MACH
ENERGY

2015 Industry Survey of Building Management Professionals

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Executive Summary

In their 2012 Commercial Buildings Energy Consumption Survey[1], the U.S Energy Information Administration (EIA) stated that there are in total 5.6 million commercial buildings in the U.S., and in recent years, commercial floor space has grown from approximately 70 billion square feet in 2003, to 87 billion square feet in 2012, more than a 30% increase.

Forty-one percent of total U.S energy consumption can be directly accounted for by commercial as well as residential buildings,[2] so we should expect renewed interest in energy reduction methods. Energy management systems and software (EMS) are proven technologies that enable reduced energy usage, and implementing them can deliver real measurable results and savings. Through the integration of analytics, reporting, equipment management, and monitoring, building and facility owners, managers and operators can realize savings of time, money and effort. Nevertheless, in McKinsey's report "Unlocking Energy Efficiency in the U.S.," the researchers noted that despite potential energy savings opportunities of nearly $160 billion annually, most of these savings remain unrealized.

Given the vast amount of energy consumption in this particular sector, there has been a gradual increase in public awareness of energy efficiency, as well as the potential savings associated with reduced consumption. In Ecova's comparative industry survey[3] of adoption of Energy Management Systems (EMS) in commercial buildings, it was determined that there has been a 23% increase in adoption rate of such systems from 2013 to 2015.

However, the specificity and scope of that survey gives us little insight as to goals, frequency, time spent, as well as depth and diversity of methods and tactics employed by building professionals in running their buildings efficiently, and how energy management plays a part in it.

1 Commercial Buildings Energy Consumption Survey (CBECS): http://www.eia.gov/consumption/commercial/
2 Energy Consumption Data for Commercial buildings will become available later in 2015
3 Ecova Value of EMS Survey: http://www.ecova.com/news-media/press-releases/ecova-survey-reveals-more-companies-are-using-energy-management-systems.aspx

In the spirit of providing more information and transparency to the industry, MACH Energy has conducted one of the largest industry surveys of building professionals to date to determine:

1) Individual goals in implementing EMS – Is there a clear trend towards sustainability, or is reducing costs the highest priority?
2) Which factors are most important to each individual in the running of their buildings? Some examples of these factors include tenant comfort, benchmarking requirements, ENERGY STAR score etc.
3) How important is energy management software, or if installed already, which particular features and tactics were the most useful?

We employed the following methodology to gather objective and accurate data to deliver a better understanding of the state of the industry: We surveyed close to 800 building professionals encompassing all major metropolitan areas and individuals in all states. The survey targeted segments with buildings of mostly over 50,000 square feet, of the following verticals:

1) Commercial multi and single tenant office
2) Corporate facilities
3) Hotels and hospitality environments
4) Government, including municipal, federal, as well as military
5) Retail and
6) Residential (managed properties, not single residences)

These individuals were polled through an online survey with questions specifically tailored to their stated job title, as well as current state of energy management implementation.

Our deepest thanks go out to all our survey respondents for taking the time to complete the questions and in doing so, giving us the opportunity to obtain in-depth insights into the state of energy and building management. If you have any comments and questions about this research and its methodology, please feel free to give us a call or send us an email, and we'd be very happy to begin a dialogue with you.

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Survey Conclusions

1. *Cost and expense reduction*

We can summarize that cost reduction is still the most important goal in implementing energy management programs, followed by energy efficiency reasons and increasing ease and flexibility for job purposes. ENERGY STAR benchmarking, which has been a major part of many city and state ordinances is still important, at 28%, but interestingly, the survey showed savings are still the most critical driver - an important takeaway for industry participants.

Even with the increased adoption of energy management systems, the market therefore still remains in a potentially high-growth stage, with 25% of surveyed individuals responding positively to current or future implementation of energy management software, while almost 50% stating that they were unsure. Nevertheless, obstacles facing increased adoption include an environment of apathy, as well as a lack of understanding and education surrounding the benefits, uses and implementation of energy management software and systems vs. building management systems.

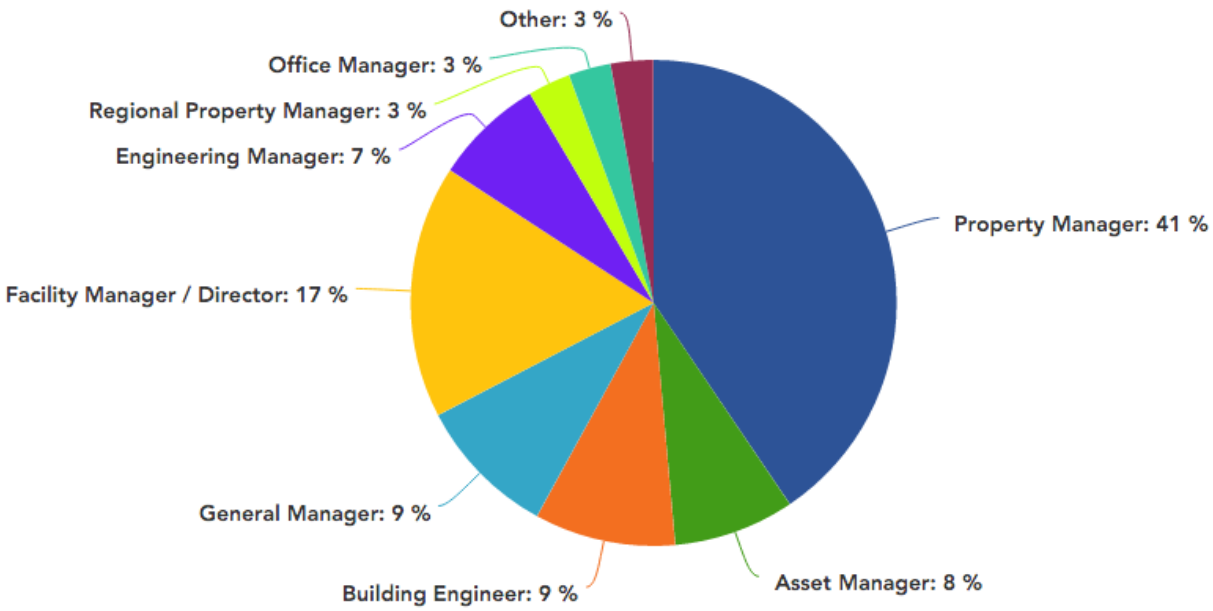
Our findings in cost and expense recovery have also been validated by other reports such as the San Francisco Climate Action Strategy 2014 developed by the Urban Land Institute (ULI) and the San Francisco Department of the Environment. In a press release, Managing Director of Cushman Wakefield Steven M. Ring (CPM, RPA, LEED-AP) said "[they] are interested in research results like this that point to market-wide value from reducing energy expenditures,"[1] showing that "dollars and cents" are still the driving factors behind energy management in buildings.

2. *Marketplace Confusion*

One issue muddying the waters is the fact that most surveyed respondents tended to confuse categorical definitions, correlating **energy management software** (sophisticated technology delivering analytics—real time or otherwise, budget and reporting functions) with **building management systems**, which are often costly, and integrate and control equipment such as building HVAC systems, VAV boxes, chillers and lighting. Unlike energy management software, these systems often do not provide analytics or reporting to optimize energy efficiency and management, resulting in a less-than optimal set up for reducing costs and job efficiency.

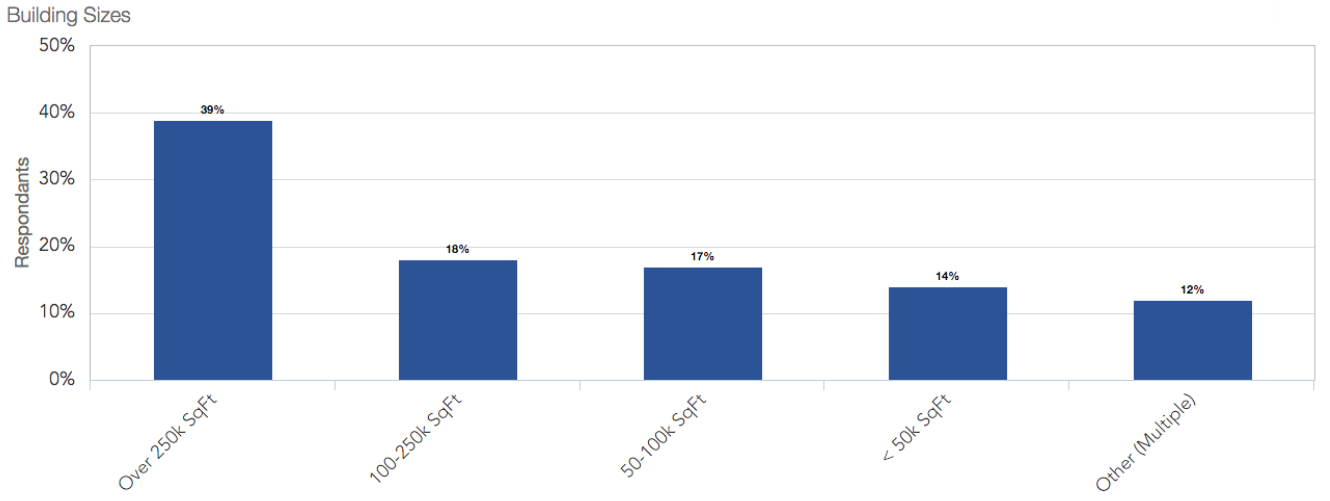
1 San Francisco Department of the Environment (2015): http://www.sfenvironment.org/news/press-release/san-franciscos-benchmarking-ordinance-requiring-commercial-buildings-to-disclose-energy-data-shows-major-reduction-in-energy-use

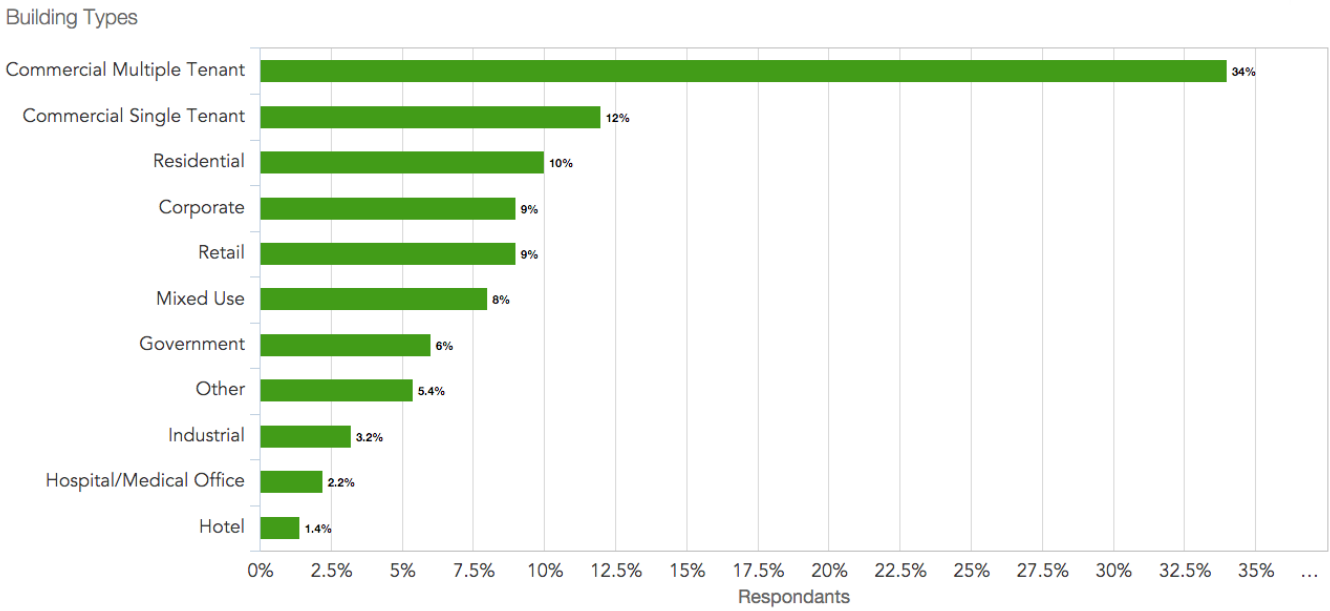
Respondent Profiles: Reaching out to the Building Level



We polled and received close to 800 responses from professionals in the building and facility management industry. As intended, the majority of respondents — approximately 69% — work primarily at the building level, comprising mostly Property Managers, followed by Facility Managers and/or Directors. There was a significant number of responses from Building Engineers, Asset Managers, General Managers, and Engineering Managers.

Building Profiles

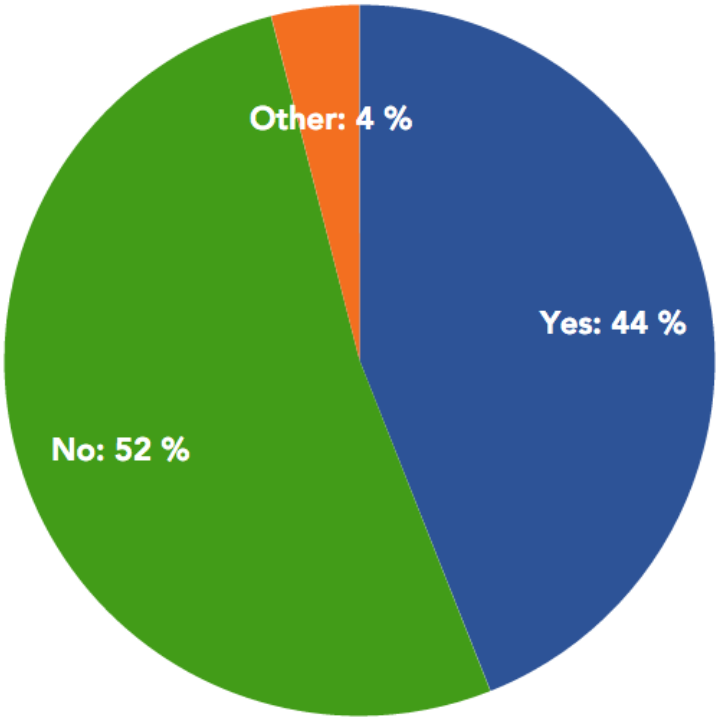




Approximately 40% of buildings managed by our respondents are over 250,000 square feet, while fewer than 15% of the surveyed buildings are smaller than 50,000 square feet. Commercial Office Buildings as well as Corporate Buildings make up more than half of the building types. Other respondents indicated that they managed and worked with Residential, Retail, Mixed-Use, Government, Healthcare/Medical or Hotel Buildings.

Nearly 60% of survey respondents worked with buildings that were over 100,000 square feet in size, despite initial survey requests being sent proportionally to individuals who worked with buildings of different sizes. This might lead to an initial conclusion that there is stronger interest from larger sized buildings and could be attributed to a) smaller buildings' lower cost incentive and impetus, b) the need for affordability for smaller buildings coupled with their lack of knowledge into the availability of BMS or energy savings programs, and c) benchmarking ordinances often being implemented first with larger buildings. As technology costs decrease and overall awareness increases, this is likely to accelerate significantly.

Adoption of Energy Management Software (Not Building Management Systems)



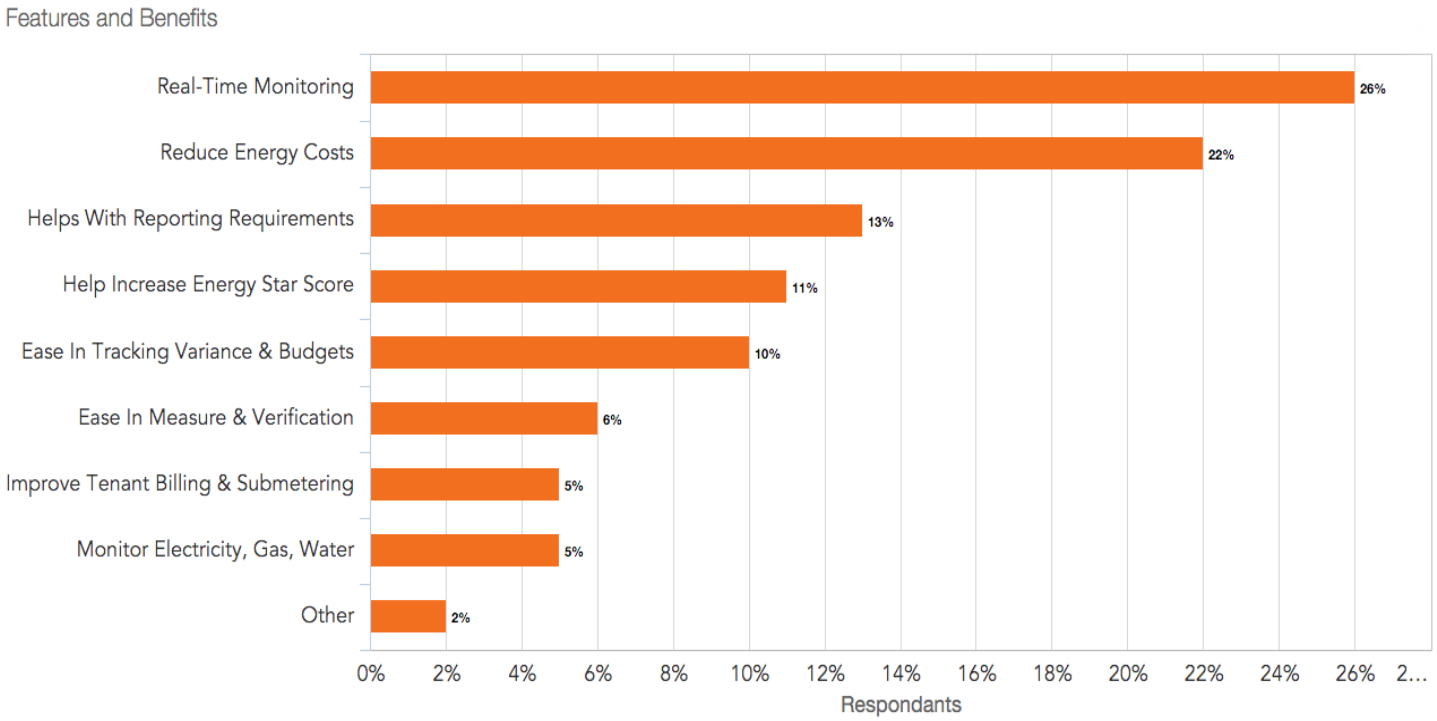
Forty-four percent of the respondents indicated that they had energy management software in place to measure and reduce energy consumption. However, of these respondents, almost 70% listed building management systems vs. standalone energy management software.

The majority of these respondents stating current usage of energy management software listed Johnson Controls as the provider. Four percent of the respondents were uncertain what was being used in their buildings, if at all.

The responses to this question highlight how widespread confusion in the marketplace is.

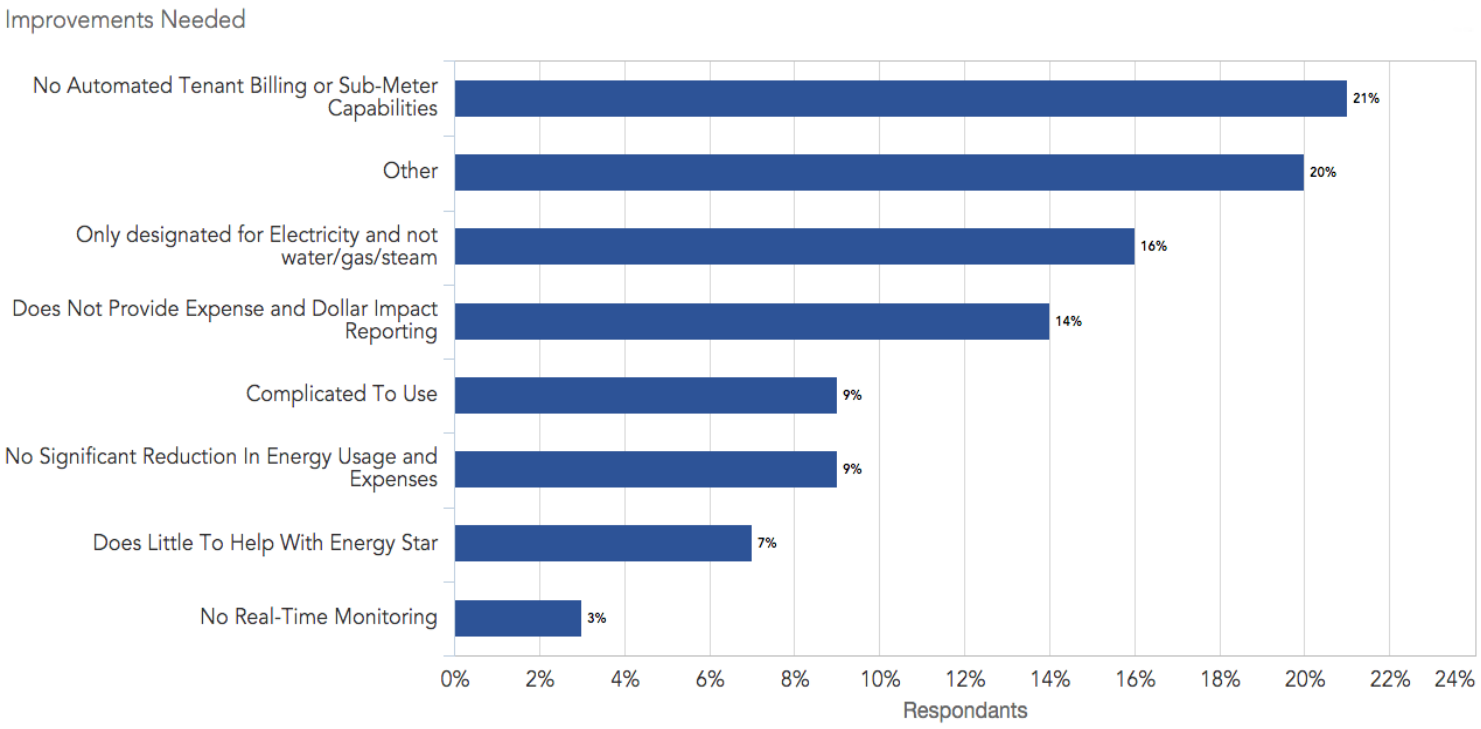
****For the purposes of this question, survey also included customer respondents, who are statistically much more likely to respond than non-customers.*

Energy Management Software: Features and Benefits



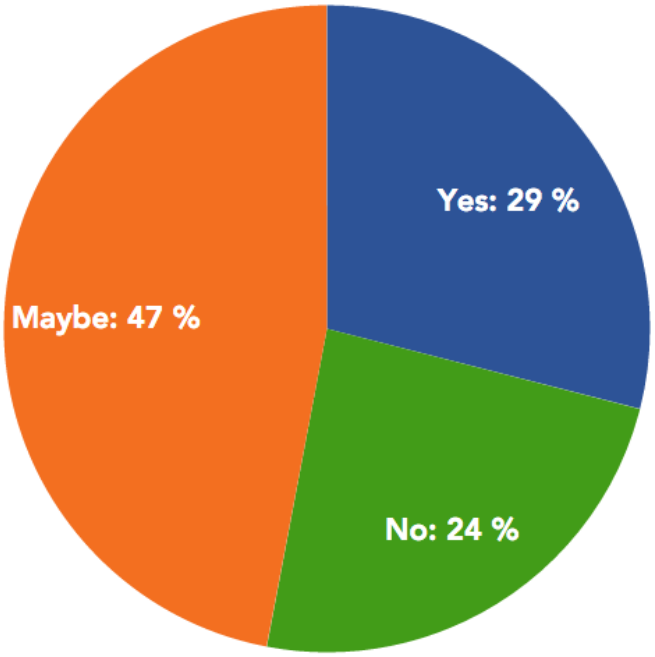
In the era of the Internet of Things (IoT) and with the increased ease in obtaining better access to data, survey respondents who had systems (whether BMS or EMS) implemented already described real time monitoring as the most important benefit to them. This was followed by cost reduction. Respondents also indicated that they enjoyed easier fulfillment of reporting requirements, as well as variance and budget reporting, ENERGY STAR score increases and ease in Measurement and Verification (M&V). The remaining categories included tenant billing and sub-metering improvements, and also the monitoring electricity, water, gas and steam. Two percent listed "other" as a response.

Improvements Needed for Energy Management Software



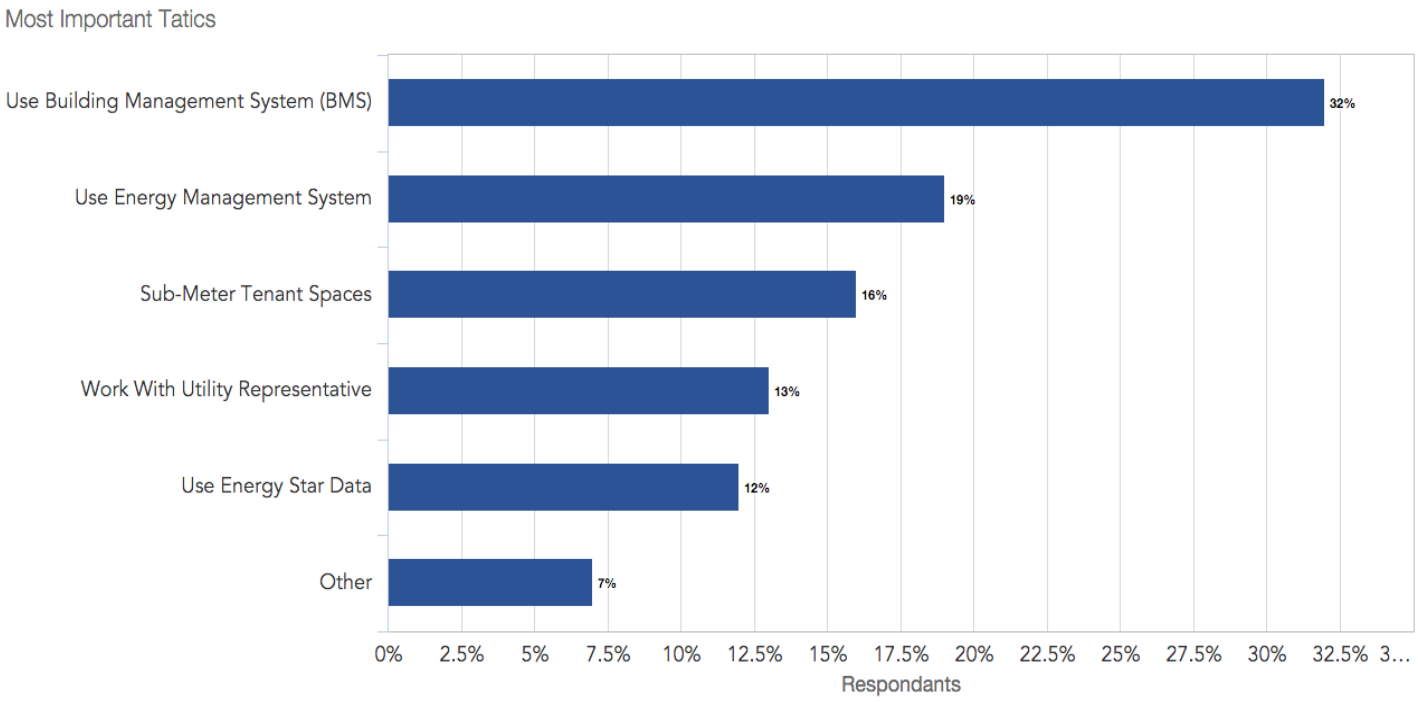
Nearly all respondents who have currently implemented energy management software cited room for improvement. Twenty-one percent cited the lack of automated tenant billing or sub-metering capabilities. Respondents also indicated non-multi utility support (electricity/ water/gas/steam) as a reason, followed by the inability to provide expense and dollar impact reporting as the second and third most common dissatisfactions. Approximately 20% of respondents chose "other", listing prohibitive cost followed by the lack of easy configurations and access across their building portfolios. Once again, because of the confusion in categorical definition, responses to this question might be skewed.

Automated Tenant Billing



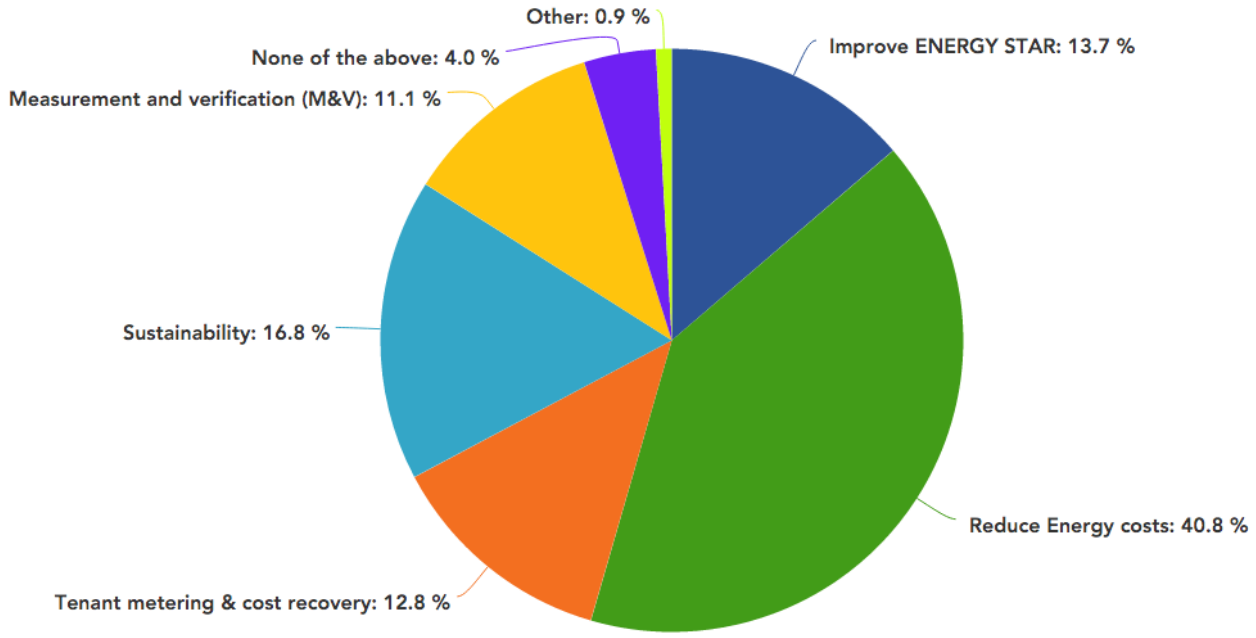
Of those who do not have energy management software, 30% responded positively to wanting tenant billing automation. Reasons for responding "No" were mainly reflections of concerns about the anticipated cost, as well as the usefulness of automated tenant billing where there were no tenants. (For single tenant buildings, various government facilities etc.) Approximately 50% of survey respondents stated a "tentative" outlook. Comparing these results to the previous responses from users of energy management software, we can deduce that interest in automated tenant billing increases significantly for those who do not currently have EMS implemented.

Tactics for Running a Building Efficiently



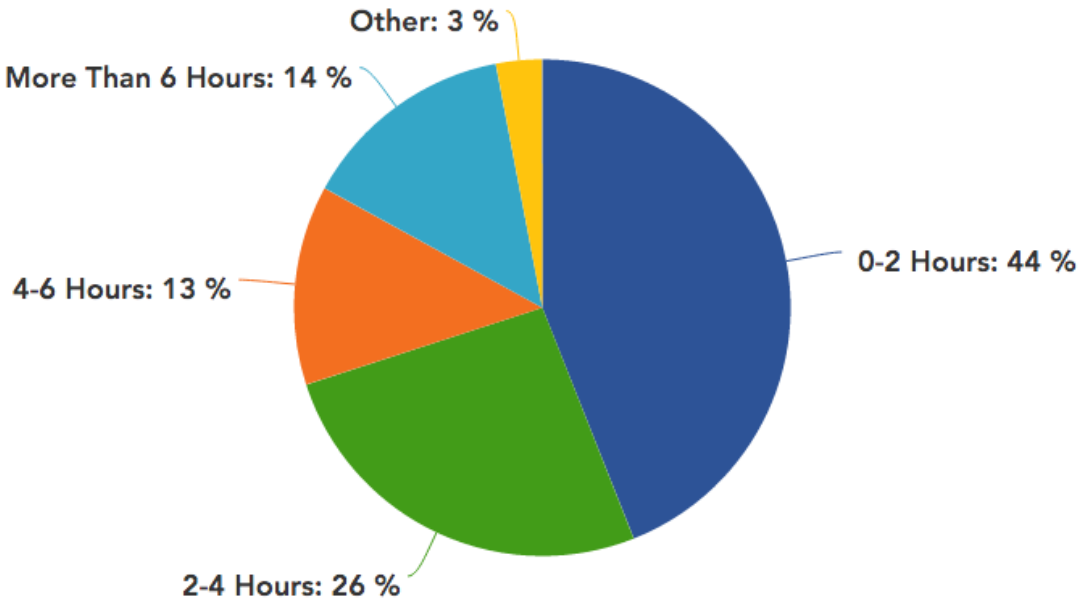
Building Management Systems (BMS) are cited most often by our respondents as the most important tool leveraged for running their buildings efficiently, with Energy Management Software following on its heels. Many acknowledge the importance of sub-metering tenant spaces, working with utility representatives and use of ENERGY STAR Data – all of which can work in tandem with Energy Management Software.

Highest Energy Related Priorities



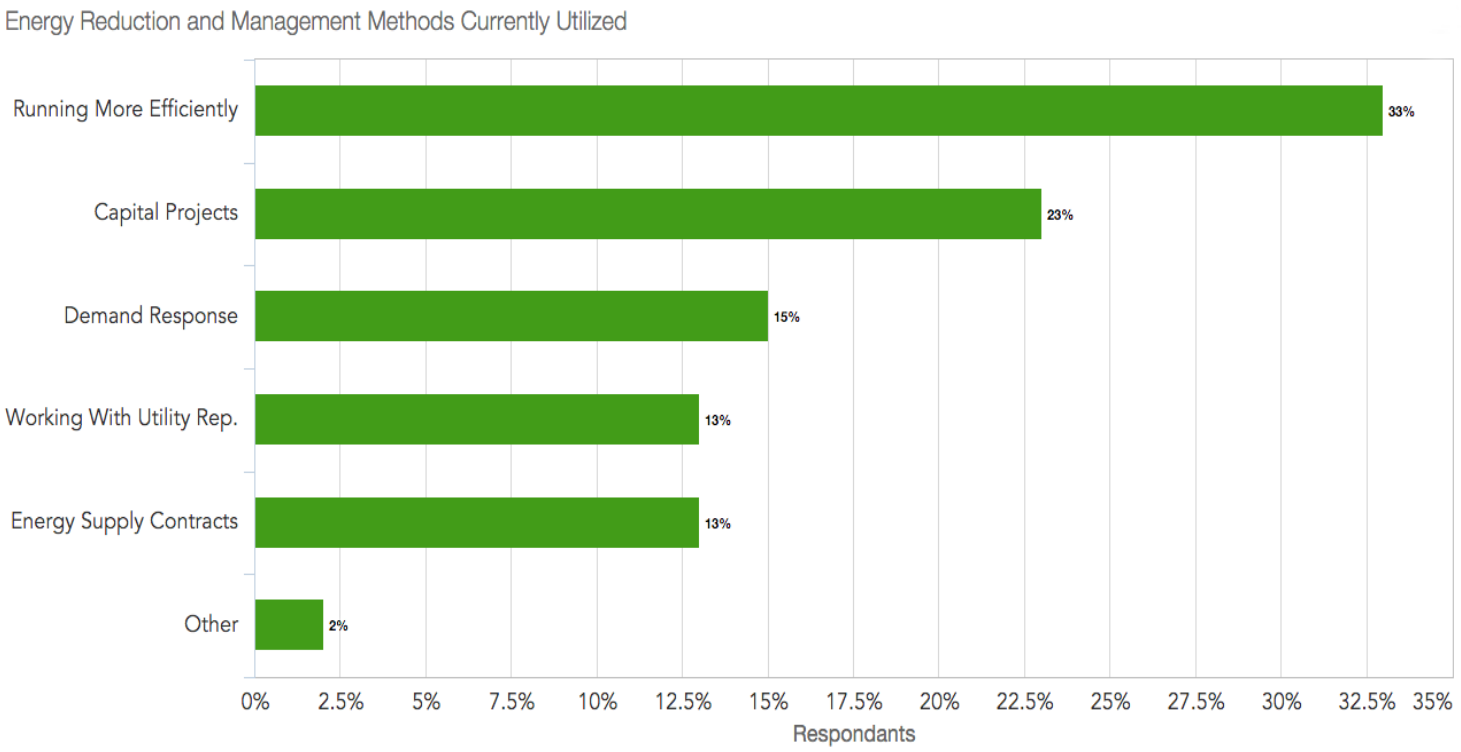
Property managers work hard not only to reduce energy use, but more importantly to lower energy expenses, and this is easily deduced from the highest rated priority from our respondents. To earn sustainability recognition and meet benchmarking requirements, the combination of prioritizing sustainability certifications and improving ENERGY STAR scores makes up 30% of the responses. M&V on energy projects and improving tenant metering and cost recovery efforts follow as energy-related priorities. This ranking holds throughout all individualized segments. i.e. Respondents who listed Property Manager as their titles were equally likely to state that energy costs were their main concern as much as Asset Managers or Building Engineers. Most of the priorities share one common trait: a strong emphasis on measurability.

Monthly Time Effort on Various Building Management Functions (Budgeting, ENERGY STAR updates, variance reporting, billing)



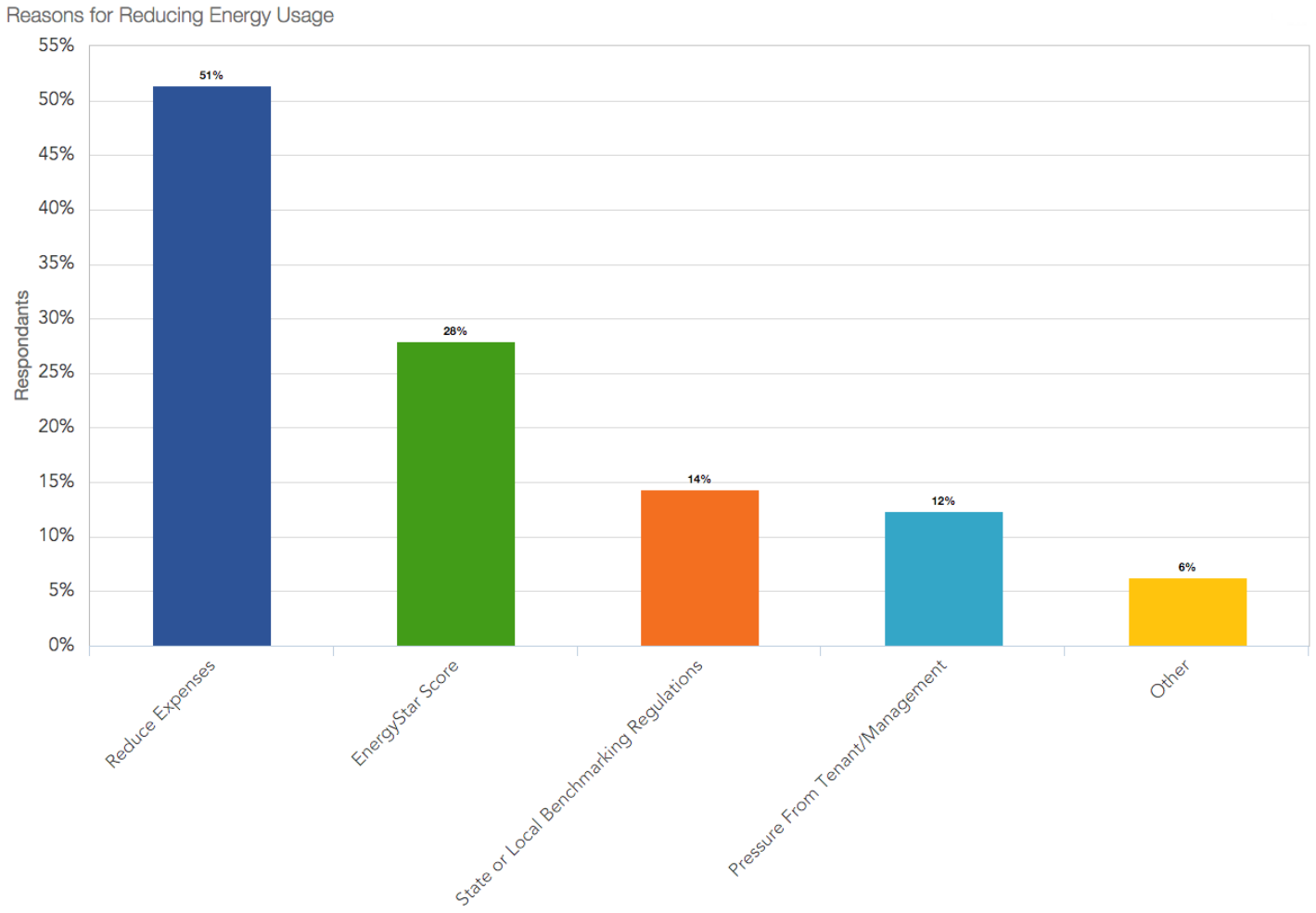
More than 25% of survey respondents with no energy management software or system in place spend more than 4 hours per month working on energy management activities. Amongst respondents who already have systems or software in place, the time spent is reduced to a mere 0-2 hours, indicating a clear correlation between time saved and energy management software implementation.

Energy Reduction and Management Methods Currently Utilized



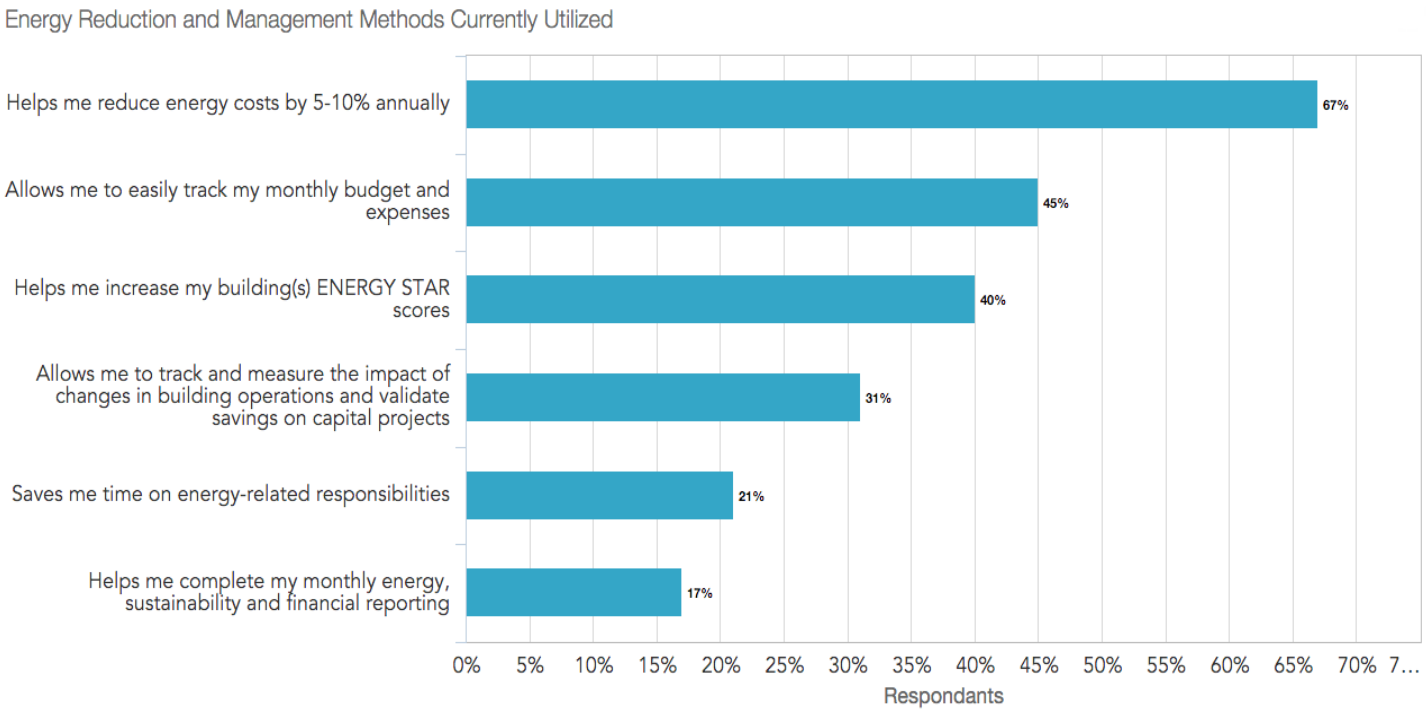
Thirty-three percent of respondents stated they were "running buildings more efficiently" in order to reduce energy costs, but did not state how, which is a flaw perhaps in the way the question was structured. Capital Projects came in at 23% of total respondents, while others cited participation in Demand Response and energy supply contracts as other methods used.

Reasons for Reducing Energy Usage



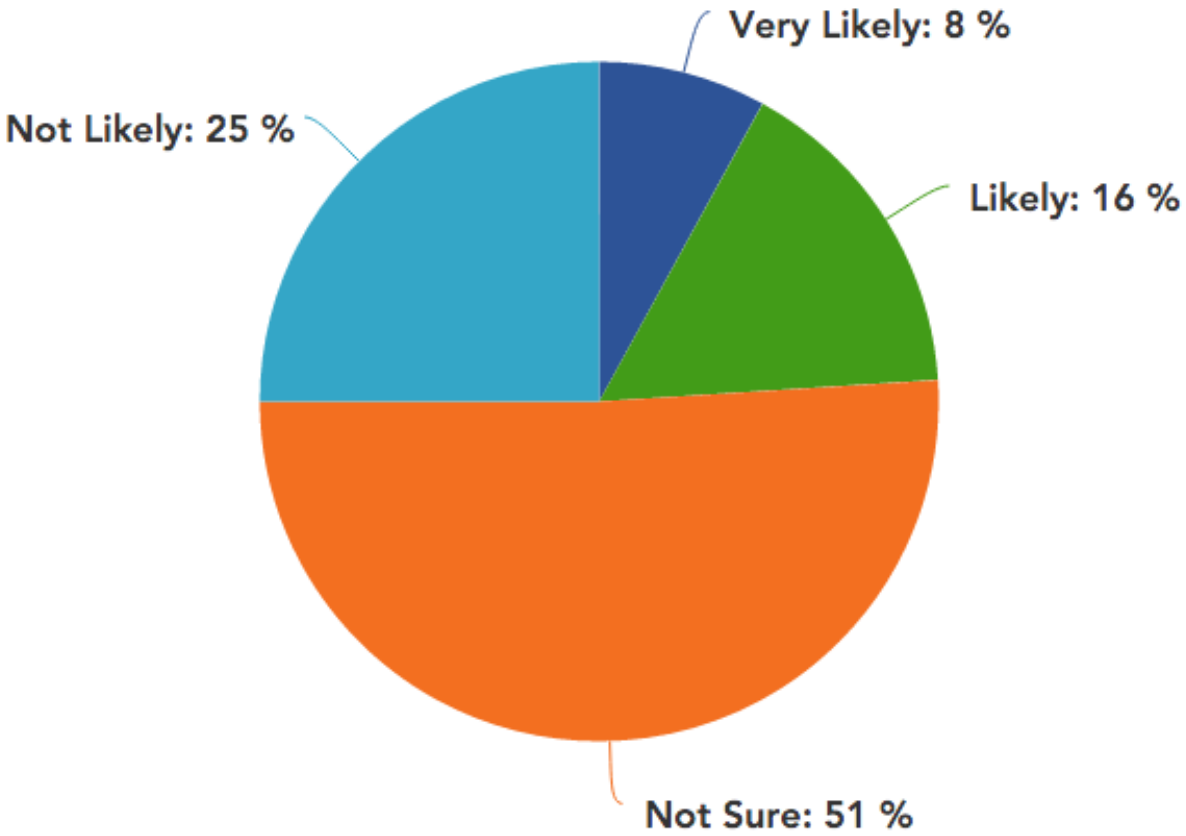
Reducing expenses is once again highlighted as the primary reason for reducing energy usage, but ENERGY STAR requirements and score also saw a significant response of 28%, followed by state or local benchmarking regulations or requirements. As respondents were asked to choose up to three of these choices, we can infer that reducing energy costs was a predominant choice even when other choices were mixed in different combinations.

Reasons for Implementing Energy Management



Similar but nuanced differently to the previous question, this question sought to delve into the reasons why building professionals would implement energy management software (if they had not already) or why they had implemented energy management software (if they had implemented it already.) EMS allows building management professionals to have measurable and substantial energy cost reductions, so it's not surprising that the cost-saving aspect is—once again—cited as the most important benefit. The ease in tracking for both budgetary and impact measurement purposes is also very important.

Future Adoption: Likelihood of using an energy management Software for energy use/expense reduction in 2015



Other surveys have found that there has been increased adoption of energy management programs/systems over the past years. In contrast, the purpose of this question is forward looking and indicates that of those who do not currently have EMS, 51% are still unsure while 25% are not likely to do so for various reasons, including budget, approval from building owners, and/or indifference.

This shows us very clearly that the marketplace is still very much in early-adopter stage with high growth potential, but that a tipping point might be reached soon. More education and outreach on the benefits of energy management software is needed if adoption is to keep pace with technology.