

WHAT IS THE OUTLOOK FOR US ENERGY MANAGEMENT?
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EXECUTIVE SUMMARY

The energy management market in the US is highly complex and multi-faceted, with suppliers and customers both dealing with their own unique challenges. Which factors contribute the most and how do firms react in the face of these drivers? This report for US utilities and energy services providers brings together an analysis of energy management drivers that have the biggest impact on the US market with unique survey data to understand the subsequent corporate and public sector response. The analysis finds that firms are targeting energy management initiatives that assist with compliance and provide short payback periods.

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INEXPERIENCE AND STRICT PAYBACK HURDLES SLOW CORPORATE RESPONSE

Risk-Averse Energy Managers Target Short-Term Wins And Compliance

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ORGANIZATIONS MENTIONED

American Institute of Architects, ASHRAE, Chuck E. Cheese's, Continental Automated Buildings Association, EBAA Iron Sales, EnerNOC, EnTouch Controls, Genability, Governance & Accountability Institute, National Grid, NSTAR, Regional Greenhouse Gas Initiative, Schneider Electric, Standard & Poor's, Steven Winters Associates, Summit Energy, Unitil, Urjanet, US Census Bureau, US Department of Energy, US Energy Information Administration, US Environmental Protection Agency, Vista Unified School District, Walmart, WegoWise, Western Massachusetts Electric, Workiva, Wyman's

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WHAT IS THE OUTLOOK FOR US ENERGY MANAGEMENT?

The energy management market in the US is highly complex and multi-faceted, with suppliers and customers both dealing with their own unique challenges. It is complicated further by drastic regional and state differences in climate, regulations and economic health. When dealing with a system this intricate, it can be difficult to unpack the cause-and-effect relationship between energy-related events and the market's growth and evolution. Which factors contribute the most and how do firms react in the face of these drivers? This report for US utilities and energy services providers brings together an analysis of energy management drivers that have the biggest impact on the US market with unique survey data to understand the subsequent corporate and public sector response.

Voluntary Programmes And Subdued Prices Support Market

A significant number of drivers influence the US corporate energy management market. Many of these factors have an indirect impact on the direction and health of the market. Verdantix research identifies these factors as:

- National policies that are voluntary or focus on public buildings.** Although the 2009 American Recovery and Reinvestment Act poured \$3.2 billion into energy efficiency improvements, the US currently lacks a comprehensive national policy that mandates energy consumption reporting by private buildings. A number of other federal policies, either voluntary or sector-specific, do exist. Among these is the Better Buildings Initiative, which was launched in 2011 and aims to meet reduction targets by addressing obstacles to retrofit financing and building performance standards (see Verdantix White House Hopes To Ignite Green Retrofit Market). Also significant is the Department of Energy's rule 10 CFR 433, which in 2013 updated energy efficiency performance standards for the construction of new federal buildings.
- Regional policies that help fund energy management programmes.** The most notable example of a regional energy policy is the Regional Greenhouse Gas Initiative (RGGI), a greenhouse gas cap-and-trade system that includes nine New England and Mid-Atlantic states. As part of the initiative, funds acquired via emissions permit auctioning must be used to invest in energy efficiency or renewable energy projects (see Verdantix First RGGI Auction Is A Crucial Proof Of Concept). These initiatives are projected to return more than \$2 billion in lifetime energy savings to programme participants. For example, food distribution firm Wyman's used RGGI funds to cover nearly 20% of the \$1.4 million cost of upgrading the efficiency of its refrigeration system.
- Rising long-term energy prices.** Firms looking to protect themselves against rising energy prices turn to energy-saving initiatives. The US Energy Information Administration (EIA) forecasts commercial and industrial electricity prices to experience real annual growth rates of 0.7% and 1.0%, respectively, through 2018 (see Figure 1). The EIA projects commercial and industrial natural gas prices to undergo year-on-year real growth rates of 2.7% and 5.0%, respectively (see Figure 2). Increases in natural gas prices will result as growing consumption forces producers to move into areas where the recovery of gas is more difficult and expensive. Growing US interest in exporting

Figure 1. US Commercial And Industrial Electricity Prices 2013-2018

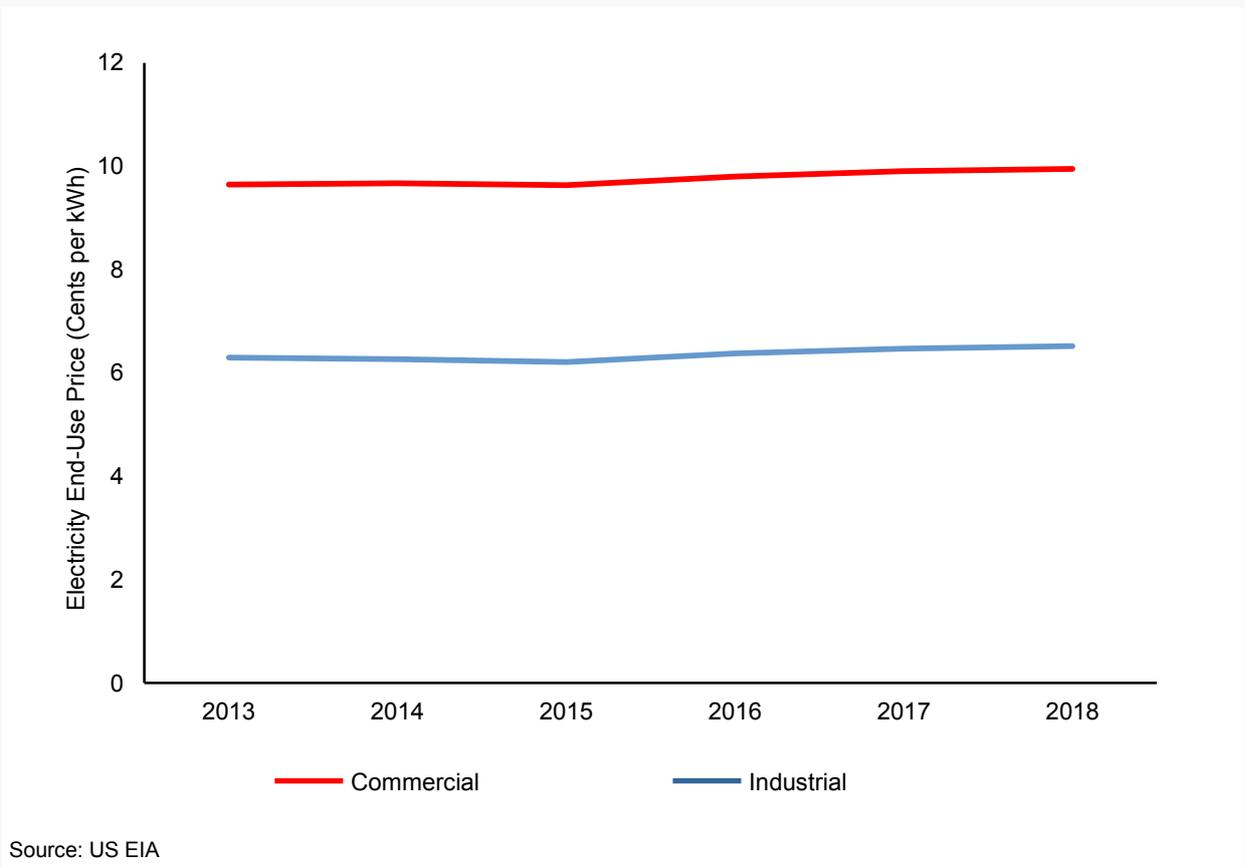
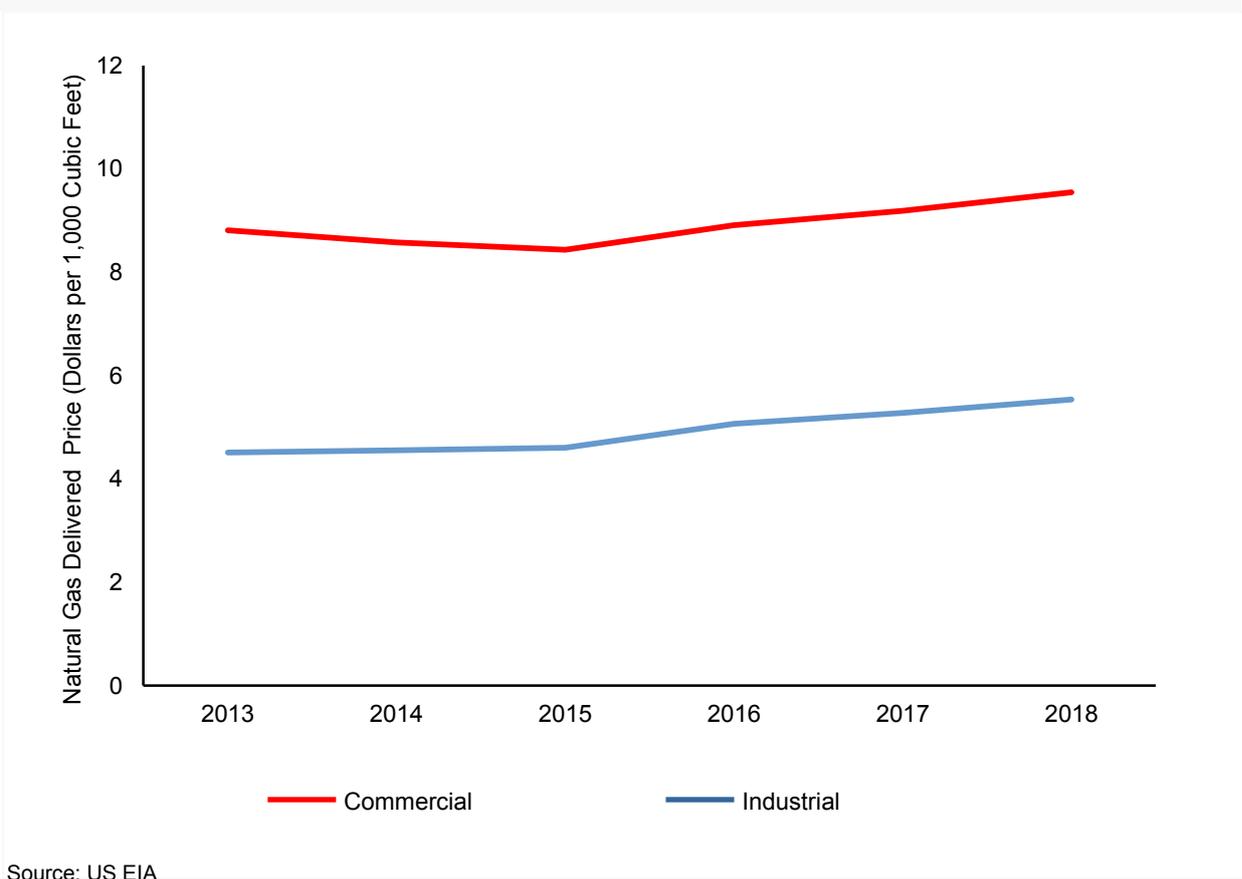


Figure 2. US Commercial And Industrial Natural Gas Prices 2013-2018



natural gas will also contribute to a rise in domestic prices (see Verdantix US Shale Gas Glut Will Not Derail The Energy Efficiency Case).

- **Fluctuating short-term energy prices.** Unforeseen market events can have a big impact on energy prices for firms not on a fixed price energy contract. Texas-based manufacturer EBAA Iron Sales saw a roughly 50% increase in electricity costs in 2012 due to congestion pricing, a result of record local oil production outpacing the growth of electricity infrastructure in the region. This large potential degree of price risk leads firms to invest in strategic energy procurement advice. For instance, Summit Energy (now part of Schneider Electric) advised a Texas aerospace manufacturer not to enter into a fixed price contract, despite prices being historically low, because they forecasted prices to continue falling. This projection proved accurate, and the firm managed to save \$5 million in energy costs by locking in lower prices later on.

Targeted Policies Providing Financial Support Attract Attention

The US corporate energy management market is affected secondarily by multiple inputs. But it is driven more directly by corporates' need to protect the bottom line and by policies that foster investment in energy management technologies and initiatives through mandates and financial incentives. Verdantix analysis finds that the strong drivers of the US energy management market are:

- **State policies on the energy efficiency of buildings.** State energy policies have mostly revolved around implementing building energy codes that dictate compliance with ASHRAE or International Energy Conservation Code standards and requiring energy benchmarking of public buildings. California and Washington are the only two states to require commercial building energy usage disclosure, which a study by the Environmental Protection Agency shows correlates with a decrease in energy consumption. The study, published in October 2012, revealed that, as a whole, the 35,000 buildings using the ENERGY STAR Portfolio Manager experienced a 7% decrease in energy consumption from 2008 to 2011.
- **State incentives to fund projects.** State-level financial incentives for energy efficiency projects are helping drive investment for both public and private organizations. California's Clean Energy Jobs Act allocates over \$500 million annually for energy efficiency and renewable energy projects in schools. Schneider Electric has already cashed in on this proposition, winning a \$4.7 million energy equipment retrofit contract with Vista Unified School District in August 2014. In Vermont, the Commercial Energy Loan Program provides up to \$2 million in financing to businesses in order to make energy efficiency improvements.
- **Mandatory city policies.** Many of the US's most sizable cities have included energy efficiency initiatives as part of their wider-reaching sustainability plans. Similar to policies initiated at the state level, these city energy initiatives typically focus on building energy codes and emission reduction goals for government buildings. In addition to several large cities implementing requirements around disclosing commercial building energy use, including San Francisco, Seattle and Washington, DC,

some cities have also enacted regulations pertaining to the administration of energy services. This is the case in New York: its Greener Greater Buildings Plan stipulates that sub-meters be installed for major commercial tenants of large buildings by 2025 (see Verdantix NYC Strategy Aims To Catalyse Change Through Stakeholders).

- **Utility incentive programmes.** Twenty-five states are currently implementing a long-term energy savings target for their utilities. Many of these are in the form of an Energy Efficiency Resource Standard (EERS), the strongest of which are in Massachusetts, Rhode Island and Vermont, and require achieving 2.5% energy savings annually. These types of targets lead many major US utilities to incentivize their customers to adopt energy efficiency measures. In Massachusetts, for example, large utilities National Grid, NSTAR, Unitil and Western Massachusetts Electric all try to enrol customers in energy efficiency programmes. Through these programmes, firms may choose to undergo a lighting retrofit, for example, where the utility will partially or fully finance the project. In some instances, the utility will even undertake the project implementation itself.

New Technology, Historic Mismanagement And Economic Recovery Create Opportunities

Policies implemented at the state, city or utility level serve as effective drivers for investment in energy management. Other factors, such as historic mismanagement of buildings, a recovering national economy and advances in data collection technology, are also strong drivers of spending. Further market growth opportunities stem from:

- **Untapped efficiency opportunities.** Data from the Continental Automated Buildings Association reveals that at least in the Building Management System (BMS) retrofit market there is a significant opportunity for work, as only 20% of US buildings have a BMS already installed. In certain sub-segments of the US's building stock this opportunity is magnified: only 5% of industrial buildings already have a BMS installed, while the figure drops to a mere 3% for commercial buildings under 100,000 square feet in area.
- **Construction sector health.** Both new construction and retrofit projects entail significant spending by firms on BMSs, building controls and other technologies that enable energy efficiency. After reaching a peak of \$408 billion in 2008, according to the US Census Bureau, the US construction market plummeted to a size of \$257 billion in 2011 in large part due to the real estate overhang from the boom period up to 2008. Since 2011, though, the market has experienced moderate growth, and the American Institute of Architects forecasts the non-residential construction sector to grow at a rate of 8% through 2015. This growth will stimulate the undertaking of new building projects as well as deep building retrofits that go beyond incremental upgrades.
- **Energy data availability.** Deployments of data collection devices such as smart meters, sensors and sub-meters are vastly increasing the amount of energy information available for corporates, allowing them to identify profitable energy management projects. Firms such as EnerNOC-backed Genability and Urjanet are giving customers increased access to electricity tariff and utility bill data, respectively (see Verdantix

EnerNOC Gets The Focus Right With New Software Strategy). A growing number of installed BMSs in North America now use open protocols, which make BMS data integrable with other hardware and building systems (see Verdantix Technology Applications Transform Energy Services).

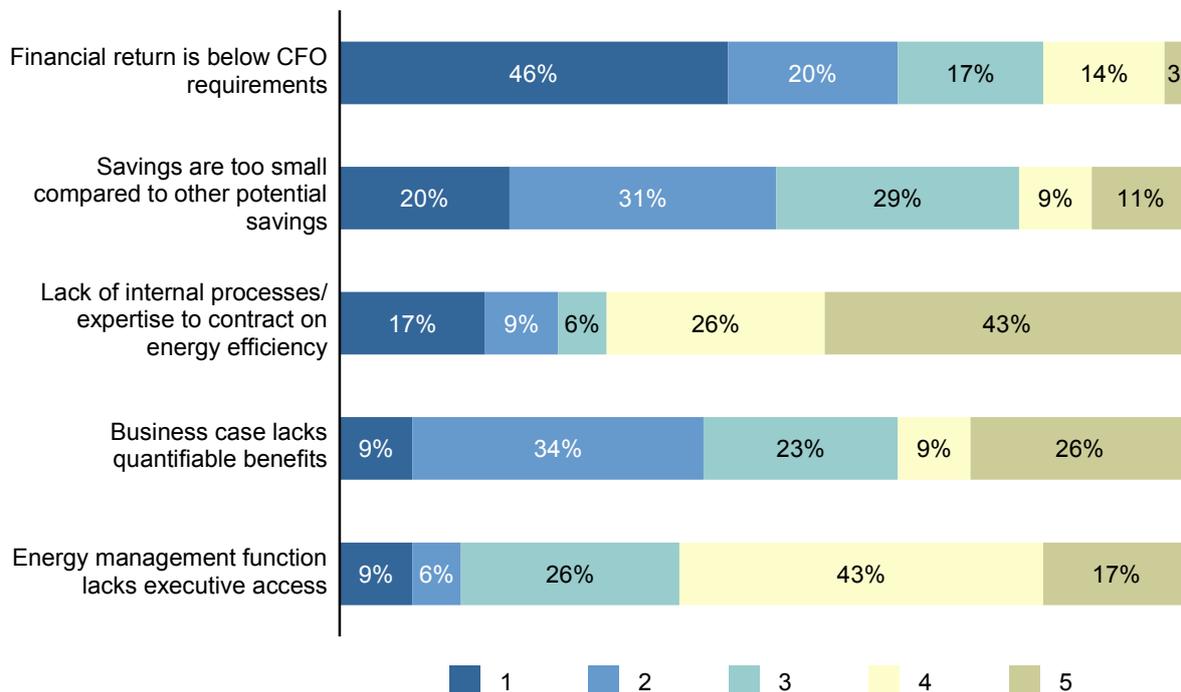
INEXPERIENCE AND STRICT PAYBACK HURDLES SLOW CORPORATE RESPONSE

A long list of economic, regulatory and technological drivers shape the US corporate energy management market. So how is the US corporate sector reacting? With a huge lag. Although 60% of firms expect to see energy prices increase in the next 12 months, only 43% expect to see an increase in energy management budgets. Since 2012, Verdantix has conducted global surveys of energy managers across 13 geographies and 21 industries to further understand corporate energy management strategies. Analysing results from US respondents regarding potential barriers to investment found that:

- **Financial returns that are below CFO requirements block spending.** Verdantix research has found that energy management projects are required to meet strict payback periods that are in most instances less than 18 months. In 2012 and 2013, Verdantix heard that satisfying a CFO's payback hurdle was the most significant barrier to investment in energy efficiency (see Figures 3 and 4). Within firms that are not able to dedicate significant budgets to energy management, energy management projects have to compete directly with other operational improvement projects for funding (see Verdantix Global Energy Leaders Survey 2012: Data Tables). As the US energy management market matures, expect the strictness of payback hurdles to lessen for energy management projects that align with firms' strategic goals.
- **Business cases frequently lack quantifiable benefits.** The 2013 Energy Leaders Survey found that 43% of US respondents considered a lack of quantifiable benefits to be one of the two most significant barriers to investment in energy management (see Verdantix Global Energy Leaders Survey 2013: Data Tables). Many potential energy management projects never even get presented to the CFO because people fail to build a business case for them. Other projects are immediately disregarded because the business case that does get presented is not clear or justifiable. Firms often struggle to build a business case for investment because of a lack of energy management expertise and a dearth of quality data. This barrier is magnified when firms are evaluating investments that are either unproven or difficult to quantify, such as employee engagement tools.
- **Lack of access to executives is not a major hurdle for energy managers.** Less than 10% of 2013 survey respondents believed a lack of executive access was the most significant deterrent to investing in energy management initiatives. This aligns with the increase in firms developing centralized energy management strategies. In 2012, 36% of US firms had centralized strategies with global governance, and in 2013 this had increased to 54%. Centralized energy management strategies are more likely to be headed up by a member of the C-suite.

Figure 3. 2013 Energy Management Investment Barriers

“Please rank the significance of the following barriers to investing in energy management initiatives at your organization.” (1 is the most significant, 5 is the least significant)

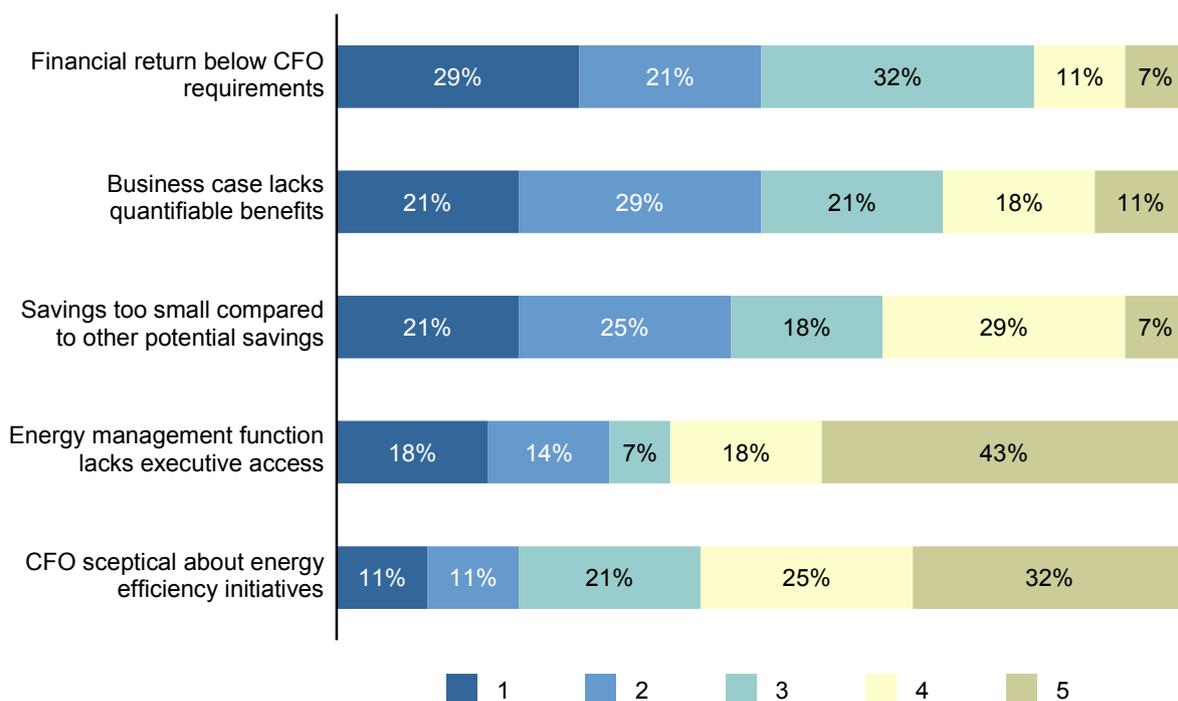


Note: Data labels are rounded to zero decimal places; data labels less than 5% are written as numbers
Source: Verdantix

N=33

Figure 4. 2012 Energy Management Investment Barriers

“Please rank the significance of the following barriers to investing in energy efficiency at your organization.” (1 is the most significant, 5 is the least significant)



Note: Data labels are rounded to zero decimal places
Source: Verdantix

N=28

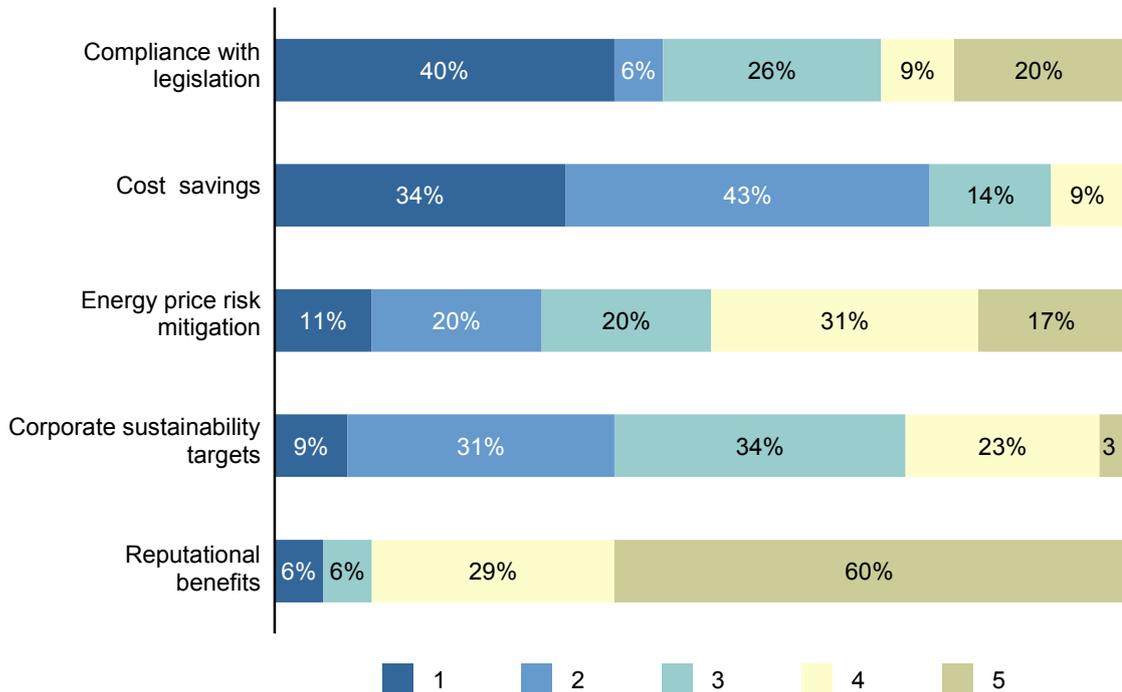
Risk-Averse Energy Managers Target Short-Term Wins And Compliance

A number of market drivers are leading firms to pay more attention to energy management, but due to strict financial payback periods and the difficulties involved in building the business case for energy management, this increased attention does not always translate into increased activity and expenditure. For those firms that are taking control of their energy consumption and stepping up their investment in energy management, what are the drivers for doing so? We find firms are:

- **Relying on energy management to deliver cost savings.** Unsurprisingly, corporates are demanding energy management solutions that provide demonstrable cost savings and quick payback periods. Fifty-two per cent of 2012 Energy Leaders Survey respondents thought getting payback from energy cost savings within two years was very important for convincing their CFO to fund an energy management initiative, while 34% of 2013 survey respondents thought cost savings was the most important factor (see Figures 5 and 6).
- **Responding actively to legislation.** Forty per cent of 2013 survey respondents thought that compliance with legislation was the most important factor for investing in an energy management initiative, while 27% of 2012 respondents believed compliance with carbon and environmental legislation was very important. In New York City, building owners need to comply with Local Law 84, which mandates energy usage benchmarking. Mandatory legislation provides energy services firms with an opportunity to launch new services. Steven Winters Associates, a green building consultant, and WegoWise, an energy benchmarking software provider, have developed a joint offering where they will manage the necessary data collection and document submission to ensure compliance with Local Law 84.
- **Forestalling future energy price increases.** An increasing number of firms are developing energy management strategies that look not only at efficiency, but also at the impact of future policies and changes in energy prices. Sixty per cent of survey respondents in 2013 expected their firm's spending on gas and electricity to increase over the next year (see Figure 7). Restaurant chain Chuck E. Cheese's prioritized mitigating the negative impact of rising energy costs when they selected EnTouch Controls's software and controllers. Across 104 stores and after five years, the chain ended up saving nearly \$8 million.
- **Requiring energy data to satisfy sustainability reporting requirements.** The 2013 Energy Leaders Survey revealed that 40% of respondents believed corporate sustainability targets were either the most important or second-most important driver for investing in energy management. This goes hand-in-hand with firms needing data to populate sustainability reports, which are becoming more common across the US; a study by the Governance & Accountability Institute found that the percentage of Standard & Poor's 500 firms disclosing sustainability information rose from 19% in 2010 to 53% in 2011. The recently announced partnership between Urjanet and enterprise reporting software provider Workiva illustrates the growing demand from corporates to integrate their sustainability reporting function with other business operations.

Figure 5. 2013 Energy Management Investment Drivers

“Please rank the importance of the following factors for your organization when looking to invest in energy management.” (1 is the most important, 5 is the least important)

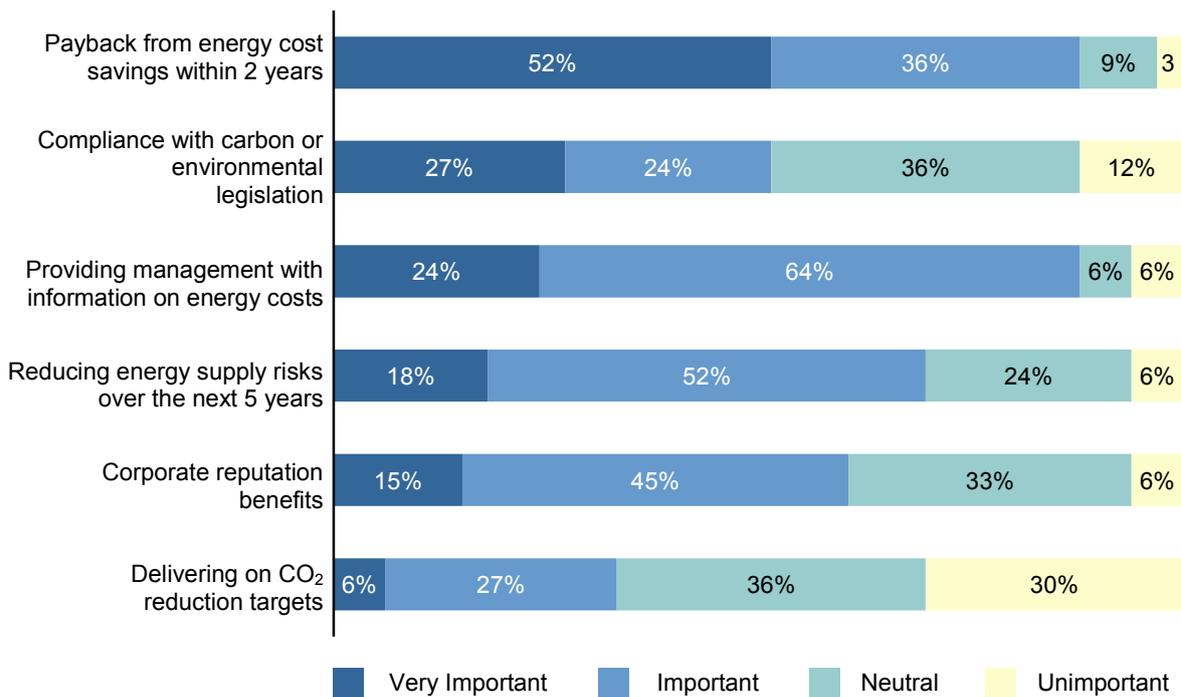


Note: Data labels are rounded to zero decimal places; data labels less than 5% are written as numbers
Source: Verdantix

N=33

Figure 6. 2012 Energy Management Investment Drivers

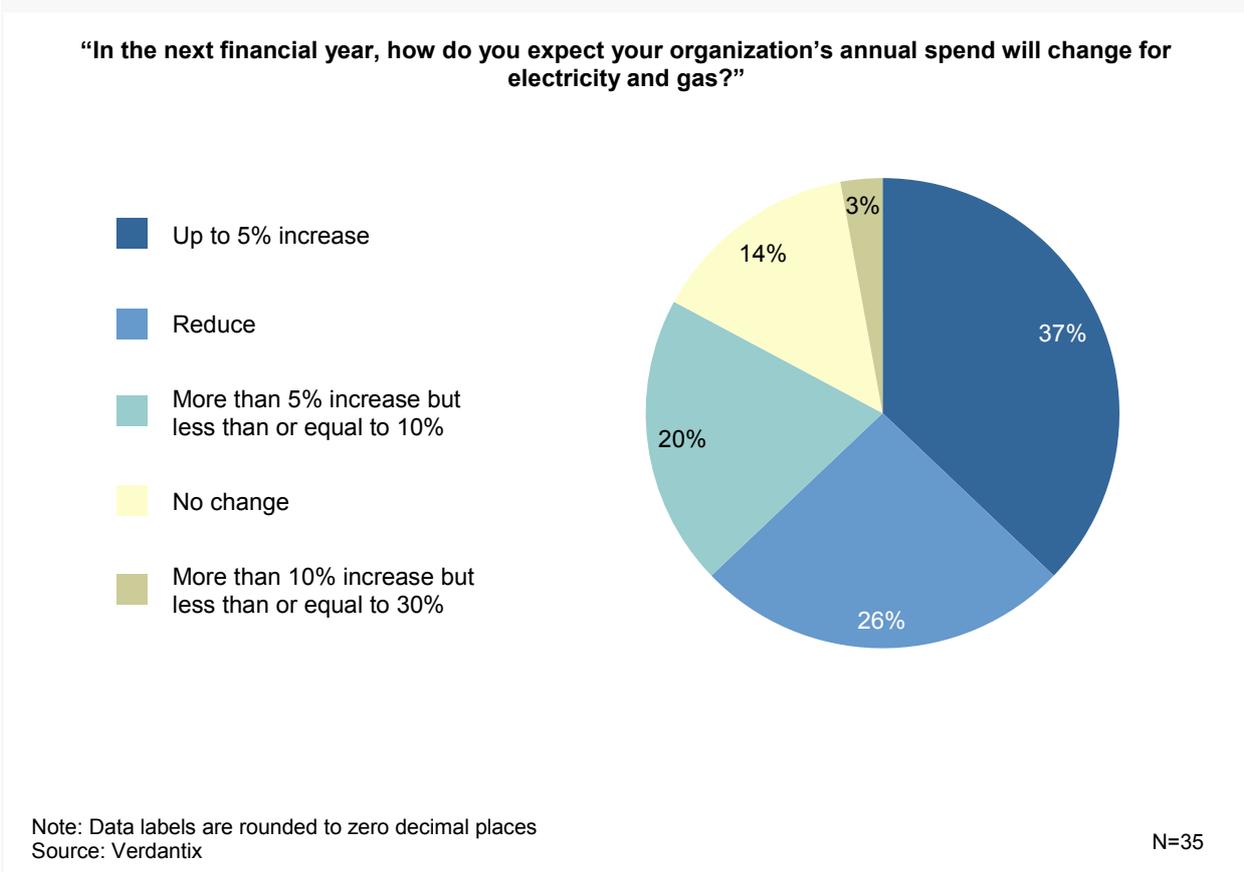
“Please rank the importance of the following factors for your organization when looking to invest in energy management.” (1 is the most important, 5 is the least important)



Note: Data labels are rounded to zero decimal places; data labels less than 5% are written as numbers
Source: Verdantix

N=28

Figure 7. Financial Year 2014 Expected Energy Spend



- Willing to invest in proven technologies.** For a majority of firms, which look for relatively easy, near-term wins, the focus has stayed on investments in mature energy efficiency technologies. In 2013, 86% and 83% of US Energy Leaders Survey interviewees said they planned to invest in HVAC upgrades and energy efficient lighting, respectively. This approach is exemplified by corporate energy management strategies such as that of Walmart, which opened its first store lit completely by LEDs in 2013.
- Struggling to identify reputational benefits.** In 2013, only 6% of US respondents found reputational benefits to be the most important factor when looking to invest in energy management. In comparison, 60% of respondents felt that it was the least important driver. It is not surprising that reputational benefits are the weakest driver, as it is difficult to quantify the impact of energy management on reputation and, subsequently, the knock-on effects this has on business performance. This further reinforces the demand for energy management projects to have clear business benefits that are easy to quantify.

About Us

Verdantix is an independent analyst firm. We provide authoritative data, analysis and advice to help our clients succeed in the world of sustainable business. Through our global primary research and deep domain expertise we provide our clients with strategic advice, revenue generating services, best practice frameworks, industry connections and competitive advantage.

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How Our Clients Benefit

Through annual access to Verdantix reports, data and webinars as well as drawing on the expertise of the analyst team, our clients achieve the following:

- Faster internal sign-off for project funding and annual budgets
- Improved strategic decision-making on energy and sustainability
- Enhanced understanding of competitive position
- Accelerated revenue growth for energy and sustainability offerings
- Reduced risk in supplier selection
- Increased brand profile in the energy/sustainability ecosystem

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