

2019 Energy Efficiency Indicator Survey

Japan

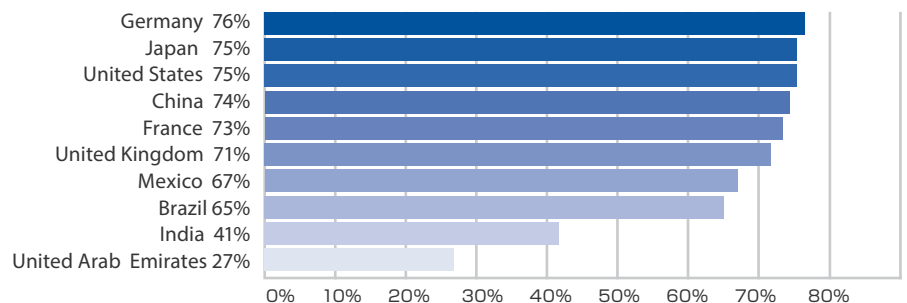


Johnson Controls conducts an annual Energy Efficiency Indicator survey tracking current and planned investments, key drivers, and organizational barriers to improving energy efficiency in facilities.

Since the first survey was released in 2007, almost 27,000 energy and facility management leaders have been surveyed. This year marks the 13th edition of the survey with over 1,300 respondents represented from eleven countries, including Brazil, China, France, Germany, India, Ireland, Japan, Mexico, United Arab Emirates, United Kingdom, and the United States.











Investment in energy efficiency and smart building technology

Organizations planning to increase investment in energy efficiency, renewable energy and smart building technology over the next 12 months



2019 Energy Efficiency Indicator survey Japan results vs Global results

- The number of organizations that attach importance to resilience in building infrastructure investment increased sharply from last year to 88%.
- Interest in obtaining green building certification and willingness to pay a premium for green-certified space are higher than the global averages
- "Energy cost saving" was the most popular driver for energy efficiency investment in Japan, followed by "Increasing energy security" and "Greenhouse gas footprint reduction"

	Japan		Global	
Resilience Stated to be an extremely or very important factor when considering future energy and building infrastructure investments.	2019 88%	 2018 66%	2019 80%	 2018 72%
Operate off the grid Extremely or very likely to have a facility that can operate off the grid in the next ten years	2019 51%	 2018 45%	2019 54%	 2018 50%
Green building certification Already achieved or plan to achieve voluntary green building certification	2019 89%	 2018 71%	2019 73%	 2018 57%
Green building tenant space Willing to pay a premium to lease space in a certified green building	2019 63%	 2018 54%	2019 51%	 2018 51%
Net zero energy/ carbon Extremely or very likely to have one or more facilities that are nearly zero, net zero or positive energy or carbon status in the next ten years	2019 58%	 2018 56%	2019 51%	 2018 50%

Organizations rating as very or extremely important driver in building energy and technology investment decisions

Japan

Energy cost savings	61%
Increasing energy security	54%
Greenhouse gas footprint	49%
Increasing resilience to weather and energy system disruptions	41%
Improving operational efficiency	41%
Improving life safety and	40%
Attracting and retaining employees	40%

Global

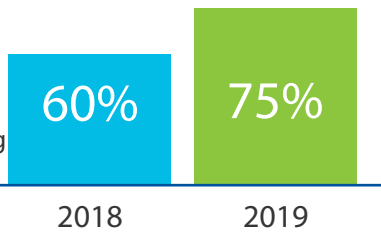
Energy cost savings	79%
Greenhouse gas footprint reduction	73%
Improving life safety and security	72%
Improving operational efficiency	72%
Increasing energy security	70%
Enhanced brand or reputation	70%
Attracting and retaining employees	68%

2019 Energy Efficiency Indicator survey Japan results vs 2018 results

- 75% of the Japanese organizations plan to increase investment in energy efficiency, renewable energy and smart building technology.
- IoT, data analytics /machine learning, and cybersecurity are the technologies expected to have the greatest impact on the development of smart buildings over the next five years.
- Integration of security systems with other building technology systems was the most invested item in the past 12 months and organizations plan to invest the most in Building controls improvements and HVAC improvements in the next 12 months
- The number of Japanese organizations to invest on non-renewable distributed energy generation has increased by 18% from last year due to the growing interest in energy efficiency and emergency back-up.

Investment in energy efficiency, renewable energy and smart building technology is expected to increase significantly next year

Percentage of organizations that will increase investment in energy efficiency, renewable energy or smart building technology over the next 12 months



Having goals greatly affects investment

Percentage of organizations that will increase investment in energy efficiency, renewable energy or smart building technology over next 12 months

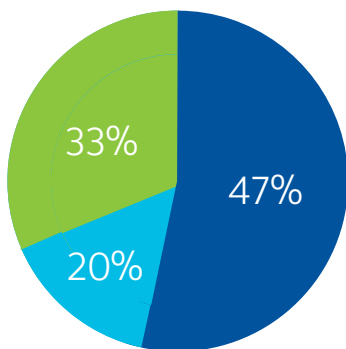
40%

No goal for energy or carbon reduction

83%

Internal or public goal for energy or carbon reduction

Organizations that have goals for energy and/or carbon reduction are more than twice as likely to increase investment next year



Percentage of organizations with goals for energy and/or carbon reduction

- Internal Goals
- Public Goals
- No Goals

IoT, cybersecurity, and data analytics / machine learning are expected to have the greatest impact on smart building investments over the next five years

Rated as 'extremely significant' by organizations

Internet of Things	44%
Data analytics / machine learning	39%
Cybersecurity	37%
Advanced sensing	32%
Advanced controls	31%

Building/energy investments in the last 12 months and next 12 months

Top 5 investments organizations made in the last 12 months

Integration of security systems with other building technology systems	84%
Energy focused behavioral or educational programs	79%
HVAC improvements	76%
Integration of fire/life safety with other building technology systems	74%
Building controls improvements	67%

Top 5 investments organizations plan in the next 12 months

Building controls improvements	67%
HVAC improvements	65%
Energy focused behavioral or educational programs	64%
Electric energy storage	58%
Demand response / demand management	54%

Security, fire/life safety and lighting systems received the most systems integration investment last year

Organizations investing in the past 12 months

Security systems integration	84%
Fire / life safety integration	74%
Lighting systems integration	53%
Building management systems integration	46%
Energy information management software	42%
Smart building equipment integration	40%
Distributed energy resource integration	30%

There was a significant year-over-year increase in distributed energy resource investments

Change in percentage of organizations planning to invest in 2020 compared to 2019

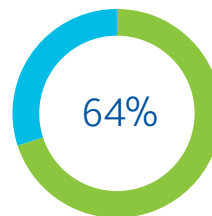
Non-renewable distributed energy generation	+18%
Electric energy storage	+ 8%
Thermal storage	+ 5%

Resilience and independence from the grid are increasingly important drivers in future building infrastructure investments

Going off the grid

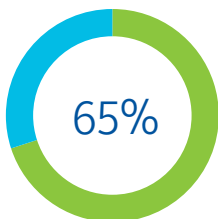
Japanese respondents that are very or extremely

likely to have one or more facilities able to operate off the grid in the next ten years



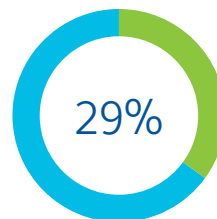
Increase of 3% from last year

Minimizing use of fossil fuels is an important investment driver



Minimizing use of fossil fuels

Japanese respondents that indicated that minimizing the use of fossil fuel in space and water heating is very or extremely important



Heat pump replacement of fossil fuel heating

Japanese respondents that invested in replacing fossil fuel space / water heating with heat pump technology last year

The 2019 Energy Efficiency Indicator survey included more than 1,300 facility and energy management executives in Brazil, China, France, Germany, India, Japan, Mexico, UK/Ireland, United Arab Emirates and the United States. The survey was administered anonymously by Navigant Research from November 22 to December 10, 2019.

Survey respondents			
Commercial	28%	C-Level	14%
Institutional	22%	Vice President/Director	28%
Industrial	32%	Manager	58%
Other	18%	Other	0%