institute for building efficiency
an initiative of Johnson Controls

2012 ENERGY EFFICIENCY INDICATOR: IFMA SUMMARY REPORT

Partner Results Summary

IFMA International Facility Management Association
Learn. Connect. Advance.™
Empowering Facility Professionals Worldwide

Johnson Controls

August 2012

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In a 2012 survey conducted by IFMA and the Johnson Controls Institute for Building Efficiency, building owners and operators all over the world continue to report strong interest in energy efficiency and a willingness to overcome obstacles in their path.

BACKGROUND

The annual Energy Efficiency Indicator (EEI) survey was launched in 2007 by Johnson Controls and the International Facility Management Association (IFMA). This unique research partnership examines attitudes, priorities, practices and investment plans related to energy management. In the sixth consecutive year, the 2012 survey reached decision makers around the world whose responsibilities include managing commercial buildings and their energy use.

This year's EEI survey was conducted in March and April 2012 by the Institute for Building Efficiency (IBE).[1] The total respondent count was 3,416, with representation from many parts of the world and many different types of facilities. For the sixth year, IFMA served as a global partner on the survey; members provided the "frontlines" perspective of executives and managers responsible for facilities budgets and energy use in commercial buildings around the world.

Comparing 2012 results to those from the prior five years provides an outlook on trends in energy management and insight on the evolution of the energy efficiency marketplace in the face of prolonged economic uncertainty.

METHODOLOGY

The survey was administered through the internet by an independent provider, survey.com. The respondents were energy management decision makers. In order to participate in the survey, respondents had to meet the following criteria:

1. They must have budget responsibility for their organization's or customer's facilities, and
2. Their job responsibilities must include reviewing or monitoring the amount of energy used by their organization's facilities, or proposing or approving initiatives to make their organization's facilities more energy efficient.

This year was the third year the EEI survey was conducted globally, targeting a significant number of respondents in Australia, Canada, China, France, Germany, India, Brazil, the United Kingdom and the United States. IFMA's sample also included significant respondents from Spain, Poland, Italy and South Africa, for a total of 13 countries with major representation. The survey was administered in four languages. Respondents included executives and facility professionals from a wide range of facility types, sizes and locations.

A total of 508 IFMA members participated in the 2012 survey – compared to 632 in 2011, 491 in 2010, 418 in 2009, 338 in 2008 and 449 in 2007. This report focuses on the responses of IFMA members from 2007-2012, but also includes the 2012 responses for the IBE sample for comparison.

[1] The Institute for Building Efficiency is a new initiative of Johnson Controls providing information and analysis of technologies, policies and practices for efficient, high performance buildings and smart energy systems around the world. http://www.institutebe.com

Throughout the report, "don't know" responses have been excluded from some questions. For questions in which a single response was required, the total percentage of responses may add up to more or less than 100 percent.

Where applicable, 2012 results are compared with those for 2007-2011. However, new questions or modifications have been made each year, so data is not available for all questions for the six-year period.

DEFINITIONS

Biogas energy – A gas produced by breakdown of organic matter in the absence of oxygen. Organic waste such as dead plant and animal material, animal feces and kitchen waste can be converted into a gaseous fuel called biogas. Biogas originates from biogenic material and is a type of bio fuel. Biogas is produced by the anaerobic digestion or fermentation of biodegradable materials such as biomass, manure, sewage, municipal waste, green waste, plant material and crops. Biogas comprises primarily methane (CH_4) and carbon dioxide (CO_2) and may have small amounts of hydrogen sulphide (H_2S), moisture and siloxanes.

Biomass energy – Any organic materials that can be burned and used as a source of fuel. Wood being the main source of biomass such as saw-dust or any type of waste from wood is processed to make wood-pellets and used as fuel.

Biomass generators or co-gen units – Common biomass fuels – such as trees, plants, cow manure, apricot seeds and paper – contain chemical energy. To produce electricity, the energy is converted from one form to another. Some biomass processes are akin to what happens when we eat and our bodies digest the food, converting the calories into energy. In general, biomass-generating facilities use materials that would otherwise be wasted, or that are more valuable for their energy than for other purposes. For example, wood chips are useful in landscaping but may be more valuable when converted to electric energy.

Building management system – Integrated, automated system that controls several aspects of building operations such as HVAC, lighting, energy, elevators, fire suppression and security. Also known as building management system (BMS).

Carbon trading – A market-based system that brings carbon credit buyers and sellers together, allowing businesses to purchase carbon credits to offset their emissions.

Energy information software – A variety of energy-related software applications which may provide utility bill tracking, real-time metering, building HVAC and lighting control systems, building simulation and modeling, carbon and sustainability reporting, IT equipment management, demand response and/or energy audits.

Energy management – The discipline and measures executed to achieve the minimum possible energy use and cost while meeting the true needs of the activities occurring within a facility. Actions intended to achieve this energy efficiency focus on reducing necessary end-use, increasing efficiency, reducing wasted energy and finding superior energy alternatives.

Energy projects – Any technologies, products, activities or management practices/strategies that facilitate the generation or use of electricity/energy. These also reduce/support the reduction of energy consumption or support the production of clean, renewable energy for industrial, distribution, commercial, institutional, governmental, research, not-for-profit or residential energy users including, but not limited to, advanced energy resources and renewable energy resources.

ENERGY STAR® – An international standard for energy efficient consumer products that originated in the United States of America. It was created in 1992 by the U.S. Environmental Protection Agency and the U.S. Department of Energy during the Clinton administration. Since then, Australia, Canada, Japan, New Zealand, Taiwan and the European Union have adopted the program. Devices carrying the ENERGY STAR service mark, such as computer products and peripherals, kitchen appliances, buildings and other products, generally use 20 to 30 percent less energy than required by federal standards.

Energy tax credits/incentives – Financial incentives can help U.S. states address market barriers and leverage private sector resources for greater investment in energy efficiency or renewable energy systems.

Geothermal energy – Thermal energy generated and stored in the Earth. Thermal energy is the energy that determines the temperature of matter.

Gray water – Wastewater generated from domestic activities such as laundry, dishwashing and bathing, which can be recycled on-site for uses such as landscape irrigation and constructed wetlands. Gray water differs from water from the toilets which is designated for sewage or blackwater to indicate it contains human waste.

Green building – Refers to a structure and using process that is environmentally responsible and resource efficient throughout a building's life cycle – from design, construction, operation, maintenance, renovation and demolition. This requires close cooperation of the design team, the architects, the engineers and the client at all project stages. The green building practice expands and complements the classical building design concerns of economy, utility, durability and comfort.

Greenhouse gas footprint – The impact of any of the atmospheric gases that contribute to the greenhouse effect by absorbing infrared radiation produced by solar warming of the Earth's surface. They include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (NO_2) and water vapor. Although greenhouse gases occur naturally in the atmosphere, the elevated levels, especially of carbon dioxide and methane, that have been observed in recent decades are directly related, at least in part, to human activities such as the burning of fossil fuels and the deforestation of tropical forests.

Heating, ventilation, air conditioning (HVAC) – The systems within a building that control and maintain temperature, humidity and air quality.

Hydro-power energy – Power derived from the energy of falling water, which may be harnessed for useful purposes.

Institute for Building Efficiency – A new initiative of Johnson Controls providing information and analysis of technologies, policies and practices for efficient, high performance buildings and smart energy systems around the world. http://www.institutebe.com

Internal capital budget – The planning process used to determine whether an organization's long term investments such as new machinery, replacement machinery, new plants, new products and research development projects are worth pursuing.

ISO 50001 – According to ISO, Standard 50001 specifies requirements for establishing, implementing, maintaining and improving an energy management system, whose purpose is to enable an organization to follow a systematic approach in achieving continual improvement of energy performance, including energy efficiency, energy use and consumption. The standard is applicable to both commercial and industrial facilities.

Renewable energy – Energy which comes from natural resources such as sunlight, wind, rain, tides and geothermal heat, which are naturally replenished.

Smart buildings – Buildings that include the most modern telecommunications amenities generally available in the marketplace, allowing occupants easy access to bandwidth and switching services.

Solar electrics – An electrical device that converts the energy of light directly into electricity by the photovoltaic effect. It is a form of photoelectric cell (in that its electrical characteristics – e.g., current, voltage, or resistance – vary when light is incident upon it) which, when exposed to light, can generate and support an electric current without being attached to any external voltage source.

Solar energy – Radiant energy emitted by the sun.

Solar photovoltaics – A method of generating electrical power by converting solar radiation into direct current electricity using semiconductors that exhibit the photovoltaic effect.

Solar photovoltaics systems – Generate electricity by using panels that consist of a layer of semiconductor cells covered by an anti-reflective coating and a protective layer of glass. When the photons strike the semiconductor cells, energy is released and converted into electricity.

Solar thermal – An innovative technology for harnessing solar energy for thermal energy (heat). Solar thermal collectors are classified by the United States Energy Information Administration as low-, medium- or high-temperature collectors.

Telecommuting – A work arrangement in which employees do not commute to a central place of work. A person who telecommutes is known as a telecommuter or teleworker. Many telecommuters work from home, while others, sometimes called nomad workers, use mobile telecommunications technology to work from coffee shops or other locations.

Virtual meetings – A service that allows conferencing events to be shared with remote locations. In general the service is made possible by Internet technologies, particularly on TCP/IP connections. The service allows real-time point-to-point communications as well as multicast communications from one sender to many receivers. It offers information of text-based messages, voice and video chat to be shared simultaneously, across geographically dispersed locations. Applications for Web conferencing include meetings, training events, lectures or short presentations from any computer.

Waste energy – Incineration process in which solid waste is converted into thermal energy to generate steam that drives turbines for electricity generators.

Water efficiency – The accomplishment of a function, task, process or result with the minimal amount of water feasible. The key for efficiency is reducing waste, not restricting use. Examples of water efficient steps include fixing leaking taps, taking showers rather than baths, installing displacement devices inside toilet cisterns and using dishwashers and washing machines with full loads.

EXECUTIVE SUMMARY

Note: IFMA member respondents tend to represent larger organizations with bigger facilities, larger revenue and more employees when compared to the sample at large. Some of the observed differences between their responses and the total sample averages may be a function of organization size.

The facility management professionals responding to the 2012 Energy Efficiency Indicator survey show a continued emphasis on energy in organizations around the world. This section presents selected highlights from the IFMA responses, while detailed tables are included in the following section.

Highlights

Indicators tested in the 2012 EEI survey suggest that energy and all its aspects were a concern for IFMA members. Out of the 508 that responded:

Current Emphasis

- 65% paid more attention to energy than they did a year ago
- 81% said energy was "extremely " or "very" important to their organization, a major increase from 66% in 2011

Investment and Risk

- 77% invested in energy projects in the past year
- 42% will invest in energy projects in the next year
- 65% used their internal capital budget to pay for projects
- 71% used the savings from energy upgrades to reduce the overall operating budget
- 66% indicated achieving energy and operational savings was the greatest risk when considering energy efficiency or renewable energy projects

Energy Use Reduction, Government Influence, Policy Impact

- 75% pursued energy use reduction, with 33% having a specified goal
- 42% believe that the national government will implement energy mandates in the next 2 years, more so than state (28%) and local governments (24%); 49% indicated that government/utilities were extremely or very influential
- 44% said tax credits/incentives or rebates for implementing energy efficiency measures had the most impact on improving energy efficiency

Expertise

- 44% said energy consultants were the most likely people they turned to for advice on energy management decisions

Efficiency

IFMA members continued to find various ways to reduce energy consumption and improve energy efficiency. They identified economic, environmental and other aspects that motivated their decisions. Table 1 shows the top five drivers for IFMA members and the IBE sample. Both groups continued to place emphasis on energy cost savings. It has been the top driver in each of the past five years. This is understandable since IFMA members expect the combined price they pay per unit of energy to rise by almost 10% in the coming year.

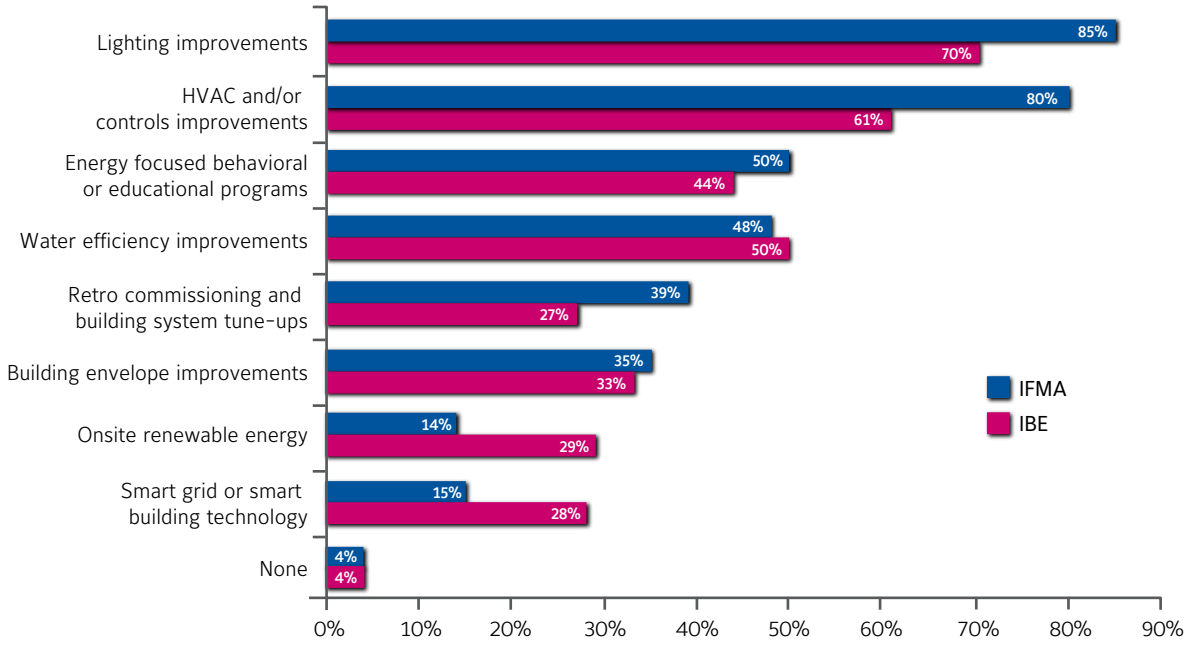
Table 1. Drivers for energy efficiency decisions.

Drivers of Efficiency	IFMA	IBE Average
Energy cost savings	1	1
Enhanced brand or public image	2	3
Government/utility incentives/rebates	3	2
Greenhouse gas footprint reduction	4	5
Increasing energy security	5	4

IFMA members showed adeptness at undertaking courses of action that were easy and quick as part of a broader range of solutions to energy issues.

As shown in Figure 1, lighting, HVAC and energy focused behavioral or educational programs were the dominant, broad energy efficient technologies implemented by IFMA members. They implemented them to a greater extent than the IBE sample. Water efficiency improvements (added for 2012) were made by roughly half of all organizations.

Figure 1. Broad energy efficiency measures implemented in the past year.



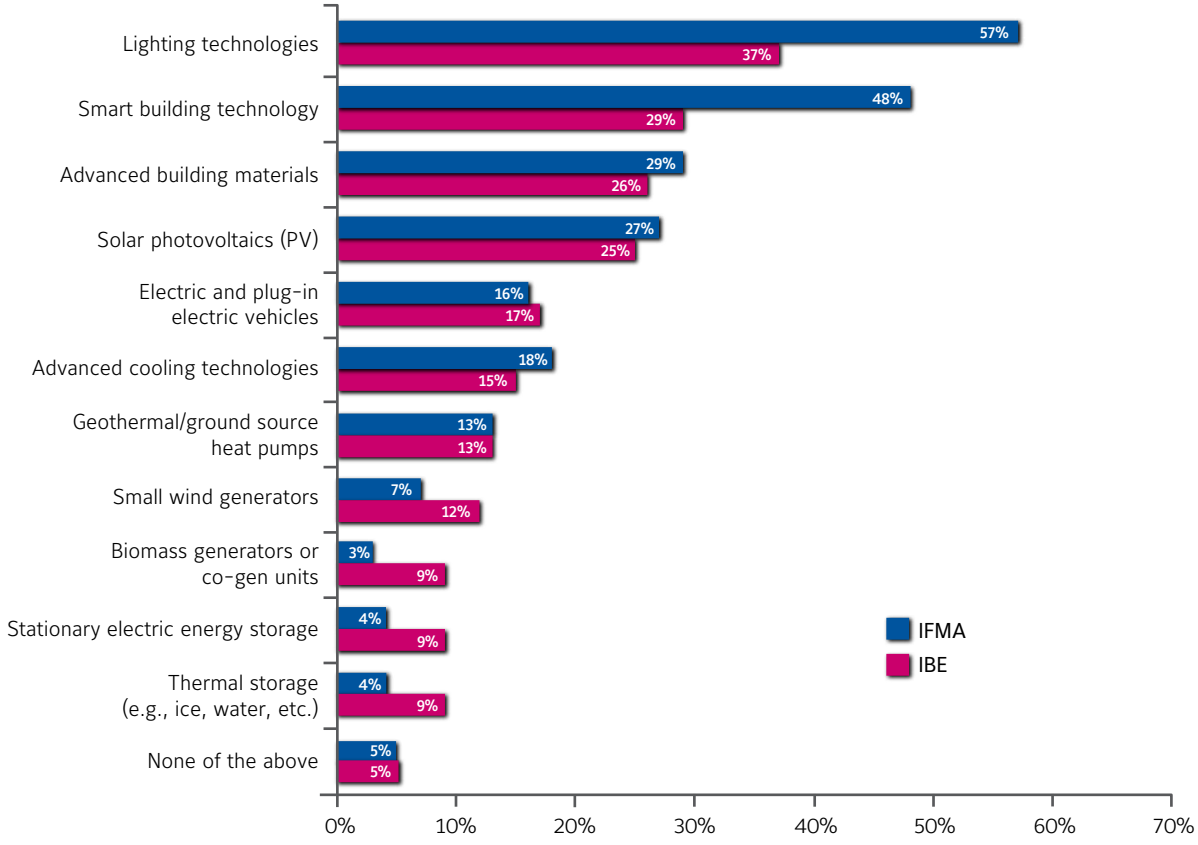
There were specific technologies that underlie the broad efficiency measures. IFMA members switched to energy efficient lamps and ballasts (78%), adjusted HVAC control setpoints and schedules (71%), installed occupancy or photosensors for lighting (60%), increased awareness of occupants (53%), adjusted maintenance schedules and practices (49%), educated operators (47%), upgraded or improved an existing building management system (46%) and replaced inefficient equipment (42%). The complete list of the specific improvement measures adopted by IFMA members is included in the detailed findings.

Market Adoption of Technologies

IFMA members continued to monitor new technologies in preparation for a time when they will have the ability to implement them. Figure 2 shows technologies veteran facility managers believed will have the largest increase in market adoption over the next decade. Lighting technologies and smart buildings remained their top picks for adoption.

Although IFMA members cited smart buildings as a top technology for adoption (48%), only 15% reported its implementation in the last year.

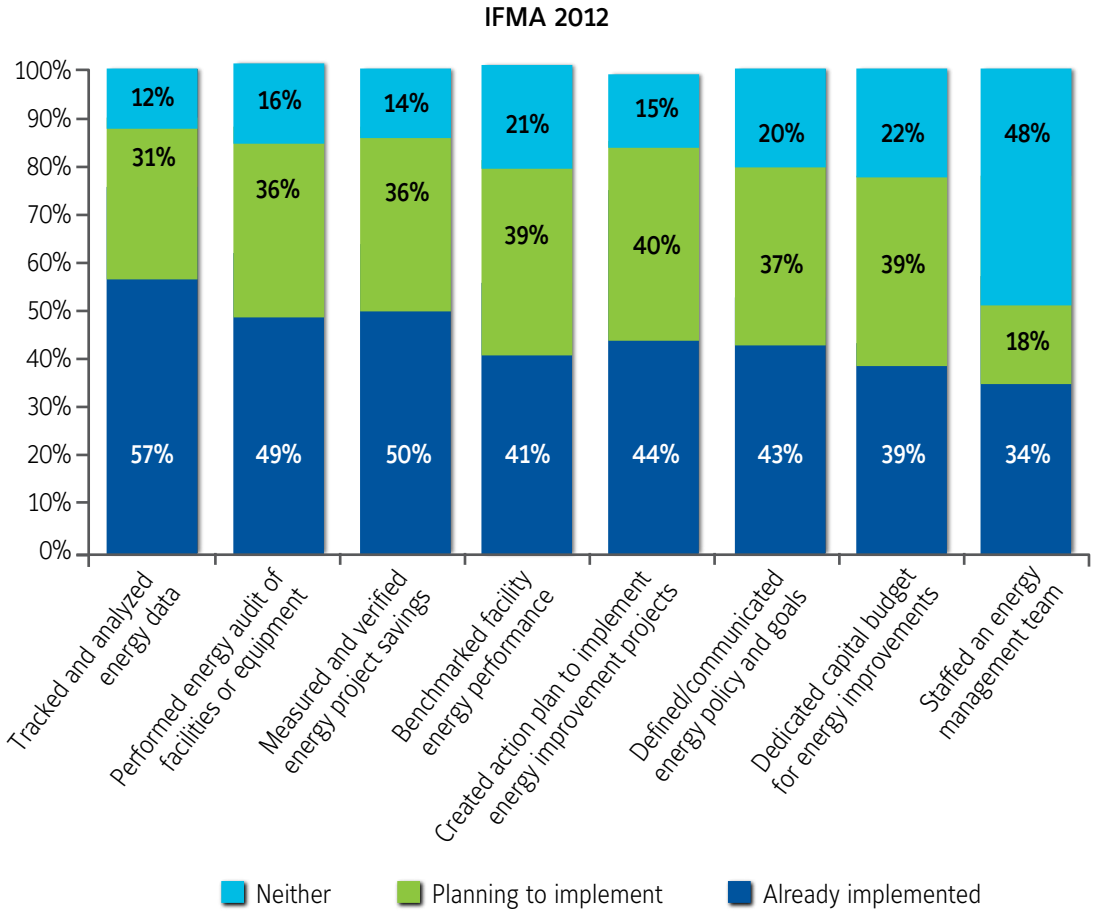
Figure 2. Technologies expected to have the greatest increase in market adoption over the next decade.



Energy Management Best Practices

A new question investigated whether IFMA members had implemented, or, were planning to implement an accepted set of best practices regarding energy management (see Figure 3). Across the board, IFMA members implemented best practices at much higher rates than the IBE market. IFMA implementation rates ranged from a high of 75% for tracking and analyzing energy data to a low of 42% for dedicating a capital budget for energy projects. The IBE market ranged from a high of 57% on tracking and analyzing energy data to a low of 35% on staffing an energy management team.

Figure 3. Which of the following energy management practices has your company already implemented, or is planning to implement, in the next 12 months?



This was the first year respondents were asked about the ISO 50001 energy management standard.[2] Sixty percent of IFMA members were not aware of this new standard. Very few were considering its implementation (5%). The IBE market was more aware (43%) and considering its implementation (16%). Very few in either market had already implemented it.

Company Aware of ISO 50001 Energy Management Standard, Implementation in Your Company	IFMA 2012	IBE 2012
	(507)	(3,409)
Not aware	60%	37%
Net yes	40%	63%
Yes, are aware	33%	43%
Yes, considering implementing	5%	16%
Yes, we already have implemented	1%	4%

Information about energy data was asked a little differently in 2012. The review and analyze process was added to the mix to better capture best practices. In 2012, almost 60% of IFMA members reported reviewing data on a monthly basis. For both IFMA members and the IBE market, there were substantially more organizations recording data at least weekly than reviewing/analyzing data at that frequency.

Frequency of Reviewing Consumption Data	2012			
	IFMA	IBE	IFMA	IBE
	Measure and Record		Reviewed and Analyzed	
	(506)	(3,399)	(506)	(3,420)
Sub-hourly	9%	6%	7%	20%
Hourly	5%	9%		
Daily	10%	24%		
Weekly	3%	18%		
Monthly	57%	30%	39%	44%
Quarterly	4%	6%	24%	21%
Less than quarterly	6%	4%	19%	9%
Don't know	7%	5%	11%	5%

[2] ISO 50001 Energy Management Standard specifies requirements for establishing, implementing, maintaining and improving an energy management system, whose purpose is to enable an organization to follow a systematic approach in achieving continual improvement of energy performance, including energy efficiency, energy use and consumption.

Green Building Practices

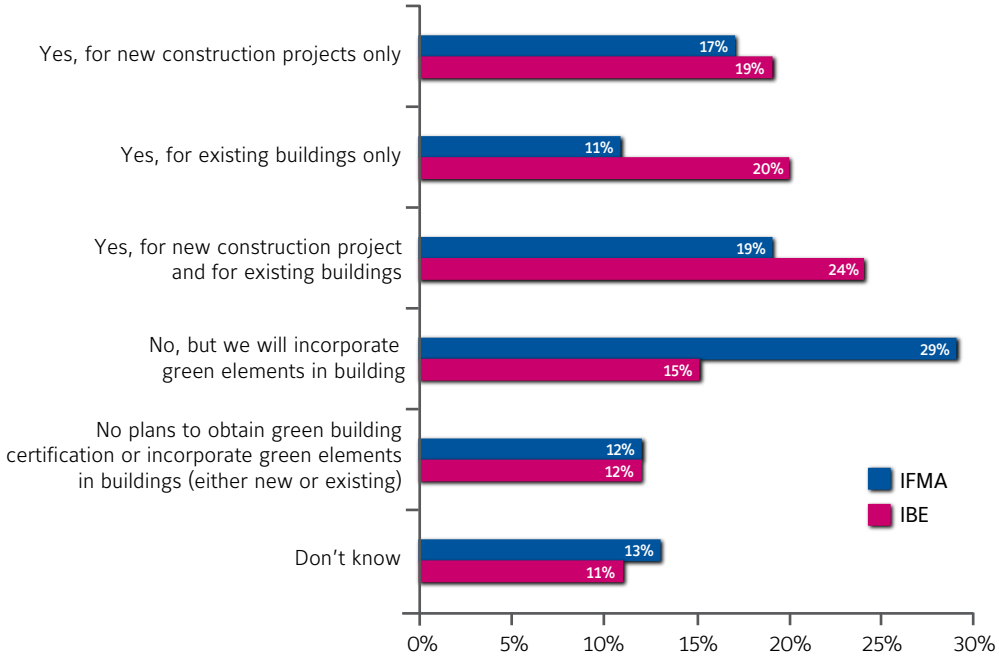
Questions surrounding green buildings and certifications changed in 2012 to obtain better quality information regarding green building practices.

A majority of IFMA members pursued Leadership in Energy and Environmental Design® (LEED®) and ENERGY STAR® certifications, much more than other certification types. Almost a third of all respondents did not pursue any of the certifications included in the survey.

Voluntary Use of Green Building Certification Standards by Organizations	IFMA 2012	IBE 2012
	(499)	(3,371)
LEED®	51%	23%
ENERGY STAR®	47%	34%
Green Star	4%	15%
Green Mark	2%	11%
Green Globes	2%	9%
BREEM	2%	6%
DGNB Certification	–	7%
HQE	–	6%
GRHA	–	5%
Three star	1%	7%
CASBEE	–	5%
Estidama Pearl	–	3%
ITACA	1%	5%
HK-BEAM	1%	4%
LiderA	–	3%
Minergie	1%	5%
Other (specify)	3%	1%
None of the above	29%	28%

In Figure 4, a majority of IFMA members (47%) and the IBE market (63%) pursued green certifications for either new construction or existing buildings. Almost 30% of IFMA members would not do either, but would incorporate green elements.

Figure 4. Pursue above-voluntary green building certifications in the next 12 months.



IFMA members reported that they largely did not have practices in place for leased office space (63%). Less than 20% preferred to lease space in a green building, or, build tenant space to high performance standards. IBE markets had somewhat higher rates of leasing space in green buildings, willingness to pay a higher premium for space in certified green buildings and willingness to build green building space (all roughly 25%).

Practices Followed for Leased Office Space	IFMA 2012 (498)	IBE 2012 (3,356)
We have no practices in place for leased office space	63%	37%
We build out our tenant space to high performance (above code) standards	17%	24%
We prefer to lease space in a green building	16%	25%
We enter into green leases that align building owner and tenant incentives	5%	13%
We are willing to pay a premium for space in a certified green building	4%	25%
Other	3%	2%
We have a corporate policy to only lease space in certified green building	1%	7%

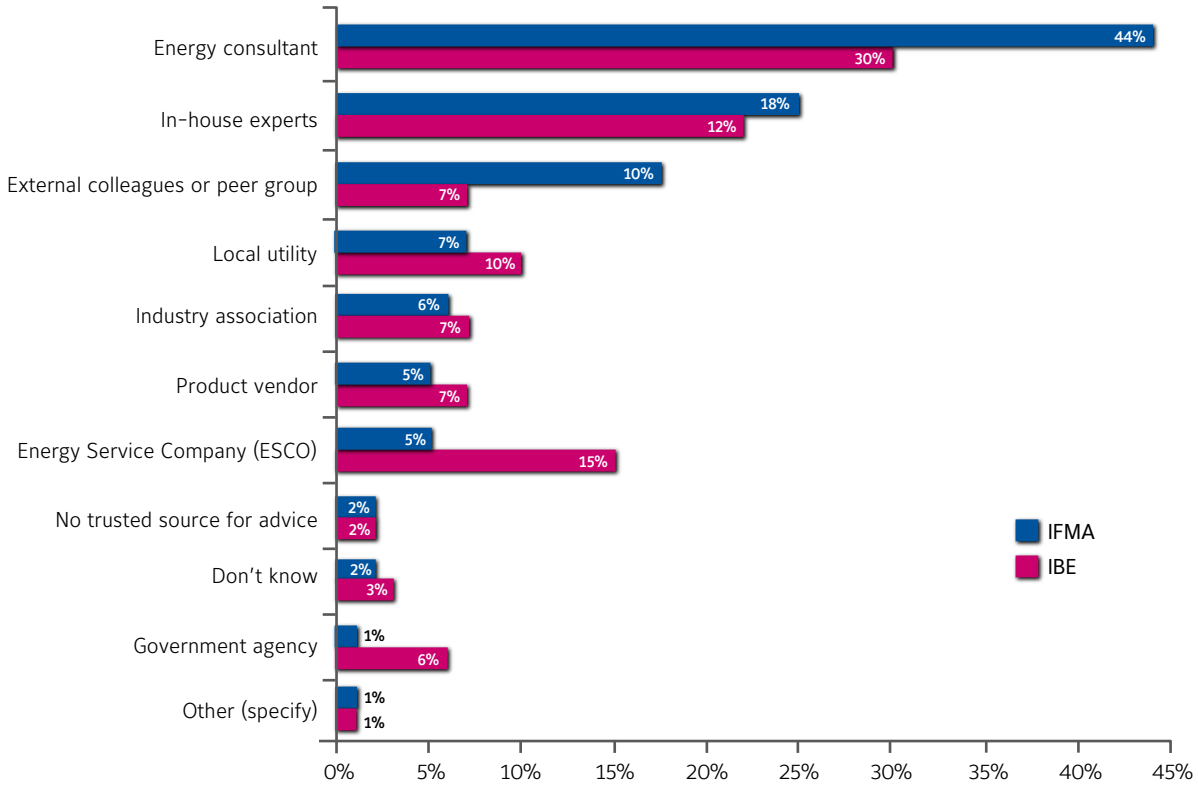
Fifty-eight percent of IFMA members did not intend to achieve net or nearly zero or positive energy status for any of their facilities in the next 12 months. This contrasts vividly with other organizations where only 28% reported their intention not to do so. When comparing intent to do so in the next 12 months, the IBE market said yes 3 to 1 over IFMA members.

Does your organization intend to achieve nearly zero, net zero or positive energy status for any of its facilities in the next 12 months?	IFMA 2012	IBE 2012
	(504)	(3,382)
Net yes	20%	59%
Yes, for new facilities	7%	20%
Yes, for existing facilities	4%	23%
Yes, for both new and existing facilities	8%	16%
No	58%	28%
Don't know	23%	13%

Energy Expertise

Respondents were asked for the first time in 2012 whom they would seek out for energy management decisions. As shown in Figure 5, IFMA members were most likely by far to engage an energy consultant (44%) for advice on energy management decisions. They also reported they would rely on in-house experts (18%) and external colleagues or peer groups to a lesser degree (10%).

Figure 5. Most likely to ask for advice on energy management decisions.



DETAILED FINDINGS

Current Emphasis on and Motivations for Energy Efficiency

Sixty-five percent of IFMA members reported they paid more attention to energy efficiency than they did one year ago, which was a small increase over last year (60%). Seventy-seven percent of the IBE market reported they also paid more attention to energy efficiency.

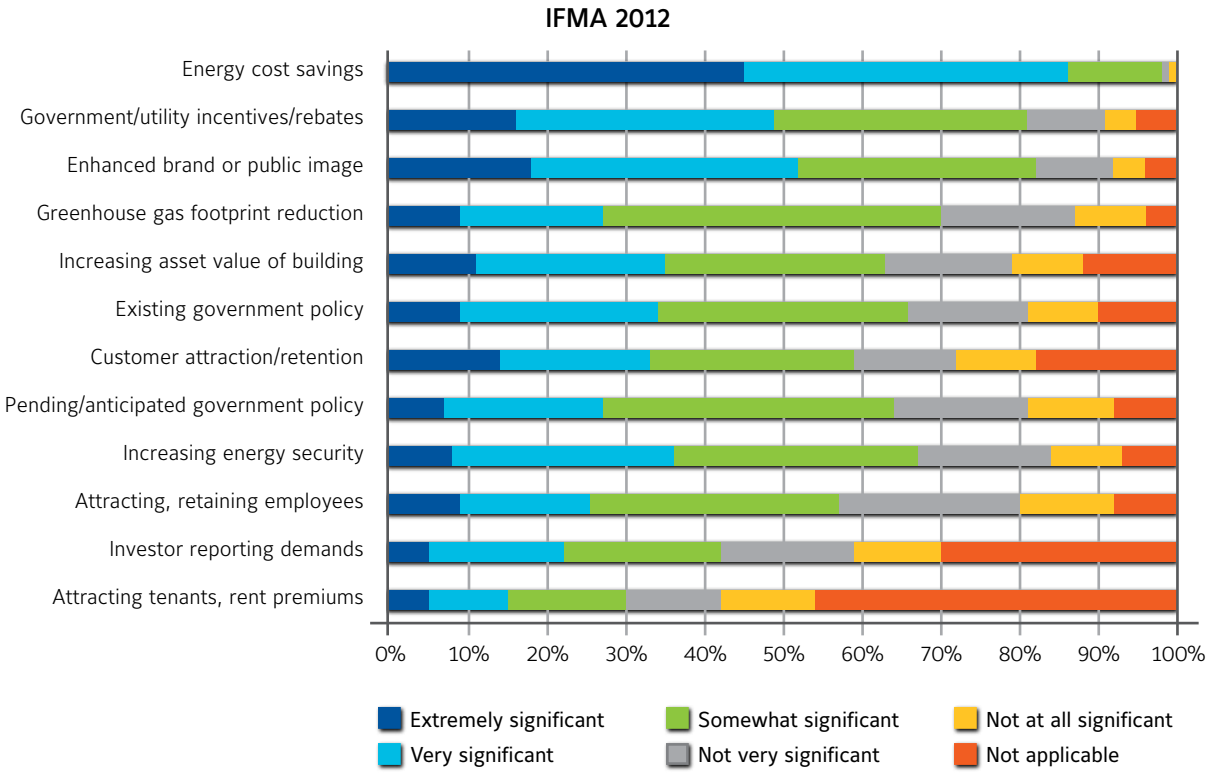
Attention to Energy Efficiency vs. 12 Months Ago	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(449)	(338)	(418)	(491)	(631)	(508)	(3,395)
Paying a lot more attention now	27%	33%	35%	29%	25%	31%	40%
Paying a little more attention now	35%	36%	39%	40%	35%	34%	37%
Paying about the same attention	34%	28%	23%	27%	37%	33%	21%
Paying less attention now	–	–	–	1%	2%	1%	–
Don't know	2%	1%	1%	1%	1%	–	–

This year saw a large increase in importance of energy management to IFMA members. This measure, which combined extremely and very important, increased to 81% this year, up from 66% in 2011. This tracked with the IBE average of 85%, which increased from 70% in 2011.

Importance of Energy Management	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(449)	(338)	(418)	(491)	(630)	(507)	(3,390)
Extremely important	19%	22%	23%	22%	24%	33%	41%
Very important	40%	43%	50%	43%	42%	48%	44%
Somewhat important	33%	30%	25%	32%	29%	18%	12%
Not very important	7%	5%	3%	4%	5%	1%	2%
Not at all important	1%	–	3%	–	–	–	–

Figure 6 shows the significant factors influencing energy decisions made by IFMA members. The 2012 results were consistent with 2011. Energy cost savings had by far the most influence on energy decisions made by facility professionals at 86%. Government and utility incentives, enhancing public image, reducing greenhouse gas emissions and increasing asset value of building (a new category added for 2012) had almost equal influence on energy decisions, but not to the extent of energy cost savings.

Figure 6. How significant an influence are the following for your organizations energy efficiency decisions?



Energy Prices

Overwhelmingly, both IFMA members and other organizations believed that energy prices will rise as opposed to falling in the next year. Roughly 70% of IFMA members expected the price rise over the next year, a decrease from 75% in 2011.

Believe Price of Energy Will...	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(449)	(338)	(418)	(491)	(632)	(508)	(3,416)
Increase over the next year	79%	79%	59%	59%	75%	69%	76%
Decrease over the next year	2%	4%	11%	10%	5%	8%	10%
Not change significantly	20%	17%	29%	31%	20%	23%	14%

On average, IFMA members expected energy prices to rise an average of almost 10%. Other organizations expected that number to be around 17%.

Anticipated Energy Price Increase in 12 Months	IFMA 2012	IBE 2012
	(278)	(2,285)
Increase 1% to 20%	95%	81%
Increase 21% – 40%	4%	12%
Over 40% increase	1%	7%
Mean anticipated energy price increase	9.51%	16.41%
Anticipated Energy Price Decrease in 12 Months	**IFMA 2012**	**IBE 2012**
	(34)	(271)
Decrease 1% – 20%	91%	72%
Decrease 21% – 40%	9%	15%
Decrease more than 40%	–	13%
Mean anticipated energy price decrease	11.97%	19.16%
Don't Know Either Way	**IFMA**	**IBE**
Don't know if there will be an energy price increase	72 members	305 respondents
Don't know if there will be an energy price decrease	9 members	60 respondents

Government Involvement and Influence

In 2012, the question about government mandates regarding energy efficiency or carbon reduction changed. State and local categories were added to identify legislation trends at all levels of government in the next two years.

IFMA members believed legislation was extremely or very likely to come at the national level than at state or local levels. The IBE market had much higher expectations at all levels of government than IFMA members.

Expectation of Significant Legislation Mandating Energy Efficiency or Carbon Reduction in Next 2 Years by Governing Entity	National 2012		State 2012		Local 2012	
	IFMA	IBE	IFMA	IBE	IFMA	IBE
	(504)	(3,392)	(501)	(3,384)	(501)	(3,384)
Extremely/very likely	42%	55%	28%	46%	24%	41%
Not very/not at all likely	19%	14%	29%	20%	29%	44%
Don't know	4%	4%	4%	4%	5%	4%

Roughly half of IFMA members believed incentives from utilities or government entities were extremely or very influential on their energy efficiency decisions. This figure reached a six-year high for IFMA members at 49%. The IBE sample saw an increase in 2012 to 58% from 53% in 2011.

How Significant of an Influence are Utilities/ Government Incentives on Energy Efficiency Decisions	IFMA					IBE
	2008	2009	2010	2011	2012	2012
	(337)	(418)	(487)	(600)	(245)	(1,941)
Extremely/very significant	40%	48%	34%	45%	49%	58%
Extremely significant	11%	16%	9%	14%	16%	23%
Very significant	29%	32%	25%	31%	33%	34%
Somewhat significant	34%	33%	27%	33%	32%	27%
Not very significant	16%	12%	15%	12%	10%	8%
Not at all significant	6%	5%	9%	4%	4%	3%
Don't know	–	2%	15%	7%	5%	4%

Reduction Goals and Strategies

In 2011, the survey allowed for the fact that organizations may have both publicly disclosed goals and internal goals. This year, the survey went further in identifying goal trends by tracking energy reduction goals in addition to carbon reduction goals.

Results showed that a majority (48%) of IFMA members did not have stated goals on energy and carbon reduction, but pursued them anyway. They also reported more instances of energy reduction goals (49%) than carbon reduction goals (33%). In contrast, almost three-quarters of other organizations had either publicly stated or internal reductions with only 26% reporting they had no goals but were pursuing reductions.

Reduction Goals	Energy Reduction Goals		Carbon Reduction Goals	
	IFMA 2012	IBE 2012	IFMA 2012	IBE 2012
	(632)	(3,416)	(632)	(3,416)
Have a publicly stated reduction goal	22%	34%	20%	31%
Have an internal reduction goal	27%	37%	13%	30%
No goal, but pursuing reductions	48%	26%	41%	26%
No goal, and not pursuing reductions	3%	3%	13%	7%
Don't know	–	–	13%	6%

New for 2012 was a question asking by what percentage did a company/organization plan to reduce their energy use in the next 12 months. A majority of both IFMA members and the IBE market reported a planned reduction in energy use in the range of 1% to 20%. The average planned reduction for IFMA members was roughly 8%. The IBE market reported a much higher average reduction at almost 16%.

Planned Energy Reduction by Percent in the Next 12 Months	IFMA 2012	IBE 2012
	(461)	(3,254)
0%	8	33
1%-20%	435	2617
21%-40%	14	440
41%-60%	4	99
61%-80%	-	41
81%-100%	-	24
Mean	8.34%	15.52%

The top strategy utilized by IFMA members for reducing their organization's greenhouse gas emissions continued to be improving energy efficiency in their buildings. However, this strategy saw a decrease in score from 55% to 48%. This trend also played out in the IBE market with a decrease from 39% in 2011 to 28% in 2012.

Other top strategies among IFMA members centered around workplace activities that included behavior change programs (10%) and telecommuting or virtual meetings (6%).

IFMA members reporting no prioritization among strategies slightly declined since 2009.

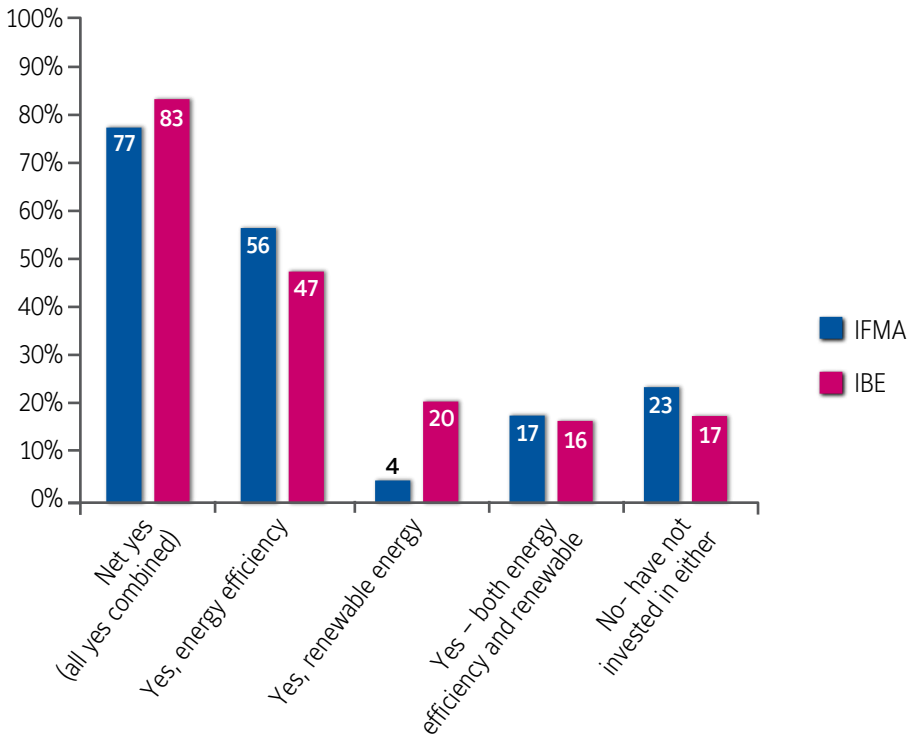
Top Strategy to Lowering Carbon Emissions	IFMA				IBE
	2009	2010	2011	2012	2012
	(98)	(488)	(512)	(377)	(3,287)
Energy efficiency in buildings	49%	51%	55%	48%	28%
Implement behavior changes	–	–	–	10%	9%
Telecommuting, virtual meetings	n/a	6%	7%	5%	6%
Implement training for operations staff	–	–	–	3%	7%
Install onsite renewable energy	5%	4%	5%	3%	9%
Renewable power purchases	8%	4%	4%	5%	9%
Energy efficiency in vehicle fleet	4%	2%	4%	4%	5%
Real estate portfolio consolidation	n/a	2%	5%	4%	4%
Carbon emission offset purchases	5%	1%	1%	1%	3%
Supply chain carbon reductions	n/a	1%	2%	1%	6%
Use of alternative transportation fuels	2%	–	2%	1%	5%
Switch to environmentally friendly refrigerants	–	–	–	–	1%
No prioritization among strategies	16%	18%	12%	10%	5%
Other/Don't know	10%	11%	4%	3%	2%

Investment Plans

In 2012, questions regarding how organizations plan to fund investments in energy were simplified to capture more accurate information about investment activity in the market.

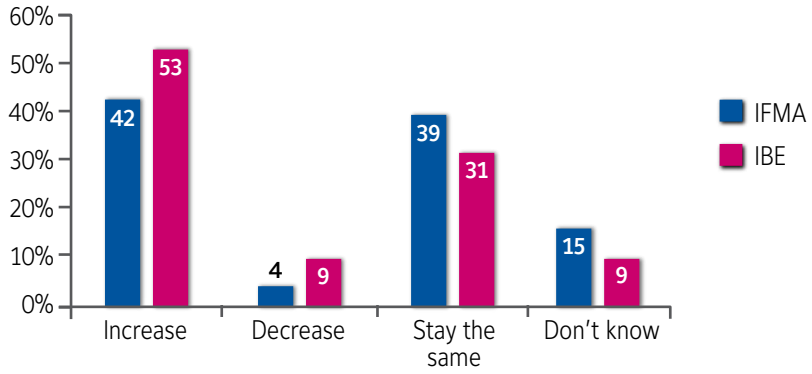
When asked whether they invested in energy efficiency or renewable projects over the last year, 75% of IFMA members said yes (see Figure 7). Of that, the most often implemented projects were centered on energy efficiency (56%) rather than renewable energy (4%). Respondents in the IBE market were more invested in renewable energy (20%) than IFMA members (4%) and somewhat less in energy efficiency (47%) than IFMA members (56%). Roughly 15% of both samples were invested in both. Almost one-quarter of IFMA members report they had not invested in either.

Figure 7. Has your company invested in energy efficiency or renewable projects in the last year?



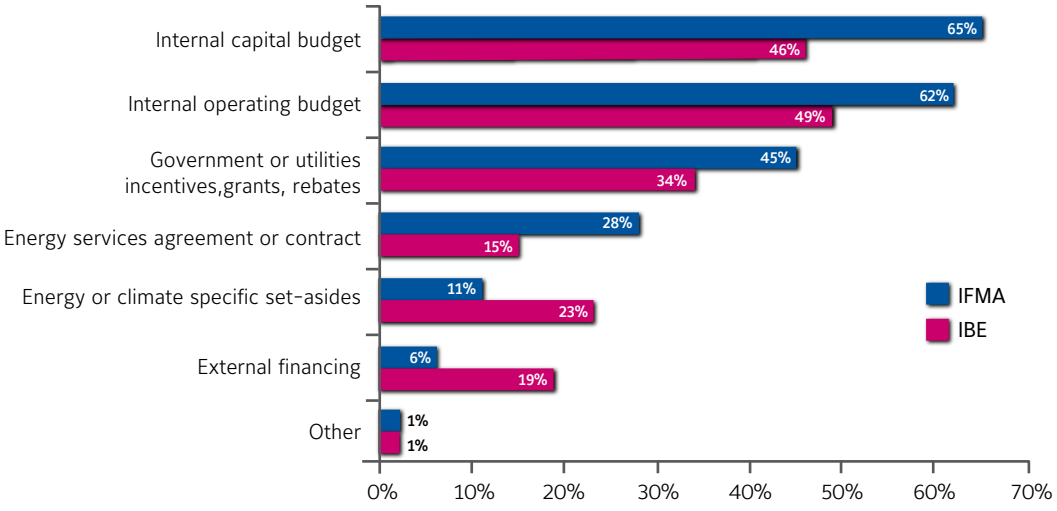
As shown in Figure 8, 42% of IFMA members indicated their energy investment would increase in the next 12 months. Roughly 40% of IFMA members stated that their investment in energy would stay the same.

Figure 8. Over the next 12 months, will your company investment in energy efficiency or renewable energy increase, decrease or stay the same?



When asked how they planned to fund energy efficiency and/or renewable energy investments, the most common approaches for the vast majority of IFMA members were internal capital budgets (65%) and internal operating budgets (62%). Forty-five percent planned to fund projects using grants or tax credits and 28% planned to utilize energy services agreements or contracts (see Figure 9).

Figure 9. How is the organization paying for energy efficiency and renewable energy projects?

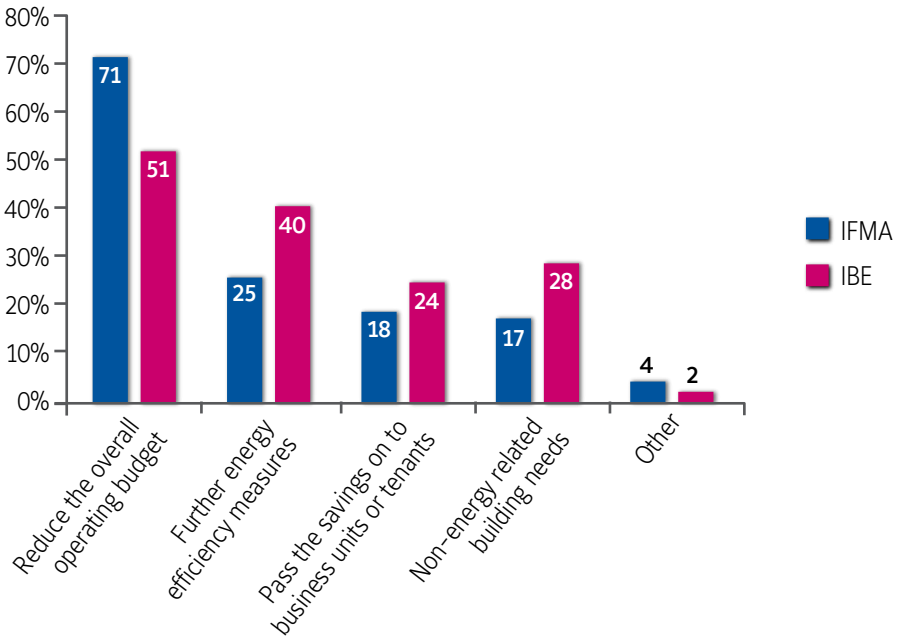


Among IFMA members, the average maximum allowable payback period for energy efficiency investments was 4.1 years. About 60% of IFMA members expected to see efficiency investments payback in less than 4 years.

Maximum Allowable ROI for Energy Efficiency Investments	IFMA					IBE
	2008	2009	2010	2011	2012	2012
	(338)	(417)	(490)	(632)	(566)	(3,392)
Less than a year (0.5)	1%	3%	2%	2%	1%	6%
1 but less than 2 years (1.5)	14%	13%	12%	16%	11%	17%
2 but less than 3 years (2.5)	20%	26%	25%	22%	27%	25%
3 but less than 4 years (3.5)	19%	15%	18%	19%	19%	20%
4 but less than 6 years (5.0)	23%	21%	22%	20%	20%	15%
6 but less than 10 years (8.0)	10%	10%	11%	11%	13%	8%
10 years or more (10.0)	4%	4%	3%	5%	3%	2%
Would not require ROI	2%	1%	1%	2%	1%	2%
Don't know	–	7%	5%	3%	5%	4%
Average maximum ROI period	*3.7 years*	*3.6 years*	*3.8 years*	*4.0 years*	*4.1 years*	*3.4 years*

For the 2012 survey, organizations were asked what they did with the cost savings from energy savings (see Figure 10). A majority of both IFMA members and the IBE market said they reduced the overall operating budget with savings they accrued. The IBE market utilized savings to further energy efficiency measured (40%) more than IFMA members (25%).

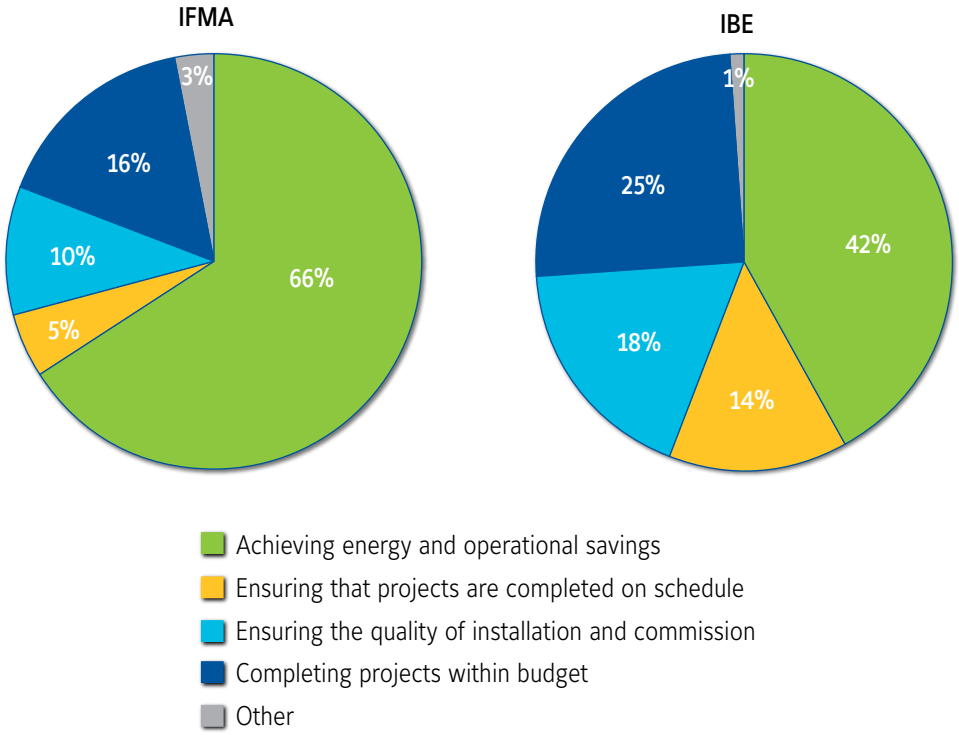
Figure 10. What does your company do with cost savings from energy efficiency upgrades?



Greatest Risks

Achieving energy and operations savings was by far the greatest risk (66%) for IFMA members when renewable energy projects was pursued for their organizations. Following a distant second was completing projects within budget (16%).

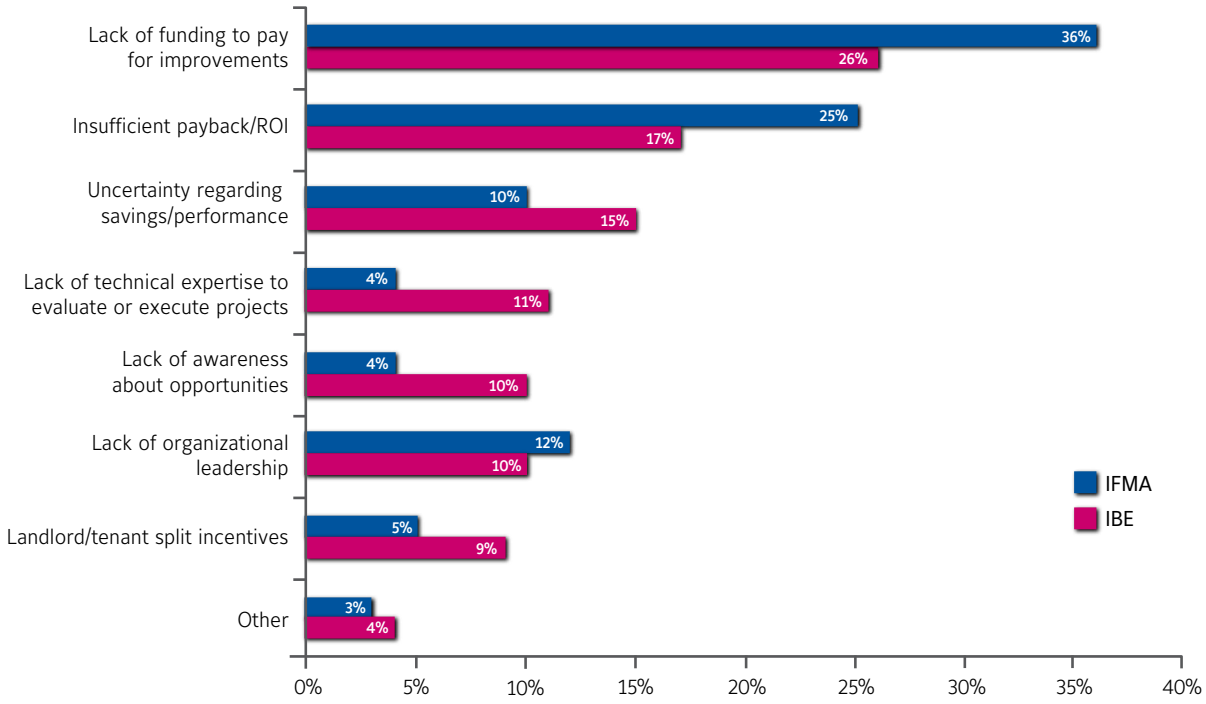
Figure 11. Where do you see the greatest risk when considering energy efficiency or renewable energy projects for the organization?



Barriers

IFMA members exhibited firm commitment to energy efficiency in the management of their facilities. However, they faced barriers to achieving desired levels of energy savings. Figure 12 illustrates that financial concerns still remained the major barrier to implementation. IFMA members identified lack of funding to pay for the project (35%) and insufficient payback or return on investment (25%) as the top two barriers.

Figure 12. What is the top barrier to energy efficiency at your company/organization?



IFMA members reported the top financial barrier to pursuing energy efficiency in their organization was competition for other capital improvements (44%), followed by insufficient internal capital budget (22%). Insufficient incentive was more of an issue with the IBE market (16%) than IFMA members (8%).

Top Financial Barrier to Pursuing Energy Efficiency for the Organization	IFMA 2012	IBE 2012
	(492)	(3,374)
Competition for other capital investments	44%	22%
Insufficient internal capital budget	36%	26%
Appropriate financing options not available	2%	8%
Difficulty obtaining external financing at attractive rates	2%	10%
Inability to secure external financing	–	6%
Balance sheet debt limitations	3%	10%
Insufficient government or utility incentives	8%	16%
Other	5%	3%

Technologies Adopted, Energy Policy and Personnel Impact

IFMA members showed great activity in regard to reducing energy consumption. These activities concentrated in the areas of lighting, HVAC and no-cost/low-cost behaviors. Seventy-eight percent switched to efficient lamps/ballasts/fixtures, 71% percent adjusted HVAC control points or schedules, 60% installed/adjusted light timers and 49% adjusted maintenance schedules and practices. The IBE market showed lesser rates of adoption than IFMA members in these areas.

Specific water efficiency improvements were added as a new category this year. IFMA members installed low-flow faucets/showerheads (31%) and efficient toilets (28%).

The IBE market showed higher rates of adoption in the areas of smart grid/smart building, energy supply/peak demand and onsite renewable energy sources than IFMA members. However, the rates of adoption were somewhat low.

Energy Measures Adopted in the Past 12 Months	IFMA	IBE
	2012	2012
	(508)	(3,416)
Lighting		
Switched to energy efficient bulbs, lamps, ballasts, or fixtures	78%	57%
Installed occupancy sensors or photosensors so lights come on and off as needed	60%	36%
Installed or adjusted time clocks to turn lights on and off at specified times	40%	31%
De-lamped or removed fixtures in over-lit areas	32%	28%
Installed dimmable lighting (e.g., bi-level switching, step-dimming, continuous dimming)	26%	26%
Employed centralized control system for lighting	17%	23%
Other (specify)	2%	1%
Heating, Ventilation, Air Conditioning or Controls		
Adjusted HVAC control set points or schedules	71%	38%
Adjusted maintenance schedules and practices	49%	33%
Upgraded or improved an existing building management system	46%	32%
Replaced inefficient equipment before the end of its useful life	42%	37%
Installed variable speed/frequency drives (VSD/VFDs)	41%	25%
Re-commissioned building systems and equipment	27%	21%
Implemented computer and/or electronics power management	25%	24%
Installed a building management system where there wasn't one before	18%	19%
Centralized software application for managing energy and GHG emission information	16%	19%
Captured waste energy (such as heat and steam) generated by operations	9%	17%
Other (specify)	2%	1%

Energy Measures Adopted in the Past 12 Months	IFMA 2012 (508)	IBE 2012 (3,416)
No-cost/low-cost and Behavior		
Educated facility operations staff to reduce energy use	41%	31%
Increased awareness of facility occupants to reduce energy use	41%	32%
Attended or sent staff to energy management seminars	28%	22%
Designated a staff member as an 'energy champion'	18%	16%
Used websites and/or social media to engage users	15%	16%
Used internal competitions or games to motivate energy reductions	9%	14%
Installed a kiosk/user portal that displays energy information to users	6%	12%
Other (specify)	1%	1%
Water Efficiency Improvements		
Installed low-flow faucets and showerheads	31%	28%
Installed water efficient toilets	28%	30%
Deployed water efficient landscaping and irrigation around facilities	23%	21%
Installed sensors or other efficiency technologies in wash basins and/or showers	18%	20%
Purchased or replaced appliances to ensure high water efficiency ratings	16%	21%
Installed waterless urinals	10%	13%
Installed permeable pavements in exterior parking lots to reduce run-off into municipal water system	6%	12%
Ensured re-use of gray water	5%	15%
Other (specify)	3%	2%
Building Envelope		
Increased building insulation, improved seals and weatherstripping	23%	21%
Installed energy-saving glass in windows (e.g., dual-pane, low U-value)	14%	18%
Installed window film or tinting	12%	14%
Installed a white or reflective roof covering to reduce heat gain	11%	13%
Installed a green vegetative roof	4%	9%
Other (specify)	2%	1%

Energy Measures Adopted in the Past 12 Months	IFMA	IBE
	2012	2012
	(508)	(3,416)
Energy Supply or Peak Demand		
Real-time or interval electricity meters	8%	14%
Participated in demand response programs through utility or service provider	6%	12%
Web-based Energy Information Software	6%	12%
Locally hosted Energy Information Software	5%	11%
Integration of facility systems with outside data sources (e.g., weather)	5%	11%
Integration of facility systems with other internal software applications (e.g., real estate, finance, human resources, etc)	4%	10%
Controls programmed for automated response to signals from utility or grid operator	2%	12%
Software interface showing price or critical event information from utility or grid operator	2%	10%
Other (specify)	1%	0%
Smart Grid/Smart Building		
Real-time or interval electricity meters	8%	14%
Participated in demand response programs through utility or service provider	6%	12%
Web-based Energy Information Software	6%	12%
Locally hosted Energy Information Software	5%	11%
Integration of facility systems with outside data sources (e.g., weather)	5%	11%
Integration of facility systems with other internal software applications (e.g., real estate, finance, human resources, etc)	4%	10%
Controls programmed for automated response to signals from utility or grid operator	2%	12%
Software interface showing price or critical event information from utility or grid operator	2%	10%
Other (specify)	1%	0%

Energy Measures Adopted in the Past 12 Months	IFMA	IBE
	2012	2012
	(508)	(3,416)
Onsite Renewable Energy		
Solar electric	9%	18%
Solar thermal	3%	14%
Wind	2%	9%
Other (specify)	2%	1%
Geothermal (ground-source heat pumps)	1%	8%
Biogas	1%	6%
Biomass	1%	6%
Hydro-power	0%	7%

In terms of energy policy, IFMA members indicated that tax credits/incentives had the greatest impact on improving energy efficiency in buildings, which out-performed other types of policies by at least 2 to 1 (see Figure 13).

Figure 13. Energy policies with the greatest impact on improving energy efficiency in buildings.

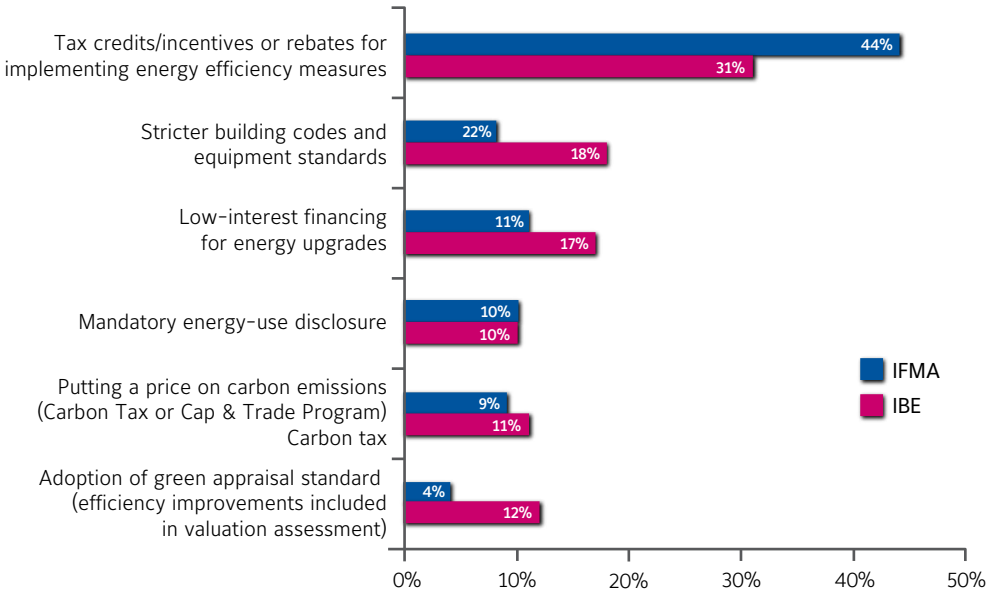
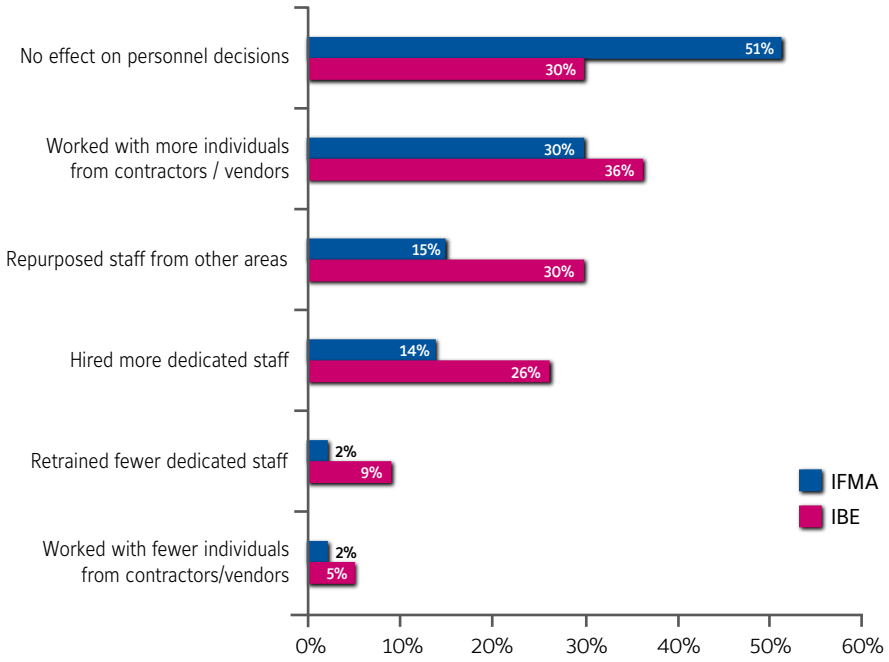


Figure 14 shows that roughly 50% of IFMA members said that pursuing energy efficiency had no effect on personnel decisions. Roughly 30% had worked with more personnel from contractors/vendors.

Figure 14. Which of the following describe how energy efficiency activities at your company/ organization have impacted personnel decisions?



Respondent Profile

The majority of IFMA respondents (57%) were facility managers with another 21% at the VP/director of facilities level. The IFMA sample had fewer C-suite executives and owners/proprietors than the IBE sample.

Position	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(449)	(338)	(468)	(491)	(631)	(508)	(3,416)
Facility manager	51%	57%	56%	57%	60%	57%	19%
VP or director of facilities	30%	28%	29%	23%	22%	21%	9%
Senior executive (CEO, CFO, GM)	3%	1%	2%	4%	3%	3%	22%
Owner/sole proprietor	–	–	–	–	1%	1%	16%
VP/director/manager of energy	–	–	–	4%	3%	3%	4%
VP/director of operations	2%	2%	1%	1%	5%	5%	7%
Other	15%	12%	12%	11%	7%	9%	23%

IFMA members differed from the IBE market in that they were responsible for considerably larger facilities, with 51% reporting responsibility for 100,000 to 1 million square feet compared to 39% for the IBE market.

Area of Responsibility	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(449)	(338)	(390)	(489)	(538)	(453)	(1,781)
Less than 100,000 sq. ft.	11%	12%	14%	14%	12%	14%	28%
100,000 to 499,999 sq. ft.	39%	36%	40%	37%	33%	33%	22%
500,000 to 999,999 sq. ft.	18%	21%	15%	18%	21%	18%	17%
1 million to 1.99 million sq. ft.	14%	13%	11%	13%	12%	13%	13%
2 million to 4.99 million sq. ft.	10%	10%	11%	10%	12%	10%	9%
5 million or more sq. ft.	8%	7%	9%	7%	10%	11%	9%
Don't know	–	–	–	1%	1%	1%	2%

IFMA members who participated in the study worked for organizations with larger headcounts than respondents in the IBE market. Fifty-seven percent of IFMA members worked for organizations with over 1,000 employees. Less than half (47%) of the IBE market worked for organizations with less than 1,000 employees.

Number of Employees	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(449)	(338)	(416)	(487)	(630)	(502)	(3,391)
Fewer than 100	7%	7%	6%	8%	7%	8%	22%
100 – 499	23%	23%	23%	22%	24%	20%	17%
500 – 999	17%	16%	14%	15%	12%	13%	13%
1,000 – 4,999	27%	25%	26%	29%	25%	27%	20%
5,000 – 9,999	7%	7%	10%	8%	9%	10%	10%
10,000 – 49,999	12%	13%	12%	11%	13%	12%	8%
50,000 or more	5%	7%	7%	5%	8%	8%	9%
Don't know	2%	1%	2%	2%	1%	2%	1%

IFMA respondents tended to represent large organizations by approximate annual revenue. Forty percent worked for large organizations with revenues of US$100 million or more. This number fell slightly from 44% in this category one year ago. The IBE market included a greater share (39%) of smaller organizations with revenues of 10 million or less compared to IFMA respondents (12%).

Company Revenue (in US dollars)	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(415)	(308)	(418)	(486)	(595)	(493)	(3,379)
Less than $100K	4%	4%	1%	1%	1%	1%	9%
$100K – less than $500K	–	1%	–	0.5%	1%	1%	7%
$500K – less than $1M	–	–	–	0.5%	2%	1%	5%
$1M – less than $5M	4%	3%	2%	3%	5%	4%	9%
$5M – less than $10M	–	2%	2%	2%	3%	5%	9%
$10M – less than $50M	6%	8%	5%	7%	10%	11%	13%
$50M – less than $100M	4%	4%	3%	3%	6%	5%	9%
$100M – less than $500M	11%	9%	9%	8%	12%	14%	11%
$500M – less than $1B	4%	3%	4%	4%	5%	4%	5%
$1B or more	11%	12%	13%	11%	27%	22%	11%
Don't know	55%	54%	61%	60%	29%	33%	14%

The IFMA sample reflected a decrease in the number of private sector respondents. The IBE market represented 82% private sector companies compared to 74% for IFMA members.

Sector	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(390)	(449)	(334)	(458)	(458)	(498)	(3,364)
Private sector	82%	81%	78%	80%	74%	74%	82%
Public/government-owned	18%	19%	22%	20%	26%	23%	14%

The survey touched a wide range of industries, with 19 sectors represented. The IFMA sample had relatively high representation from the education, finance and government sectors. The IBE sample's high representation areas were construction, education and manufacturing.

Industry	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(449)	(338)	(418)	(491)	(628)	(504)	(3,389)
Service industry	5%	4%	3%	1%	6%	3%	4%
Finance and insurance	16%	13%	17%	15%	15%	14%	6%
Manufacturing	9%	11%	13%	10%	7%	7%	12%
Retail	3%	2%	2%	2%	1%	1%	4%
Real estate	5%	4%	5%	2%	7%	5%	4%
Education	11%	7%	6%	6%	8%	11%	11%
K-12	–	4%	2%	2%	3%	3%	3%
Higher education	–	3%	4%	4%	5%	8%	8%
Health care	6%	5%	6%	5%	3%	4%	5%
Government and public administration	11%	14%	15%	13%	14%	13%	5%
Construction	–	–	1%	2%	3%	3%	10%
IT/communications	3%	4%	3%	6%	5%	4%	9%
Wholesale	1%	1%	–	1%	–	–	2%
Hospitality	1%	2%	2%	2%	2%	2%	2%
Transportation and logistics	2%	3%	1%	1%	1%	1%	3%
Consumer products	–	1%	1%	2%	2%	1%	2%
Nonprofit/religious	n/a	n/a	n/a	5%	5%	6%	2%
Life sciences/pharmaceutical	n/a	n/a	n/a	3%	2%	2%	1%
Other	27%	29%	26%	24%	11%	12%	7%

Office space was the most common building use, with 64% of IFMA respondents indicating they were responsible for office space. However, this was a sizeable decrease from 77% in 2011.

Primary Type of Building	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	(449)	(337)	(417)	(487)	(628)	(504)	(3,381)
Office space	76%	74%	75%	76%	77%	64%	51%
Industrial/manufacturing/ plant	15%	20%	18%	15%	15%	18%	25%
Hospital/health care facility/ clinic	6%	6%	6%	8%	6%	7%	11%
Hotels/hospitality	2%	4%	3%	4%	4%	3%	9%
Retail	7%	7%	7%	7%	7%	8%	13%
Education campus	11%	9%	8%	11%	11%	13%	16%
Research center/laboratory	13%	12%	11%	12%	13%	9%	11%
Warehouse/storage	20%	23%	21%	19%	17%	16%	16%
Residential	–	–	–	–	9%	7%	13%
Other	14%	16%	13%	15%	12%	13%	4%

IFMA respondents were more likely than the IBE market to manage multiple buildings. Roughly half of the IFMA respondents managed either a single building or a campus, while the remaining half had state, regional or national emphasis.

Facility Oversight	IFMA						IBE
	2007	2008	2009	2010	2011	2012	2012
	–	–	–	(491)	(631)	(504)	(3,388)
Single building	–	–	–	27%	20%	18%	34%
Single campus	–	–	–	28%	30%	30%	22%
Single state/province	–	–	–	13%	23%	23%	14%
Sub-national region	–	–	–	19%	14%	19%	12%
National	–	–	–	8%	7%	7%	12%
International region	–	–	–	3%	3%	2%	2%
Global	–	–	–	2%	3%	1%	4%

This year's EEI study targeted the following countries: Australia, Canada, China, France, Germany, India, Brazil, the United Kingdom and the United States.

Countries Represented	IFMA		IBE	
	2011	2012	2011	2012
	(632)	(508)	(3,868)	(3,416)
United States	455	399	1481	993
Canada	69	35	211	146
Afghanistan	–	–	1	–
Angola	1	–	2	–
Argentina	–	–	2	–
Australia	–	–	155	253
Austria	–	–	1	–
Bahamas, The	1	–	1	–
Barbados	2	–	2	–
Belgium	6	2	7	2
Bermuda	2	2	2	2
Brazil	–	1	103	230
Brunei	1	–	1	–
Cayman Islands	1	1	4	1
China	1	4	428	369
Colombia	–	1	1	1
Congo	–	1	–	1
Croatia	–	1	–	1
Czech Republic	1	1	1	1
Egypt	1	1	1	1
El Salvador	–	–	1	–
Fiji	–	–	1	–
France	–	–	100	296
Germany	1	1	157	307
Ghana	2	3	2	3
Greece	1	–	2	–
Guatemala	–	–	1	–
Hong Kong	14	11	21	12
Hungary	–	–	1	–
India	4	7	450	396
Indonesia	–	–	1	–

Countries Represented	IFMA		IBE	
	2011	2012	2011	2012
	(632)	(508)	(3,868)	(3,416)
Ireland	2	1	2	1
Italy	3	1	125	1
Japan	–	–	2	–
Kuwait	2	–	2	–
Macau	1	1	1	1
Malaysia	–	1	1	1
Mexico	–	–	5	2
Netherlands	2	1	4	1
New Zealand	1	–	1	–
Nigeria	17	12	17	12
Norway	–	–	1	–
Paraguay	–	–	1	1
Peru	–	–	1	–
Puerto Rico	–	1	–	2
Philippines	3	–	4	–
Poland	–	–	105	–
Portugal	1	–	3	–
Qatar	1	3	1	3
Russia	1	–	2	–
Saudi Arabia	1	–	1	1
Seychelles	–	–	1	–
Singapore	4	3	5	3
South Africa	1	1	77	28
Spain	7	2	116	3
Switzerland	7	4	7	4
Taiwan	1	–	1	1
Thailand	–	–	1	–
Trinidad and Tobago	4	–	4	–
Turks and Calicos Islands	–	1	–	1
Turkey	1	1	1	1
United Arab Emirates	8	3	9	3
United Kingdom	–	2	225	331

IFMA is the world's largest and most widely recognized international association for professional facility managers, supporting more than 22,655 members in 78 countries. The association's members, represented in 129 chapters and 16 councils worldwide, manage more than 37 billion square feet of property and annually purchase more than US$100 billion in products and services. Formed in 1980, IFMA certifies facility managers, conducts research, provides educational programs, recognizes facility management certificate programs and produces World Workplace, the world's largest facility management conference and exposition. To join and follow IFMA's social media outlets online, visit the association's LinkedIn, Facebook, YouTube and Twitter pages. For more information, visit the IFMA press room or www.ifma.org.

The Institute for Building Efficiency is an initiative of Johnson Controls providing information and analysis of technologies, policies, and practices for efficient, high performance buildings and smart energy systems around the world. The Institute leverages the company's 125 years of global experience providing energy efficient solutions for buildings to support and complement the efforts of nonprofit organizations and industry associations. The Institute focuses on practical solutions that are innovative, cost-effective and scalable.

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