their approach.

4

Consolidate data systems to shift focus from individual building management to portfolio optimization.

Even for organizations that are making progress at the facility level, there may still be opportunities for firms to extend best practice organization-wide. For example banking firm Barclays has now rolled out a remote building management control system across the majority of its portfolio, following a successful pilot project to support a 30% reduction in global energy usage over three years. Implementing a single software platform for the portfolio is a key ingredient, as it allows for insights to be shared among different facility teams.

ABOUT ENOVITY

We are engineers who operate, maintain, and optimize facilities, assuring higher performance places. Our services support real estate, facilities, and energy leaders through the design, construction, operation, and optimization of the built environments that are critical to business.

Whether your organization is well along the way to integrating energy and facilities management, or just getting started, Enovity can help. For more information, visit www.enovity.com or contact us today for a consultation.



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