An S&C report in collaboration with Frost & Sullivan

2020 State of Commercial & Industrial Power Reliability Report

INTRODUCTION

S&C Electric Company's "2020 State of Commercial & Industrial Power Reliability Report," researched in collaboration with Frost & Sullivan, focuses on commercial and industrial (C&I) companies in the United States and their perspectives on power reliability. The aim of the survey was to gauge their present reliability experiences, the impacts of poor reliability on their organizations, and their consideration of alternative energy options to improve power reliability in the future.

The 255 companies surveyed achieved average yearly revenues of $4 billion—constituting a considerable portion of the economy. These business sizes and industries represent utilities' most ambitious customers, with growing needs for continuous, reliable, and high-quality power.

The individuals surveyed were high-level managers responsible for power-related decisions, such as facility directors, facility managers, operations directors, energy management managers, property managers, and purchasing managers. In these decision-maker and influencer roles, the research represents an accurate pulse of the market for utility-related concerns and considerations across an important swath of the U.S. economy.

The research was split into four regions of the United States and taken across five major C&I company categories: Manufacturing, Healthcare, Small Franchises, Education, and Retailers.

The objectives of this year's research were to:

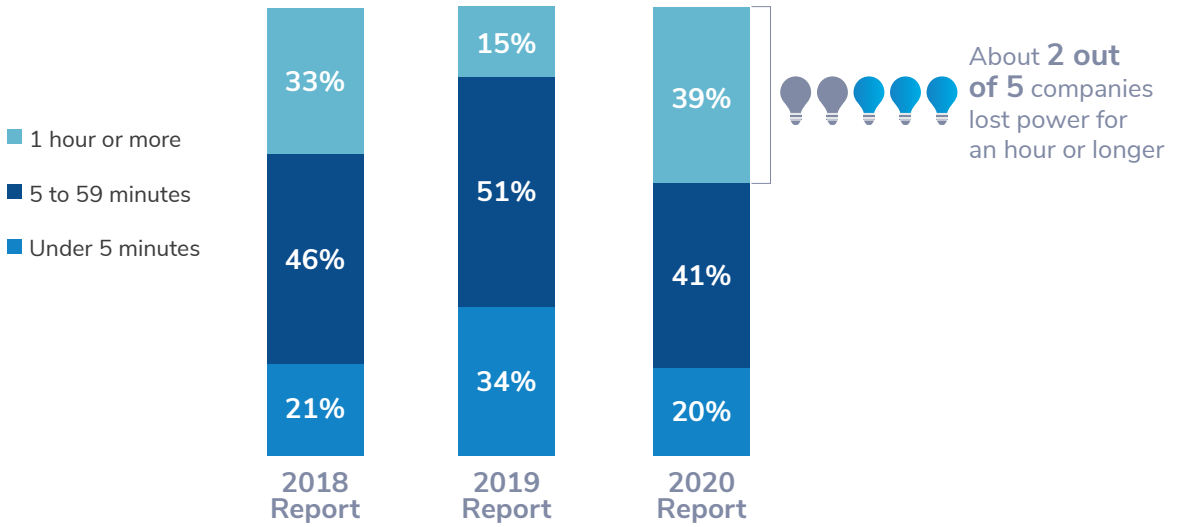
- Measure the duration and frequency of outages C&I companies experience and compare them over time
- Quantify the physical and cost impacts of monthly outages, momentaries, and power blinks to C&I companies
- Determine whether C&I companies are becoming more dependent on energy and explore the relationship between reliability and energy dependency
- Evaluate whether C&I companies have taken, or plan to take, action to supplement energy supply with alternative sources, and explore what is driving it

SECTION 1: OUTAGE AUDIT

The Reality of C&I Power Reliability

This year's report begins by uncovering C&I companies' present experience with outage duration and frequency compared to their beliefs about how quickly power reliability is expected to improve in the immediate future.

Chart 1
Typical Outage Duration



Base: Comparable groups for the 2018, 2019, and 2020 reports (same industry and company size representation)
Question: What was the duration of the typical power outage that you experienced in the past 12 months?

Source: Frost & Sullivan

As was done in previous surveys, the 2020 report first measured the duration and frequency of C&I companies' power outages. The findings are comparable against previous survey findings to track trends over a three-year period. Overall, outage duration has remained relatively stagnant, which implies utility efforts to improve the grid have not been drastic enough to move the needle on reliability and change the perspective of even their most critical customers.

Focusing on companies experiencing long-duration outages, about two out of five companies (39%) indicated a typical power outage lasted one hour or more—a significant jump from the 2019 report (Chart 1). This illustrates a large portion of C&I companies experienced lengthy outages.

Chart 2
Typical Momentary Power Loss

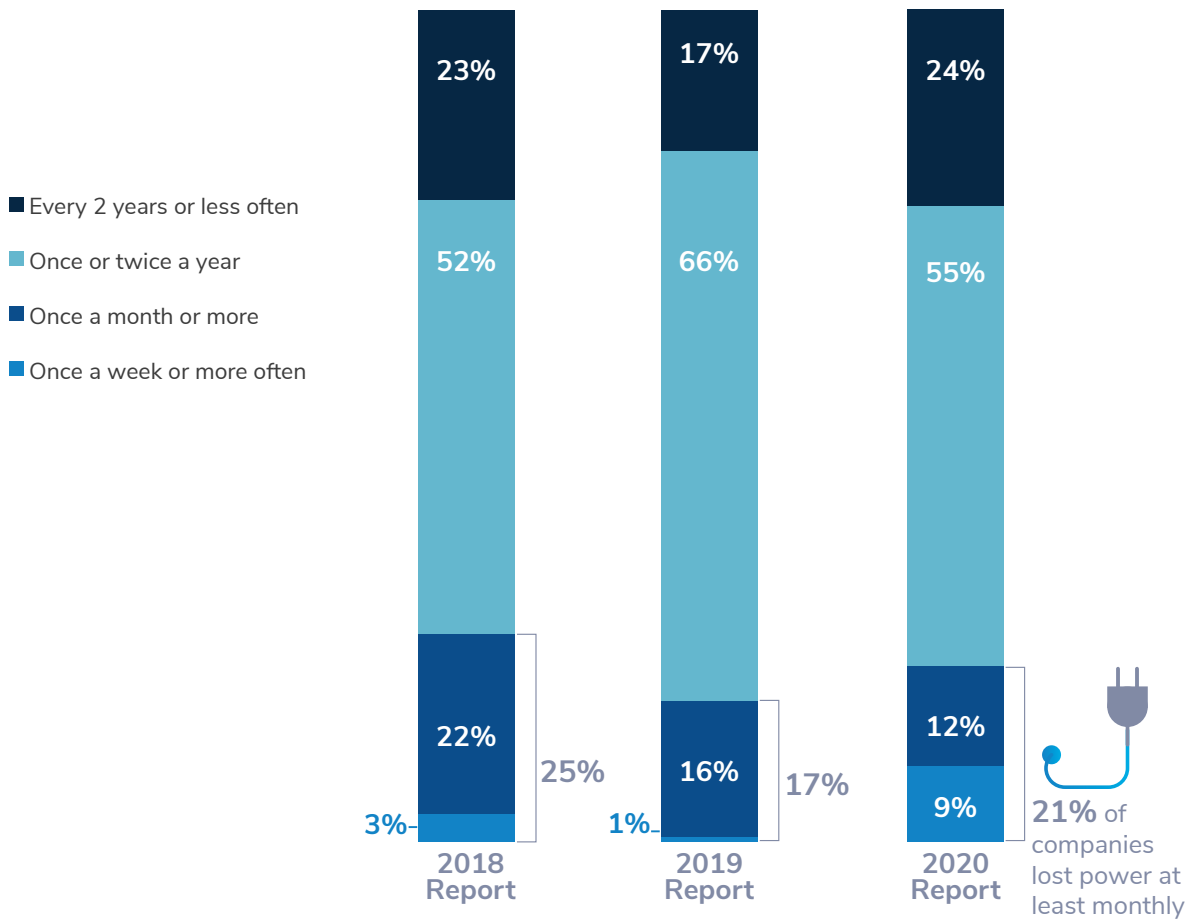
20% of companies lost power for under **5 minutes**.

Base: Comparable groups for 2018, 2019, and 2020 reports (same industry and company size representation)
Question: What was the duration of the typical momentary power outage that you experienced in the past 12 months?

Source: Frost & Sullivan

Duration and frequency of outages vary independently from each other. Looking at customers' outage frequency, 20% of companies stated they typically experienced momentary outages, or outages lasting five minutes or less (Chart 2), representing outages utilities typically don't measure. Similar to longer-duration outages, the proportion of momentaries over a three-year period has remained flat, indicating little utility progress has been made to mitigate their occurrence. With C&I companies continuing to recall short-duration outages as readily as they did in years past, it is apparent utilities have not adequately reacted to resolve the issue.

Chart 3
Power Loss Frequency



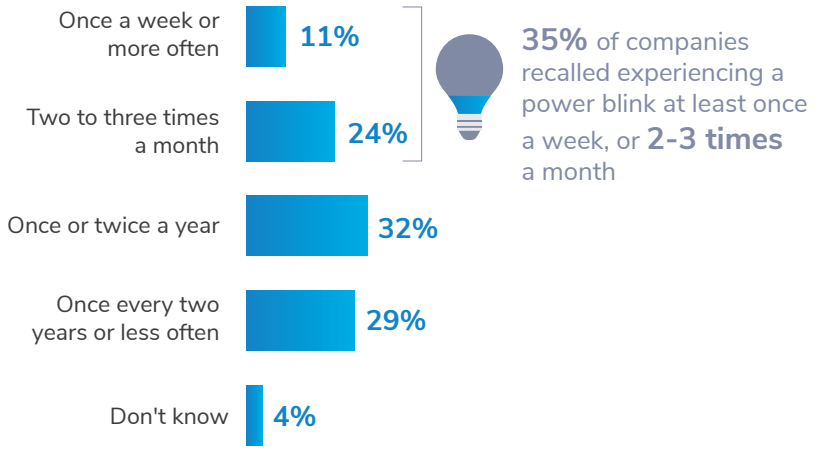
Base: Comparable groups for the 2018, 2019, and 2020 reports (same industry and company size representation)
Question: How frequently does your company lose power?

Source: Frost & Sullivan

In addition to outage duration, the 2020 report measured outage frequency. As with the outage-duration findings, the percentage of outages that occurred every two years or less often (24%) or once or twice a year (55%) were consistent with the 2018 and 2019 report data (Chart 3), further supporting a flat trendline and revealing reliability is not improving.

This year, the worse grew worse. Of the 21% of respondents experiencing outages monthly, nearly half of these companies (9%) had weekly outages, which can be incredibly disruptive to their operations. As highlighted in previous surveys, a disconnect continues between these findings and the utility standard of only reporting outages lasting five minutes or longer. Because the industry is likely not addressing the frequency of these short-duration outages, this begs the question: are customers' experiences being heard and addressed?

Chart 4
Typical Power Blink Frequency

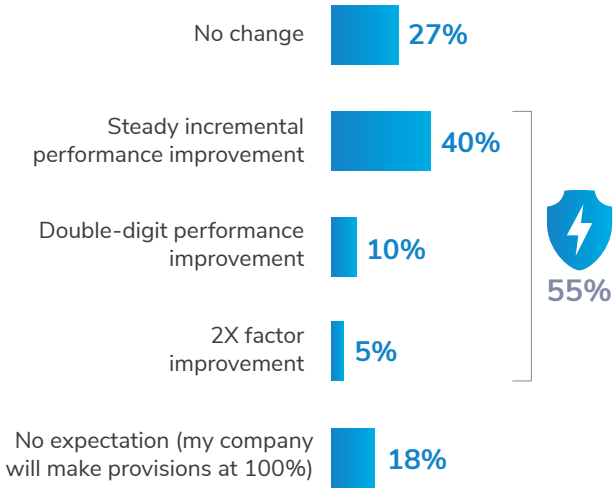


Base: All respondents (n=255)
Question: How frequently does your company experience blinks (loss of power for less than a minute)?

Source: Frost & Sullivan

C&I companies continue to validate the existence of very short outages. More than one-third of C&I companies (35%) recalled experiencing even the shortest outages, power blinks—which may last only a second or two—two or three times a month (Chart 4). For C&I companies that require reliable power for everyday operations, it is no surprise they can recall the slightest disruption in power. These blinks can lead to severe operational disruptions as well.

Chart 5
Expectations for Power Reliability in the Next 2-3 Years



Base: All respondents (n=255)
Question: How do you anticipate the state of power reliability to change in the next two to three years? Select one answer only.

Source: Frost & Sullivan

Although outage duration and frequency have remained stagnant for years, C&I companies' expectations for future reliability improvement have not. The majority of the 2020 survey respondents (55%) expect a steady or rapid improvement in power reliability within the next two or three years (Chart 5). However, compared to relatively stagnant outage duration (Chart 1) and frequency (Chart 4), this represents a growing divide between what C&I customers expect and what they are experiencing. If the reliability trend continues its plateau and customer expectations continue to rise, C&I companies will become increasingly dissatisfied when they realize, even in a matter of a couple of years, power reliability has not met their expectations for improvement—and this gap will only widen over time.

Section Comments

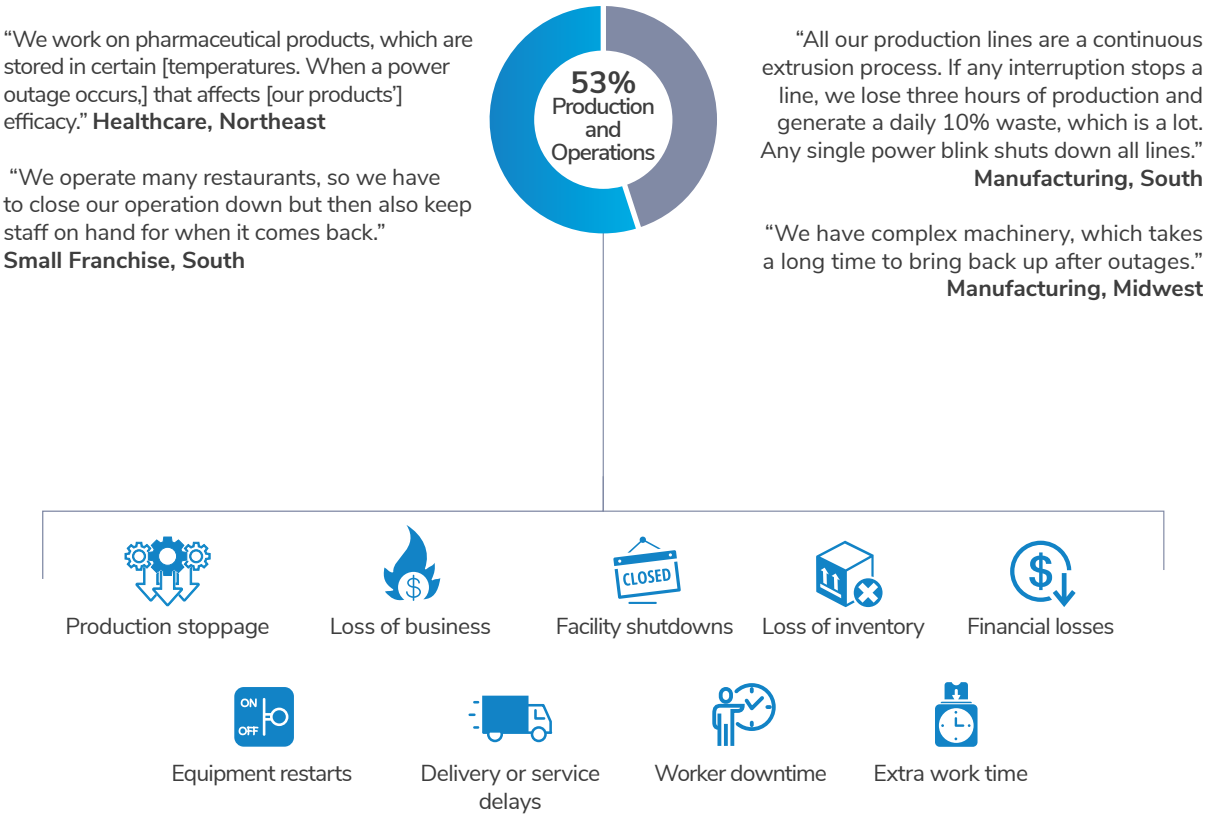
Over the past three years, outage duration and frequency have remained relatively flat—implying the C&I companies surveyed have experienced little reliability improvement. These companies also experienced outages much more frequently than what is typically reported, some recalling weekly or monthly power loss, which can equate to 12 to upward of 52 outages per year. This relatively stagnant reliability improvement is concerning when considering more than half (55%) of C&I companies expect reliability to improve in the future, and it suggests their expectations will not be met, even within a matter of years. This represents a growing divide between what C&I customers need and what they are experiencing.

SECTION 2: OUTAGE IMPACTS

The Cost of Power Loss and a Shift in Energy Dependency

In addition to auditing the duration and frequency of outages C&I companies experienced this year, the 2020 report sought to understand the impacts of outages and how they change with increased demand and dependency on energy.

Chart 6
Severe Impact of a Power Outage (% of companies mentioning the reason)

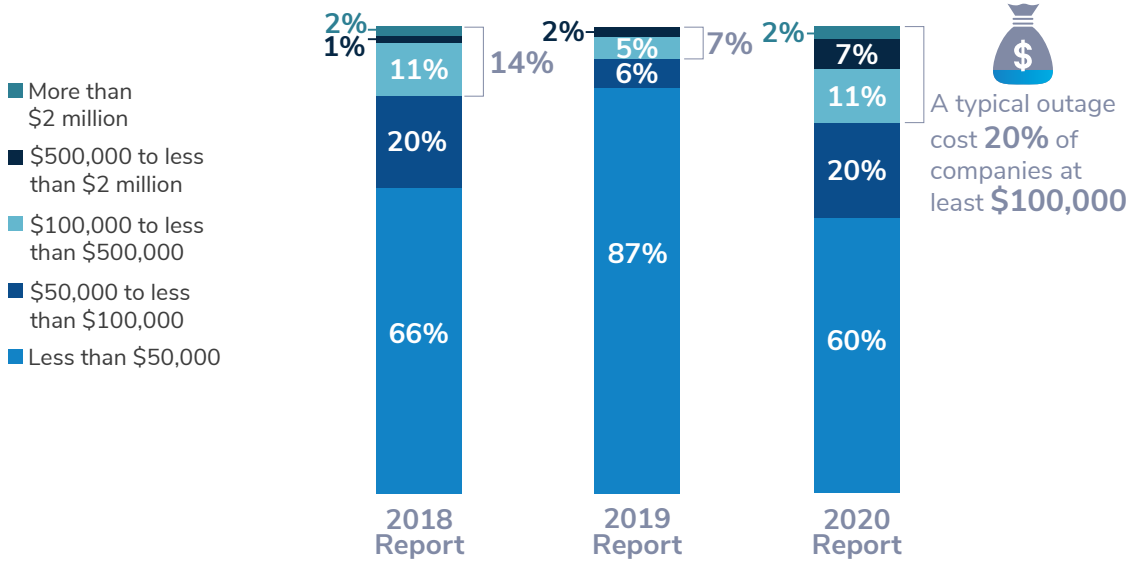


Base: Filtered respondents (n=96)
Question: Please provide details on the severe impacts a power outage has on your organization.

Source: Frost & Sullivan

To establish the extent of outage impacts, the 2020 survey asked companies to describe the most severe impacts resulting from outages. More than half (53%) of those responding noted outages severely affected multiple production and operation areas within their organization (Chart 6). Respondents often mentioned stoppage of continuous processes and machinery, and production downtime, all leading to sales or profit losses. When asked to elaborate, write-in responses, particularly those detailing the severe impacts caused by outages lasting mere seconds, proved outage length does not correlate to the impact—the outage itself is only one part of the story. Companies described restoration of systems or processes, which can take much longer to remedy than the outages themselves.

Chart 7
Estimated Financial Impact of a Typical Outage

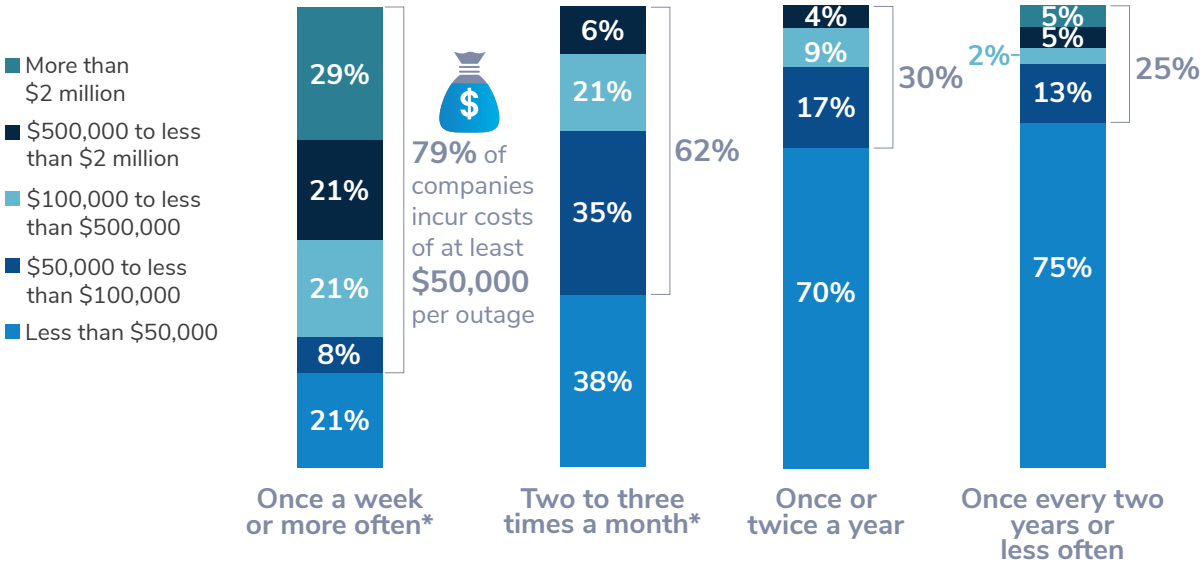


Base: Comparable groups for the 2018, 2019, and 2020 reports (same industry and company size representation)
Question: On average, how much did each typical power outage cost your company?

Source: Frost & Sullivan

To quantify the financial consequences of severe outages, the 2020 survey asked what a typical power outage costs C&I companies. As in previous reports, these results were analyzed and compared to previous years. The trend of companies estimating a loss of $100,000 or less remained relatively flat over three years (Chart 7). However, the respondents reporting an estimated loss of $100,000 or more per outage was higher for this latest year than in previous reports, at 20%. This finding reveals increased recognition around the costs C&I companies incurred from outages compared to past years.

Chart 8
Estimated Financial Impact of a Typical Outage by Frequency



Base: Once a week or more often = 24, 2 or 3 times a month = 34, Once or twice a year = 93, and Once every 2 years or less often = 44
Question: On average, how much did each typical power outage cost your company?
Question: How frequently do you lose power?

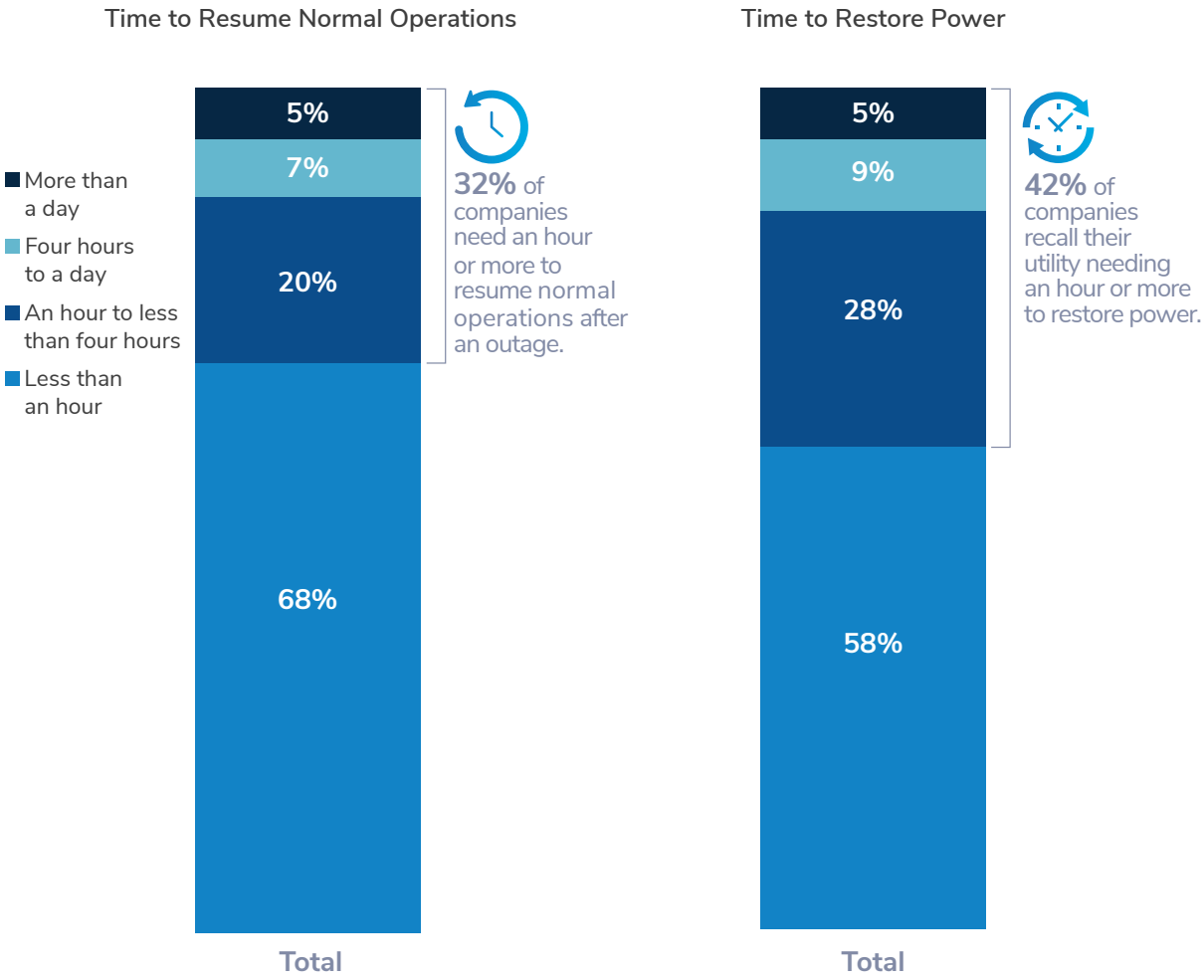
Source: Frost & Sullivan

As typical outages become more noticeable, along with the cost implications to C&I companies, outage frequency increases the amount of money companies lose. Of the companies that experienced weekly outages, 79% reported they lost at least $50,000 per outage (Chart 8). Furthermore, 29% of those that experienced an outage once a week or more estimated a loss of upward of $2 million per event—prompting plans, or definitive action, to invest in alternative power resources, as detailed in Chart 23 on page 26. Even 62% of companies that experienced outages two to three times a month recalled losses of at least $50,000 per event.

Additionally, 45% of companies lost $100,000 either weekly or two to three times per month. Extrapolating these costs over a given year, this could mean an annual financial loss of $5.2 million to $104 million.* Extravagant financial losses such as these are significant for all companies cognizant of the bottom line. From the C&I perspective, while many factors could contribute to financial losses, power outages should not be one of them.

* To reach 45%, the number of respondents who lost $100,000 or more per outage occurring once a week or more and two to three times a month was added (n=26). This sum was then divided by the total number of respondents for the "Once a week or more often" and "Two to three times a month" categories (n=58).

Chart 9
Resuming Normal Operations and Restoring Power



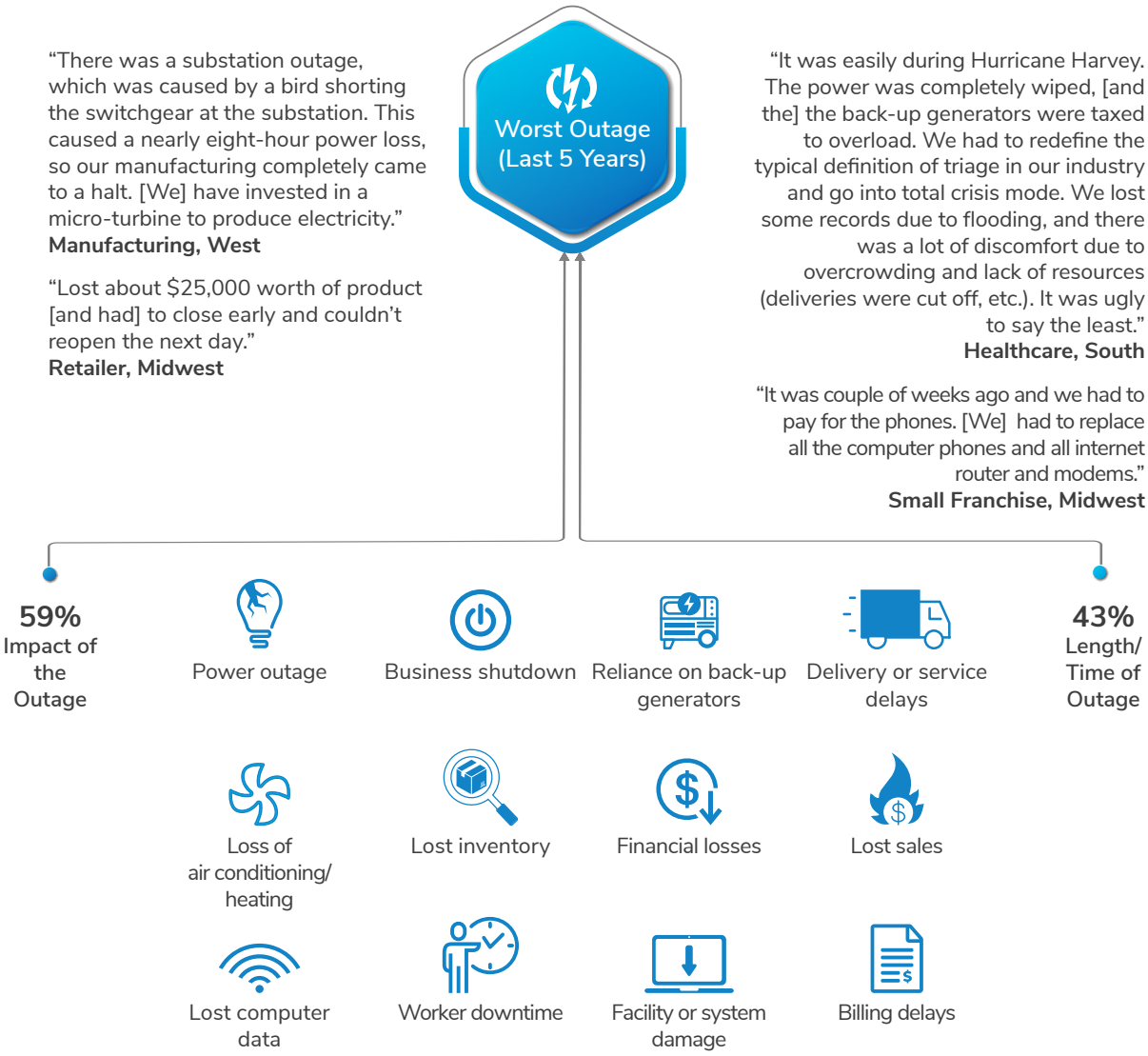
Base: All respondents (n=255)
Question: How long does it take your company to resume normal operations after a typical power outage?
Question: How long does it take your utility to restore power after an outage?

Source: Frost & Sullivan

As discussed previously in this report, the extent frequent and expensive outages affect an organization financially can be further compounded by the time it takes for C&I companies to resume normal operations. The typical outage length for each organization varies, so the time it takes for each company to recover operations from an outage also differs. However, more than one-third of C&I companies (32%) reported it takes an hour or more for their organizations to resume normal operations after a typical outage (Chart 9).

How quickly utilities restore power to C&I companies after an outage makes all the difference in the total time for organizations to get back to business. More than two out of five surveyed (42%) recalled their utility needing an hour or more to restore power after a typical outage (Chart 9), and one-third (32%) of C&I companies needed an hour or more to resume normal operations (Chart 9). As discussed, a short-duration outage, such as a momentary or blink, undergoes the same recovery time compared to other typical outages internal to the organization and may have a cumulative effect on costs incurred.

Chart 10
Worst Outage in Last Five Years (% of companies mentioning)*



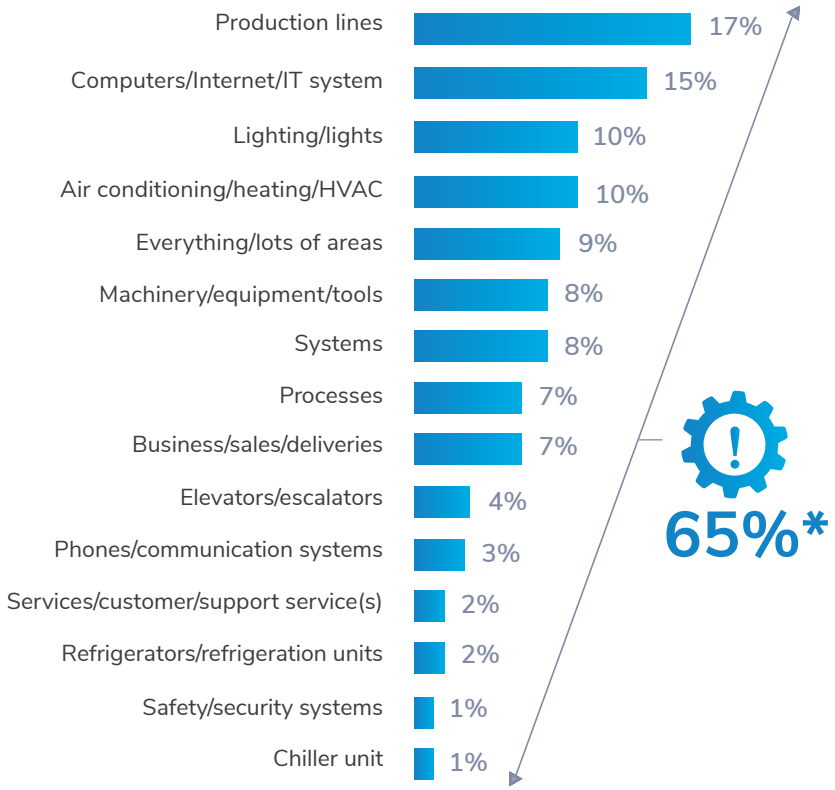
Base: All respondents (n=255)
Question: Please describe the worst outage you've had in the last five years, and the repercussions of the outage.

*Some respondents mentioned types of impacts in their answers. Therefore, the percentages do not sum to 100%.

Source: Frost & Sullivan

Getting normal operations back up and running can be challenging and damaging even after a "typical" outage, and these impacts are compounded after prolonged and severe outages. To learn more about worst-case power outages, the 2020 survey asked C&I companies to describe their repercussions. In analyzing the answers, the 2020 report sought to differentiate whether the length of the outage or the impact within their company caused more cost and pain. Grouping answers into two groups, 59% of answers focused on the implications of a severe power outage to their company (e.g., processes, inventory, systems), and 43% emphasized the length of power outage (Chart 10). Comments by respondents serve as further examples of the consequences of poor reliability—including production shutdowns, product or system damage, and major financial losses—and that those surveyed may install additional energy sources.

Chart 11
Systems Impacted by Power Blinks



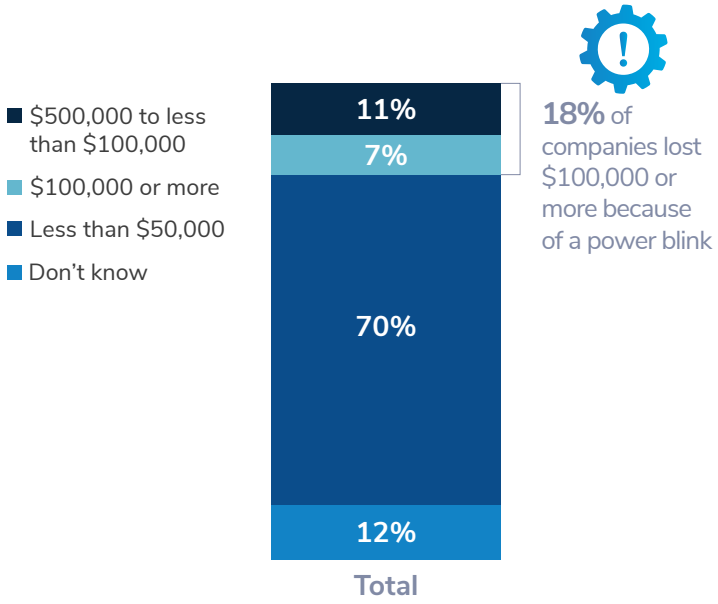
Base: All respondents (n=255) **Note:** Multiple mentions
Question: If you lost power for a minute or less, what in your organization would shut down?
(Examples: Processes, systems, or production lines**)**

*The respondents that did not know what was impacted by power blinks (n=5) was subtracted by the total sample size (n=255) to reach 250. Then, the respondents who noted no impact (n=89) was subtracted from 25 to reach 161. 161 divided by 250 is approximately 65%.

Source: Frost & Sullivan

While it seems apparent C&I companies can readily recall the impact of their worst outages, the 2020 report shows they recalled the effects of a mere blink in power just as readily. Of those surveyed, 65% replied power blinks affected multiple systems or processes within their organizations—such as production lines, machinery and equipment, sales and deliveries, and even safety and security systems (Chart 11). Although utilities may deem these outages as insignificant, the C&I companies that recalled and described their effects could readily note specific information about each event.

Chart 12
Power Blink Costs

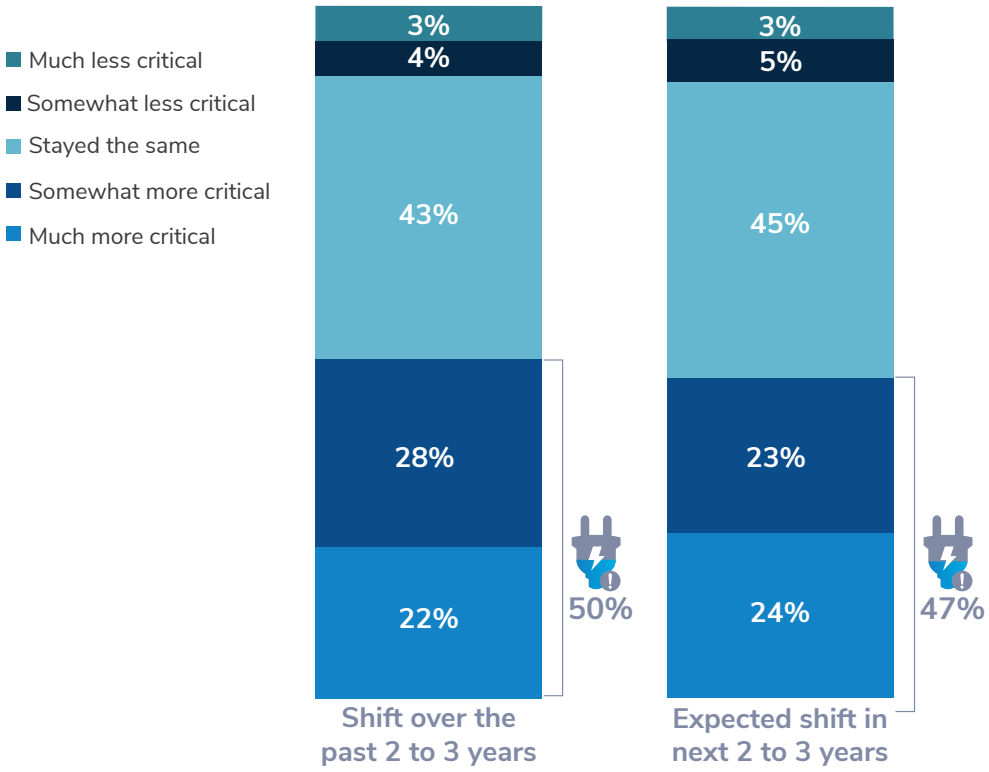


Base: Filtered respondents cost of blink (n=243)
Question: Approximately how much does a power blink, or the loss of power for less than a minute, cost your organization?

Source: Frost & Sullivan

Channeling the concept power blinks cause tangible impacts to C&I companies, those surveyed were also asked to provide an estimate of how much a power blink cost their organization. Nearly a fifth of companies (18%) noted each power blink cost their organization $100,000 or more (Chart 12). This is a significant finding in that it proves power outages of any duration have meant a financial loss worth remembering.

Chart 13
Shift in Criticality of Energy

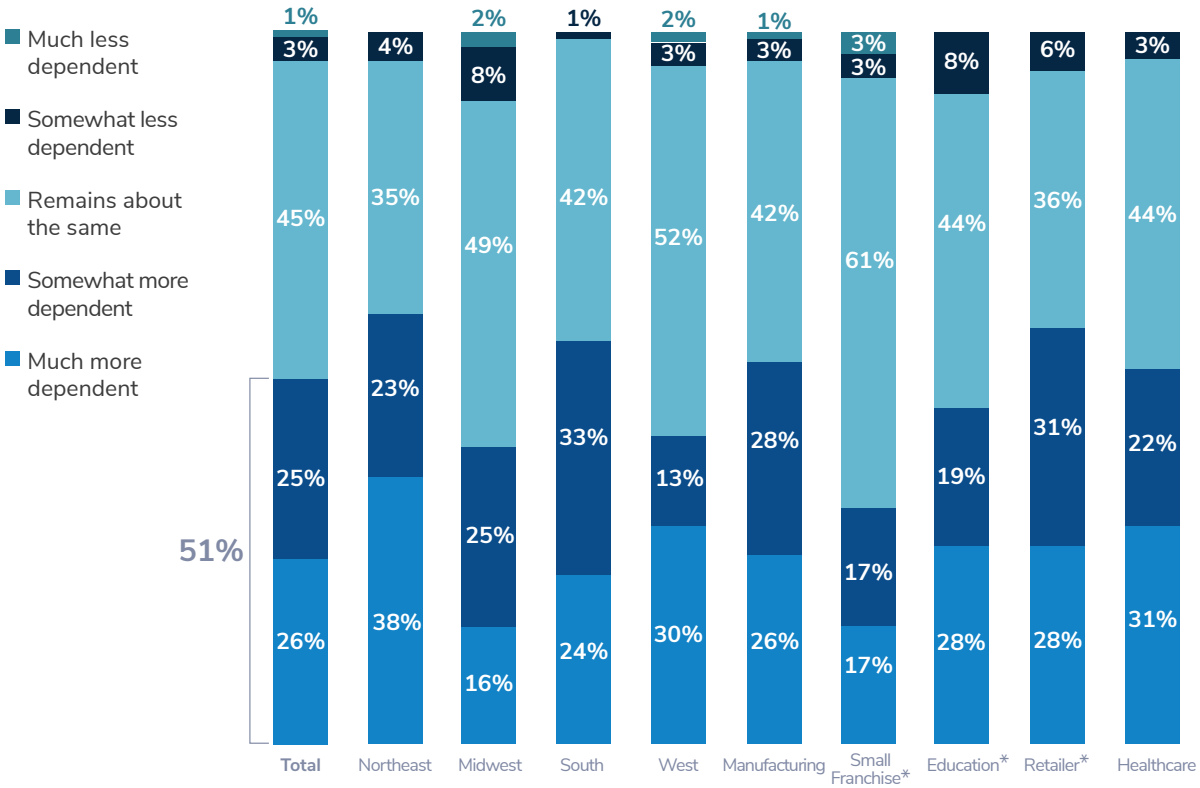


Base: All respondents (n=255)
Question: How critical has energy become to your organization over the past two to three years?
Question: How critical will energy become to your organization over the next two to three years?

Source: Frost & Sullivan

The frequency of power blinks, and their resulting costs, may be increasingly noteworthy to C&I companies that see energy as increasingly critical to their success. Of the companies interviewed, 50% stated energy has been somewhat or much more critical to their organization in the past two to three years, and another 47% believed energy will become somewhat or much more critical to their organization in the next two or three years (Chart 13). The revelation that up to half of those surveyed felt energy was critical to their past success, and that it will be just as critical to their future success, may be an indicator more companies are installing systems that require reliable power, such as automated control and manufacturing systems or cold storage equipment in healthcare. C&I companies with a growing installed base of critical systems cannot tolerate outages of any length because even the slightest moment without power can cause sensitive processes and machinery to reset or even stop entirely.

Chart 14
Energy Reliability Dependence



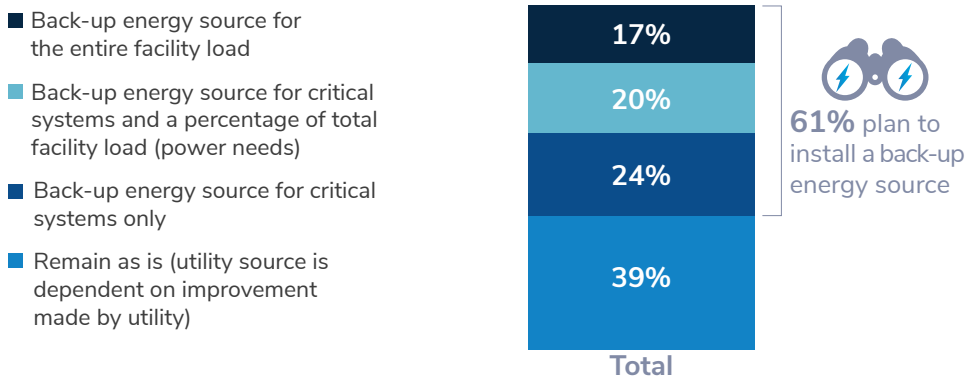
Base: All respondents (n=255) **Industry:** Manufacturing (n=111), Healthcare (n=36), Small Franchise (n=36), Education (n=36), and Retailer (n=36) **Region:** Northeast (n=48), Midwest (n=63), South (n=84), and West (n=60). **Question:** How dependent on energy supply reliability is your organization becoming?

* Certain percentages were rounded and thus may not equal 100%

Source: Frost & Sullivan

C&I companies that confirmed energy is becoming more critical to their organization may also see a growing dependency on energy reliability. More than half (51%) of those interviewed across various regions and company types believe their organization is becoming more dependent on reliable energy (Chart 14). For example, companies with critical or continuous processes in place may be much more dependent on reliable energy because their systems require a constant supply of power to properly operate. Outages of any length can lead to significant production and operational problems for companies that rely on digital systems, which may then lead to an increase in installing on-site generation sources.

Chart 15
Forward-Looking Plans for Energy



Base: All respondents (n=255)
Question: What do your forward-looking plans for energy include? Select one answer only.

Source: Frost & Sullivan

The majority of the surveyed C&I companies increasingly dependent on reliable energy plan to install back-up energy sources to guarantee reliability. The 2020 report asked whether companies' future energy plans included installing a back-up energy source and determining how much of their system or load would be covered. A significant portion of those surveyed (61%) noted they plan to install a back-up energy source to ensure their organization has reliable energy (Chart 15). With half of C&I companies reporting a past shift in energy dependency, and about the same percentage projecting a similar shift in energy reliability in the future, it comes as no surprise plans to install back-up energy sources have become a more common practice for these organizations to lessen the effects of outages—even those of a shorter duration utilities do not often rush to mitigate.

Section Comments

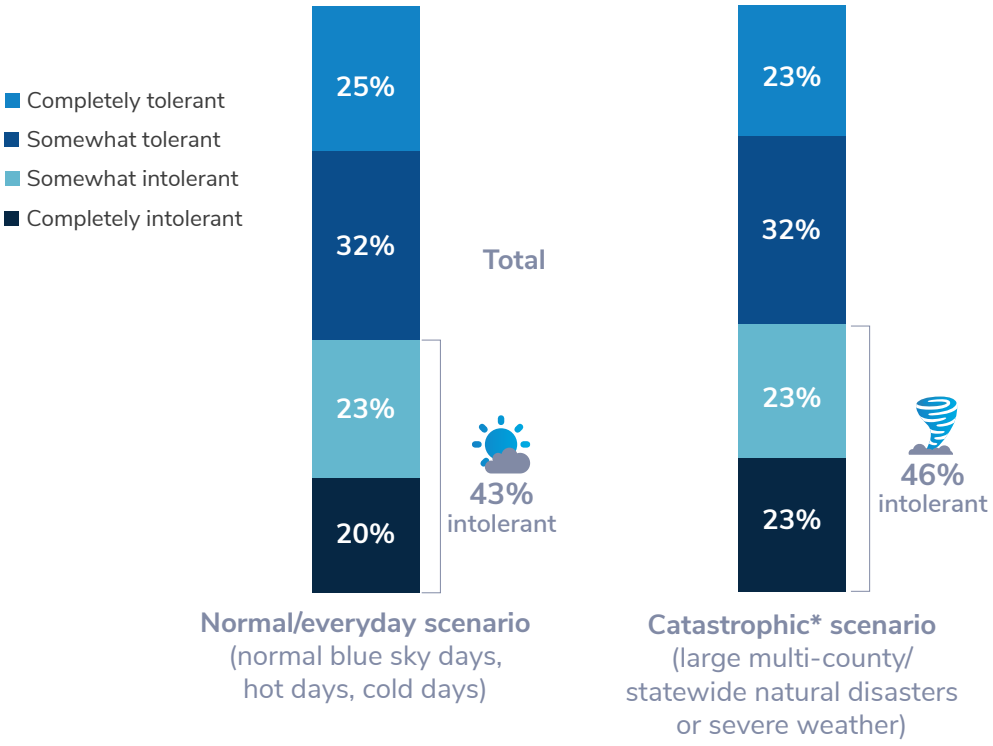
If power reliability has remained stagnant, it is critical to understand the impact of outages because if power reliability is not improving, neither will negative impacts outages have on C&I customers. Insights about financial impacts are stunning. Of those companies experiencing outages once a month or more, nearly one-third (29%), have lost $2 million per event, equating to a total annual loss of up to $104 million. While these financial losses are significant, the 2020 report sought to understand the root of the pain from these outages, finding that, based off their worst outage, 43% of C&I companies felt impacted most by the length of the outage, whereas 59% believed the internal effects on their business's systems and operations were the most detrimental. This is further supported by the trend that C&I companies are seeing an increase in energy criticality to their operations and, therefore, a rising dependence on reliable energy. The effects of outages are consequential, and power reliability has remained stagnant. Ultimately, this means the impact of outages will not organically decrease, and the logical option left to mitigate the effects of outages is for companies to install back-up energy sources.

SECTION 3: OUTAGE REACTIONS

Investing in Reliability and Seeking Compensation for Outages

Frequent outages, their costly implications, and the critical need to secure more reliable energy loom large over C&I companies' potential for success, and utilities rising to the challenge of mitigating these concerns is not always a given. As a result, many C&I organizations have—or will be—investing in reliability solutions and seeking compensation for outage losses.

Chart 16
Outage Tolerance in Different Scenarios



Base: All respondents (n=255)
Question: Please indicate your tolerance for outages during each of the following events. The percentages are based on the means of the responses for the scenarios under each major category.

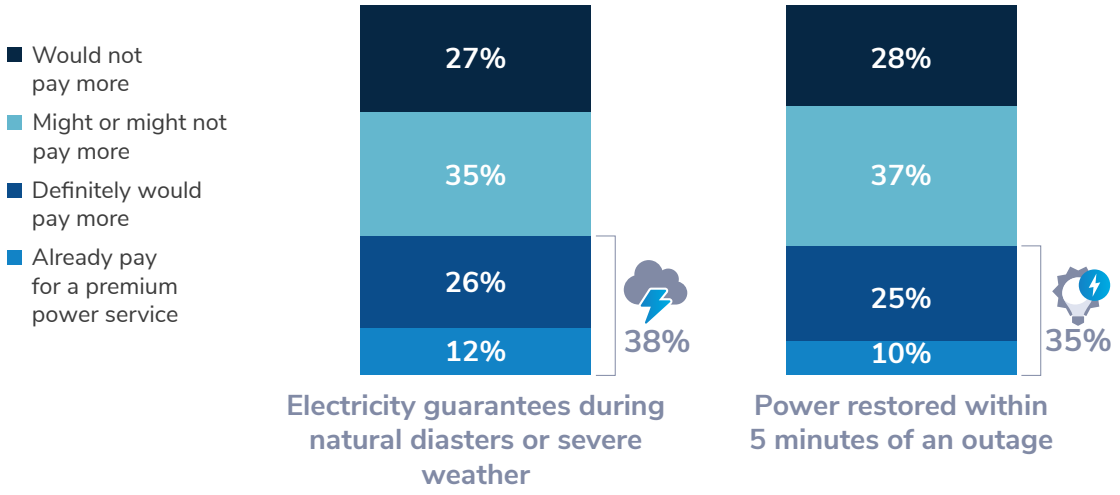
*Certain percentages were rounded and thus may not equal 100%.

Source: Frost & Sullivan

Power loss, whether it occurs during on a normal, blue-sky day or during a natural disaster, is a frustrating experience for C&I companies that may have difficulty recovering from outages. Tapping into the frustration outages cause C&I companies, the 2020 survey asked how tolerant respondents were of outages and whether environmental circumstances factored into those sentiments.

Interestingly, whether an outage occurred on a normal day or during a catastrophe, C&I company tolerance in either scenario was nearly split down the middle, with 46% expressing intolerance for outages during severe weather and 43% noting outage intolerance in normal weather (Chart 16). The nearly even level of outage intolerance during good and bad weather days suggests C&I companies do not take extraordinary or environmental circumstances into account, and they do not consider severe weather to be an exemption. This also demonstrates the end-customer perspective is starkly contrasted to that of utilities, which typically eliminate severe-weather days from reliability metrics per industry practices.

Chart 17
Paying More for Resiliency and Restoration

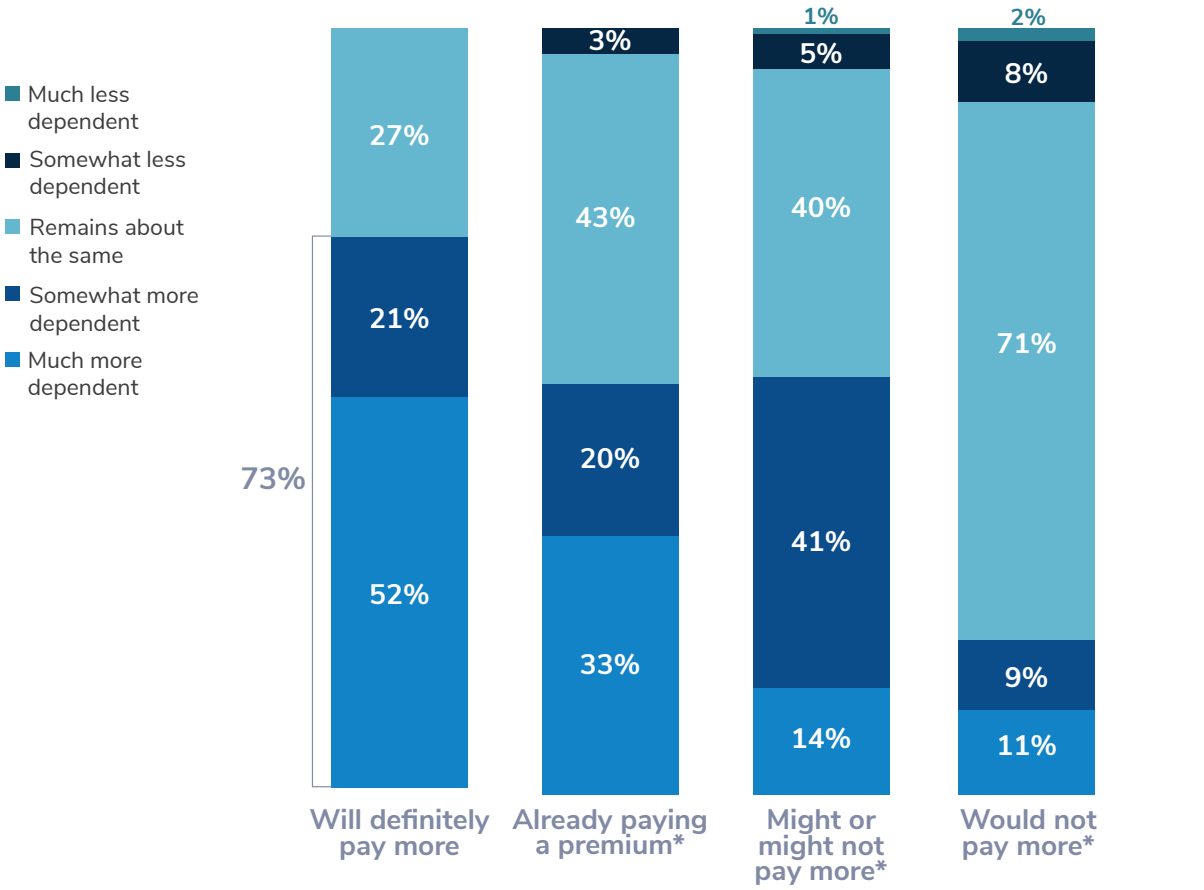


Base: All respondents (n=255)
Question: Consider events such as natural disasters or severe weather and their impact on power reliability. Would your organization pay more for electricity with guarantees of no outages even under these types of events?
Question: Would you be willing to pay more for electricity if, after an outage, power is restored within five minutes?

Source: Frost & Sullivan

An intolerance of outages can generate a desire to buy a premium electric service level and restore power quickly if power is lost. With this in mind, the 2020 report asked whether C&I companies would be willing to pay their utility more to guarantee power during a natural disaster or severe weather or to restore power within five minutes after an respondents outage. More than one-third of those surveyed (38%) were willing to pay more to guarantee electricity during a natural disaster or severe weather, and a similar percentage (35%) would pay more for power to be restored within five minutes (Chart 17). C&I companies are willing to pay more than what they are already paying for serious improvements in power reliability and restoration, resulting in a potential additional revenue stream for utilities.

Chart 18
Energy Dependence and Willingness to Pay a Premium to Guarantee Reliability in Severe Weather



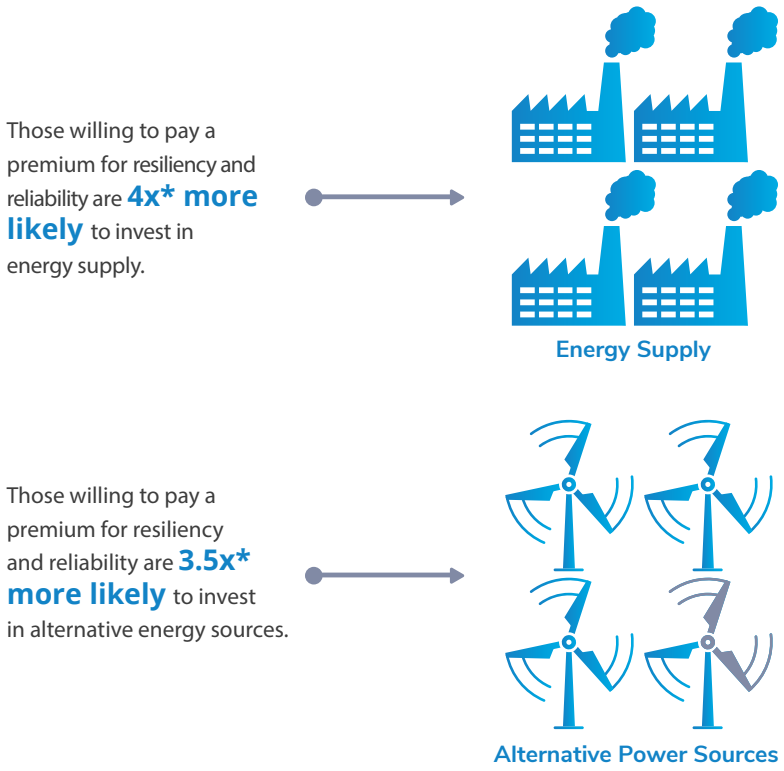
Base: All respondents (n=255) Will definitely pay more=71, Already pay premium = 30, Might or might not = 88, and Would not pay more = 66
Question: Consider events such as natural disasters or severe weather. Would you organization pay more for electricity with guarantees?
Question: How dependent on energy supply reliability is your organization becoming?

* Certain percentages were rounded and thus may not equal 100%.

Source: Frost & Sullivan

Applying the data on willingness to pay a premium in Chart 17 one step further, the 2020 report cross-analyzed the data with Chart 14, which uncovered C&I companies' increasing dependency on power. This cross-analysis in Chart 18 reveals a direct association between power dependency and willingness to pay for guaranteed power reliability. In fact, of those who would definitely pay more for guaranteed power in severe weather, 73% noted an increasing dependency on power. No companies in this column stated their dependency was decreasing even slightly. The remaining one-fourth (27%) that stated power dependency stayed the same were also correlated. Of those already paying premiums to their utility, 53% have a growing dependency on power. As dependence on energy grows, so, too, does the willingness for protections on the energy source.

Chart 19
Willingness to Pay Premiums and Likelihood to Invest in Energy Alternatives



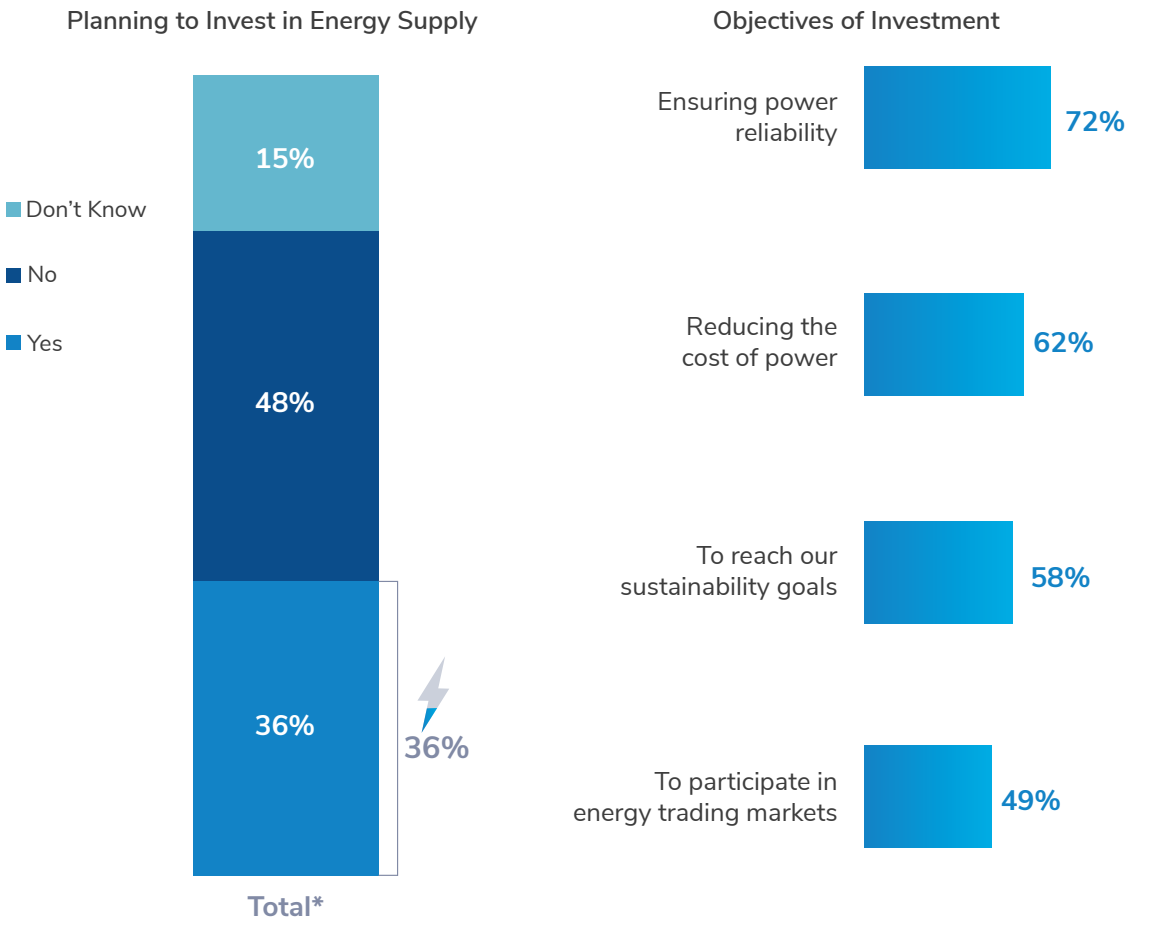
Base: All respondents (n=255)
Question: Consider events such as natural disasters or severe weather and their impact on power reliability. Would your organization pay more for electricity with guarantees of no outages even under these types of events?
Question: Would you be willing to pay more for electricity if, after an outage, power is restored within five minutes?
Question: What is your organization's investment in auxiliary or alternative power sources?

*The above odds ratios were derived using logistic regression and are statistically significant predictors of intent to invest.

Source: Frost & Sullivan

In similar fashion, a cross-analysis compared willingness to pay premiums for guaranteed reliability against investments in alternative power sources. The comparison showed a direct correlation between them. Those willing to pay a premium are four times more likely to also invest in their energy supply and are 3.5 times more likely to invest in alternative power sources (Chart 19). The clear connection between an increased likelihood to invest in energy supply or alternative power sources and a willingness to pay a premium for guaranteed reliability speaks to C&I companies' willingness to spend money to improve power reliability. This could include installing their own non-traditional generation sources if needed or pay their utility to find solutions. C&I companies that want to guarantee reliability are much more likely to act on their own if they feel no other options are available to improve reliability.

Chart 20
Energy-Supply Investment Planning and Rationale



Base: All respondents (n=255) The Objectives of Investment chart: Filtered respondents investing in energy supply (n=93). Multiple mentions
Question: Is your company planning to invest in your energy supply in the next two to three years?
Question: What are the objectives of the investment spending in your energy supply? Select all that apply.

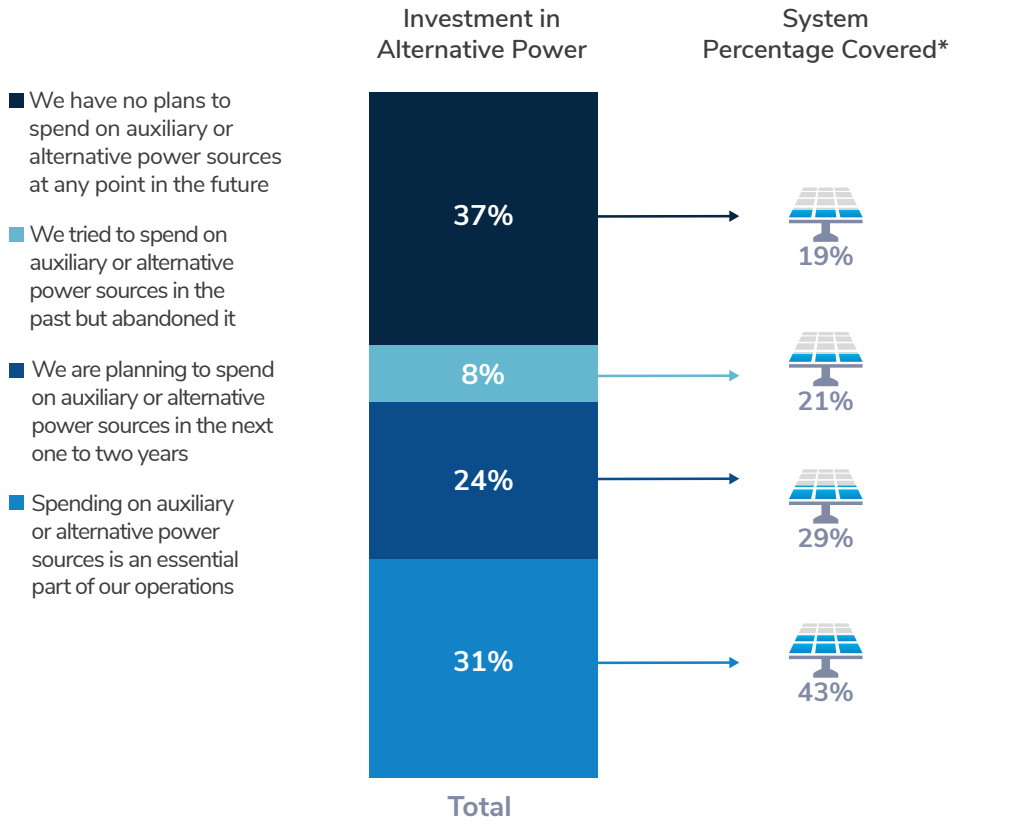
* Certain percentages were rounded and thus may not equal 100%.

Source: Frost & Sullivan

C&I companies' likelihood to plan for energy-supply investments may increase if they believe the investment will ensure their facility has reliable power and help them meet several objectives that will benefit their organization. More than one-third (36%) of companies are planning to invest in an alternate energy supply in the next two or three years (Chart 20). This represents a considerable portion of companies seeking a more robust energy supply to operate efficiently from day to day, which will ultimately help them meet their business objectives.

Of the 36% of companies planning to invest in an alternate energy supply, 72% are doing so to ensure power reliability for their facilities (Chart 20). This objective may indicate, because C&I companies experienced outages frequently, they want to secure more reliable power to lessen the problems outages cause in the future. However, there were other motivations for investing, such as wanting to reduce power costs (62%) and reaching sustainability goals (58%), suggesting investments often have multiple value streams.

Chart 21
Alternative Power Investment and System Percentage Covered by Alternative Power



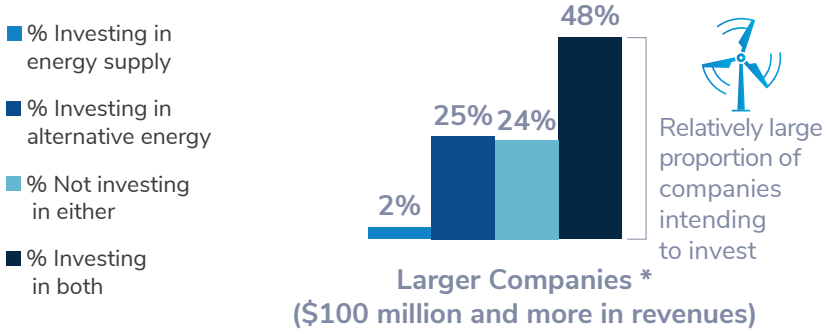
Base: All respondents (n=255) **System Percentage Covered chart:** Filtered respondents (n=141). Multiple mentions
Question: What is your organization's investment in auxiliary or alternative power sources?
Question: Approximately what percentage of your power is covered by the alternative energy resources?

* Each percentage shows part of the total C&I facility load coverage.

Source: Frost & Sullivan

Many C&I companies are investing in their energy supply, which traditionally meant investment in utility-provided improvements. However, many feel the need to take matters into their own hands and invest in their own alternative energy solutions. The 2020 report revealed more than half of those surveyed (55%) have invested, or are planning to invest, in alternative energy resources at some point, and have 43% and 29% of their facilities currently covered by these resources, respectively (Chart 21). Of the C&I companies investing, or planning to invest, in alternative energy sources, nearly one-third (31%) indicated they are spending on alternative power sources as an essential part of their operations. These sources covering 43% of the power need may indicate the utility's role in energy delivery will be required, at least as far as these investment horizons indicate.

Chart 22
Large Companies Investing in Energy Supply and Alternative Energy



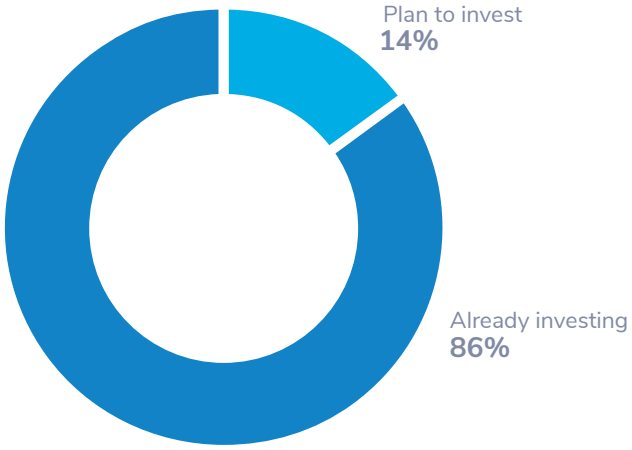
Base: Filtered respondents (n=132)
Question: Is your company planning to invest in your energy supply in the next two to three years?
Question: What is your organization's investment in auxiliary or alternative power sources?

* Certain percentages were rounded and thus may not equal 100%.

Source: Frost & Sullivan

The intention to invest in either energy supply, alternative energy sources such as renewables, or a combination of the two is highest among larger companies generating $100 million or more in annual revenue. Half (48%) of large C&I companies verified they would invest in a combination of these options, and a quarter (25%) would invest in alternative energy resources (Chart 22). In total, that means three out of four of these companies are taking initiatives to install their own solutions. Knowing power loss poses such a high risk for these companies, they are willing to find and pay for solutions to eliminate that danger. This shows a significant portion of C&I companies would be willing to consider investing in new solutions that have greater promise of fixing power issues for the long term versus incurring the cost of outages year over year.

Chart 23
Alternative Power Investment by Companies Losing $2 million or More for Weekly Outages*



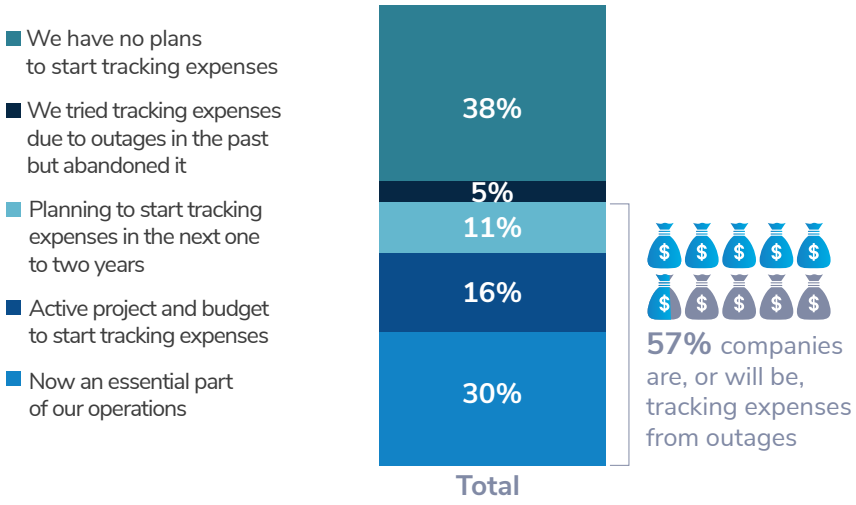
Base: Once a week or more often = 24, within which seven report a power outage costs their organization more than $2 million
Question: Approximately how much does a power outage cost your organization?
Question: How frequently do you lose power?
Question: What is your organization's investment in auxiliary or alternative power sources?

*This data was extrapolated from Chart 8.

Source: Frost & Sullivan

The extent larger C&I companies intend to invest in alternative power sources may be related to the devastating losses they can incur from frequent outages. Recalling the 29% of C&I companies that lost $2 million or more for outages occurring once a week or more in Chart 8 on page 11, the 2020 survey delved deeper into how many plan to invest, or are already investing, in alternative power sources. Not surprisingly, an overwhelming majority (86%) of these companies are already investing in alternative resources, and the remaining 14% are planning to do so (Chart 23). All are taking reliability seriously and managing matters for themselves. Frequent outages, and the production and operational impacts they cause, contribute to a highly disruptive and risky state larger companies are unwilling to tolerate when they have the means to improve reliability through alternative energy investment. This intolerance, coupled with high annual revenues, leads to a much greater investment, or consideration of investment, in alternative energy sources and additional energy supply.

Chart 24
Tracking Outage Expenses

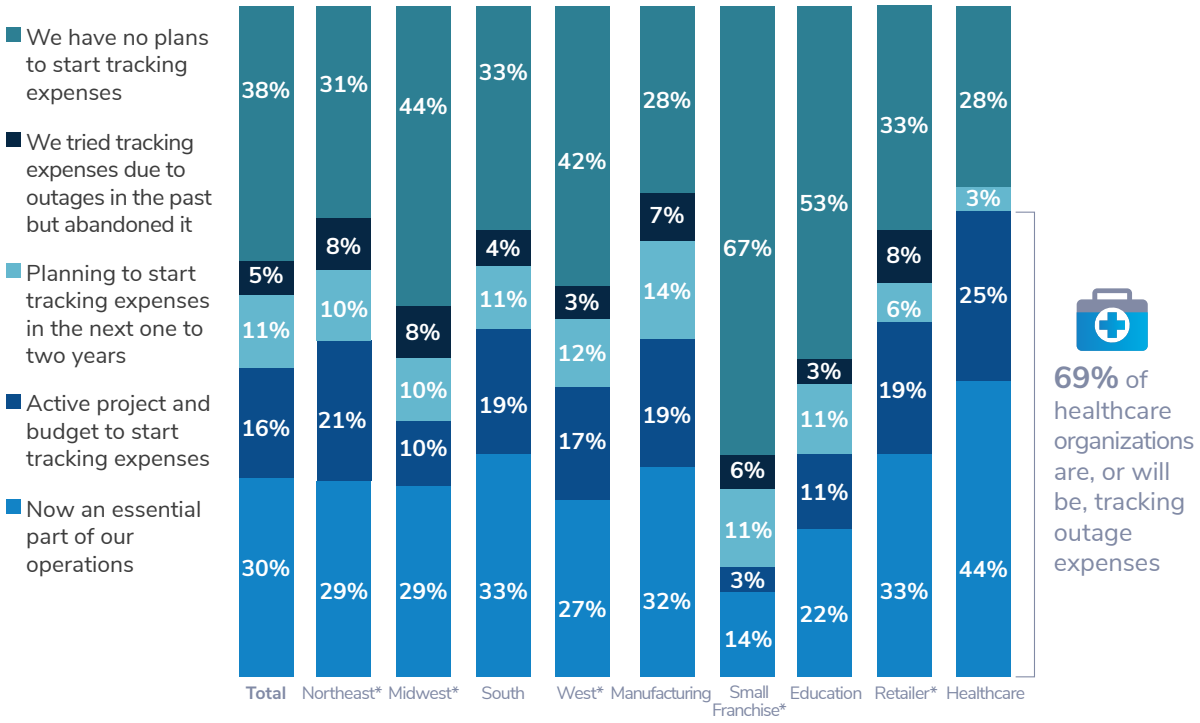


Base: All respondents (n=255)
Question: Does your organization track expenses incurred from outages?
Question: Have you ever sought compensation from your utility for the expenses incurred from a power outage?

Source: Frost & Sullivan

Because of the monetary losses C&I companies incur from frequent outages, outage-expense tracking has become a more common practice. More than half (57%) of the C&I companies surveyed are, or will be, tracking outage expenses (Chart 24). These companies measuring outage expenses may represent a reaction to poor reliability and resiliency.

Chart 25
Outage Expense Tracking by Region and Industry



Base: All respondents (n=255) **Industry:** Manufacturing (n=111), Healthcare (n=36), Small Franchise (n=36), Education (n=36), and Retailer (n=36) **Region:** Northeast (n=48), Midwest (n=63), South (n=84), and West (n=60)
Question: Does your organization track expenses incurred from outages?

* Certain percentages were rounded and thus may not equal 100%.

Source: Frost & Sullivan

Moreover, the 2020 survey revealed tracking outage expenses is not uncommon for, nor limited to, specific industry types in any given region. Outage-expense tracking is crucial for organizations requiring reliable power to guarantee their production lines do not stop and provide adequate service to their end customers. A hearty 69% of healthcare companies admitted they are starting a project, or are budgeting for, outage-expense tracking, or it is now an essential part of their operations (Chart 25). Similarly, one-third of manufacturing (32%) and retail (33%) companies understand well that if their power goes out frequently, the damaged products, stopped processes, or negative end-customer reputations incurred as a result are difficult to overcome. The challenges these organizations face trying to recover from costly outages justify the criticality of tracking outage expenses.

Chart 26
Seeking Compensation for Outage Expenses

1 out of 5 of companies have experience seeking compensation from their utility for outage expenses

Base: All respondents (n=255)
Question: Have you ever sought compensation from your utility for the expenses incurred from a power outage?

Source: Frost & Sullivan

Some C&I companies are taking outage-expense tracking one step further and are seeking recompense from their utilities. One-fifth (21%) of C&I companies sought compensation from their utilities for outage-impact expenses because they are considered a significant enough loss (Chart 26). This reaction may be likely for C&I companies losing a great deal of money from frequent outages, such as the 29% that have $2 million loses for outages occurring once a week or more in Chart 8 on page 11, incurring losses of up to $5.4 million to $104 million a year—because that extent of loss is difficult for any company to manage or tolerate.

Section Comments

Outages cause C&I companies to react financially through their investments, showing, in the end, reliability pays back. More than one-third of companies (35%) are willing to pay more to guarantee electricity during a natural disaster or severe weather, and a similar percentage (38%) would pay more for power to be restored within five minutes. C&I companies are also considering the best methods to resolve reliability issues, and 64% are hedging their bets by investing in both their existing energy supply as well as their own alternative energy resources on site, casting a wide net to avoid outages. With 57% of companies tracking or planning to track expenses incurred from outages and 21% seeking compensation for their losses, these actions show how impactful outages have been on C&I companies. These results identify a potential revenue stream, from guaranteeing power and the potential expense to utilities having to reimburse C&I companies for outages. Utilities face a new reality; reliable power is an opportunity to make more or to pay out more.

The 2020 study shows the frequency and duration of outages have remained flat over a three-year period. Outages have extensive organizational and cost implications for C&I companies becoming increasingly dependent on reliable power. Companies more willing to pay premiums to secure reliable power may also be more likely to invest in energy supply or install alternative power solutions and keep track of their losses in order to seek compensation from their utilities. The 2020 report's main conclusions and findings are outlined below.

Section 1 Conclusion: Reliability is stagnant yet C&I companies are expecting it to improve exponentially—signifying a growing divide and a sign of future dissatisfaction with utilities.

- Outage duration and frequency have remained relatively flat for three years.
- Nearly a quarter of companies (21%) experienced outages monthly.
- 35% of companies recalled experiencing power blinks occurring at least weekly or two or three times a month.
- 55% of C&I companies expect power reliability to improve.

Section 2 Conclusion: The organizational disruptions and expenses frequent outages cause greatly impact C&I companies that depend on reliable energy—leading to a growing need to install alternative reliability solutions.

- 79% of companies that experienced weekly outages estimated losses of at least $50,000 per outage.
- Almost a quarter of the companies experienced outages once a month or more, but, astonishingly, almost one-third (29%) of the companies estimated losses of $2 million or more per outage event.
- 45% of the companies that experienced an outage two to three times a week or more often estimated an annual loss between $5.2 million to $104 million.
- 65% of companies confirmed their systems have been affected by power blinks.
- 51% of companies validated their organization is becoming more dependent on reliable energy.
- 61% of companies are planning to install a back-up energy source.

Section 3 Conclusion: Reliability pays back. There is a market for companies willing to pay premiums for guaranteed power, and companies are actively tracking and seeking compensation for outages.

- More than one-third of companies (35%) are willing to pay more to guarantee electricity during a natural disaster or severe weather, and a similar percentage (38%) would pay more for power to be restored within five minutes.
- C&I companies willing to pay a premium to guarantee reliability are also up to four times more likely to invest in an energy supply or an alternative energy source.
- One-third of companies (36%) plan to invest in energy supply. Ensuring reliability is one of the top objectives mentioned by 72% of these companies.
- 48% of large C&I companies intend to invest in both energy supply and alternative energy sources.
- More than half (57%) of C&I companies are planning to track outage expenses or are already doing so.
- One-fifth of companies (21%) sought compensation from utilities for outage impacts.

APPENDIX

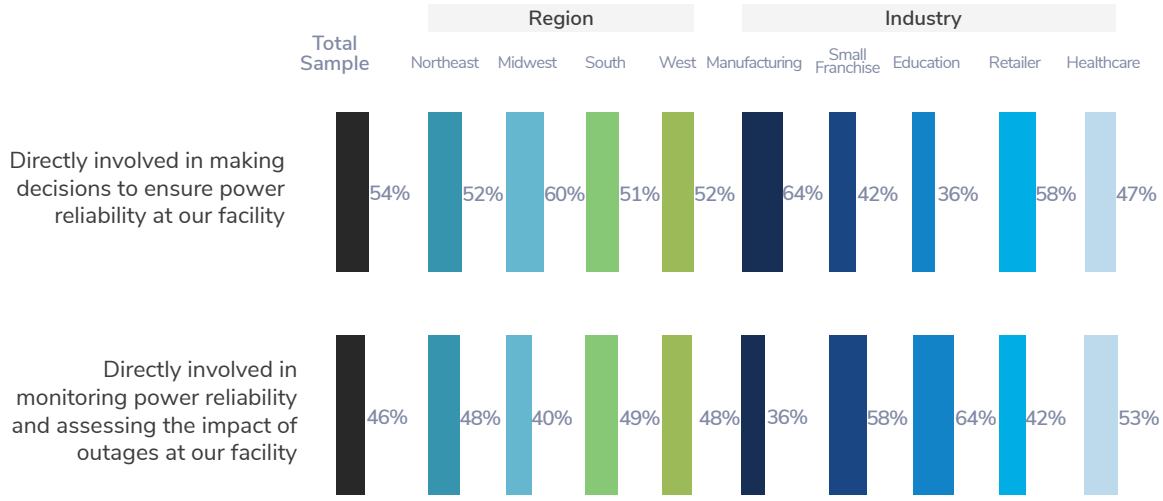
RESEARCH AND METHODOLOGY

Methodology	• Hybrid of telephone and online interviewing • Segmented U.S. into four regions
Those Interviewed	• Commercial and industrial market segments • Average revenues per company were $4 billion a year • 255 respondents who managed or made decisions on power reliability and power provider selection
Survey Duration	• July to August 2019

Source: Frost & Sullivan

Chart 27 shows the spread of respondents across regions and industry.

Chart 27
Respondent Involvement in Power Reliability

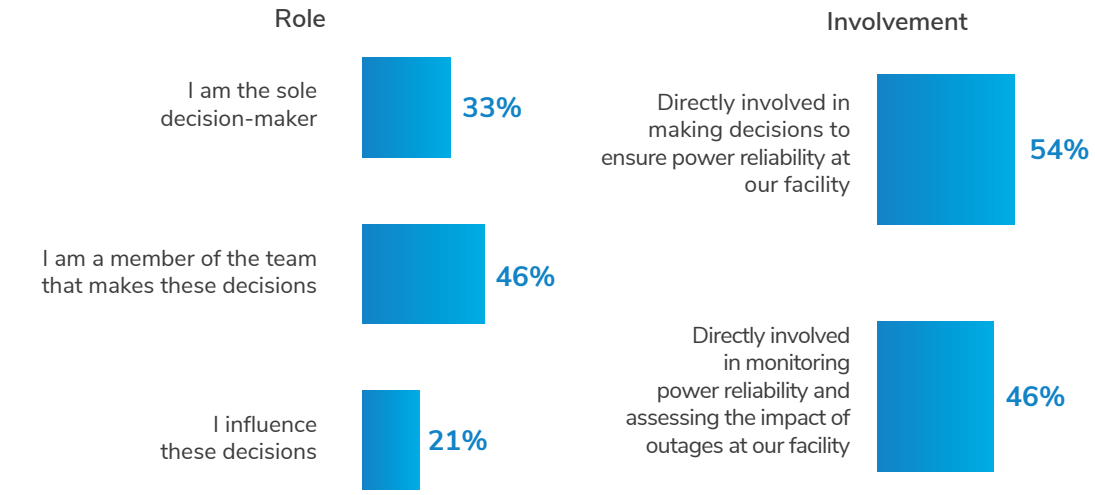


Base: All respondents (n=255) **Industry:** Manufacturing (n=111), Healthcare (n=36), Small Franchise (n=36), Education (n=36), and Retailer (n=36) **Region:** Northeast (n=48), Midwest (n=63), South (n=84), and West (n=60).
Question: What is your involvement in monitoring power reliability in your organization?

Source: Frost & Sullivan

Chart 28 shows the roles the respondents have in their respective organizations.

Chart 28
Respondent Role and Involvement in Power Reliability

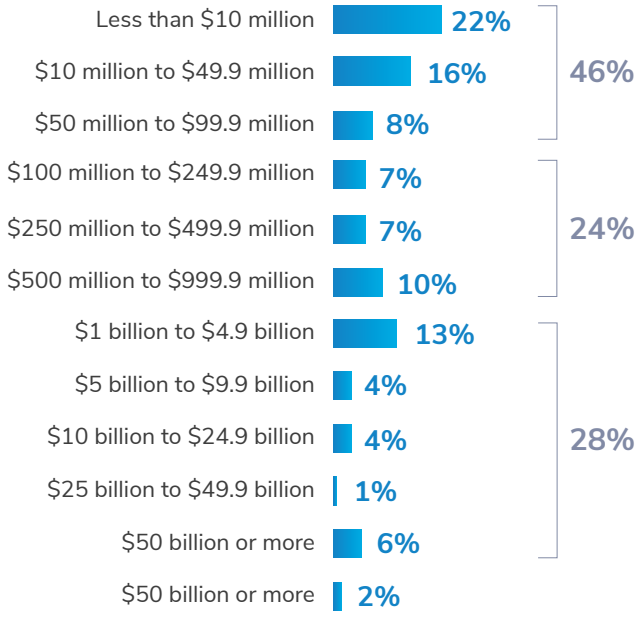


Base: All respondents (n=255)
Question: Which of the following describe your role in your organization for the selection of an electricity supplier?
Question: What is your involvement in monitoring power reliability in your organization?

Source: Frost & Sullivan

Chart 29 shows the approximate annual revenue of the companies whose representatives participated in the survey.

Chart 29
Global Annual Revenue of Respondents



Base: All respondents (n=255)
Question: What is your company's global annual revenue?
As best you can, please provide the total annual revenues for your company in U.S. dollars.

Source: Frost & Sullivan

ABOUT S&C ELECTRIC COMPANY

S&C, with global headquarters in Chicago, is applying its heritage of innovation to address challenges facing the world's power grids, thus shaping the future of reliable electricity delivery. The mission of employee-owned S&C is to continually develop new solutions for electricity delivery, fostering the improved reliability, resiliency, and efficiency required for the intelligent grid.

ABOUT FROST & SULLIVAN

Frost & Sullivan, the Growth Partnership Company, works in collaboration with clients to leverage visionary innovation that addresses the global challenges and related growth opportunities that will make or break today's market participants. For more than 50 years, we have been developing growth strategies for the global 1000, emerging businesses, the public sector and the investment community.

S&C ELECTRIC COMPANY

Excellence Through Innovation

LEARN MORE AT **SANDC.COM**

Technical Paper 100-T125

June 1, 2020