



Deloitte Resources 2020 Study

Energy management: Paused by pandemic, but poised to prevail

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Introduction

AS RESPONDENTS WERE completing the tenth annual Deloitte Resources Study survey in February 2020, events were unfolding that would change the world profoundly within weeks. By April, the global COVID-19 pandemic had brought deep societal changes and sharply contracted economic activity, sending the economy abruptly into recession. The impacts of these events have been reverberating throughout nearly every industry and almost all aspects of our lives. And that includes how US businesses and residential consumers manage their energy and resource use. This raises some questions—will efforts to manage energy use, reduce carbon emissions, and address climate change slow because of the global pandemic and economic downturn? Or will the trajectory continue at the same pace? Or could recent events catalyze change?

Nobody has all of these answers yet. But the results of our *Deloitte Resources 2020 Study* (hereafter referred to as “the Study”) provide a glimpse into business and residential consumer attitudes toward key energy and climate issues at the onset of the global pandemic and recession (see the sidebar, “About the Deloitte Resources 2020 Study”). And given the trends we’ve seen in Deloitte’s annual resources studies over the past 10 years—culminating with the 2020 survey—it appears likely that despite the current crisis, energy management progress is unlikely to recede too far for too long. While businesses and residential consumers are adjusting to a shock that may distract them from energy management in the short term, in the intermediate and longer term,

programs will likely continue to advance. Underlying motivations are strong, significant progress has been made, and energy management continues to create value.

To gain further perspective, we’ll explore seven trends from the Resources 2020 Study, split into three sections, which we’ll call the Reinforcers, the Bellwethers, and the Hurdles. In the Reinforcers section, we’ll examine the three strongest trends likely to support continued energy management growth: increasing consumer sentiment and stakeholder pressure to address climate change; the convergence of environmental and cost considerations; and the growing quest for reliability, resiliency, and self-sufficiency. In the Bellwethers section, we’ll discuss two trends worth watching as potential indicators of future momentum in energy management: business success in creating value through energy management programs; and renewable energy growth. Finally, in the Hurdles section, we’ll explore two growing trends that could slow progress in energy management if not addressed: rising security and privacy concerns and the need for flexible, customized products and services.

Consider these results from the Study:

- Sixty-eight percent of residential consumers surveyed agree strongly or somewhat with the statement “I’m very concerned about climate change and my personal carbon footprint,” in line with survey results in previous years.

- Nearly 6 in 10 businesses surveyed feel increased pressure from stakeholders to disclose and address climate risk and, of those, nearly nine in 10 have reviewed or changed their disclosure procedures and developed plans to address climate-related risks.
- More than half (53%) of residential consumers surveyed said it's extremely or very important that part of their electricity supply comes from renewable energy, revisiting a historic high among studies, and 51% of business respondents said they're working to procure more electricity from renewables, up 4 points from 2019.
- Sixty-five percent of residential consumers surveyed saw greater renewable energy development boosting the national economy, the highest level since the 2014 Study.
- Sixty percent of businesses reported having onsite generation, up nearly 40 points compared with the initial Study 10 years ago, and 44% have considered implementing a microgrid, up 9 points from 2019.
- Fifty-two percent of business respondents are concerned about an interruption to their electricity supply due to a cyber-security event on the electric grid and 37% of residential consumer respondents share this concern.
- More than three-quarters (76%) of residential respondents said they're more concerned about privacy and security as homes get more automated, a 15-point jump from the 2019 Study. And 46% said that concern could prevent them from buying smart home technologies.

ABOUT THE DELOITTE RESOURCES 2020 STUDY

Deloitte,¹ with strategy and market research firm YouGov America, has completed its tenth annual nationwide Resources Study to provide insights that can be useful in helping energy companies and businesses make energy-related investment and business decisions. The Study aims to answer questions such as:

- What are US residential consumers and businesses doing to manage their energy usage?
- How do they feel about carbon reduction and environmental responsibility?
- What motivates them to reduce their energy consumption and to implement clean technologies?
- How mature are their approaches to energy management?
- How can electricity suppliers and energy service providers better meet their needs?

The 2020 Study was conducted in February 2020, and thus largely reflects attitudes and practices related to 2019. The Study captures two views: a residential consumer perspective and a business perspective. The residential consumer perspective is based on more than 1,500 demographically balanced online interviews with household decision-makers for utility services. The business perspective is based on 600 online interviews with business decision-makers responsible for energy management practices at companies with more than 250 employees across all industries. To facilitate in-depth analysis, business survey respondents are segmented by industry sector and company size. Please see figures 1 and 2 for definitions of these segments. Residential consumer respondents are segmented by generation (figure 3) and region. Survey populations may differ in different years.

FIGURE 1

Sectors

-  **Consumer products**
includes companies within the consumer products, retail and distribution, travel, hospitality, leisure, and service industries
-  **Industrial products**
includes companies within the aerospace and defense, automotive, and manufacturing industries
-  **Financial services**
includes businesses within banking and securities, insurance, investment management, and real estate
-  **Health care**
includes health care providers, health plans, and life sciences companies
-  **Technology, media, and telecommunications**
includes technology, media and entertainment, and telecommunications companies

Source: Deloitte Resources 2020 Study survey methodology.

FIGURE 2





Company size

-  **Small**
Less than US\$100 million in global revenue
-  **Mid-cap**
US\$100–500 million in global revenue
-  **Large**
More than US\$500 million in global revenue

Source: Deloitte Resources 2020 Study survey methodology.

FIGURE 3

Generations

-  **Millennials**
Ages 21–38
-  **Gen X**
Ages 39–54
-  **Baby boomers**
Ages 55–69
-  **Matures**
Ages 70+

Source: Deloitte Resources 2020 Study survey methodology.

The Reinforcers

Three key trends that support continued energy management progress

WHEN WE LAUNCHED the first Deloitte Resources Study in 2011, the United States was still recovering from the 2008–09 recession—and cutting costs, or being “resourceful,” was the strongest driver cited by businesses and residential consumers for managing their energy use. Over the past decade, while cost cutting stayed on top, consumer sentiment and stakeholder pressure to address climate change rose, helping environmental responsibility to narrow the gap with cost cutting as a key driver for resource management programs. And while these two drivers converged, a third important trend emerged and grew: the quest for resiliency and self-sufficiency. With increasingly severe storms, floods, and wildfires sparking longer-duration outages; growing cyber risk; and, now, a global pandemic and recession, some residential consumers and businesses are increasingly concerned about “keeping the lights on”—even if they have to take matters into their own hands. As the country enters another recession, cost cutting may gain a new foothold. But “clean” and “cost” do not necessarily conflict as they did a decade ago, particularly for businesses, which are increasingly finding that cleaner energy

sources are the cheapest alternative. A renewable energy company officer recently observed: “As a society, we don’t have to pay up for clean energy anymore.”² We’ll take a closer look at these trends below.

Consumer sentiment and stakeholder pressure to address climate change are increasing

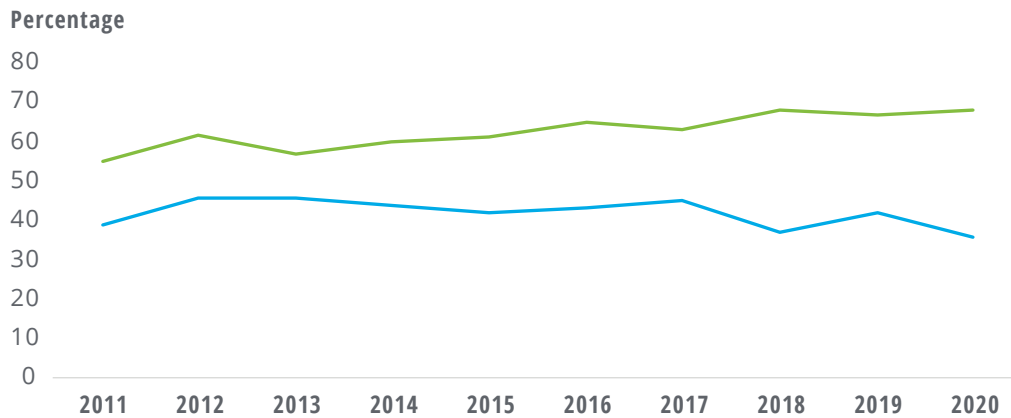
Businesses and consumers hard-hit by the COVID-19 pandemic and recession may be moving climate change action to the back burner in the short term as they struggle to survive and thrive in a fast-changing global landscape. But strong consumer sentiment and increasing stakeholder pressure on businesses prior to the crisis, as well as evidence of continuing stakeholder concern and superior performance of environmental, social and governance (ESG)–minded companies,³ may indicate that environmental and energy management initiatives and programs will likely continue in the longer term.

Over the past decade, while cost cutting stayed on top, consumer sentiment and stakeholder pressure to address climate change rose, helping environmental responsibility to narrow the gap with cost cutting as a key driver for resource management programs.

FIGURE 4

Consumer concern about climate change is rising

- I'm very concerned about climate change and my personal carbon footprint
- I think environmental concerns have been overblown



Source: Deloitte Resources 2020 Study survey results.

RESIDENTIAL CONSUMER CONCERN ABOUT CLIMATE CHANGE IS RISING

Looking over a decade of Resources Study surveys, it's clear that residential consumers' concerns about climate change and their personal carbon footprints have risen (figure 4). Some residential consumers have taken action to reduce their energy use or to use cleaner energy sources by installing rooftop solar or subscribing to green energy programs. But most also expect others, such as the government and corporations, to address these issues (figure 5). And about a third of respondents expect action from their employers. According to the survey data, the percentage of consumers who are concerned about climate change and their carbon footprints rose over 10 years from about half to a consistent two-thirds (figure 4). On the flip side, those who think "environmental concerns have been overblown," as high as 46% in the 2013–14 studies, fell to about one-third (36%) in 2020.

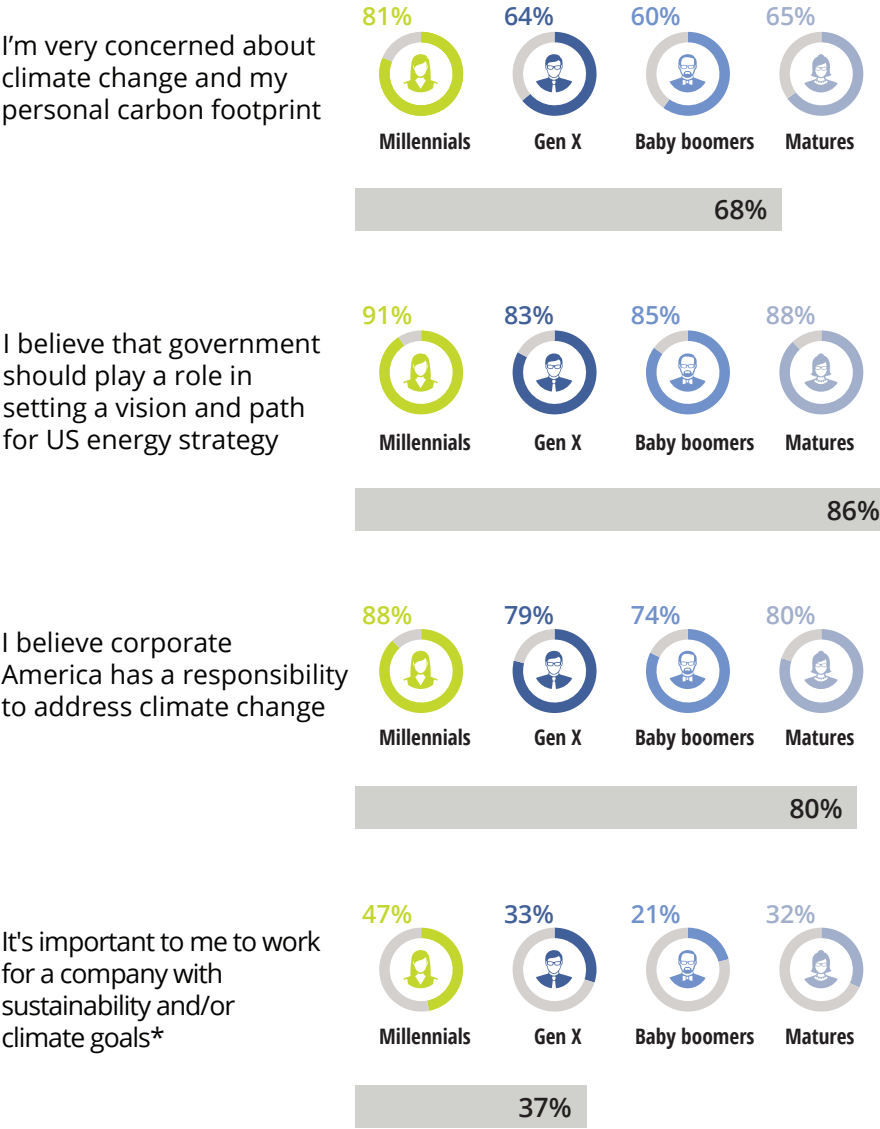
Consumers don't necessarily think they can solve these problems themselves: Over 80% of this year's respondents believe the government and corporations should play a role in setting a path for US energy strategy and addressing climate change (figure 5). Further emphasizing the corporate role, more than a third of the respondents who identified as full-time or part-time employees, students, or job seekers said it's extremely or very important that they work for a company with sustainability and/or climate risk goals.

Millennials are out front in supporting many of these issues. Indeed, millennial employees are often the ones encouraging their employers to address climate change.⁴ While a third of residential respondents seeking employment said it's extremely or very important to work for a company with sustainability or climate goals, that rises to nearly half among millennials (figure 5).

FIGURE 5

Climate concern is higher for younger generations

■ US total



*Asked to respondents who identified as employed, students, or job seekers

Source: Deloitte Resources 2020 Study survey results.

BUSINESSES ARE FEELING INCREASING STAKEHOLDER PRESSURE TO ADDRESS CLIMATE RISK

In line with rising consumer and employee sentiment, nearly 6 in 10 businesses surveyed reported feeling increased pressure from stakeholders to develop and disclose plans to demonstrate how they're addressing climate risk (figure 6). The stakeholders cited as most active are employees, followed by board members and customers. But businesses also report feeling pressure from other groups, such as shareholders, investors, regulators, media, and insurers.

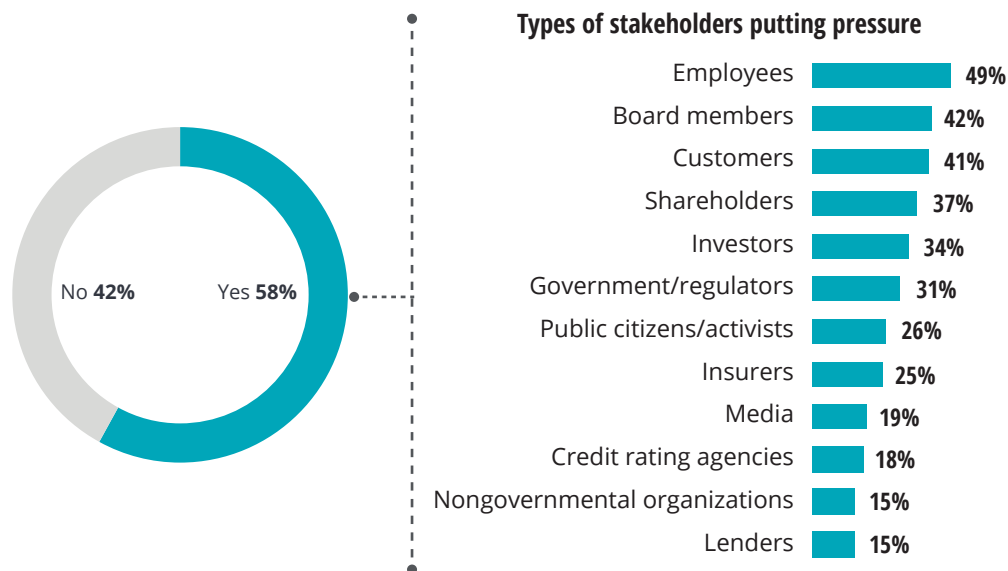
Of the respondents feeling such pressure, nearly nine in 10 have reviewed or changed their climate risk disclosure procedures and developed plans to address climate-related risks. And of those, nearly 60% have established a climate risk framework and provided disclosures, and another 40% have started to evaluate their exposure and develop a disclosure strategy (figure 7).

This was a new survey question in 2020, so while there is no history, we can consider trends by sector and company size: technology, media, and telecommunications and health care sector respondents most frequently reported stakeholder pressure, at 72% and 69%, respectively. And mid-size and large company respondents signaled that they're feeling more heat from stakeholders than small companies, at 64%, 61%, and 51%, respectively.

“Employee motivations” has consistently been one of the top three drivers of energy management programs, selected by at least a quarter of respondents each year. But in 2020, that rose to a third, the highest level ever. Employees are becoming more vocal about climate change, and this may be due to the growing influence of millennials in the workplace. But it's not clear that action is following intentions. In 2020, business respondents reported “lack of commitment by those not directly responsible” (26%) for energy management programs as the second-highest barrier to achieving goals, after “lack of capital for

FIGURE 6

Businesses feel rising stakeholder pressure to address climate risk



Source: Deloitte Resources 2020 Study survey results.

FIGURE 7

Stakeholders influencing review/change of climate risk procedures



Source: Deloitte Resources 2020 Study survey results.

investment in projects” (27%). In addition, around 70% consistently report that only a few people in their companies have a major impact on reducing company electricity consumption, signaling a lack of involvement by most employees. In line with that finding, two-thirds reported difficulty gaining acceptance from employees regarding electricity management.

It’s not just stakeholder pressure that’s influencing companies. Businesses can see for themselves the steady stream of climate studies, growing global consensus, and foreign government pledges on climate change. Three-quarters of this year’s respondents said that global agreements such as the Paris Climate Accord have caused them to focus more on energy management. While the United Nations postponed its 26th Conference of the Parties meeting on climate change scheduled for November 2020 in Scotland due to the pandemic,⁵ climate activists are encouraging governments across the globe to boost their original commitments and to include measures that would support those commitments in their economic recovery policies.

In addition, contrary to expectations, investors did not turn their backs on ESG as the COVID-19 crisis

hit. Capital market movement around ESG had been accelerating before the crisis. For example, in January 2020, investment management corporation BlackRock pledged to make climate central to its investment considerations.⁶ Two months later, amid global stock market turmoil and mounting pandemic-driven losses, more than 90% of sustainable indices outperformed their parent benchmarks.⁷ Ratings companies have begun to see ESG as a key determinant in how stocks will perform before, during, and after the current crisis.⁸ A representative from a major bank said, “The current COVID crisis will elevate the importance of ESG to our clients, as they increasingly focus on more sustainable and resilient strategies.”⁹ In fixed-income markets, green bond activity was up sharply in 2019 and has continued strong into 2020.¹⁰ Also, by late April, five major US banks, in a span of four months, had announced they would no longer finance oil and gas development in the Arctic.¹¹

Some believe that COVID-19 will, if anything, heighten awareness of social responsibility.¹² While the pandemic may be a distraction for companies in the near term, it may accelerate focus on environmental issues in the intermediate and long term. Further strengthening the trend is the

realization by many companies that they don't have to sacrifice the bottom line for ESG considerations. Renewable energy procurement is a good example, as wind and solar energy are often the lowest-priced options.

Environmental and cost considerations increasingly go hand in hand

Cost cutting is typically the top reason for businesses and residential consumers to manage their energy use, but the desire to protect the environment and use cleaner energy sources has been gaining on it. In addition to growing public sentiment for cleaner energy sources, this could also be due to the falling cost of wind and solar power. Today, affordable and clean energy are far less likely to be mutually exclusive, especially for businesses. Many utilities, facing lower electricity demand during the pandemic, are dispatching wind and solar first, when available, due to their low marginal cost. In some areas, renewable energy

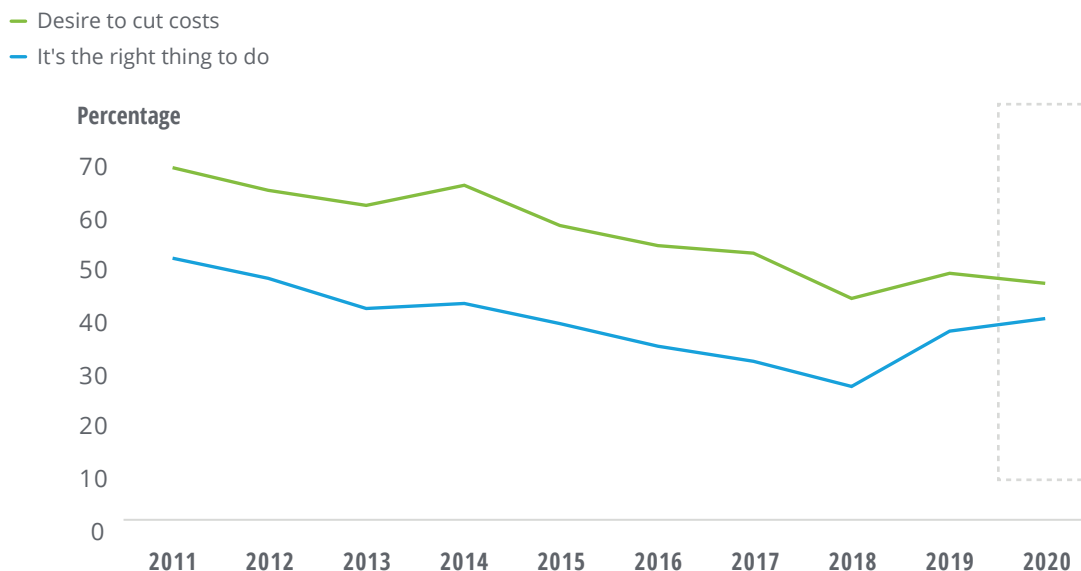
accounts for up to 60–70% of electricity generated on some days.¹³ As a result, some businesses and residential electricity consumers may be using cleaner electricity during the pandemic even without taking action. Renewables are cost-competitive for new generation build as well, which may explain in part why 76% of planned US capacity in 2020 is wind and solar.¹⁴ The preference for cleaner energy sources will likely continue, and given their increasing affordability, usage may continue to grow even during a recession.

BUSINESSES ARE CUTTING COSTS WHILE “DOING THE RIGHT THING”

Looking at the interplay of “cost” and “clean” in the business segment, the Study data shows the “desire to cut costs” as the primary driver for companies’ resource management programs over the last decade, with “Just the right thing to do” in second place. Recently, however, the two responses have been converging, as the “right thing to do” began gaining ground after 2018 (figure 8).

FIGURE 8

Energy management: “Right thing to do” gains on “cost cutting”



Source: Deloitte Resources 2020 Study survey results.

Businesses may increasingly see procuring clean energy as doing the “right thing.” Almost nine in 10 respondents now see energy procurement as “not simply a cost to the company, but an opportunity to reduce risk, improve resilience, and create new value” (up from 81% in 2017–18). How does clean energy create new value? To start with, nearly three-quarters of business respondents said their customers want them to procure a certain percentage of their electricity demand from renewable sources, up from 61% in 2017 (figure 9). And companies that are procuring renewables are reaping this value by actively publicizing their renewable purchases at unprecedented rates—up 12 points from 2017 to 77% (figure 9).

RESIDENTIAL CONSUMERS WANT ENERGY THAT’S BOTH AFFORDABLE AND CLEAN

In the residential consumer segment, “Utilizing clean energy sources to be better stewards of the environment” beat “Keeping my total energy bills affordable” as one of consumers’ top three energy issues for the first time in the five years these options have been included in the Study (figure 10). “Increasing the use of solar power” jumped 8 points year over year to third place, at 44%. Will the focus

on clean energy sources continue or will the economic downturn tip the balance back toward affordability? Or are the two lines converging because clean energy sources are increasingly affordable?

When it comes to installing rooftop solar, 10% of this year’s survey respondents said they planned to do so in the next year. Social distancing, quarantines, and economic uncertainty have dampened that demand in the first quarter, as some residential solar companies faced cancellation or postponement of as much as 30% of bookings by mid-March.¹⁵ But the companies have been innovative in moving as much of the sales process online as possible, in a trend likely to both cut costs and attract more customers who are social distancing during the pandemic. Among respondents who had already installed rooftop solar, “clean” beat out saving money for the first time as the primary motivator. “Solar power is clean and does not contribute to climate change” was cited by 25% of the 2020 respondents, compared with the second-place response, “I can save on my electricity bills by reducing the amount of electricity I buy” (20%).

FIGURE 9

Customers increasingly want businesses to source renewables

■ 2017 ■ 2018 ■ 2019 ■ 2020

Agree/strongly agree

Our customers are demanding that we procure a certain percentage of our electricity demand from renewable resources



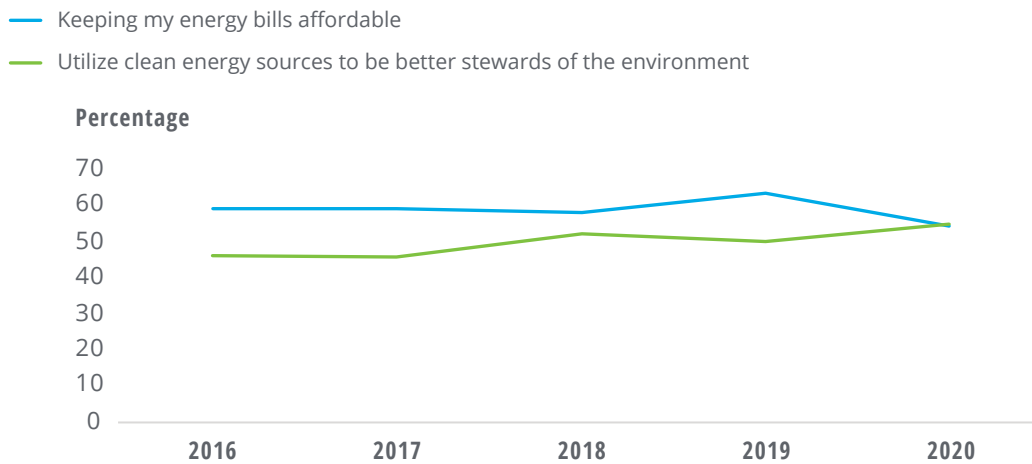
My company actively publicizes the percentage of our electricity demand that is met by sourcing renewable resources



Source: Deloitte Resources 2020 Study survey results.

FIGURE 10

Consumer preferences for clean and affordable energy converge



Note: The graph shows the percentage who rated the issue among the top 3 most important. The third most important issue was "Increasing the use of solar power" in 2020.

Source: Deloitte Resources 2020 Study survey results.

Expense may be even more of an issue during a recession. Green energy providers may need to offer more competitive rates to increase penetration among residential consumers.

Of course, installing rooftop solar isn't the only way for residential consumers to green their energy supply; many can choose to purchase "green energy" from their electricity providers. Consistently throughout the years, about one-third of consumers surveyed have said they're willing to pay more for green energy, indicating a preference for cleaner sources even if they cost more. However,

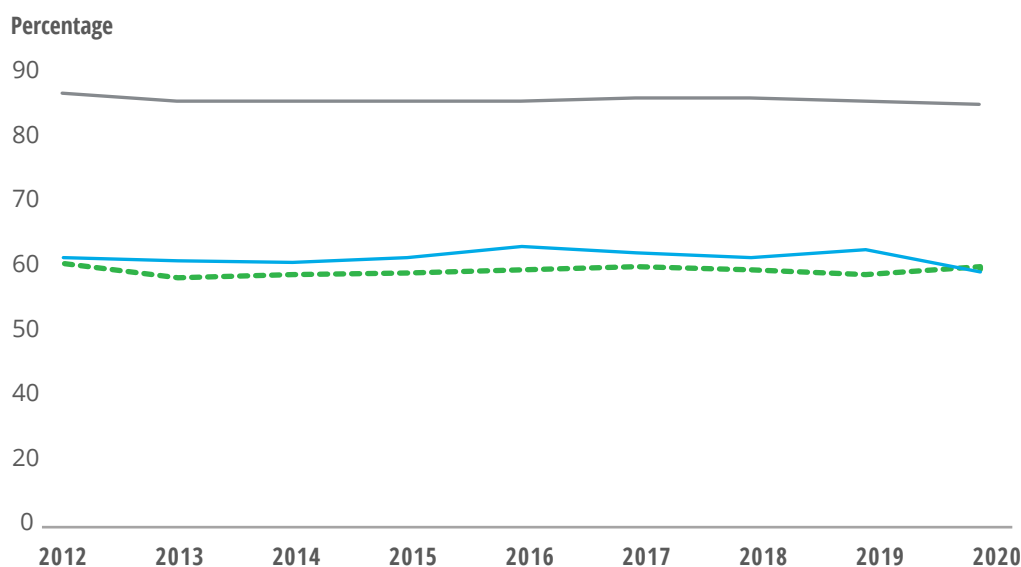
the data indicate that cost is still an important issue. The percentage who were offered green energy rose over five years, from 14% to 20%; of those, the percentage who purchased it rose from 6% to 11%. But the top reason for not purchasing green energy, among more than half of the respondents in 2020, was still that "it was too expensive." Expense may be even more of an issue during a recession. Green energy providers may need to offer more competitive rates to increase penetration among residential consumers.

To put a finer point on it, "lower electricity costs" has far outpaced "renewable sources" as a reason for respondents to switch electricity providers since 2012. But convergence is still at play, as "renewable sources" rose 3 points in 2020 to take second place from "better service," while "lower electricity costs" stayed steady (figure 11).

FIGURE 11

Renewables gain ground as a reason to switch providers

— Lower electricity costs for my household — Better service than I am receiving today
 - - - Electricity supply comes from renewable sources



Source: Deloitte Resources 2020 Study survey results.

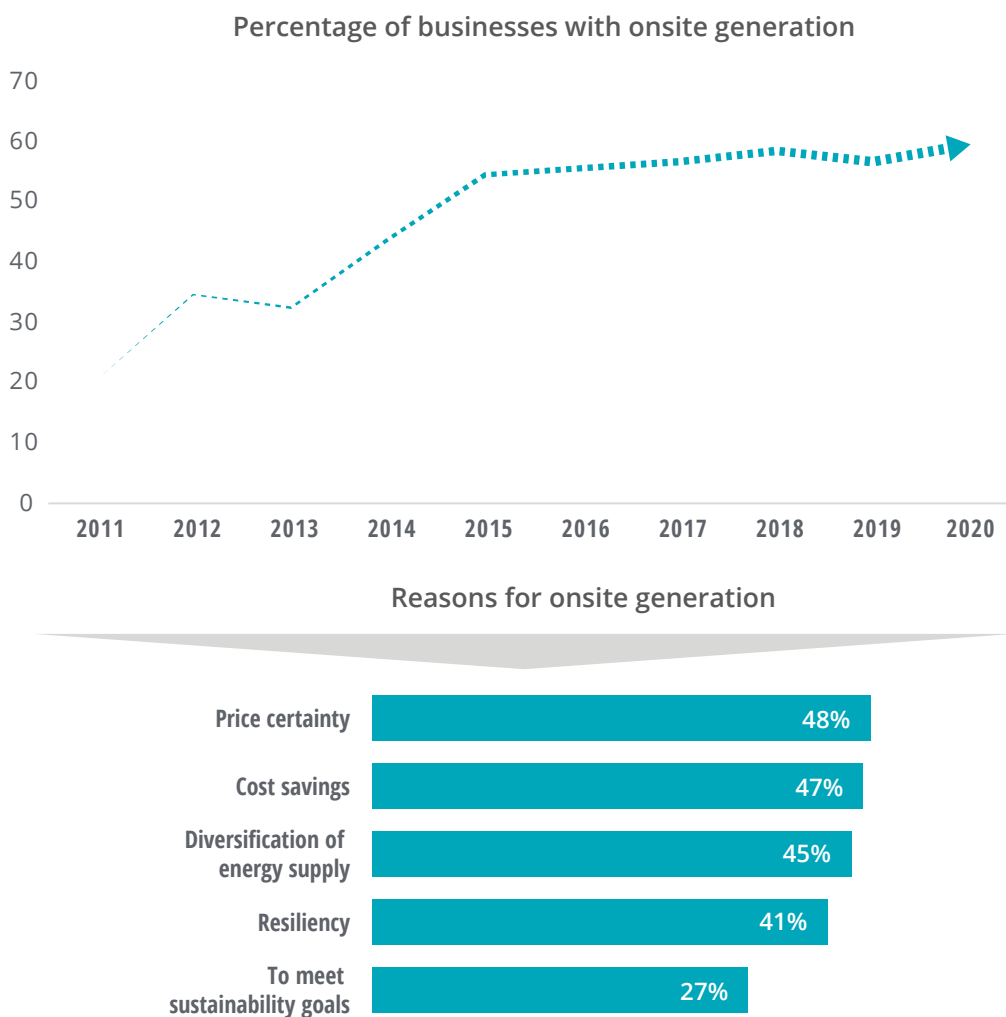
The quest intensifies for greater resiliency and self-sufficiency

Increasingly severe natural disasters and longer outages have motivated many electricity customers in the business and residential consumer segments to seek greater resiliency and explore options beyond their electricity providers in recent years. Some customers want more agency over their electricity supply and are increasingly taking matters into their own hands. Today, with more people working from home, the uncertainty of a global pandemic, and any natural disasters that may occur on top of that, this sentiment may grow. However, revenue and income loss during the recession could potentially limit available capital for expenditures in the short to medium term.

BUSINESSES ARE INCREASINGLY TAKING RESILIENCY INTO THEIR OWN HANDS

Businesses' quest for resiliency and self-sufficiency is clear in the tactics respondents have used to manage their electricity use. In the 2020 Survey, they increasingly reported deploying battery storage, energy recovery in production processes, and onsite generation. In fact, 60% of businesses reported having onsite generation, up nearly 40 points in 10 years (figure 12). Why the huge jump? It's most likely because onsite generation can help businesses tick multiple boxes, as the figure shows. The onsite generation sources supplying the highest share of respondents' electricity supply were cogeneration, at 15%, and renewables, at 13%. Renewables are likely a popular choice for onsite generation because they can deliver on all of the advantages: price certainty, energy supply diversification, cost savings, resiliency, and sustainability.

FIGURE 12

Onsite generation rose 40 points in 10 years

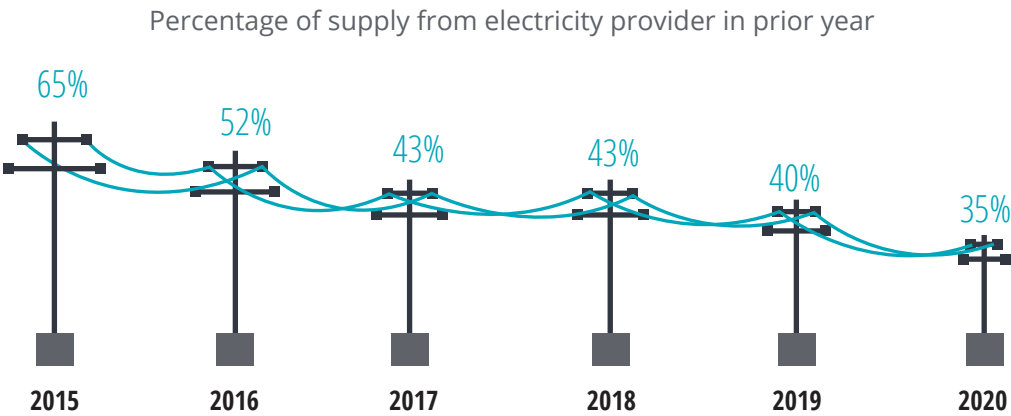
Source: Deloitte Resources 2020 Study survey results.

Businesses that have onsite generation are becoming increasingly self-sufficient as they get less of their electricity supply from electricity providers each year (figure 13). The 2020 respondents with onsite generation reported sourcing just 35% of their electricity supply from their electricity providers in the prior year (2019), down from 65% when the question was first asked in the 2015 survey (for 2014).

One of the biggest indicators of businesses' quest for resiliency is the growing interest in microgrids, which spiked 9 points in 2020 (figure 14). The top drivers focused on resiliency from outages. And fewer respondents blamed those outages on extreme weather in 2020, down 5 points to 48%. But it appears that instead many may blame their provider: "My electric company does not adequately maintain its system" rose 5 points to 42%.

FIGURE 13

Those with onsite generation use less electricity from providers

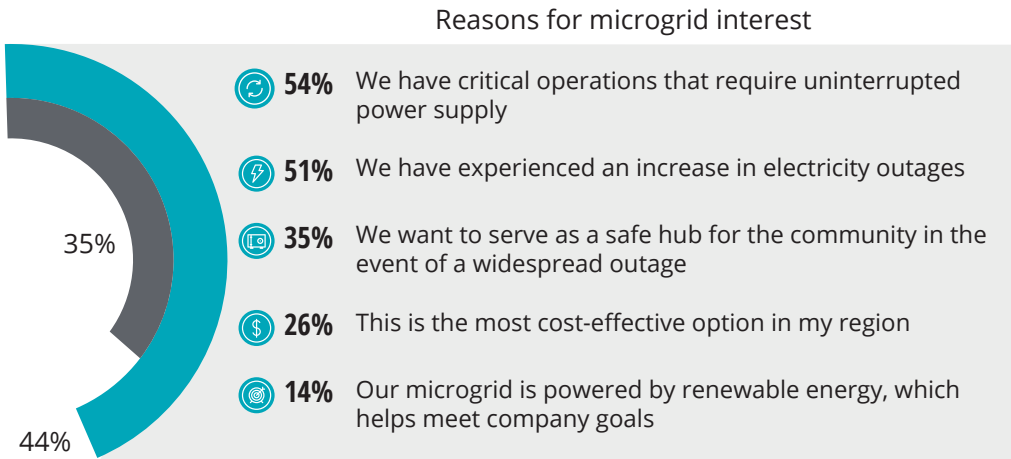


Source: Deloitte Resources 2020 Study survey results.

FIGURE 14

Interest in microgrids rose sharply

■ 2019 ■ 2020



Source: Deloitte Resources 2020 Study survey results.

CONSUMERS ARE ALSO SEEKING
RESILIENCY AND SELF-SUFFICIENCY

Like businesses, residential consumers also have growing concerns about resiliency, and they too are eyeing renewables and storage. For the first time, more than half of residential respondents expressed interest in solar panels if combined with battery storage (figure 15). Top reasons cited were to save on electricity and store solar power for later use. And nearly half of respondents expressed concerns about outages from natural disasters or

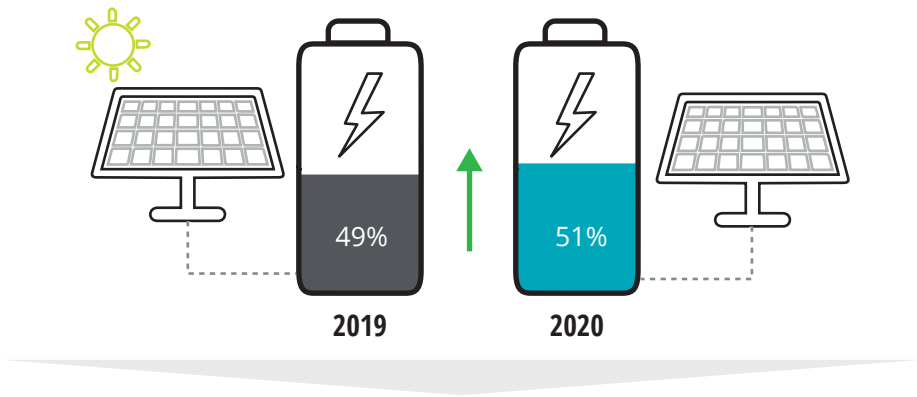
storms, in a new 2020 survey option. These concerns likely reflect a desire for greater resiliency. Even among consumers interested in solar panels without storage, 57% selected “Solar power may help ensure I have electricity in the event of a power outage” as a driver.

As with businesses, many consumers would also like to become more self-sufficient. Eight in 10 respondents would like to be offered additional services from their electricity providers, and solar

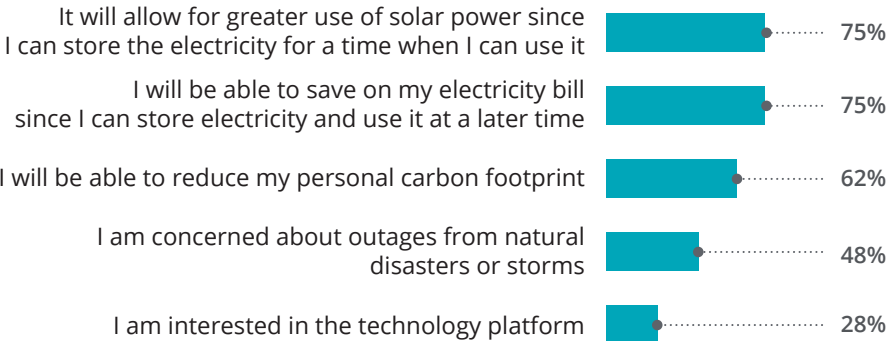
FIGURE 15

Interest in solar panels with home battery storage is rising

■ 2019 ■ 2020



Reasons for interest in solar panels with home battery storage



Source: Deloitte Resources 2020 Study survey results.

panels and backup generators were among their top three choices (figure 16). Home storage batteries also made the list. Such options could enhance self-sufficiency by enabling residential consumers to time-shift their demand to reduce cost, potentially retain power during an outage, and more.

In today's era of pandemic and heightened anxiety, consumers might naturally feel a greater need to purchase products such as these to help boost resiliency. But job and household income loss across the country due to the economic downturn may be dampening those desires. Even before this recession, residential consumers surveyed consistently reported "lack of money" as the top barrier to implementing energy-saving tactics such as purchasing a programmable thermostat or more energy-efficient appliances.

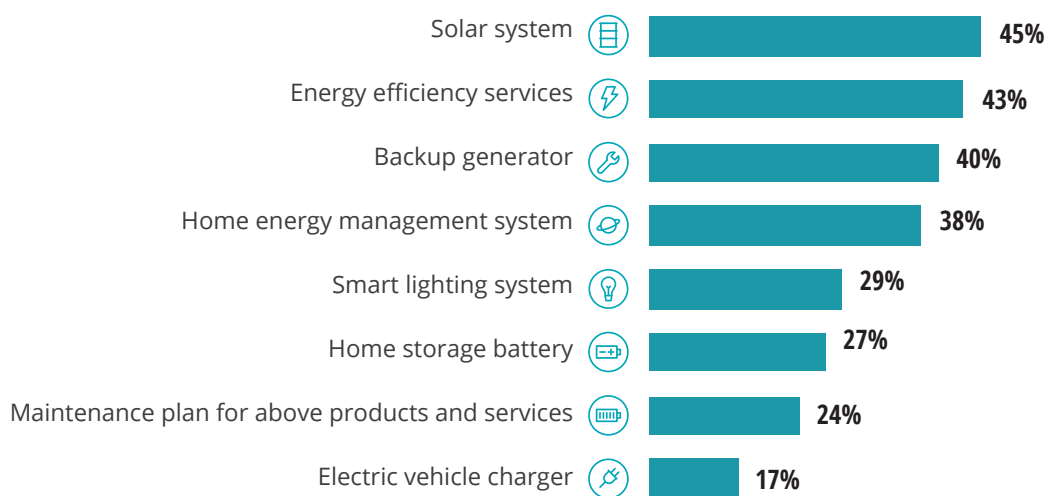
In a recent study by the Electric Power Research Institute to gauge electricity consumer attitudes during the current crisis, consumers surveyed in mid-April 2020 across every region except the

West were less likely to purchase solar panels, backup generators, or energy storage than they were before the current crisis.¹⁶ Consumers in the West, however, had slightly more net intent ("more likely" minus "less likely") to purchase solar panels and generators than before the crisis. And they were equally likely to purchase energy storage as before the crisis. Results in the West may be due to anticipation of the coming wildfire season, with the potential for more utility power shutdowns to prevent fires.

In sum, the Resources 2020 Study and historical data reveal three robust trends, or Reinforcers, that support continued energy management progress: rising consumer sentiment and stakeholder pressure on businesses to address climate change, the convergence of environmental and cost drivers, and the quest for greater resiliency and self-sufficiency. Since the COVID-19 crisis began in the first quarter of 2020, capital markets have continued to value sustainability, which may provide additional support for businesses to stay on track with energy management programs.

FIGURE 16

Additional services consumers would like providers to offer



Note: Regulatory policies in some states may impact the ability of regulated utilities to offer some of these services directly to customers

The Bellwethers

Two trends that may indicate future energy management momentum

IN ADDITION TO the three trends discussed above, two trends have been growing throughout the decade and could be potential indicators of ongoing commitment to energy management: business success in creating value through energy management and accelerating renewable energy procurement.

Why stop now? Businesses have continued to ramp up programs and achieve success

Over the 10 years Deloitte has conducted the Study, businesses have consistently raised goals and met them, creating new value while managing resource use. About nine in 10 businesses reported setting goals to manage electricity and other resources in 2020, consistent with prior years. But the percentage of business respondents setting formal goals has risen steadily, from about half in 2011 to 65% in 2020 (figure 17). Most of those goals are in electricity, with nine in 10 consistently reporting electricity savings goals. But the percentage reporting goals in other areas, such as natural gas, carbon emissions, and transport fuel consumption, has generally risen over the decade.

Not only are businesses setting goals across more resource areas, but the goals are high. In 2020, 40–50% of respondents are striving to cut 25% or

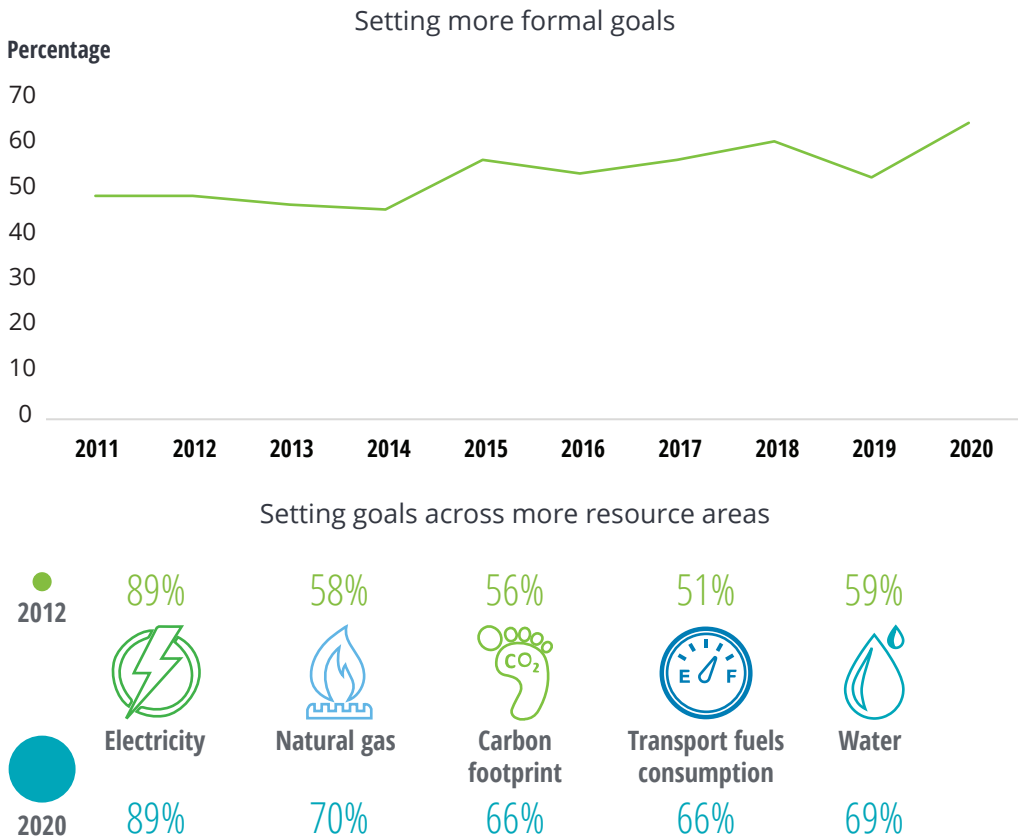
more in each of the five resource areas mentioned in figure 17, and goals have crept higher among respondents each year. Take, for example, carbon emissions reduction. Sixty-three percent of business respondents reported having increased emission reduction goals, most often to meet their own sustainability goals, but also in response to climate reports or input from external stakeholders. The technology, media, and telecommunications and financial services industry respondents were most likely to report having boosted emissions reduction goals, at 74% and 73%, respectively. At the same time, 60% of respondents have recently raised water reduction targets, with sustainability strategies as the top reason, but half also attribute it to rising water bills.

In electricity, aggressive goals are increasingly paying off, with a quarter of respondents now reporting reductions of 30% or more in 2020 (figure 18).

After following this path for so long and achieving increasingly impressive results, both cutting costs and creating value, businesses may be unlikely to stray too far from their resource management strategies for too long. Some may face new challenges during the recession, such as restricted access to capital. But in the medium to longer term, those who can will likely continue their programs.

FIGURE 17

Businesses are setting more formal goals across more resource areas



Source: Deloitte Resources 2020 Study survey results.

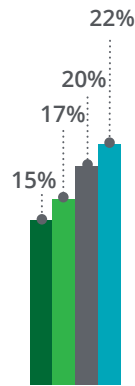
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FIGURE 18

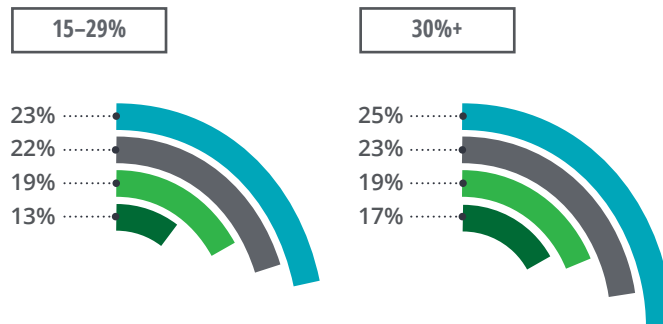
Businesses achieving larger reductions in electricity use over time

■ 2016 ■ 2017 ■ 2018 ■ 2019

Average reduction achieved



Percentage reduction achieved



Source: Deloitte Resources 2020 Study survey results.

Renewable energy growth reflects strong momentum in resource management

One of the strongest reflections of momentum in resource management is the growing deployment of renewable energy. Business procurement has increased steadily, but while residential consumers have reported strong intent, their follow-through has been less robust due to concerns about cost and complexity. And they're looking to others for

volume of corporate renewable power purchase agreements (PPAs), may be the metrics to watch for continued momentum. We see evidence of renewable growth momentum in the 2020 survey as well, which suggests it will likely continue in the longer term, despite the pandemic and economic downturn.

BUSINESSES ARE PROCURING MORE RENEWABLE ENERGY THROUGH MORE CHANNELS

Three-quarters of 2020 business respondents said customers are asking them to procure renewable energy, and thus many have boosted purchases and are tapping more sources. More than half of respondents in 2020 (51%) said they're working to procure more electricity from renewables, compared with 47% in 2019. The most common methods were PPAs, virtual power purchase agreements

Business procurement has increased steadily, but while residential consumers have reported strong intent, their follow-through has been less robust due to concerns about cost and complexity.

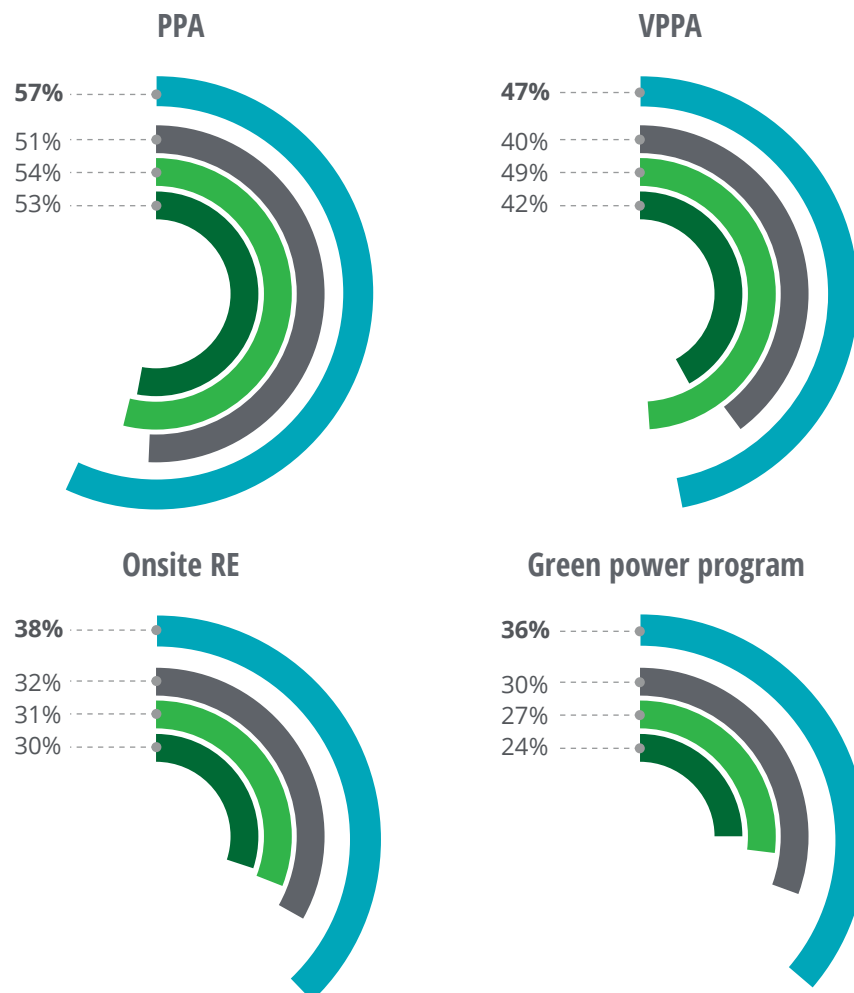
help. As the current crisis progresses, indicators of continued renewable adoption, such as the rising

(VPPAs), and onsite renewables (figure 19). Over the five years the Study has been tracking

FIGURE 19

Renewable energy procurement methods are expanding

■ 2017 ■ 2018 ■ 2019 ■ 2020



Note: Community solar was added in 2020 and 7% selected it.

Source: Deloitte Resources 2020 Study survey results.

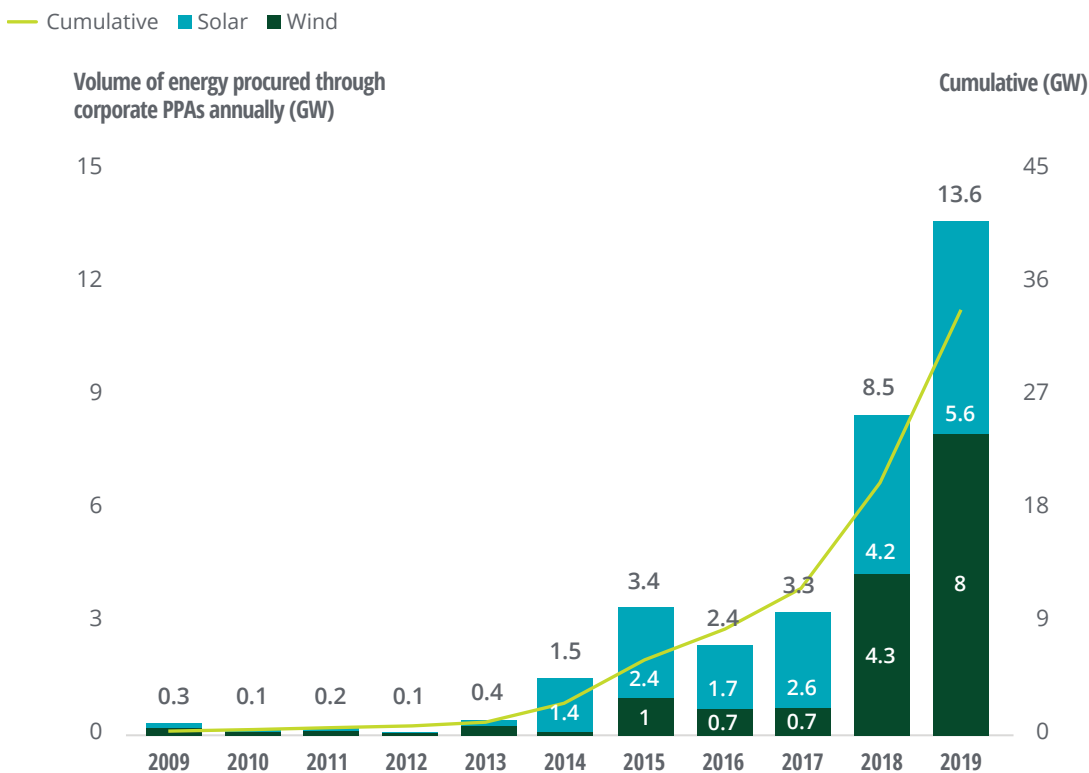
procurement methods, businesses have expanded procurement channels, with most sources trending upward in 2020 (figure 19). The community solar option was added in 2020, and 7% of respondents said they had used that channel.

Renewable procurement through corporate PPAs rose sharply in the past decade, from a cumulative 0.1 GW in 2010 to 33.6 GW by the end of 2019,

including 13.6 GW in 2019 alone (figure 20).¹⁷ Momentum continued into the first quarter of 2020, and by late April, companies had announced deals for at least 1.76 GW of renewable capacity.¹⁸ The pandemic and recession had the most impact late in the first quarter of 2020, so corporate renewable PPA volume is worth watching as a potential bellwether of continued renewable growth.

FIGURE 20

US corporate PPAs rose sharply over the decade



Note: The chart shows offsite PPAs only.

Source: BloombergNEF, "Corporate clean energy buying leapt 44% in 2019, sets new record," January 28, 2020.

RESIDENTIAL CONSUMER SUPPORT FOR RENEWABLES IS RISING, THOUGH SOME LOOK TO OTHERS TO PROVIDE IT

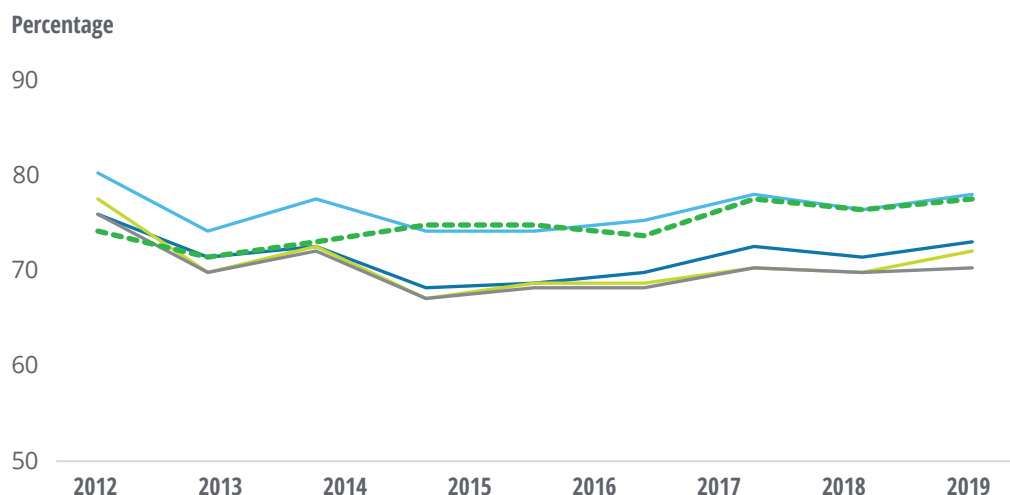
Consumers rated "utilizing clean energy sources to be better stewards of the environment" as the most important energy issue in 2020, at 31%, a six-point jump from 2019. In addition, more than half (53%) of respondents said it's extremely or very important that part of their electricity supply comes from renewable energy in 2020, a statistic that averaged 46% in the first five years of the Study and has risen to over 50% in the most recent five years. Not only that, but the share who believe greater development of renewable energy sources will impact cleaner air/climate change has risen since it was included in the Study in 2012, from 69% to 75% in 2020 (figure 21).

Consumers' perceptions of renewables' potential to create jobs and boost the national economy were highest in the wake of the last recession, at 70–80% in 2011–2012, but fell below 60% by 2016, perhaps reflecting less focus on job creation in a strong economy. But renewables' perception as an economic booster has rebounded slightly in the last few years (figure 21). Perhaps this was because solar installer and wind technician were projected to be the two fastest-growing jobs in the country from 2018 to 2028.¹⁹ As the COVID-19-driven recession hit in March–April 2020, the US renewable energy industry lost nearly 100,000 jobs.²⁰ Environmental groups tout the industry's potential to create jobs and boost local economies as a reason to include it in economic stimulus proposals, although whether such proposals will make it into legislation is still uncertain.²¹

FIGURE 21

Consumers see multiple impacts from greater renewable energy development

— Energy independence — Cleaner air/climate change — Job creation
— Boosting the national economy — Boosting local economies



When it comes to their own household energy use, respondents were increasingly open to green energy options from their providers, but still sometimes stymied by cost. The cost of such options for residential consumers is often higher than the typical electricity bill, and until that changes, adoption may stall—especially during a recession. The percentage who recall being offered green energy rose to a new high in 2020, at 20%. Of those, 11% reported purchasing green energy, another new high. For those who did not accept the offer, the top barrier was expense, up 8 points, to 54%. While about a third of consumers said they were willing to pay more for green energy, six in 10 wouldn't pay more than a 10% premium. And the willingness or ability to pay more will likely fall during a recession.

The consumer market lacks the scale of larger utility, commercial, and industrial installations, which can make purchasing renewables appear more costly or complicated. But installers are working to bring costs down, simplify the sales process, and move it online as much as possible, an

effort that has accelerated during the pandemic. While interest in rooftop solar panels has trended lower, falling from 44% in 2017 to 32% in 2020, and many have cancelled installations during the pandemic,²² interest in community solar rose slightly from 39 to 41%. If community solar projects can offer consumers the opportunity to source solar power at costs competitive with current electricity rates, with simple contracting and billing, continued growth is likely.

While consumers are increasingly concerned about climate change and supportive of renewable energy, there is a strong thread of sentiment to let others address these issues. This may be an implicit recognition of the economic reality that scale matters; rooftop solar installations or green energy offers, when feasible and available, may not yet be cost-competitive in some areas. If prices of green energy, rooftop solar, and community solar continue to become more cost-competitive and simpler to implement, consumer adoption will likely increase.

At the utility level, wind and solar are already often the cheapest energy sources, and as utilities add more renewables to the generation mix, residential consumers will be using cleaner energy over time. For corporations, renewables are also often an economic win. And, as residential consumers continue to influence corporations in their roles as customers, employees, and shareholders, the corporations are also likely to continue transitioning to cleaner energy sources. Likewise, as consumers continue to pressure federal and state governments in their roles as citizens and voters, policy is more likely to follow suit. Bigger picture, the aforementioned 86% of residential survey respondents who are looking to government to set the energy vision and the 80% who see corporate responsibility to address climate change (figure 5) may have good reason to look to these sources. And as they continue to exert their

influence as stakeholders, government and businesses may be more likely to act.

Some may wonder how current low fossil fuel prices may impact renewable energy growth. The impact will likely be limited in the case of oil, since it's rarely used in US power generation. Natural gas accounted for the largest share of US power generation in 2019 (36%).²³ But wind and solar costs are competitive with natural gas, and while gas prices may rise again, renewable costs will likely continue to fall.

To sum up, two trends that could be seen as Bellwethers, since they could potentially signal ongoing commitment to energy management, are: businesses' success in creating value through energy management and accelerating renewable energy procurement.

The Hurdles

Two trends to address for further energy management growth

IN THIS FINAL section we'll explore two trends that represent issues energy and technology providers will likely need to address to help customers maintain energy management momentum. They are: rising privacy and security concerns and the need for flexible, customized products and services.

Privacy and security concerns should be addressed to pave way for further technology adoption

Growing technology adoption is sowing concern for privacy and security in the business and residential consumer segments. In some cases, this concern may hinder further technology adoption. With more people working from home and staying home during the COVID-19 pandemic, hackers are increasingly targeting home networks and seeking to break into personal and corporate systems.²⁴ The rise in virtual work, education, and entertainment in the COVID-19 era may continue beyond the pandemic, so privacy and security will likely continue to be a growing concern.

BUSINESS CONCERN ABOUT CYBERSECURITY IS RISING

Among the Study's business respondents, more than half are concerned about an interruption to their electricity supply due to a cybersecurity event on the electric grid, up three points from 2019 (figure 22). Concern was highest among larger companies and lowest among mid-size companies.

By industry, respondents in the technology, media, and telecommunications sector were most concerned, followed by the financial services sector (figure 22).

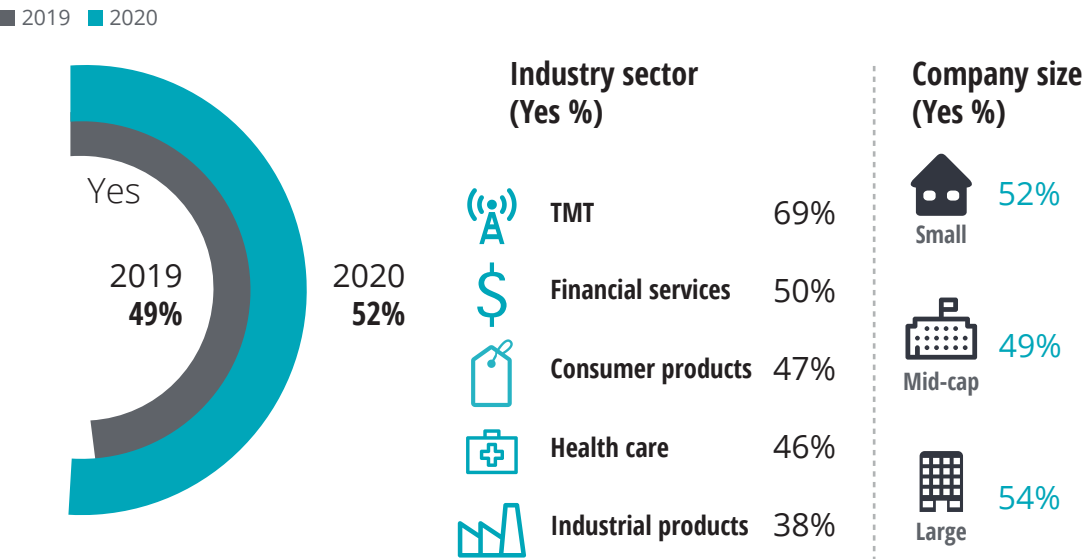
RESIDENTIAL CONSUMER CONCERN FOR SECURITY INCREASING WITH TECHNOLOGY ADOPTION

Like businesses, residential consumers are also concerned about a potential power interruption due to a cybersecurity event, but their concern was slightly lower, at 37% of this year's respondents, compared with 52% of business respondents. As noted, this may change with more people working and attending school from home during, and potentially after, the pandemic.

Rising privacy and security concerns may become a barrier to sales of new technologies in the consumer sector. Penetration of internet-connected thermostats and home automation systems to control home heating and cooling doubled in the past five years, to 15%. At the same time, more than three-quarters of residential respondents said they're more concerned about privacy and security as homes become more automated, a 15-point jump from 2019 (figure 23). This concern may be related to highly publicized breaches of home security system video over the past year. Almost half (46%) said their concerns could prevent them from buying smart home technologies in the next 1–2 years, as in 2019. However, since it's 46% of a larger portion of concerned consumers in 2020, it could begin to have a greater impact on purchases (figure 23).

FIGURE 22

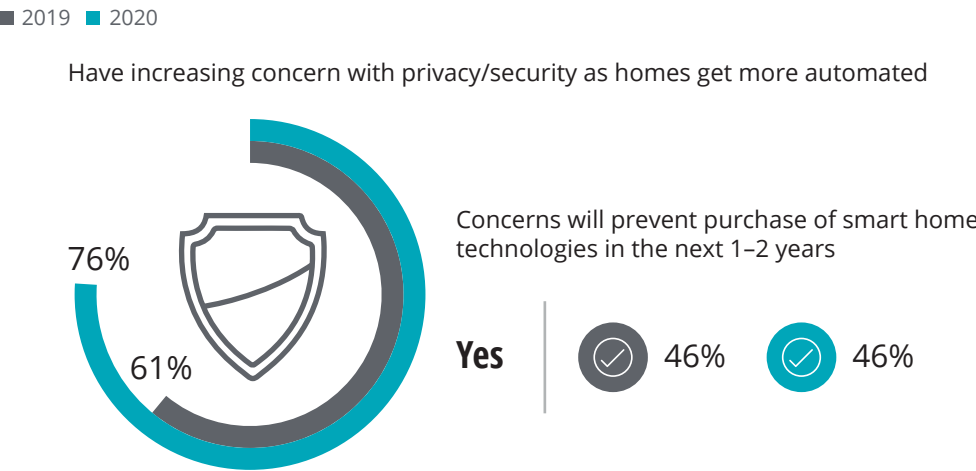
Concerns about cybersecurity interruptions to the grid are rising



Source: Deloitte Resources 2020 Study survey results.

FIGURE 23

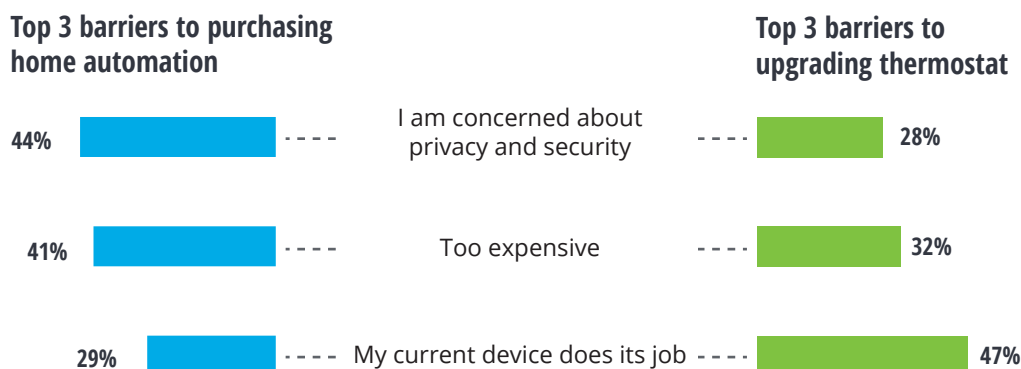
Increasing concerns about privacy and security may impact smart home technology purchases



Source: Deloitte Resources 2020 Study survey results.

FIGURE 24

Security concerns are a top barrier to home energy technology adoption



Source: Deloitte Resources 2020 Study survey results.

Among the available products, consumers seem to be most skeptical about home automation systems, with privacy and security as the top barrier to purchase in the next year, at 44%. This is followed by “too expensive” and “my current device does its job” (figure 24). For connected thermostats, security concerns may be holding back 28% of respondents, in third place behind “my current device does its job” and “too expensive.” Overall, 13–14% of respondents plan to purchase home automation systems or connected thermostats in the next year. However, the economic downturn could slow purchases of these technologies, especially since expense was one of the top three barriers to purchase for both.

Energy and energy technology providers may need to take further steps to secure consumer and business devices, applications, and system access protocols so that customers in both segments feel comfortable using them to manage and control their energy use.

Electricity customers are seeking flexible, customized products and services

Whether it’s to cut costs, boost resiliency, or source cleaner energy, customers in the business and residential consumer segments are exploring options for products and services to help them manage their energy and resource use. Many are looking for a more flexible, customized experience, and if their providers can’t meet their needs, they may go elsewhere. In this increasingly uncertain era of global pandemic and recession, some of these needs may grow.

BUSINESSES MAY NEED CUSTOMIZED HELP TO MEET ENERGY AND RESOURCE MANAGEMENT GOALS

As previously noted, more than half of the Study’s business respondents are trying to procure more renewables through a variety of avenues, from PPAs to onsite generation. Since three-quarters of respondents reported customer demand for more renewable energy, procurement is likely to continue growing. And if their electricity providers don’t offer options that fit their needs, businesses will likely look elsewhere. For electricity providers, providing access to renewables is increasingly table stakes.

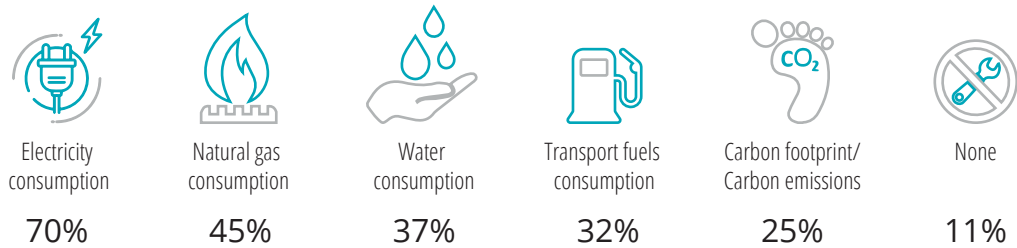
Almost nine in 10 of this year’s business respondents see reducing electricity consumption as essential to staying competitive from both a financial (89%) and an image (87%) perspective—a sentiment that has been rising. Most business respondents said they work with their electricity providers to achieve electricity goals, but fewer work with their natural gas, transport fuel, or water providers (figure 25). For natural gas and water management, 40% and 43% of respondents, respectively, said their provider doesn’t provide these services, so gas and water providers may consider offering or expanding their resource management services.

When it comes to achieving resource management goals, 64% of business respondents said they feel extremely or very successful, up 5 points from the prior year and 10 points over the decade. But more than a quarter of this year’s respondents still find it extremely or very difficult to monitor their performance against goals—often due to a lack of internal resources, software, consolidated reporting, or data in general (figure 26). Resource providers should consider offering services that make it easier for business customers, such as consolidated consumption and billing data.

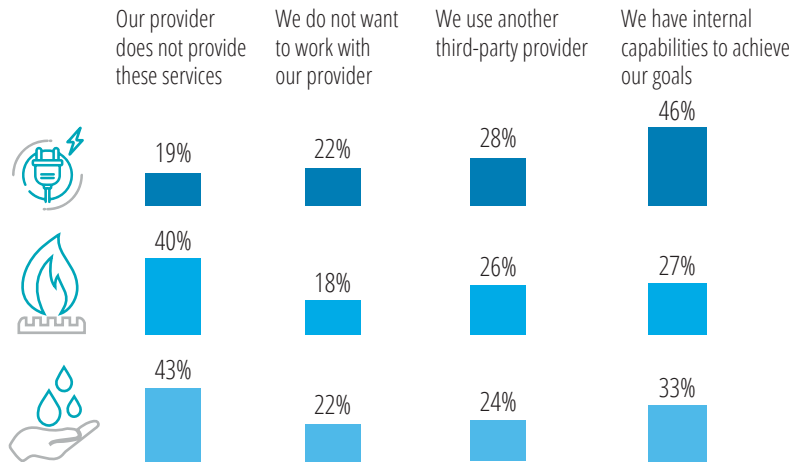
FIGURE 25

Businesses work with resource providers to achieve goals

Achieve goals by working with resource provider



Barriers to working with provider to achieve goals

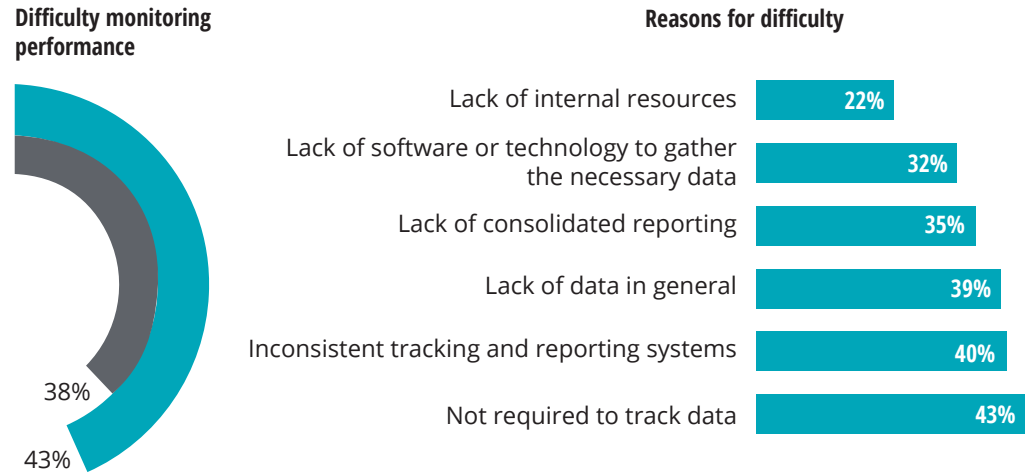


Source: Deloitte Resources 2020 Study survey results.

FIGURE 26

Businesses face challenges monitoring energy management performance

■ 2019 ■ 2020



Source: Deloitte Resources 2020 Study survey results.

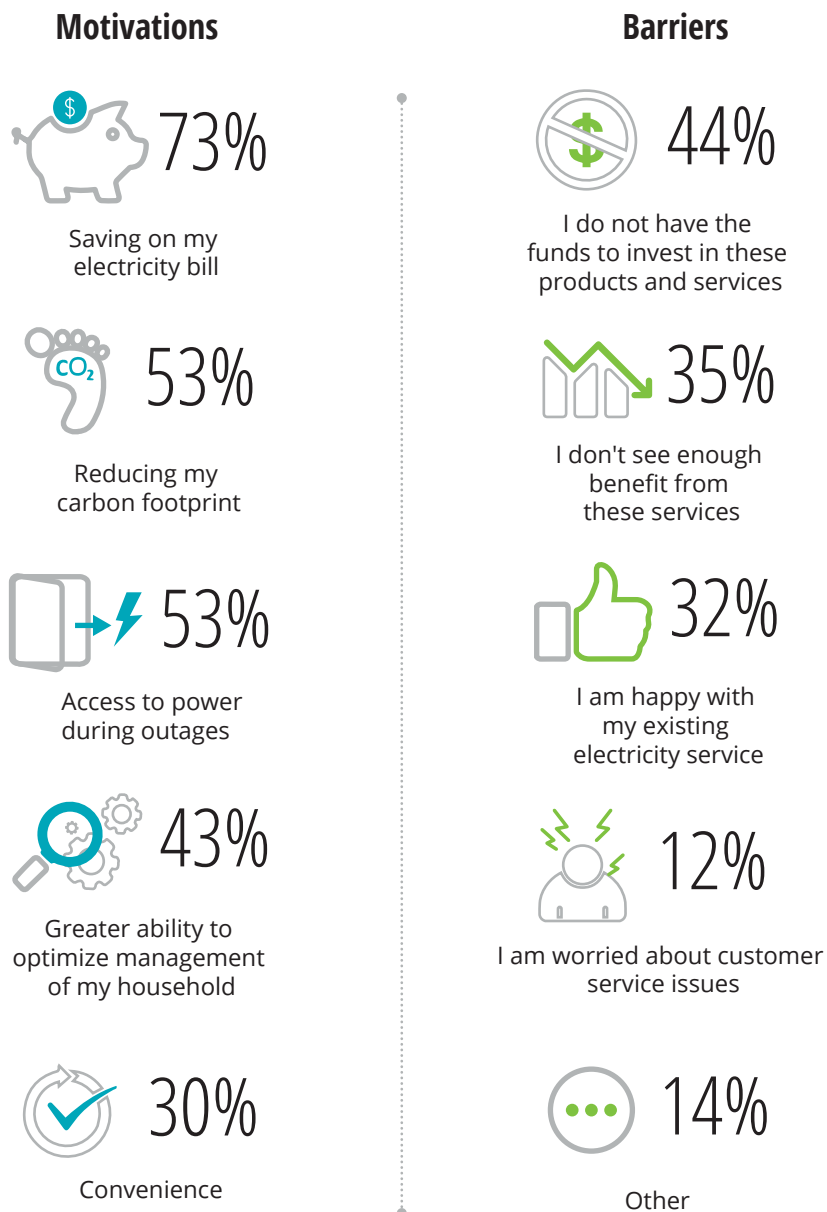


RESIDENTIAL CONSUMERS WANT AFFORDABLE, RELIABLE, AND CLEAN ENERGY—AND SOME WANT MORE SERVICES AND DATA TO REAP VALUE

Consumers have expressed interest in a number of new products, services, and data from electricity providers. Their motivations generally boil down to a desire for more flexibility to manage and control their electricity use and sources. As noted previously, rising portions of consumers rate using clean energy sources and, specifically, more solar and wind energy as important (figure 10). In addition, many want their providers to offer solar energy and/or a green energy option, and their interest in community solar is growing. Consumers would also like to be able to purchase solar panels, energy efficiency services, backup generators, and more from their electricity providers (figure 16). Their top motivations cited for wanting providers to offer these services are: savings on electricity bills, reducing their carbon footprints, and maintaining access to power during outages. The biggest barriers are a lack of funds or no perceived benefit (figure 27).

FIGURE 27

Customer motivations and barriers to purchasing additional services



Source: Deloitte Resources 2020 Study survey results.

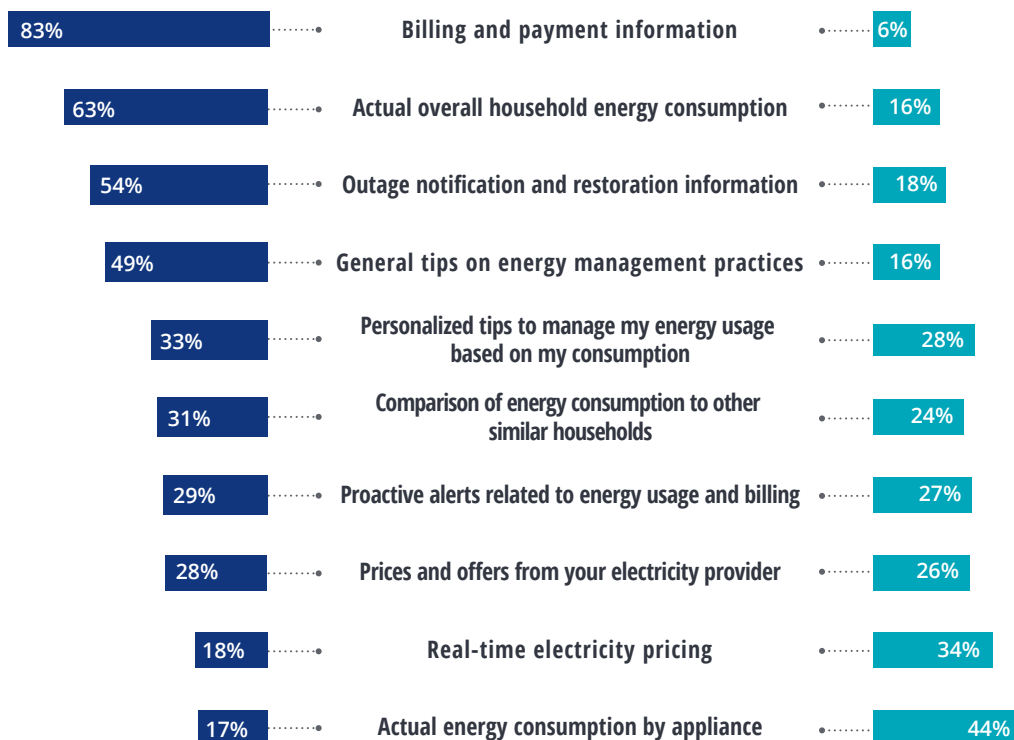
To get the most out of these products and services, residential consumers realize they'll need information and data from their providers. Thirty-three percent of those surveyed said they were already using their electricity provider's online portal or phone app, but many would like to get more out of it. Figure 28 compares information

respondents said they are getting now to what they would like to be getting from their provider's portal. Their top wishes—to see real-time electricity pricing and actual consumption by appliance—may indicate a desire to better manage energy use if they had more information.

FIGURE 28

Consumers want more information from online apps and portals

■ Have ■ Want



Source: Deloitte Resources 2020 Study survey results.

Some residential consumers are ready for more advanced services. Of the 11% of this year's respondents who said they already had solar panels on their primary household, 68% said they would be interested in selling their excess solar output to other electricity customers through an online electricity trading platform. And finally, if the residential consumers surveyed were to explore other options for electricity supply, the highest percentages would still lean toward renewable

energy providers (60%) and other independent electricity companies (40%) over other options such as club stores, mass merchant stores, or cable/internet service providers. In sum, two trends that represent hurdles providers may need to jump to enable further energy management progress are privacy and security concerns and customers' needs for more flexible, customizable products and services.

Conclusion

THIS PAPER'S INTRODUCTION asked whether efforts to manage energy use, reduce carbon emissions, and address climate change would slow in the current crisis, maintain its pace, or accelerate as the crisis catalyzed change. The Deloitte Resources 2020 Study findings, combined with data from the Study's 10-year history, and developments since the crisis began, suggest that progress will likely continue and potentially accelerate in the longer term.

While businesses and residential consumers focus on responding to the current crisis in the short term, the Reinforcer and Bellwether trends indicate that their energy and resource management efforts will likely continue in the longer term. The three Reinforcer trends have risen during a decade of Resources Study results: consumer concern about climate change and stakeholder pressure on businesses, the convergence of cost and clean, and the quest for resiliency. The two Bellwether trends suggest further momentum: businesses' continuing success in creating value from energy management programs and rising renewable energy procurement. Issues reflected in the two Hurdle

trends—rising concern about privacy and security and the need for increasingly flexible and customized services—will need to be addressed. But the overall Study results point to continued progress.

In addition to the trends reflected in the Study, developments since the current crisis began could potentially accelerate energy management and climate change/carbon reduction programs. One of these is capital markets' continued focus on ESG during the crisis. This focus strengthens the energy management value proposition for many businesses. Moreover, several governments across the globe are already including clean energy infrastructure investment in their economic recovery plans.

In sum, while the world has changed drastically within a matter of weeks, many of the long-term, core sentiments and motivations for energy and resource management revealed in the Resources Study have not. In fact, the current crisis may have strengthened them further.

HOW CAN YOU LEVERAGE THE DELOITTE RESOURCES 2020 STUDY?

Deloitte has designed this Study as a tool to assist companies with their business decision-making. The expansive database developed through the Study allows Deloitte to guide companies in examining the findings in much greater depth and from many vantage points. This Study can be used to help build the business case necessary to establish priorities and gain support for proposed initiatives, or it can provide solid data for new directions that are under evaluation. For more information, please email us at DeloitteResourcesStudy@deloitte.com.

Endnotes

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Acknowledgments

The authors would like to thank their Deloitte colleagues **Stanley Porter**, **Christine LaCroix**, **Jaya Nagdeo**, and **Utham Ganesh** for their contributions to this article, and **Rithu Thomas** and **Soy Lee** for their editorial and production support.

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