

# 2012 ENERGY EFFICIENCY INDICATOR: GLOBAL RESULTS



## Executive Summary

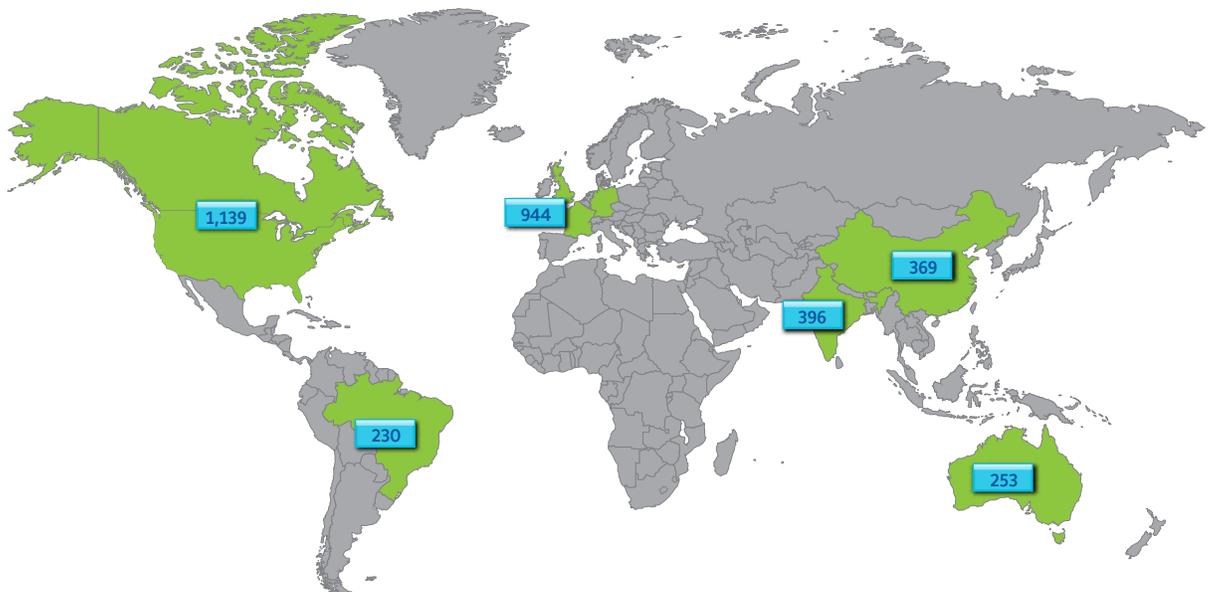


# INTRODUCTION

The 2012 global Energy Efficiency Indicator (EEI) survey highlights trends and provides new insights into the attitudes and practices of global executives and building owners responsible for energy management and investment decisions in industrial, commercial and public-sector buildings. This sixth annual survey tracks their priorities, investment plans, and financial evaluation criteria as a way to understand what projects they are implementing, what is driving their actions, and what barriers they face.

The 2012 EEI survey was sponsored by the Institute for Building Efficiency in partnership with the International Facility Management Association, the Urban Land Institute, and 16 in-country strategic partners. The survey, focusing on six regions and distributed in four languages, drew 3,479 respondents (Figure 1).

*Figure 1. 2012 Energy Efficiency Indicator Survey Scope*



## RESPONDENTS REPRESENT VARIED JOB FUNCTIONS, MARKET SECTORS AND ORGANIZATION SIZES

The survey was conducted anonymously, on-line, during five weeks in March and April 2012. To qualify, survey respondents must meet two criteria:

- They must have budget responsibility for their organizations' facilities.
- Their job duties must include reviewing or monitoring energy usage and/or proposing or approving initiatives to make their organizations' facilities more efficient.

The 2012 survey respondents came from a variety of job roles and market sectors and from organizations of various sizes:

- **Job function:** Building owners comprised 16 percent, C-level 22 percent, vice presidents 22 percent, facility managers 19 percent, and others 21 percent.
- **Market sector:** Survey respondents were categorized into 3 clusters of respondents: commercial buildings such as financial institutions, retail, and office buildings continue to be the largest portion of the survey respondents at 55 percent; executives from industrial facilities comprised 21 percent of the respondents, and public institutions such as governments, hospitals and schools were 24 percent of the survey respondents in 2012.
- **Facility space:** Less than 50,000 square feet, 21 percent (small office building); 50,000 to 500,000 square feet, 31 percent; more than 500,000 square feet, 48 percent (large university campus).

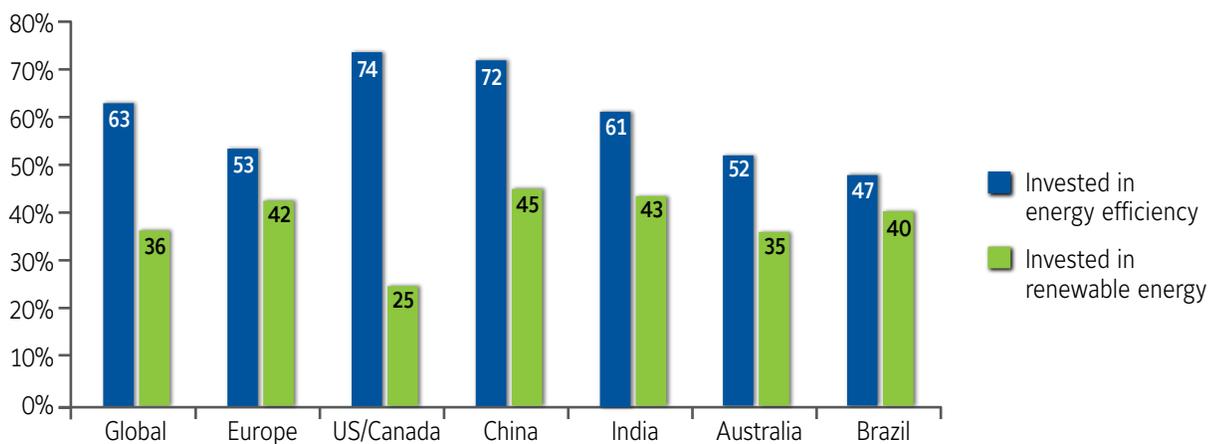
## INTEREST IN ENERGY MANAGEMENT AND INVESTMENTS IN ENERGY EFFICIENCY CONTINUES TO RISE

In all regions surveyed, interest in energy management increased over previous years. Globally in 2012, 85 percent of respondents said energy management was extremely or very important to their organizations, versus 70 percent in 2011 and 60 percent in 2010.

### Past year's investments in clean energy

Over sixty percent of global respondents said their organizations were investing in energy efficiency and over a third of them reported investing in renewable energy projects. (Figure 2). Among regions, the United States and Canada showed both the largest proportion of organizations investing in energy efficiency and the smallest proportion investing in renewables. Europe, Australia and Brazil showed the most even division between those two types of projects.

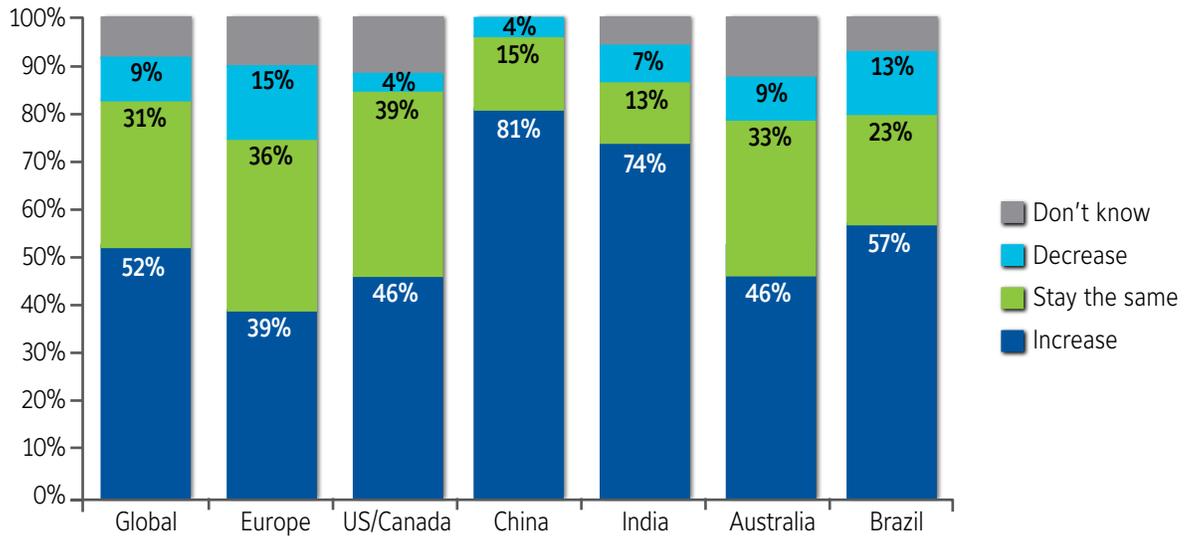
Figure 2. Investments in energy efficiency and renewables in past year



### Planned future investments in clean energy

Respondents in China (81 percent) and India (74 percent) indicated that they were going to increase energy efficiency or renewable energy investments in the next 12 months. Globally, just over half of respondents said they planned to increase such investments (Figure 3).

Figure 3. Plans to invest in energy efficiency and renewables in the next year



## THE PRIVATE SECTOR CONTINUES TO SET ENERGY AND CARBON REDUCTION GOALS, AND REPORTS INCREASED INVESTMENTS PLANNED IN CLEAN ENERGY IN THE NEXT TWELVE MONTHS

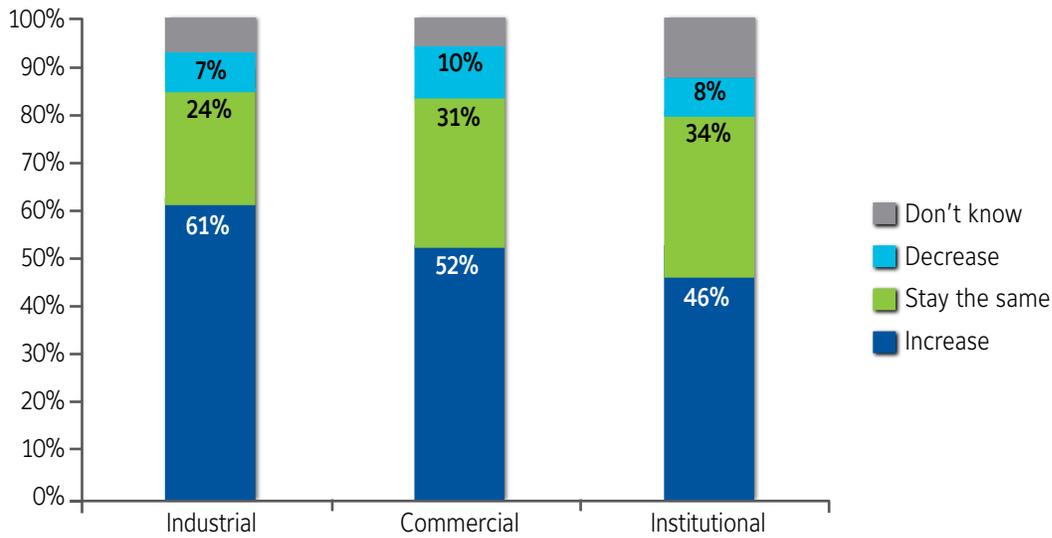
Organizations in the industrial and commercial sectors continue to set internal and public reduction goals for energy and carbon. Eighty percent of industrial and 72 percent of commercial organizations set such goals for energy; 72 and 63 percent set goals for carbon.

Private-sector organizations (61 percent for industrial, 52 percent for commercial) were more inclined than institutional (46 percent) to be planning an increase in energy efficiency and renewable energy investments in the next year (Figure 4).

### Efficiency actions taken

Respondents reported their organizations took a wide variety of energy efficiency actions in the last 12 months. In all, 96 percent reported undertaking at least one improvement action. The most common actions taken were lighting upgrades (69 percent), HVAC or controls improvements (61 percent) and water efficiency actions (50 percent).

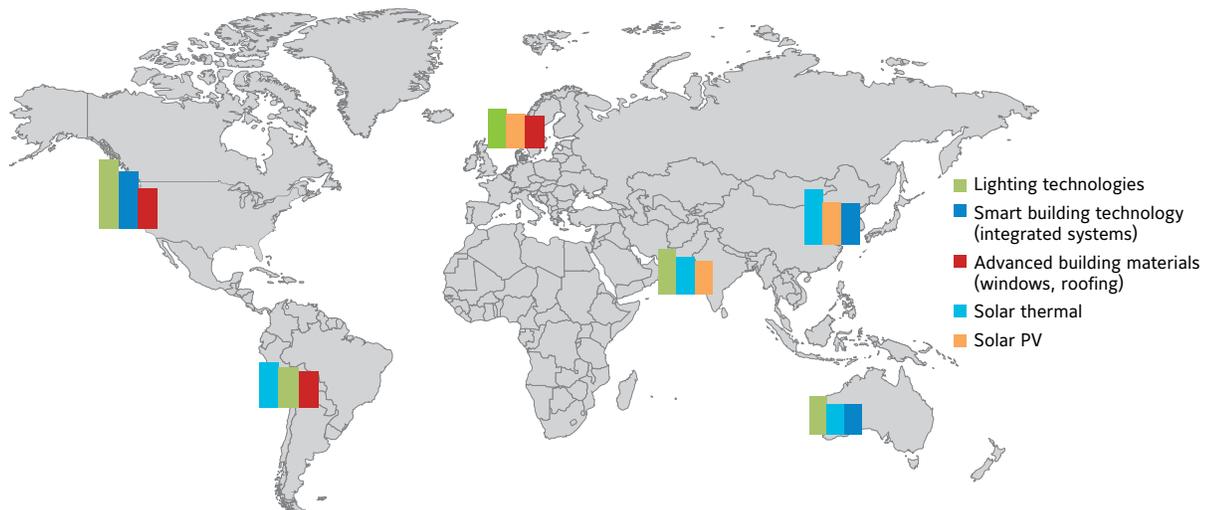
Figure 4. Plans to invest in clean energy by building market sector



### Technology expectations over the next decade

Different global regions had different expectations about the on-site technologies that will show the greatest increase in market adoption over the next ten years. Globally, the top three technologies were: lighting technologies (37%), smart building technology (29%) and advanced building materials (26%). Solar PV or solar thermal appeared in the top three of every region outside the United States and Canada.

Figure 5. On-site technology expectations by region



## ENERGY COST SAVINGS AND GOVERNMENT AND UTILITY INCENTIVES RANKED AS THE TOP MOTIVATORS OF ENERGY EFFICIENCY DECISIONS

Across the board in the regions surveyed, energy cost savings remained the top motivator of energy efficiency decision-making. Government and utility incentives and rebates ranked second in the U.S. and Canada, Australia and Brazil. Energy security ranked second in Europe and China, and enhanced brand or public image ranked second in India. Interestingly, Australian respondents gave a third-place ranking to the power of energy efficiency enhancements to increase building asset values and China ranked existing government policy as its third most significant driver (Figure 6).

Figure 6. Drivers of energy efficiency decisions by region

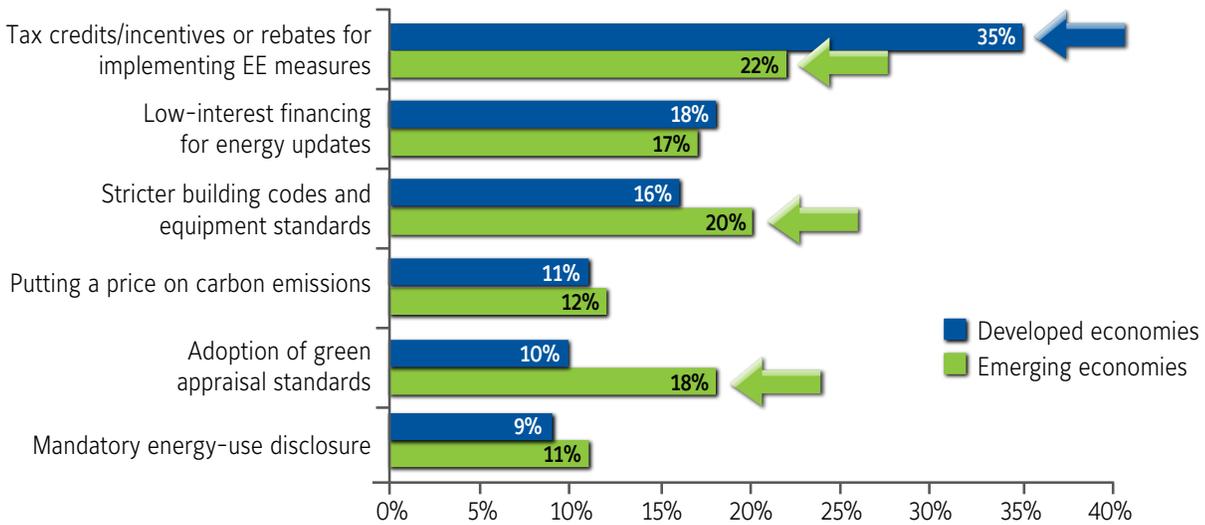
Drivers of efficiency	Europe	India	China	US/ Canada	Australia	Brazil
Energy cost savings	1	1	1	1	1	1
Government/utility incentives/rebates	3			2	2	2
Enhanced brand or public image		2		3		
Increasing energy security	2	3	2			3
Greenhouse gas reduction						
Existing policy			3			
Increasing asset value					3	

### Impact of energy policies on improving building energy efficiency

A new EEI survey question explored respondents' perceptions of energy policies that would have the most impact on improving energy efficiency in buildings. Here (Figure 7), the responses differed between developed regions (U.S. and Canada, Europe, Australia) and emerging regions (Brazil, China, India).

In all regions, tax incentives and rebates for energy efficiency measures were the most favored policy, although those in developed regions supported such measures more strongly than those in emerging regions (37 percent vs. 22 percent). Respondents in emerging regions felt that tax incentives, stricter building codes and equipment standards, and adoption of green appraisal standards would have a nearly equal likelihood on improving energy efficiency in buildings.

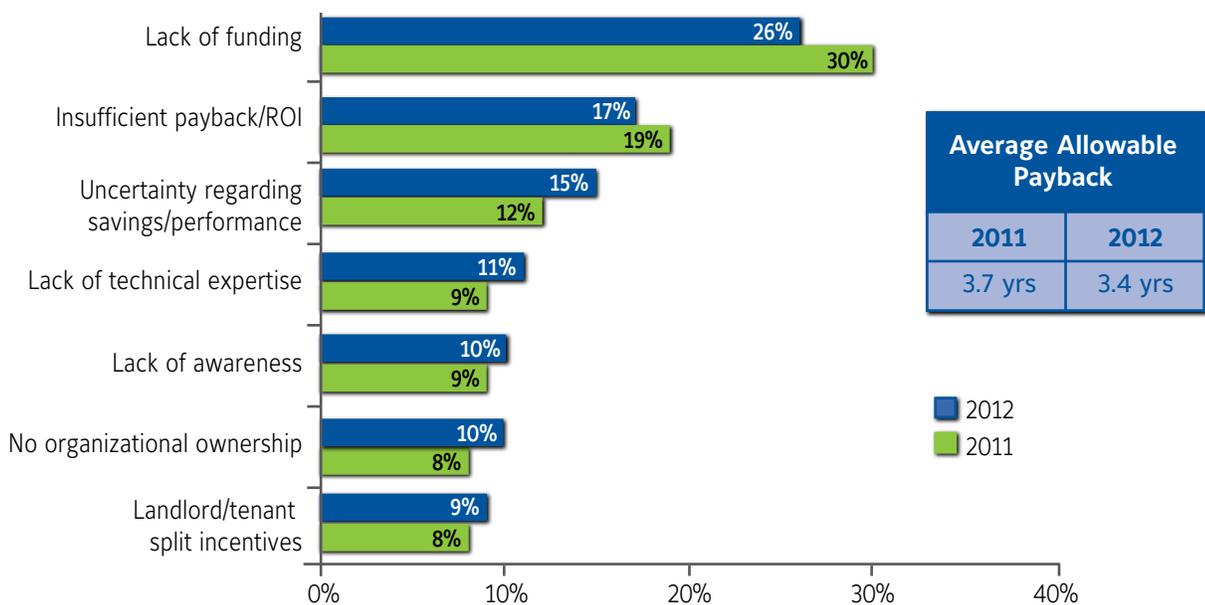
Figure 7. Energy policies and their impact: Developed vs. emerging regions



## FINANCING ISSUES DECLINED SLIGHTLY AS BARRIERS TO ENERGY EFFICIENCY, WHILE CONCERN OVER SAVINGS AND PERFORMANCE INCREASED

While a quarter of respondents cited lack of funding as their top barrier to energy efficiency projects, lack of funding declined slightly in prominence, from 30 percent in 2011 to 26 percent in 2012. Meanwhile, uncertainty about savings and performance in energy efficiency projects increased in importance, from 12 percent to 15 percent (Figure 8).

Figure 8. Barriers to energy efficiency investment: 2012 vs. 2011

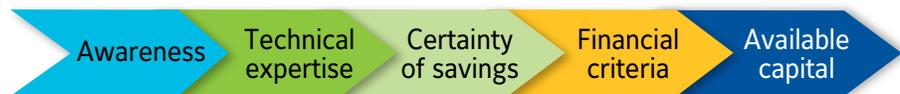


## Importance of barriers in different regions

Previous EEI surveys have identified five key barriers to energy efficiency investments (Figure 9):

- Lack of **awareness** of opportunities for energy savings.
- Lack of **technical expertise** to design and complete projects.
- Lack of **certainty** that promised savings will be achieved.
- Inability of projects to meet the organization's **financial payback criteria**.
- Lack of **available capital** for investment in projects.

Figure 9: Barriers to pursuing energy efficiency projects



The 2012 EEI survey found that different regions continue to show differences in the barriers they face (Figure 10). In developed regions of the U.S. and Canada, Australia and Europe, lack of funding was the greatest barrier, while respondents in emerging regions faced more struggles with awareness, technical expertise, and certainty of savings.

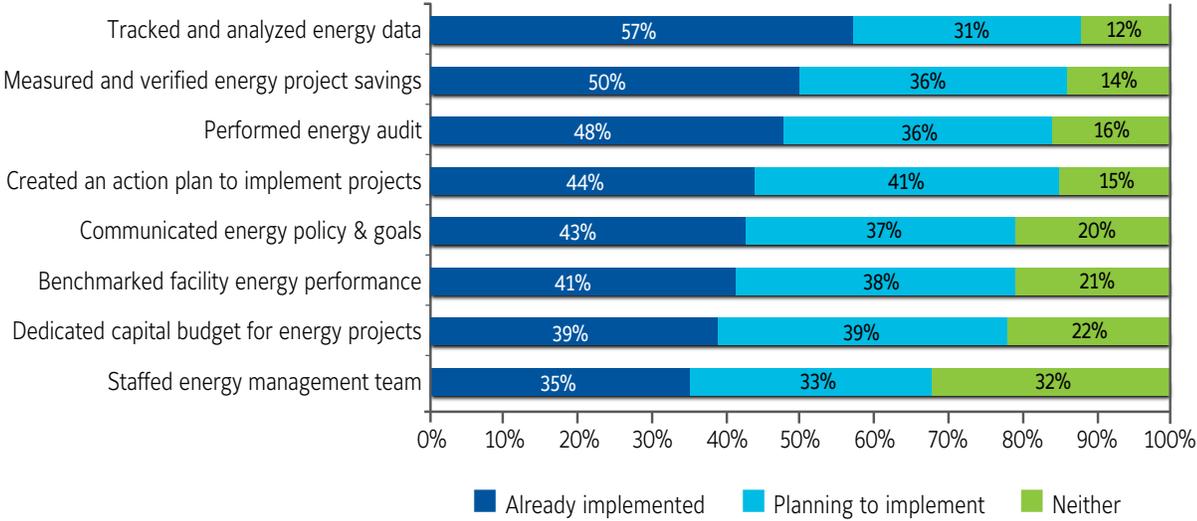
Figure 10. Barriers to energy efficiency by region



# ORGANIZATIONS APPLYING ENERGY MANAGEMENT BEST PRACTICES TOOK THE MOST ACTIONS TO IMPROVE BUILDING EFFICIENCY

A new question explored the extent to which respondents were applying or planned to apply a set of recognized energy management best practices. The practices respondents most often cited as being applied or planned were regularly tracking and analyzing energy data, measuring and verifying energy savings from projects, and performing energy audits (Figure 11). Significantly, 31% to 41% of the global market is planning to implement each of the energy management practices listed – suggesting that even though more companies have implemented energy management practices, there is still significant growth to achieve in energy management.

Figure 11. Energy management best practices implemented

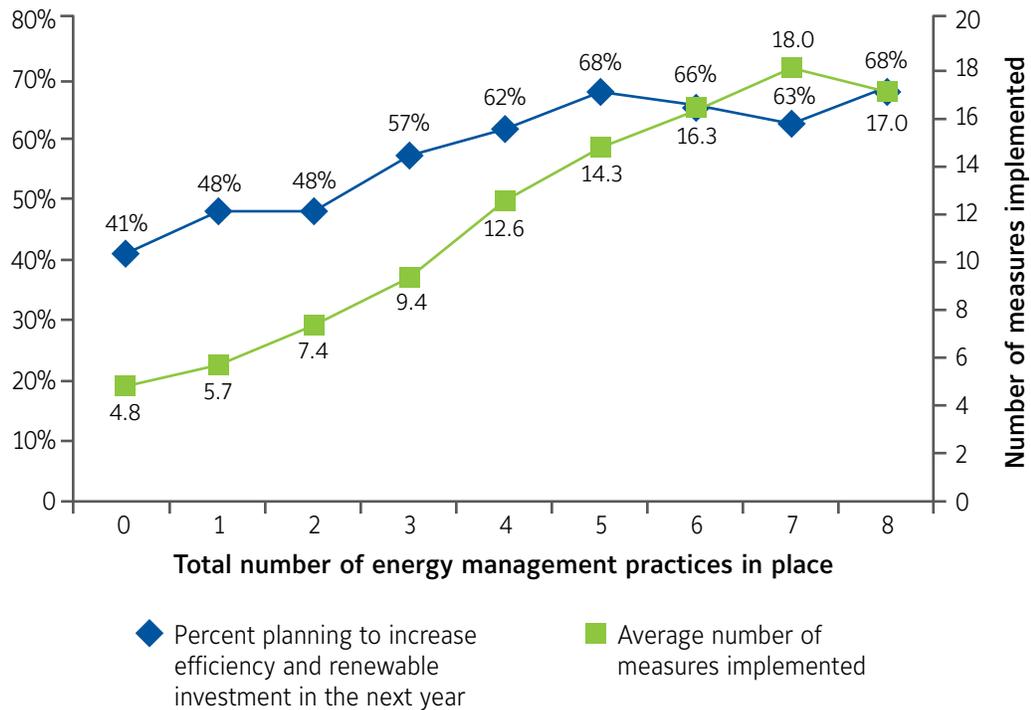


## Energy management best practices and actions

The survey found that across the board, organizations that had applied any given energy management best practice had taken roughly three times as many energy efficiency actions as those that had not implemented that practice. The differences in actions taken were the greatest for the best practices of tracking and analyzing energy data, measuring and verifying energy savings, performing energy audits, and creating action plans to implement projects.

Furthermore, responses indicated that the more energy management best practices an organization applied, the more energy efficiency actions it took, and the greater its' planned increase in investments in energy efficiency and renewable energy over the next 12 months (Figure 12). However, six practices seem to be the point of diminishing returns beyond which there is no shift in planned investment levels.

Figure 12. Connecting management practices, investments and actions



### Frequency of tracking and analysis of energy data

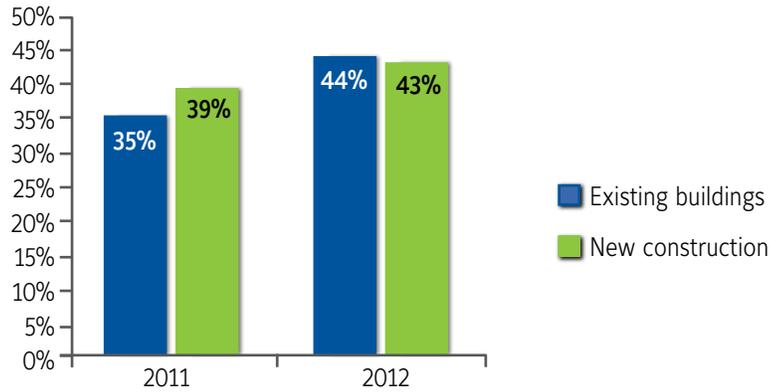
The 2012 survey showed notable increases over 2011 in the number of respondents who reported measuring and recording energy data at least weekly (56 percent versus 43 percent) and reviewing and analyzing that data at least weekly (20 percent vs. 15 percent). This is a significant and positive shift, since frequent data analysis is one of the energy management practices associated with greater energy efficiency action.

## INTEREST IN GREEN AND HIGH PERFORMANCE BUILDINGS GROWING AROUND THE WORLD

Respondents' interest in green buildings continued to grow. Globally, 44 percent (versus 35 percent in 2011) said their organizations planned to pursue voluntary green building certifications for existing buildings in the next year. Forty-three percent planned to pursue certification for new construction (versus 39 percent in 2011). Plans to certifying existing buildings are on par with certifying new construction. Sixty percent of respondents said they had at least one certified green building.<sup>1</sup>

<sup>1</sup> Globally, some uncertainty still exists about the definition of certified green buildings and how respondents understood it. For example, some may have equated "green building certification" with compliance to national energy efficiency building codes.

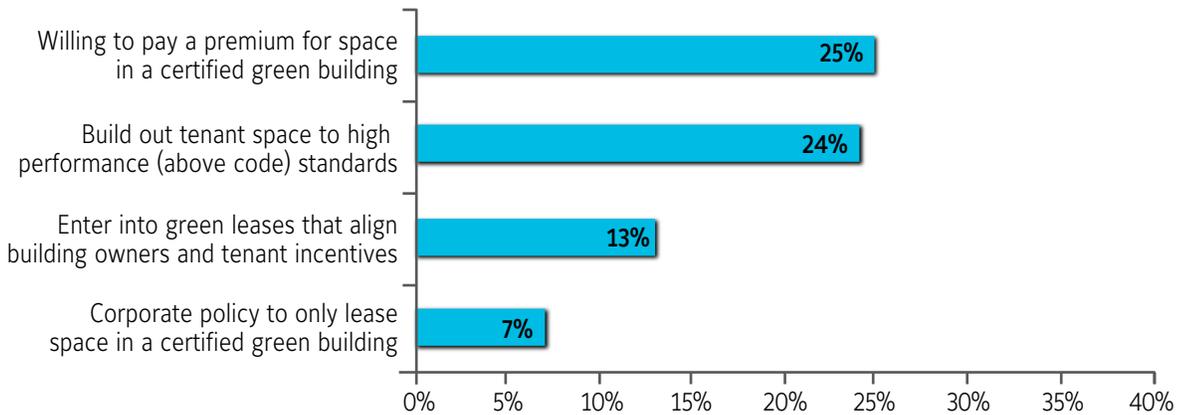
Figure 13. Plans to pursue green building certification



### Interest in leasing high performance office space

Interestingly, organizations that planned to pursue green building certification in the next year were significantly more likely to favor these practices related to leasing of green (or high-performance) office space.

Figure 14. Leasing practices for green/high-performance office space



## CONCLUSIONS

Respondents in the 2012 global EEI survey in general showed increasing interest in managing energy, investing in energy efficiency and renewable energy, and pursuing green buildings. In particular, the data indicates:

- Respondents globally plan to increase investments in energy efficiency; those outside the U.S. and Canada indicated more interest in renewable energy than U.S. and Canadian executives.
- The commercial and industrial sectors took the lead in setting energy and carbon reduction goals and in planning increased energy efficiency and renewable energy investments.
- Government and utility incentives were the most favored policies worldwide for encouraging energy efficiency; emerging economies gave comparable weight to incentives, building codes and equipment standards, and green appraisals.
- Organizations utilizing recognized energy management “best practices” tended to invest more in energy efficiency and take more actions to improve efficiency.

## THANK YOU TO OUR GLOBAL PARTNERS



## AND OUR IN-COUNTRY STRATEGIC PARTNERS



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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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