
# 2019 Corporate Energy & Sustainability Progress Report

Market Research and Advisory Firm

GreenBiz group

Life Is On Schneider Electric

# Executive Summary

Companies around the world are leading the energy transition by adopting economic growth strategies that keep sustainability and resource efficiency at the top of the agenda. Every year companies spend more than $450 billion on energy efficiency and sustainability initiatives, while 63% of Fortune 100 companies have set one or more clean energy targets[1].

Companies are recognizing the positive financial and operational benefits they can achieve from resource efficiency and social responsibility initiatives. Organizations that actively manage for climate change and disclose on their actions see an 18% higher return on equity (ROE) than their peers, and a 67% higher ROE than companies that do not act or disclose. Moreover, nearly 80,000 emission-reducing projects reported by 190 Fortune 500 companies showed almost $3.7 billion in savings in 2016 alone[2].

To better understand what is driving corporations to act on energy and sustainability opportunities, and the progress made to date, Schneider Electric partnered with GreenBiz Research to survey specialists and executives from top companies around the world.

"Now more than ever, business leaders realize they need to take the reins and dictate their role in an evolving energy landscape and environment. Being a passive consumer is a competitive and operational disadvantage. So regardless of regulation or mandates, companies are aggressively adopting strategies to cut emissions, increase efficiency, and put energy to work for the planet and their bottom line."

**- Jean-Pascal Tricoire**
**Chairman and CEO**
**Schneider Electric**

This report will share the findings and supporting data, and provide guidance to help organizations align how they buy and use energy, reduce environmental impact, and build sustainable operations in 2019 and beyond — a model for continuous improvement and growth that Schneider Electric calls Active Energy Management.

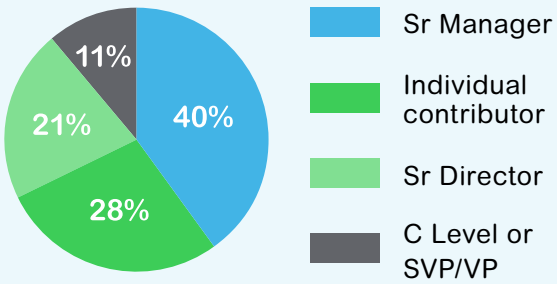
## Research Overview

Working with Schneider Electric, GreenBiz Research surveyed professionals responsible for energy and resource management, and/or sustainability initiatives in large corporations ($100 million in annual revenue and above). The aim was to understand how they fund, manage, use data from and collaborate on related projects and programs. Specifically, the study set out to answer questions such as:

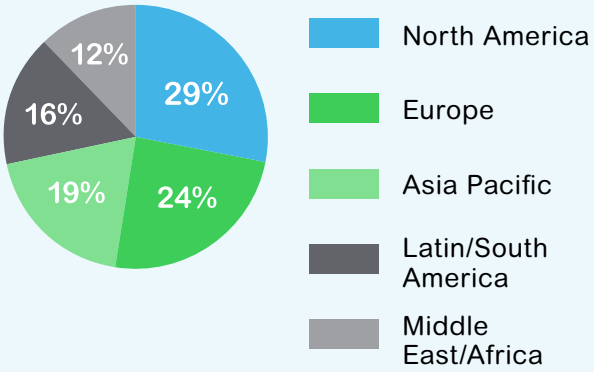
- What are the drivers for corporate investment in energy and sustainability, and what challenges exist?
- What types of energy and sustainability projects are being implemented?
- What tools and technologies are being used to collect and analyze data?

309 individuals representing 7 major segments responded to either an online survey or phone interview.

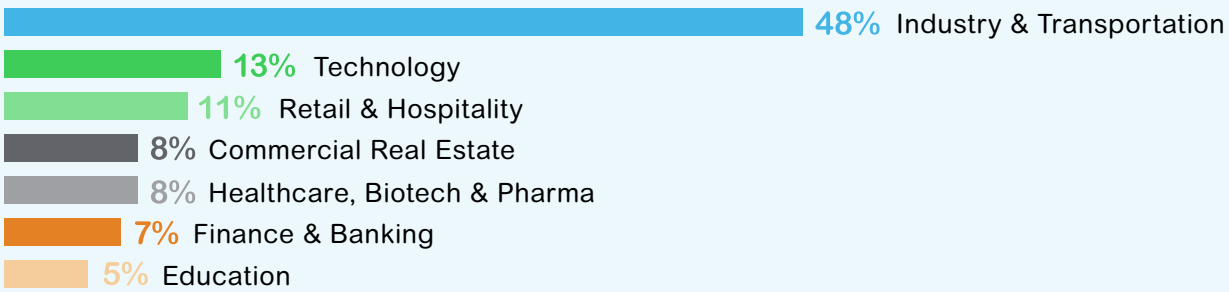
### Role




### Location




### Industry



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# Introduction

**Over the past decade**, companies have driven global leadership on resource efficiency and climate change mitigation, while simultaneously accelerating economic performance. Corporations with strong sustainability policies tend to outperform their peers on conventional financial metrics. The Brookings Institution found that while $1 invested in a portfolio of firms with poor sustainability policies would have grown to $14 from 1993 to 2003, investing in firms at the opposite end of the spectrum would have grown to $28[3].

Other leading organizations support this conclusion. The 2019 World Economic Forum (WEF) meeting in Davos has adopted the theme of "Globalization 4.0", which is in part a response to the "unprecedented pace of technological change"[4] around the world. The WEF notes that energy systems, along with many other segments of the economy, are transforming rapidly.

For corporate leaders, this creates an opportunity and a challenge: more technology will enable greater resource efficiency, create new financial opportunities and provide more sustainable outcomes. But it also will require more due diligence, with research on and investment in technologies, strategies and innovations. Companies can no longer wait to adopt solutions that conserve resources and advance digitization if they expect to remain competitive.

Corporate leadership is a driver behind renewable energy growth. In 2017, 19 U.S. corporations invested in 2.78 gigawatts worth of wind and solar projects, equal to one-sixth of the renewable capacity added nationwide.

Energy and sustainability champions face a dizzying array of technologies, business models and partners to help them meet their economic and environmental goals. It's become mission-critical to stay abreast of market developments and advancements. This report is intended to help these leaders benchmark their performance against peers and competitors. As this research notes, sharing best practices and networking with others are keys to success.

**How does your business measure up? Take our Progress Assessment to find out.**

## Looking at the results: What energy and sustainability leaders have to say

The 2019 Corporate Energy & Sustainability Progress Report sheds light on what corporations are doing to reduce emissions, how they are deploying energy and sustainability projects, what the drivers for corporate action are, and what barriers to progress exist. It is the second iteration of this research and the findings build on the report from 2018.

Last year's research identified an increase in the corporate adoption of renewable energy, a focus on longer-term benefits beyond ROI and a common view that coordination within organizations could be improved. This year's report confirms many of these findings, and provides additional detail on the issues and the path forward.

**Finding 1**

# Is funding a false barrier?

CapEx is frequently perceived as a hurdle to accomplishing energy and sustainability projects. However, this may be misleading.

**Corporate leadership** on sustainability is real, but even the most mature firms still require a solid rationale to get project approval. A key variable to the success of all corporate energy and sustainability initiatives is building and socializing an accurate business case. In fact, fewer than a third of survey respondents strongly agreed that they have been successful in building a business case and securing funding for programs. These remain base requirements for any project, regardless of how nascent or advanced a company is in its energy and sustainability management. Moreover, it appears that developing a solid business case may be more important than the immediate availability of capital.

## Confusion about the true barriers for project approval

The research indicates that at various levels of the organization, the view on barriers to project approval is different. Senior executives tend to think that inadequate metrics and a lack of capital are the reasons that more projects are not approved. Operational teams that are actually planning and implementing projects typically cite a lack of leadership and collaboration. Interestingly, this finding isn't consistent across the world. For example, companies in Europe are most likely to identify a lack of collaboration between teams as the main barrier at 32% than companies in the Americas at 6%.

Views on how to get projects approved also vary depending on past success. Specifically, research respondents that had projects approved cited a demonstrated ROI as the primary reason (51% of respondents) for their success. The other top reasons were executive leadership (30%) and available capital (10%). For those that were unsuccessful in gaining approval, the biggest reason cited was a lack of capital (57%), followed by limited executive engagement (17%) and lack of internal collaboration (10%).

These findings indicate that corporate teams that have had trouble getting projects approved in the past may want to focus more on the business case — payback and long-term, non-financial benefits — than on the capital necessary to deploy a sustainability project. If the business case is solid, it should be easier to eventually locate budget.

## There are two possible explanations for the difficulty in gaining project approval

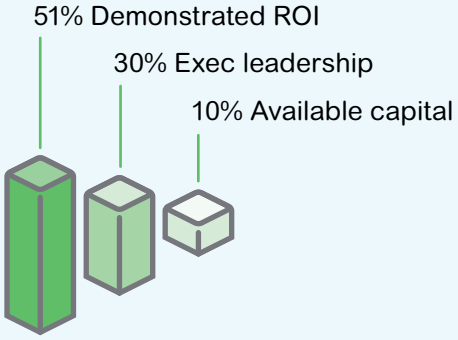
- First, energy and sustainability projects may have trouble competing with other projects that yield more traditional business results.
- Second, individual project sponsors may have less experience securing funding when compared to others in the organization.

Additional findings in this report explore potential solutions to these challenges.

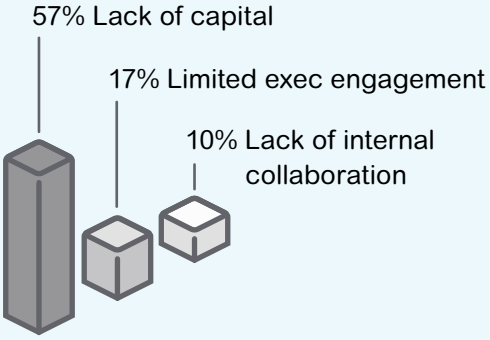
## The case for (discounting) capital

What stands in the way of progress? "Lack of capital" is still the perceived culprit, but to secure project funding, teams might want to put more stock in ROI and executive engagement.

### Reasons for successful business cases




### Reasons for unsuccessful business cases



Many energy and sustainability projects have long-term, non-financial benefits, such as improved worker health and productivity, and talent attraction and retention. As these benefits are promoted more intentionally, with measurable results, project sponsors may find that they have more success getting initiatives funded.

"We have a lower hurdle for getting capital improvement as it pertains to sustainability projects, which gives plants the incentive to implement those programs."

**- Food Manufacturer**

### New funding models may further reduce perceived capital barriers

For energy and sustainability projects with a demonstrable business case, there are a variety of financing models available that may further reduce the perceived capital intensity of these projects and improve the likelihood of project approval.

The research indicates that capital investments are the most common form of project financing, with 51% of respondents agreeing or strongly agreeing that this is their preferred method.

Corporations with a higher success rate of projects typically have a more diverse financing mix.

The most popular funding mechanism for energy and sustainability projects is CapEx. 57% of survey respondents believe they will employ the CapEx model, followed by PPAs at 48%.

The survey asked respondents about their intent to use 8 different financing mechanisms: asset leasing, energy/green bonds, energy as a service (EaaS), energy performance contracting, capital expenditure (CapEx) funding, power purchase agreements (PPAs), operational expenditure (OpEx) funding and procurement savings funding. In all cases, there were some respondents who agreed or strongly agreed that they would use each strategy in the coming year.

There is a significant spread of funding mechanisms used across the core industries included in the research. Each segment has used at least 5 of the 8 funding mechanisms. Industry and transportation has tried all 8.

Some segments appear to be leaders in adopting particular funding models. For example, EaaS, an approach that allows a firm to outsource control of its entire energy portfolio, has been adopted more often by the finance industry and commercial real estate firms. EaaS providers fund their efforts with part of the energy savings. It is a win-win, as the building owner sees a reduction in energy costs, while also dedicating some of these savings to the vendor. The finance and real-estate segments also are leaders in using OpEx funding for projects, perhaps because the energy savings can fund the operational costs.

"Being able to show investment plans and their payback had a larger impact on leadership than overwhelming them with lots of data about kilowatt hours and carbon output."

**- Food Manufacturer**

## Taking action: learn from leaders

When persuading senior leadership to invest in energy and sustainability projects, here is a four-step process with proven results.

1 **Establish early buy-in with senior leadership.** Help create a sense of urgency for leadership by identifying all potential benefits of a proposed project — both economic and environmental. Work with them up-front to formulate and prioritize goals, identify sponsorship, and establish performance expectations.

2 **Collect and analyze data to determine current performance baselines** to build credibility and establish critical benchmarks to measure project effectiveness.

3 **Prioritize opportunities** and create a single place to categorize all potential investments from no/low-cost operational projects to more costly capital initiatives.

4 **Confirm support of the implementation owners** who will be responsible for specific projects across the organization, and who can help establish and maintain effective feedback loops. For example, to develop its carbon-neutrality strategy, a global technology company convened a joint task force between sustainability, procurement and real estate. Together, the team identified, prioritized and acted on solutions that would drive carbon reductions while minimizing capital investment.

**Finding 2**

# The real data challenge

Data is readily available. What companies struggle with is ensuring data quality and using information to foster collaboration.

**Adoption and deployment** of technologies and services for energy and sustainability management is accelerating. Many megatrends, such as a continued reduction in the cost of sensing technology and cloud-based processing, have made it easier for organizations to collect, store and analyze large amounts of data. Corporations are now able to capture and monitor granular energy and resource consumption in real time.

In many cases, these data streams are new to building operators and managers, and provide more analysis and optimization opportunities than ever before. But the collection and analysis of energy and sustainability data can also be daunting for corporations, especially as the amount of available data continues to increase and the need to ensure data quality becomes acute.

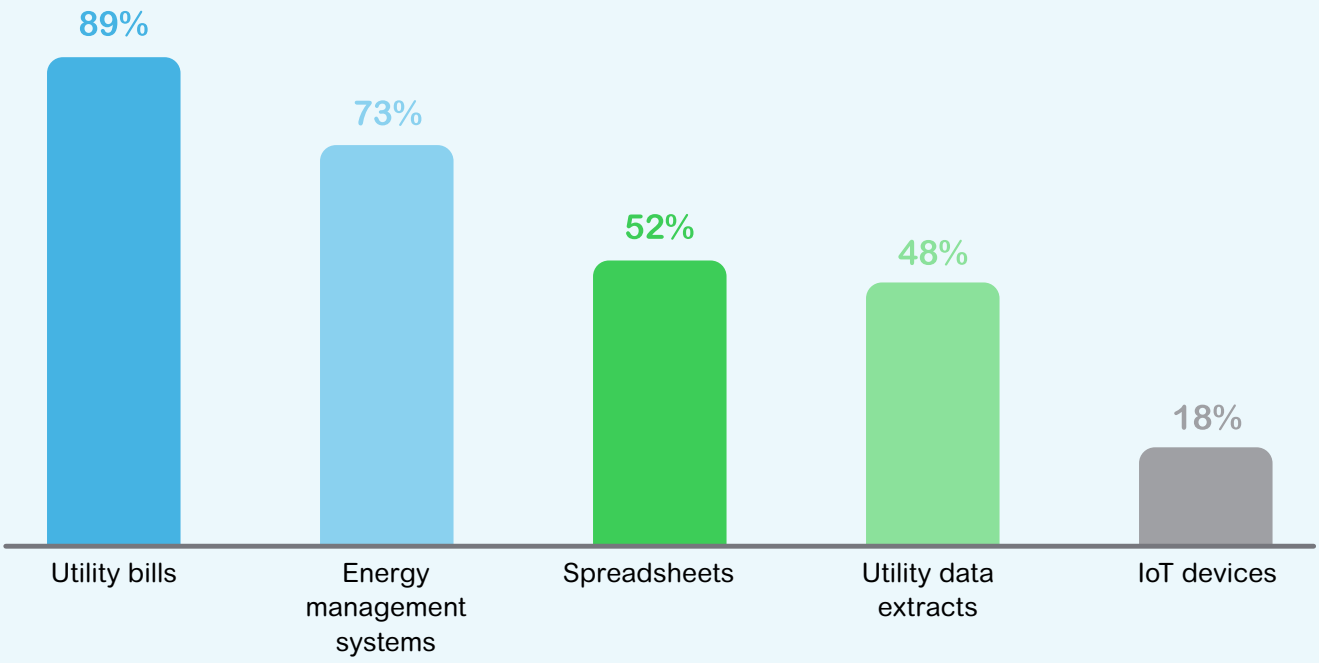
## The data collection and sharing landscape

In the 2018 report, respondents indicated that 80% of their companies had energy and sustainability data collection projects underway. In 2019, the research finds that more companies are now seeking the most efficient ways to share the data that has been collected.

On average, the research indicates that corporations collect energy and sustainability data from nearly three different sources. The most common source is utility bills, which are used by 89% of firms, and energy management systems (EMS), which are used by 73%. Spreadsheets are also commonly used (52% of firms), as are utility data extracts (48%).

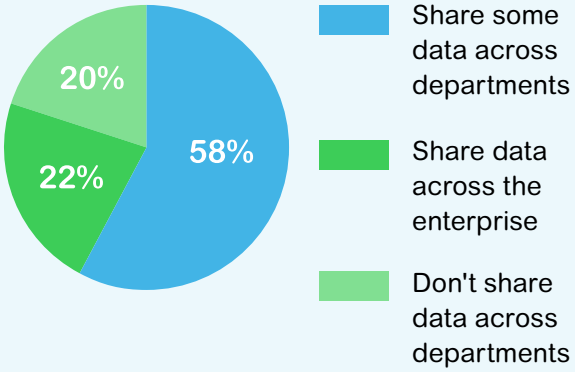
## Identifying the sources

Energy and sustainability data comes from an array of inputs — some modern, some not so much. Here's a look at the sources and how often they're used:



### Not everyone knows, by the numbers

Resource management and sustainability initiatives impact teams across an organization, but that doesn't mean all functions see consumption and performance data.




The final data source, Internet of Things (IoT) devices, is only used by 18% of firms. This includes a variety of sensing devices with connectivity to the cloud, which enables remote monitoring and analysis in real time. This is a missed opportunity and companies will need to catch up quickly. International Data Corporation (IDC) estimates that by 2025, approximately 80 billion devices will be connected to the internet. That means, the approximate 11 billion devices that are connected now will triple to 30 billion by 2020 and then nearly triple again to 80 billion five years later.[5]

At a macro level, 22% of companies share all energy and sustainability data across the enterprise, and 58% share some data across the organization. For 21% of firms, data is not shared, though it is collected.

**How do you compare?**
**Take our Progress Assessment to find out.**

"We're starting to improve. Two of our major plants will put in energy monitoring systems where we can collect more data specific to individual equipment or operations."

**- Agricultural Business**

## IoT devices are driving change

The rise in the availability of connected devices presents a significant opportunity for business. By using tools such as smart sensors, wireless control and edge devices, corporations across industries can improve the volume, quality and speed of data.

This can result in significant process improvements and cost savings. For example, when used in clean-in-place manufacturing environments, remote sensors can return energy savings as well as reduced downtime for cleaning. IoT sensors and control software can also dramatically improve the energy efficiency of data centers, while also increasing performance reliability.

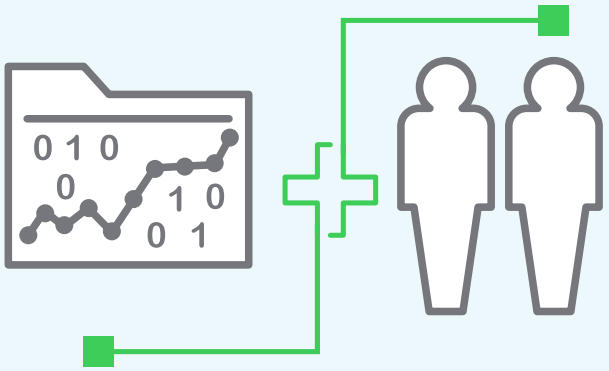
Learn more in
Sustainability Is Business.

Data sharing has significant benefits, as 90% of the respondents who reported that “departments see all data” agree or strongly agree that they are able to make business cases to secure funding for energy and sustainability projects.

Yet, there are a variety of barriers that make data sharing a challenge. In some cases, the quality of the data is suspect or it is difficult to manipulate, which may make it less valuable. For example, 48% of firms note that the data they collect is incomplete and 41% report having insufficient tools to use the data. More importantly, 40% of respondents note that they do not have the right internal expertise to act on data — a significant talent barrier in a rapidly digitizing world.

As data becomes more trustworthy, it also becomes more important to share. Respondents that said that they share all data also have higher adoption rates of IoT devices and EMSs. They are also slightly less dependent on spreadsheets.

### Want funding? It's time to communicate.





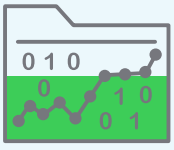
of respondents who are successful at building business cases and getting funding say that energy and sustainability data is shared across all relevant departments.

“We’ve really been handicapped with just not having enough resources to be able to dive into the data as much as we need to.”

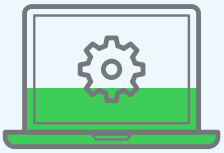
**- Retailer**

### Barriers beyond the bits and bytes

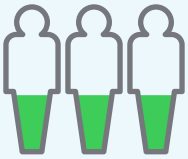
Almost every organization extracts data, but they might not be able to extract value from the data. Here’s what stands in the way:




**48%**
Unreliable or incomplete data



**41%**
Insufficient tools



**40%**
Lack of internal experience

## Technology is only one key to success

The increased adoption of software and other technology to collect, manage and analyze energy and sustainability data will make it easier to share data across organizations and with third parties.

Even with these technology-enabled solutions in place, companies still need to develop internal processes to share data, analyze it and implement it across their organization. The research suggests this is happening in some cases. For example, companies that have deployed an EMS report that they are more successful in their efforts to develop a business case for sustainability projects and initiatives.

In its 2018 resources report, Deloitte found that firms conduct measurement and verification on all projects or some projects. In 2018, 82% of Deloitte survey respondents fell into one of these two categories, up from 77% in 2016[6]. This increase highlights the growing expectation that post-implementation validation with reliable data is critical.

## Data collection by industry and region of the world

The data collection story becomes more nuanced when it is viewed by industry and geography. 69% of respondents from the education field note that they have undefined data owners and processes. No other industry has more than 30% of respondents citing this challenge. Within finance and banking, a significant barrier is caused by inconsistent metrics across projects and regions, with 67% of firms citing this challenge. This is the highest level for any industry surveyed by 25 points.

Companies that operate in more than one region of the world are more likely to share their data — 85% do so. But for businesses operating in only one region, data sharing drops to just over three-quarters of firms. Companies in Europe are less likely to share their data, with 65% of respondents operating solely in this region noting that their data is shared. In Asia and the Americas, sharing is more prevalent, with 80% of firms sharing data.

"We are on a trajectory of continuous improvement that should enable teams on the ground to take ownership of our day-to-day energy performance initiatives and increase their proficiency."

**- Agricultural Organization**

## Taking action: learn from leaders

Here's how leading organizations have overcome the data collection and sharing challenge.

1 **Use of real-time metering with data shared across the organization:** A leader in the commercial real estate business has a dashboard containing real-time metering data from across the property portfolio. Within minutes, the vice president of engineering can get a complete picture of energy demand. This allows his team to make adjustments quickly, instead of waiting 30-45 days until the utility bill arrives. Furthermore, he can share this corporate-level data with third-party partners like ENERGY STAR, LEED and GRESB, and use the data as proof with internal stakeholders to validate the program's success.

2 **Deployment of submetering systems and locally-configurable interfaces:** A global aerospace organization has implemented submeters across its top 40 sites during the last 3 years, giving the company more granular energy consumption data. Each local team was trained so they could access and monitor the data themselves without corporate oversight. In another example, an agricultural company is leading a change management operation that will enable teams on the ground to take ownership of their day-to-day energy performance and increase proficiency.

3 **Investment in data analysis expertise:** A leading global retail company admits to being handicapped in the past by not having enough resources to analyze its data. The current goal is to hire analysts to drive better decision-making based upon the data that is available.

4 **Alignment of corporate and sustainability goals:** A banking institution ensures that all its internal departments have visibility into the overall business strategy and long-term organizational vision. Sharing of data becomes core to this exercise, which helps the sustainability team secure approval and funding for key initiatives.

**Finding 3**

# The aim of public targets

Companies that set public targets or goals move quickly and see advantages.

**One of the most apparent signs** of corporate leadership in energy and sustainability is the recent acceleration of publicly announced goals. Many companies are making quantifiable and measurable commitments to their customers, shareholders and the broader community at large, while simultaneously reducing their impact on the environment. Third-party reporting and benchmarking programs are growing, and the number of companies from around the world setting science-based carbon reduction targets has surpassed 500.

For many companies, energy and sustainability performance improves as transparency increases, likely because companies are more committed and accountable to their goals once they have been made public. For example, there are nearly 35,000 commercial buildings in the U.S. that have benchmarked performance with ENERGY STAR, which represents over 50% of commercial building floorspace. The number of buildings participating in the program has almost doubled recently, from about 130,000 in 2010 to nearly 250,000 in 2017[7].

## State of public energy and sustainability commitments

More than half of the companies responding to our survey have made public commitments to reduce resource consumption and improve sustainability. Another 9% of respondents are considering a public commitment in the near future. This represents a clear majority of firms and highlights the urgency to set public-facing targets.

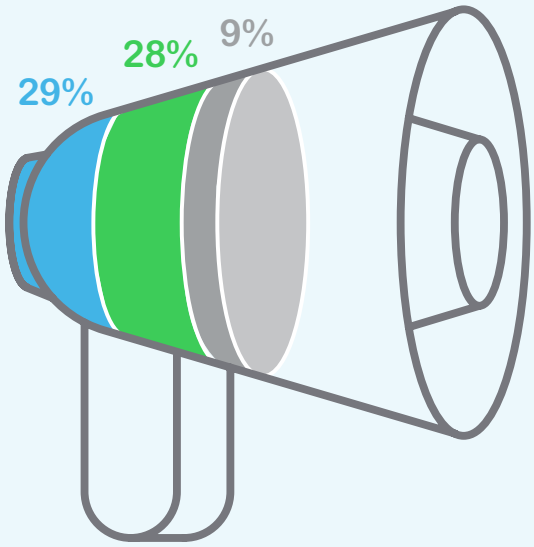
Of those companies making a commitment, about half have also set measurable goals with a third party such as the Science-Based Targets Initiative, thus implementing rigorous and externally audited standards.

The imperative to set public goals has also become a competitive differentiator, with companies going so far as to call out others in their industry in public forums to spur greater sustainability action. The urgency of addressing climate change, paired with significant economic upside and pressure from investors and consumers, is further driving these commitments.

## Going public is the norm

More than half of the organizations surveyed have made a public commitment to carbon reduction and others are looking to follow suit.

- Companies committed to meeting their own publicly stated goals
- Companies committed to an established initiative (e.g., RE100)
- Companies considering a public commitment



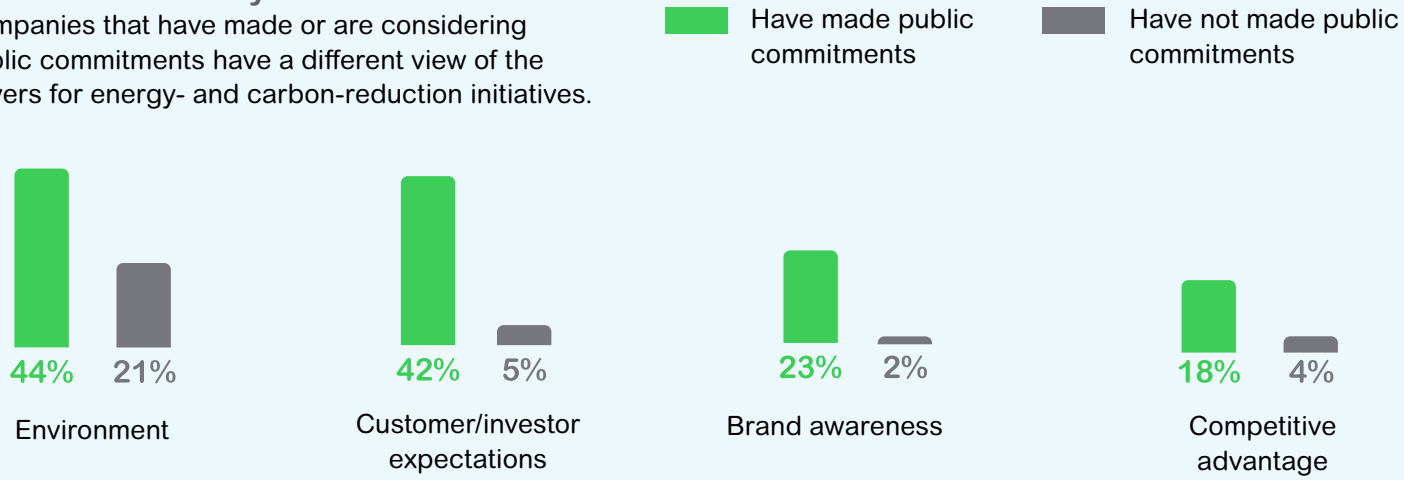
## Impact of public commitments on performance

Companies that have made public commitments cite a wide variety of reasons. For example, 42% of responding companies with public commitments view customer and investor expectations as a driver of their programs, compared to only 5% for firms without public commitments. Corporations are also motivated to set public goals because of environmental concerns. 44% of firms with public commitments cite this reason, while only 21% of firms with no public commitments do.

Companies with public commitments are more successful at securing funds and building business cases for their projects.

## An evolution of 'why?'

Companies that have made or are considering public commitments have a different view of the drivers for energy- and carbon-reduction initiatives.




## Commitments, a continental divide

Businesses based in Europe, whether they operate globally or regionally, are more likely to announce carbon-reduction targets — a comparison versus North American companies.

**46%**
Europe-based firms that operate globally make public commitments

**23%**
North American-based firms that operate globally make public commitments

**40%**
Europe-based firms that operate locally make public commitments

**20%**
North American-based firms that operate locally make public commitments

Companies that make public commitments also are more likely to adopt emerging technologies. For example, only a minority of companies surveyed have implemented advanced and emerging technology like batteries for energy storage and load curtailment, but about 50% of those making public commitments have done so.

This may be because these firms have better data on their environmental performance — requisite for fulfilling public commitments — which builds more credible estimates of the financial and non-financial benefits of such advanced technology. Or firms that set public commitments may be more forward-looking, leading them to investigate advanced technologies like batteries and fuel cells.

Regardless of the reason, the data is clear: Companies that want to accelerate their action on energy and sustainability find greater success when they set a public goal.

"We benchmark, and look at the goals and progress of our peers, as well as best-in-class companies."

**- Manufacturer**

"In 2016, the sustainability leaders at Fifth Third Bank proposed a 100% renewable power goal to our executives. They asked some tough questions. Working with Schneider, we came back with answers and they approved a public goal of 100% by 2022. With our goal set and an RFP underway, we got the help needed to assess the opportunity. We were willing to walk away if there was no business case, but instead we found innovative solutions to many challenges. The payoff from setting a public goal was huge: We were the first Fortune 500 to contract for 100% solar power."

**- Scott Hassell**
**Director, Environmental Sustainability**
**Fifth Third Bank**

## Taking action: learn from leaders

A number of organizations have realized positive benefits from their public commitments. For example, in 2018, Fifth Third Bank[8] became the first Fortune 500 company and first bank to sign a power purchase agreement (PPA) to achieve 100% renewable energy through a single project. As part of its public announcement, Fifth Third also joined RE100, a corporate leadership initiative from The Climate Group and CDP. Fifth Third's leadership on renewable energy has served as an example to other corporations. The firm has realized reputational benefits from this action, in addition to the direct environmental and economic benefits.

Global recreation leader Vail Resorts' Commitment to Zero[9] goal, which was announced in 2017, states that the organization will achieve both net-zero emissions and zero waste to landfill by 2030. To achieve this goal, the company joined the RE100 and committed to source 100% renewable electricity, which it will achieve via a virtual PPA.

**Finding 4**

# Energy sourcing saves money

Companies are missing opportunities to capitalize on strategic energy purchasing.

**A changing energy landscape** provides opportunities for businesses to modify their fuel consumption mix and achieve financial benefits as a result. For example, growth in renewables creates a variety of new energy sources and suppliers for corporations to consider alongside more traditional power buying. Moreover, an increase in data-driven technology helps companies better understand their real-time, interval energy consumption and demand, which may provide the visibility required to curtail use when prices spike. Such data may also enable corporations to negotiate energy supply contracts that are more appropriate for their unique consumption and demand patterns.

While many firms likely have a range of sourcing options at their disposal, too often companies overlook time-tested strategies to reduce costs and optimize their energy mix through strategic procurement and risk management. These strategies can result in cost savings that can fund other energy and sustainability programs in return.

### Strategic energy sourcing: an opportunity hiding in plain sight

Energy purchasing can deliver significant cost savings to many corporations. But while 77% of respondents realized significant returns from energy efficiency, only 29% cited strategic sourcing as one of the top two initiatives "that have delivered the most cost savings."

This was an even lower share than data collection and analysis (35% of firms), even though energy purchasing typically requires no capital expenditure and leads to rapid paybacks.

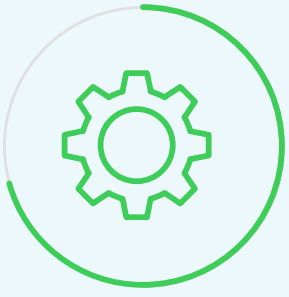
Surprisingly, only 6% of financial and banking firms, 17% of education firms, and 18% of technology firms cited energy procurement as a top savings strategy. The technology industry recognizes that energy sourcing is a missed opportunity: Only 23% of these firms strongly agree that they are taking proactive steps to manage price volatility.

"As prices continue to fall and buying options become more flexible, companies from every industry can capture the benefits of renewable energy. They have an opportunity and in many cases, multiple opportunities, to save money, make a difference and demonstrate leadership."

**- Steve Wilhite**
**Senior Vice President, Energy & Sustainability Services**
**Schneider Electric.**

### Down to the bottom line

Organizations see efficiency upgrades and data analysis as the most effective means to lean budgets; energy sourcing and risk management rank third, but are a leading source of savings for businesses with strategic procurement programs.



**77%**
Energy efficiency

**35%**
Data collection and analysis

**29%**
Strategic sourcing

### The energy volatility challenge and opportunity

Energy supply and strategic sourcing efforts are important, especially as energy costs become more volatile. The recent "perfect storm" of circumstances in Australia (including political turmoil, the closure of coal-fired power plants and over-exported natural gas) is an indicative example. In a very short period of time, Australian firms saw their energy costs as much as triple.

Extreme weather events, such as the January 2014 "polar vortex" that took place throughout the Eastern U.S. and Canada, caused real-time spot market prices to jump as much as 30 times (up to $1,500 per megawatt-hour[10], as reported by grid operator PJM Interconnection).

Schneider Electric's Global Research and Analytics team follows energy markets for commercial and industrial clients, and in November 2018 noted that prompt prices for natural gas surged to the highest levels since the polar vortex, followed by the largest one-day drop since 2003.

The research demonstrates that there is a relationship between firms that actively manage energy costs and those that invest in supply-side efforts. Of the companies that strongly agreed they are taking steps to deal with energy cost volatility, 71% are negotiating fixed-price purchasing contracts, 64% employ flexible-price purchasing and 57% have onsite generation. These strategies are shown to deliver favorable outcomes and most firms are in a position to use at least one of these techniques.

Moreover, the businesses that identified strategic energy sourcing and risk management as a top initiative to deliver cost savings are more likely to invest in an array of other strategies and technologies. For example, these leaders are more likely to use battery storage (32% of firms, compared to 14%) , and combined heat and power (CHP) (34% compared to 24%), with small increases in the use of on- and offsite renewables (55% to 50%, and 43% to 38%, respectively).

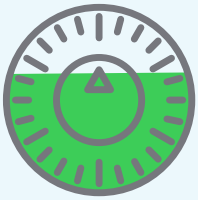
"Sustainability and Infrastructure Sourcing is the name of our department. So we're all technology sourcing managers. And we have embedded members of finance that provide support. It's like a cross-functional team, and it ensures that finance and sourcing walk hand in hand."

**- Telecommunications Company**

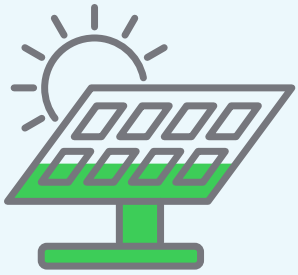
### Fixed on buying smarter

Here are the most common purchasing practices of companies that feel confident in their ability to manage energy and price volatility, and capitalize on strategic sourcing.

**71%**
Fixed-price purchasing



**64%**
Flexible-price purchasing

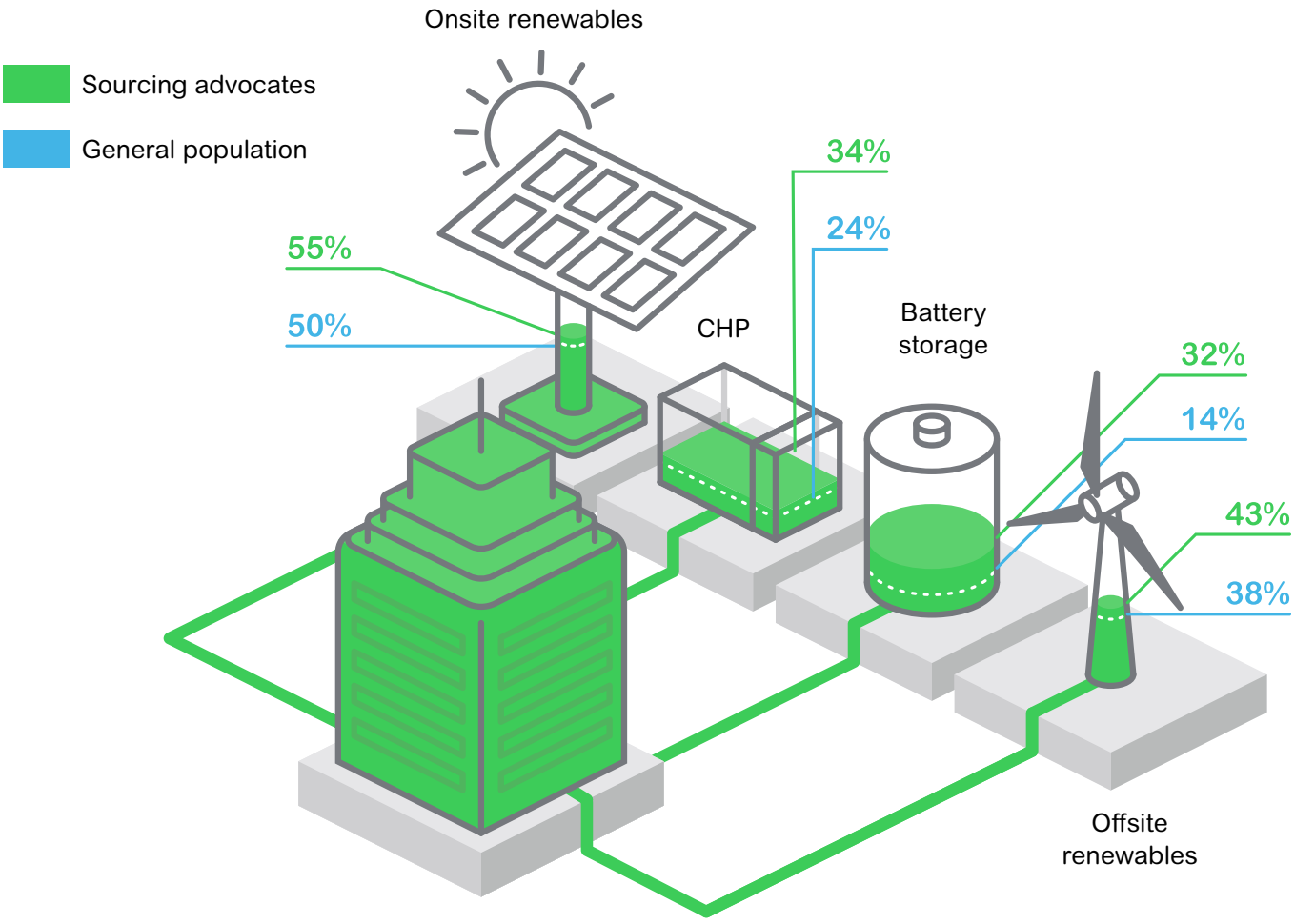


**57%**
Onsite generation

## Energy price volatility can have real impact on a company's bottom line and exposure to these risks can be mitigated with strategic energy sourcing.

### Energy sourcing fuels progress

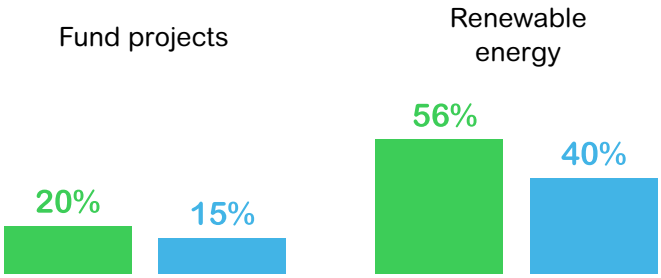
Companies that see strategic sourcing and risk management as one of the top two initiatives delivering cost savings are more likely to use new, innovative technologies.




They're also likely to name efficiency measures as the other primary source of savings.

| | |
|---|---|
| Energy and resource efficiency | 71% |
| Data collection analysis and reporting | 6% |
| Sustainability and renewable energy | 5% |

And use procurement savings to fund other projects while investing more in renewable energy.



### Taking action: learn from leaders

When a leading vehicle technology manufacturer was challenged by a group of shareholders to increase energy- and carbon-reduction efforts, the company started with supply-side initiatives. Since 2009, the company has saved $5.5 million on strategic procurement alone. It has also integrated efficiency and sustainability measures into its program. The manufacturer recently identified efficiency opportunities across 6 sites that would reduce energy use by 20% and it realized a 10% reduction in greenhouse gases per USD $1 million in revenue. In addition, the firm has started developing plans to incorporate renewables into its supply mix[11].

Iron Mountain, a global leader in storage and information services, has taken a multi-faceted approach to buying energy. The company has entered into PPAs for clean electricity in the U.S., including a 145-megawatt wind energy project in Kansas. And its European operations have negotiated supply contracts in the U.K., Ireland and Benelux to include wind and other renewables[12]. 75% of the company's energy use, including its data centers, is now covered by renewable energy.

**Finding 5**

# Technology gets traction

Energy efficiency dominates, renewable energy accelerates and newer technologies gain purchase.

**The clear financial benefits** of energy efficiency initiatives and renewable energy projects have resulted in widespread adoption. New technologies such as battery storage are increasing in demand, but are still less frequently adopted, possibly because companies are hedging on innovations next on the horizon — or because cost, reliability or availability of these technologies still remain a barrier, real or perceived.

## State of technology and strategy adoption

In 2018, 81% of survey respondents had implemented energy efficiency projects, and 51% employed either on- or offsite renewable energy projects. By 2019, these numbers increased considerably, with 93% of respondents using energy efficiency to meet their goals and 63% implementing renewables.

This impressive growth and penetration is occurring because these projects are reliable, well understood, financially attractive and accessible around the world. 52% of companies have onsite renewable energy, 40% have offsite renewables and 34% are using some form of energy attribute certificates such as renewable energy credits (RECs) or guarantees of origin (GOs).

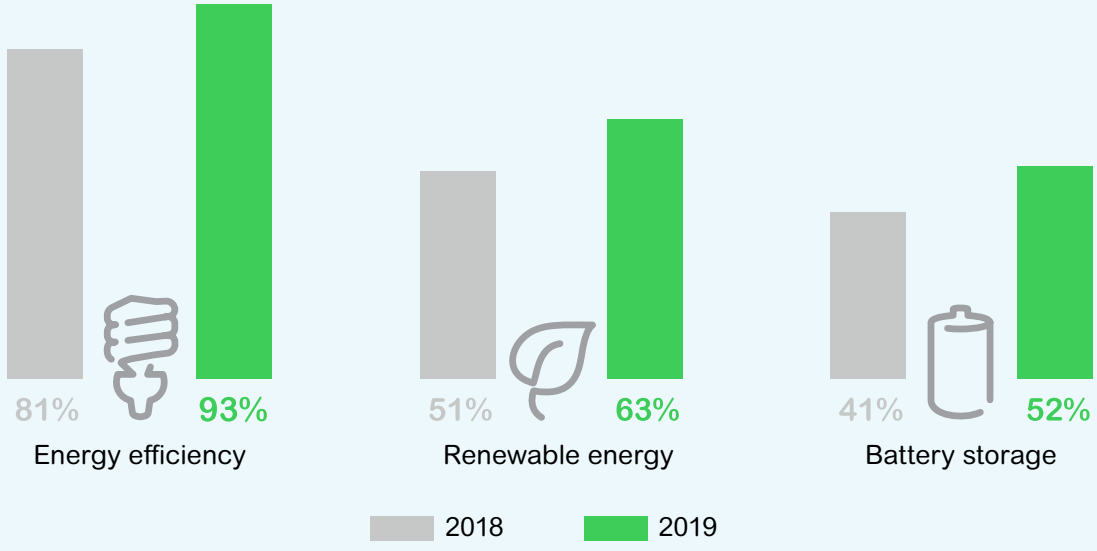
The International Energy Agency (IEA) has called energy efficiency the "first fuel of economic development"[13] because it is widely available and typically does not require significant upfront capital. It is the best place to start for any organization seeking to reduce energy and resource consumption. In fact, 71% of survey respondents confirmed that energy efficiency projects have delivered the greatest cost savings to their organization.

"Energy consumption reduction, that's for life. Reduce the consumption, then you get the reduced cost and emissions."

**- Global Manufacturing Company**

## Gathering energy, gaining momentum

From established to advanced, the adoption of clean technologies is accelerating. Below, see the growth since companies weighed in on the state of corporate energy and sustainability programs in 2018.



Renewable energy benefits from rapidly declining prices driven by technology advancements, incentive programs and demand. As a result, renewables are available at scale — at a cost-competitive price — in more and more geographies. Contracting structures such as PPAs can also help mitigate energy volatility by locking in the price for wind or solar power over multiple years — a welcome risk-reduction measure that can stabilize energy budgets subject to fluctuation. The International Renewable Energy Agency[14] reported that by the end of 2017, renewable energy generation capacity increased on average by 8.3% annually over the previous 7 years and, collectively, companies have purchased more than 27 gigawatts of renewable energy PPAs since 2008.

Adoption of other technologies is also showing promise. In 2018, 30% of respondents deployed CHP systems and 41% implemented battery storage. These technologies are less common, but the research shows that they are growing at a rate similar to renewable energy: 11% more in 2019.

As energy grids become decentralized, an open ecosystem will emerge that enables the exchange of energy on a peer-to-peer basis[15]. New technologies will dynamically balance supply and demand assets in response to real-time indicators such as price. Early adopters of technologies that enable companies to generate, store and shift energy where needed will have a competitive advantage in the new landscape.

## Opportunities for the future

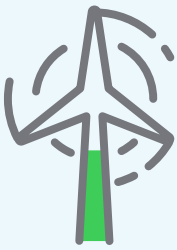
Renewable energy penetration is expected to continue. The IEA estimates that renewables will provide 70% of electricity generation growth from 2018 to 2023, with solar and wind leading the charge[16]. Even British Petroleum, a vertically integrated oil and gas giant, has stated that it expects a 400% increase in renewables by 2040[17], while Exxon has announced it will use wind and solar to produce Texas crude. The U.S. Energy Information Administration also reports an expected increase in battery storage capacity, which is likely to continue into the future due to lower deployment costs and increased buyer familiarity.

Firms moving beyond energy efficiency and renewable energy report using a wide range of financing options. A quarter of respondents using battery storage have employed asset leasing and another 25% use green bonds. Of companies that have invested in CHP, 28% fund these projects with procurement savings and 22% use energy performance contracts.

## The rise of renewable investments

More organizations are supporting renewables, directly and virtually. Here is the percentage of respondents using green energy technologies and investment strategies:

**52%**
Onsite renewable energy

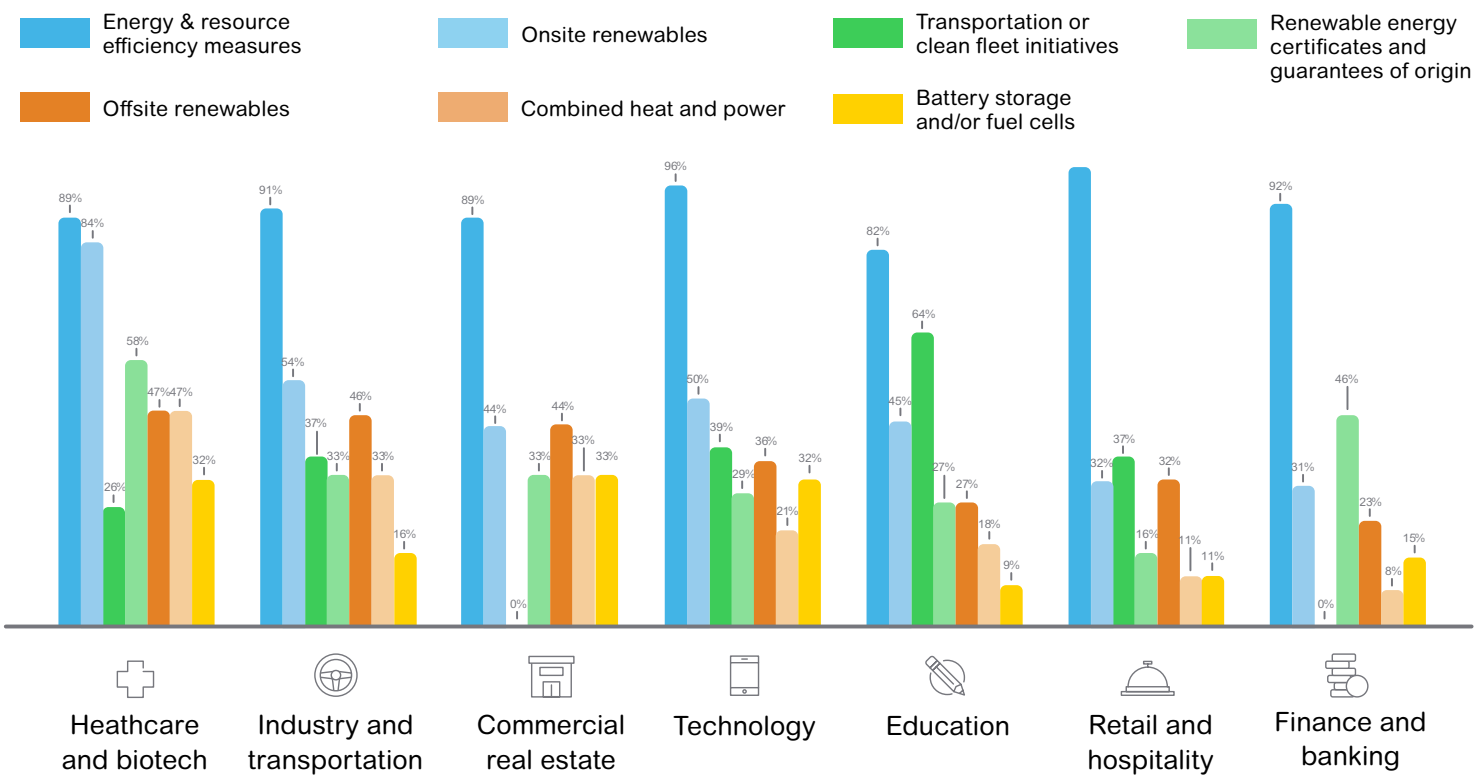


**40%**
Offsite renewable energy

**34%**
Energy attribute certificates

## Both common and contrasting

Although energy and resource efficiency, and renewable energy have consistent support, the rate of adoption of these and other technologies and strategies varies by industry.




## Taking action: learn from leaders

Energy efficiency and renewable energy can be a confidence-building step toward investment in more advanced energy projects.

**Couple energy efficiency with strategic energy procurement for reduced cost and emissions.** A manufacturing company first pursued energy efficiency at its global plants to ensure that its energy consumption was as low as possible. It then leveraged its relationships with utilities in the deregulated markets where it operates to find the best possible price per remaining kilowatt-hour.

**Consider investment in advanced technologies like modular microgrids.** Leading companies are recognizing that microgrids will enable them to create new financial opportunities through the ability to generate, store, use and sell energy in a distributed energy landscape. Microgrids are now modular, and should be considered a long-term investment that can be added to over time as needs and technology change[18].

Montgomery County, Maryland[19], in a combined public-private partnership with Schneider Electric and Duke Renewables, has constructed microgrid systems at two of its critical facilities — the Public Safety Headquarters and the Montgomery County Correctional Facility. The systems use onsite solar energy, CHP and natural gas generators, which allows them to operate islanded from the electrical grid, an essential function in the event of grid failure or emergency. The microgrids will complement existing renewable energy initiatives and further reduce the county's carbon emissions. Through its partnership with Schneider Electric, the county was able to implement the microgrids without any upfront outlay of capital.

# Conclusion

**Active, strategic energy and resource management** presents significant top- and bottom-line benefits. But the opportunities are changing. There are new financing mechanisms to accelerate adoption; new suppliers and business models to help deliver sustainable savings; and new technologies and data streams to boost, analyze and optimize results. It's a changing world and corporate leaders need to stay ahead of the curve to ensure they remain competitive.

Clearly, the time to act is now.  Even since the 2018 research report, movement has been swift. If companies aren't already on board with optimizing their energy and sustainability programs, they are being left behind and leaving bottom-line cost savings on the table as a result.  By building strong business cases, using data more effectively, setting public goals, procuring energy strategically and exploring emerging technologies, there is an opportunity for companies from every industry to lead the energy transition.

**Corporations are leading the energy and sustainability charge.**
**How do you measure up?**
**Take our Progress Assessment to find out.**

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