

**Electricity Outage and Reliability Study  
September 2010  
Business Component**



**Ontario Energy Board**

**POLLARA** ●●●●

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# Background and Methodology

- **On behalf of the Ontario Energy Board, Pollara conducted a study among Ontario businesses about electricity outages and related reliability issues. The objectives of the research were to explore business consumer's views on:**
  - Their perceptions regarding the number, duration, and frequency of power outages they have experienced;
  - Their reactions to and level of tolerance for power outages;
  - Their willingness to pay for fewer power outages or higher reliability; and,
  - Measures of satisfaction with regard to distributor communications about power outages.

# Background and Methodology

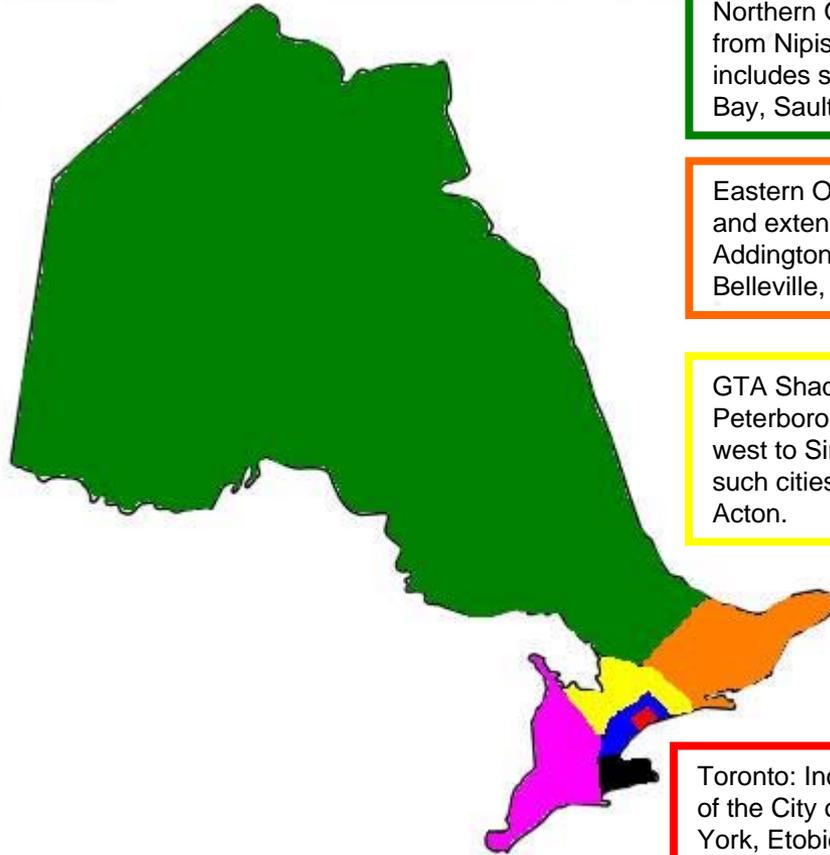
- In order to meet the objectives of research, Pollara conducted a telephone survey of 301 Businesses between July 8 and 21, 2010. Of those surveyed, 194 businesses experienced at least one power outage in the last year.
- At the analysis stage, a business size weight was applied to the data to represent the distribution of businesses according to the most recent census data for employee size and region. The overall margin of error for a sample of this size is estimated to be  $\pm 5.6\%$ , nineteen times out of twenty.
- The results among the subset of Ontario businesses that have experienced at least one unplanned outage in the past year (194) has an associated margin of error of  $\pm 7.0\%$ , nineteen times out of twenty.

# Ontario's Regions

Southwest: Extending south and west from the Bruce Peninsula, including such cities as Windsor, London, Sarnia, and Chatham.

Steel Triangle: Three-pointed area encompassing Hamilton, Brant, Haldimand, and Waterloo Counties, and portions of Waterloo county. Includes such cities as Hamilton, Niagara, Brantford, and Kitchener.

GTA: Includes York, Durham, and Peel Regions, as well as portions of Halton region. Includes such cities as Mississauga, Vaughan, Oshawa, and Markham.



Northern Ontario: Extending north and west from Nipissing and Parry Sound Counties; includes such cities as Bracebridge, North Bay, Sault Ste. Marie, and Thunder Bay.

Eastern Ontario: South from Renfrew County and extending east from Lennox & Addington County; includes such cities as Belleville, Kingston, Ottawa, and Cornwall

GTA Shadows: Includes Hastings, Peterborough, and the Kawarthas, extending west to Simcoe and Grey Counties; includes such cities as Peterborough, Barrie, and Acton.

Toronto: Includes the amalgamated regions of the City of Toronto: York, North York, East York, Etobicoke, Scarborough, and the City of Toronto.

# Key Findings: Benchmark Summary

	Current	Future Expectations
Overall Satisfaction with Electricity Reliability (% Total Satisfied)	92%	
Importance of Reducing Number of Outages (% Total Important)	76%	
% of Businesses not willing to accept more outages for reduced bill	62%	
Average Acceptable Per-Bill Increase to Reduce Outages (Among those willing to pay any amount greater than \$0)	\$127.42	
Reported Number of Unplanned Outages (mean, annual)	4.83	2.63
Reported Five-Year Trend (% "Increased")	17%	
Reported Length of Most Recent Outage (Hours)	3.56	1.35
Time of Day of Most Recent Reported Outage (% Noon to 6pm)	42%	
Reported Reach of Most Recent Reported (% "District")	35%	
Tolerance – Maximum Number of Outages before confidence in system undermined (mean, annual)		2.91
Tolerance – Length of Outage before confidence in system undermined (Hours, mean)		1.85

# Key Findings: Context

- **Ontario's businesses are fairly adaptive to power outages.**
  - Many report little emotional response to outages, and few report high levels of concern.
  - However a substantial minority – particularly among smaller businesses – report feeling frustrated when their power goes out.
  - Despite accepting a few outages per year as “par for the course”, Ontario businesses still expect substantially shorter outages than those that businesses currently report experiencing, on average.
- **Ontario's businesses are highly cost-conscious.**
  - Over two-in-five report a price sensitivity issue as the most important energy/electricity issue facing their business – prices increasing accounting for the greatest proportion of this number (34%).
  - A majority of businesses are not willing to pay any amount to improve their system reliability to near-zero outages (84% “\$0”).
  - The most frequently cited impact on businesses in the event of an outage is lost productivity.
- **Customer satisfaction levels, overall, are strong – with some caveats.**
  - After discussing their experiences with a power outage, satisfaction levels drop slightly – though they remain in majority territory (65% of those who have experienced an outage are satisfied with their distributor's response to power outages, overall – even after considering their own experience).
  - Satisfaction levels are substantially weaker surrounding customer/distributor interaction: whether responding to questions about the outage, providing estimates of when power would be restored, or providing a cause of the outage, fewer businesses report being satisfied overall.

# Key Findings

- **Weaknesses: Expectations of Disruption Frequency & Length**

- Though expectations do vary from business-to-business, on average, businesses expect that they will get half as many outages per year than businesses who report an outage tell us that they experience. However, there is no statistically significant difference in the number of outages that businesses expect, regardless of whether or not they have experienced an outage in the past year.
- What is more, businesses anticipate outages that are no worse than half as long as outage averages that are currently reported – though the vast majority are unwilling to pay for improvements to the system to reduce outages and outage length.
  - As with the number of outages, businesses that have experienced a power outage and those that have not, do not estimate power outages that are significantly different in length.

- **Opportunities**

- Increasing communications may improve perceptions and ratings: no fewer than 22% of businesses that experienced an outage say that they don't know enough to rate distributors on their ability to provide responses to questions on the length and cause of outages, or when the outage can be repaired.
- Such improvements may extend to (or begin with) point-of-call customer relations; though only a minority contact distributors to report outages, Pollara's past research in customer and client satisfaction suggests that improved confidence in customer service can improve overall reputation and satisfaction scores.

# Key Findings

- **Risks**

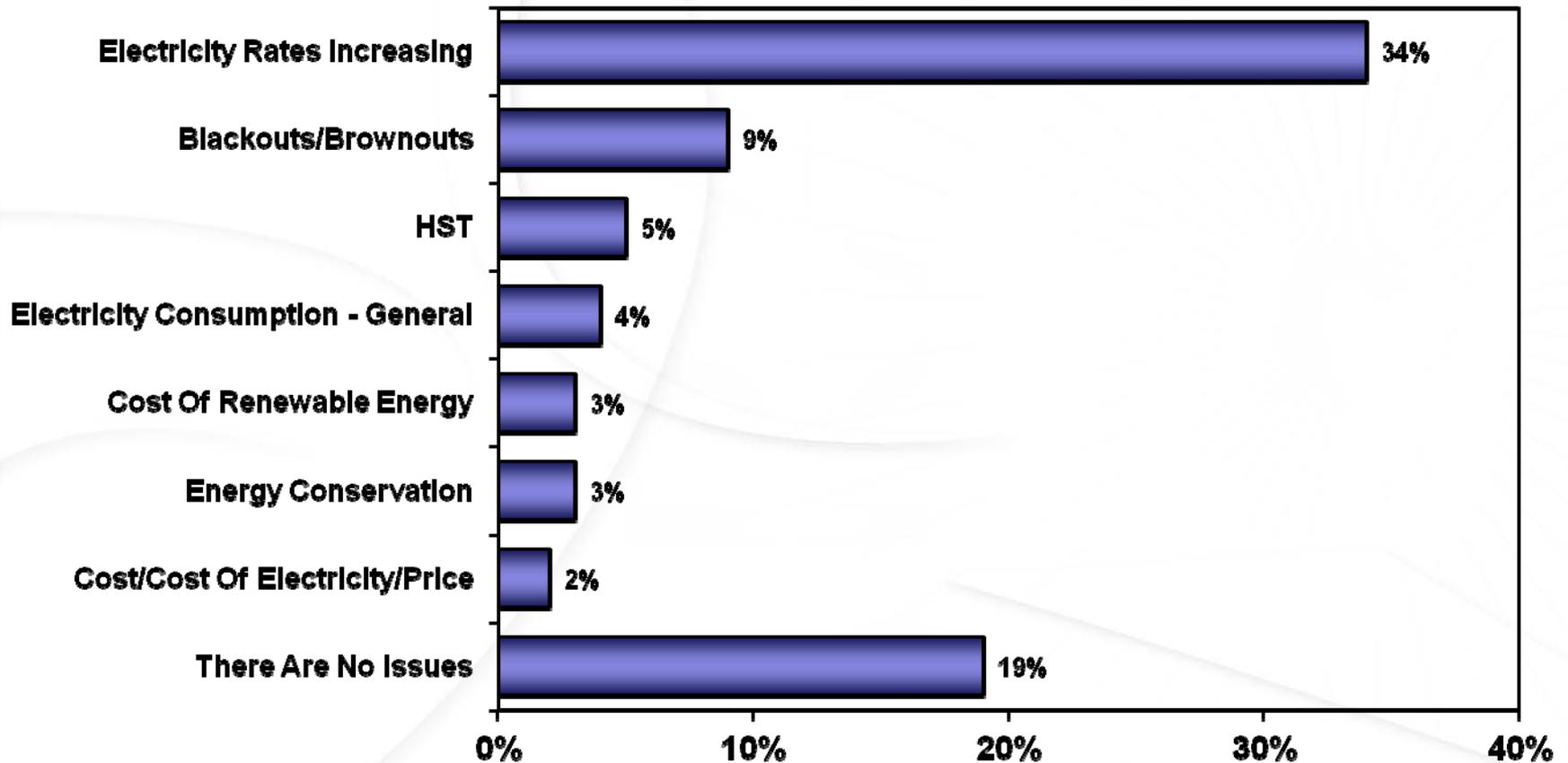
- A highly cost-conscious electricity market. Increases in energy costs, the impact of Smart Meters, and rising prices due to commodity/resource scarcity, taxes such as the HST, or general inflation, means that costs have risen (or will rise) in double-digit percentages for many businesses in just over the span of a year. Given this sensitivity, measures taken to improve reliability, customer service, or infrastructure *which impact a business' bill* run the risk of decreasing overall satisfaction with the provider.
  - What is more, businesses may pass along those cost increases to consumers already feeling the pinch of higher costs elsewhere.
- These findings are consistent with other research that Pollara has conducted in the electricity sector.

# Context

# Most Important Electricity/Energy-Related Issue For Business

*34% mention increasing rates as most important; only 9% mention blackouts as most important issue.*

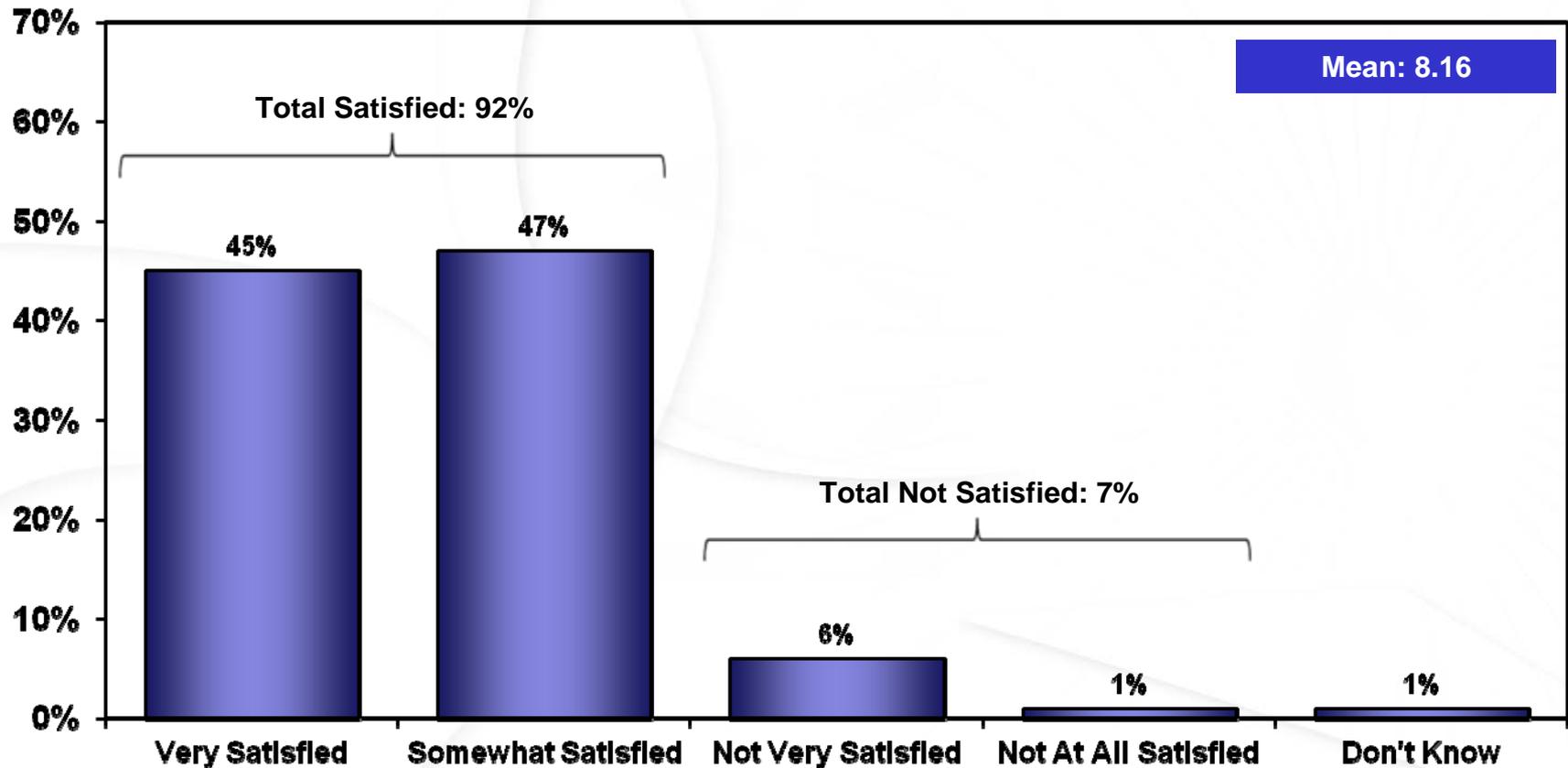
- Over two-fifths of businesses in Ontario believe that something pertaining to cost is the most important energy-related issue facing their business today (34% rates increasing, 5% HST, 3% cost of renewables, 2% cost of electricity, generally).
- Rising rates in Northern Ontario (46%) are a greater concern than in the GTA Shadows (20%), and of greater concern to businesses without backup power (38%) than those with a generator (29%). Rising rates are also a greater concern for businesses that pay more than \$250/month on their hydro bills (44%) than for other businesses.



1. What would you say is the most important energy or electricity-related issue facing your local community today? [OPEN, ACCEPT 1] (N=301)

# Overall Satisfaction with Reliability of Electricity

- Over nine-tenths of businesses say that they are satisfied with the reliability of electricity that is provided to them, overall, while only 7% are not satisfied.
- Mid-size businesses, that is, those that have a demand of over 50kW of electricity, are least intensely satisfied (mean 7.88) while small businesses (<50kW) are most satisfied (8.20).

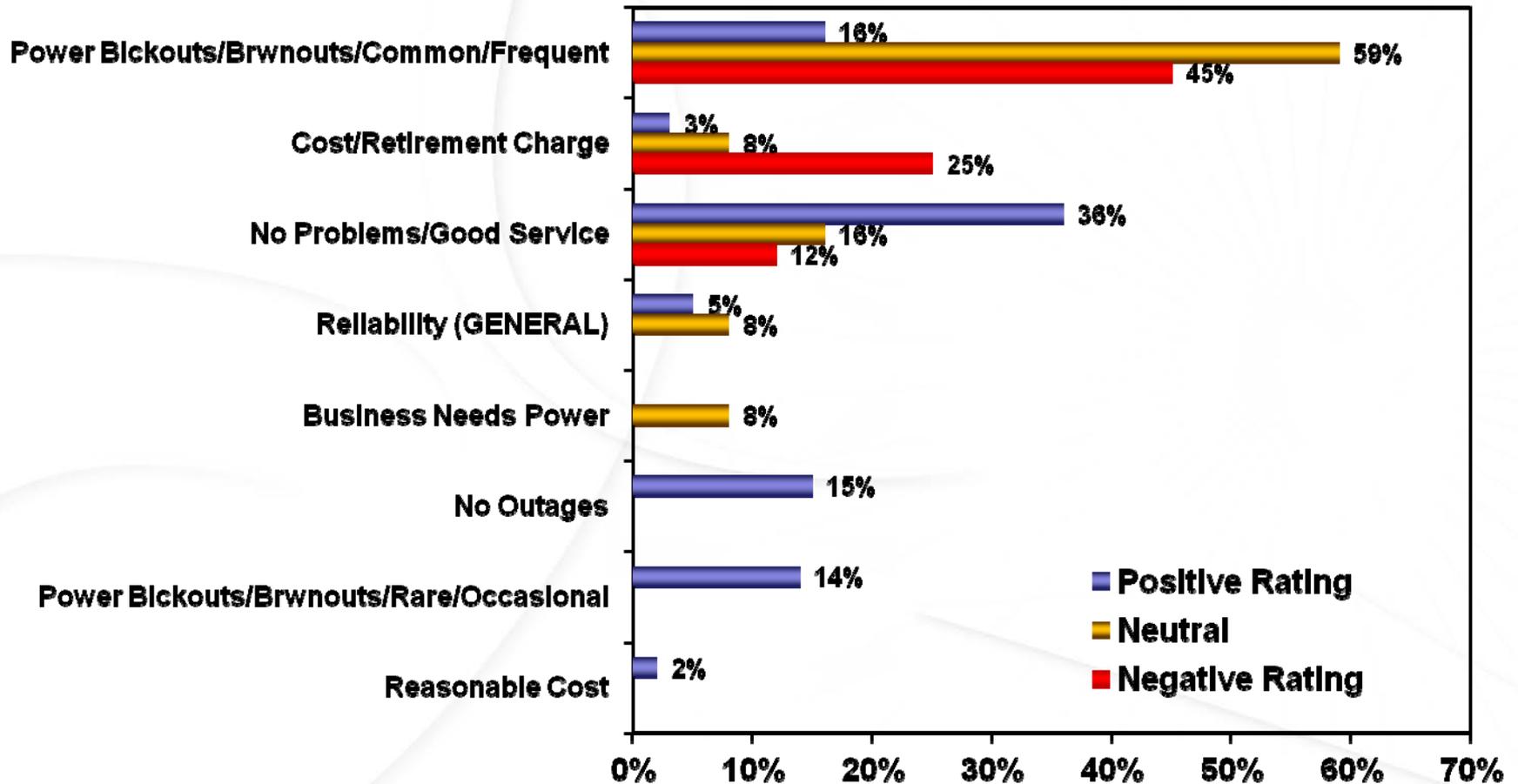


2. On a scale of 1 to 10, where 1 is "not at all satisfied" and 10 is "extremely satisfied", how satisfied are you with the reliability of the electricity provided to you overall? (N=301)

# Motivations for Satisfaction Rating

*16% of those who offer a positive rating of their provider say that they still experience frequent brownouts or blackouts; however verbatims indicate they are short-lived or not very disruptive.*

- Of those who provide a negative rating, the single most frequent reason for providing that low score is frequent power outages (45%). At the same time, 36% of those who provide a rating of 7 out of 10 or higher say that they have not had any problems, and/or that they have had good service, overall. 15% of this group have not had any outages.

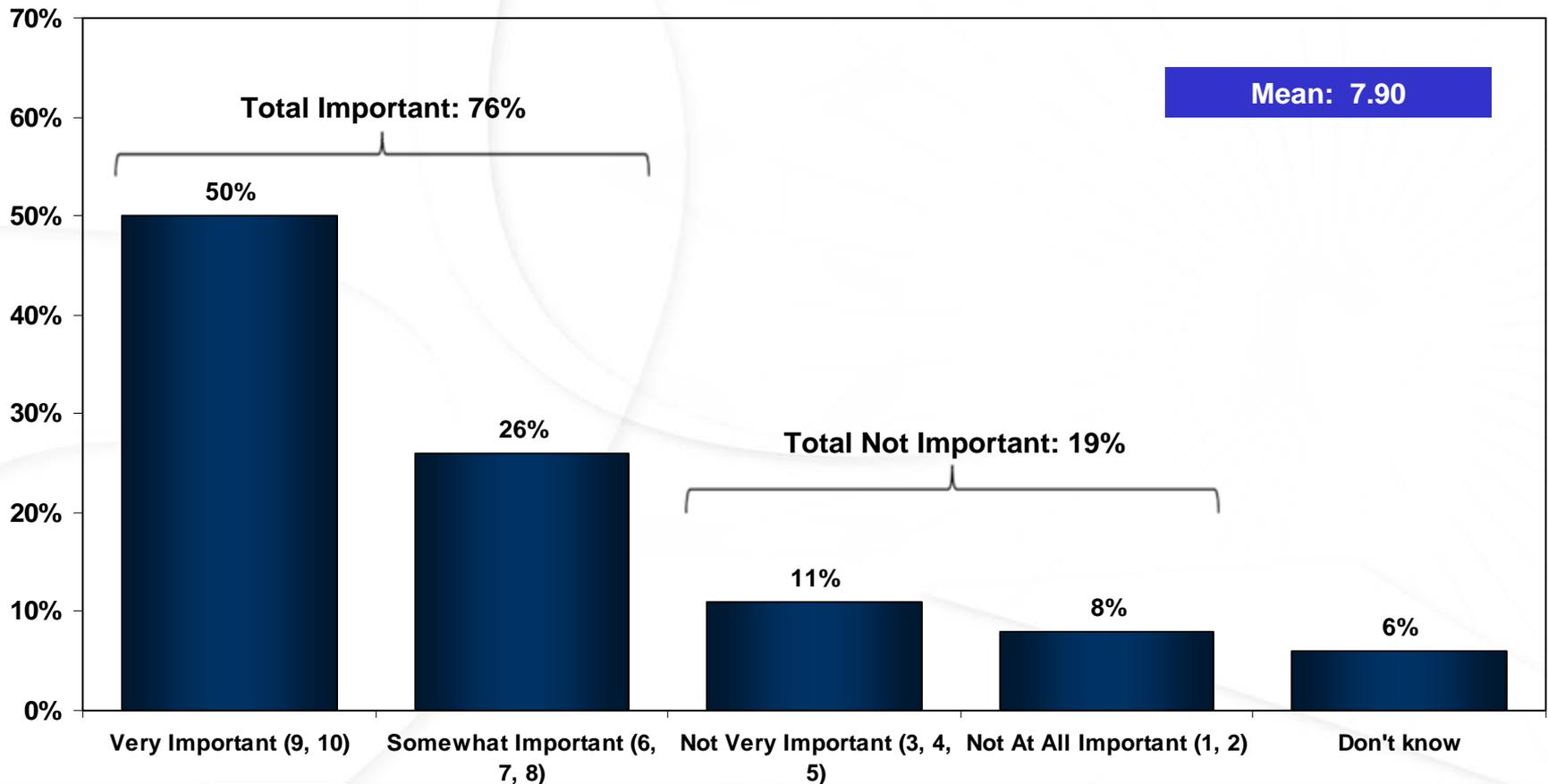


3. And what is the main reason why you provide this rating? [Open, Accept 2][Multiple Mention, Combined Response] (Total N=301; 1-4 rating n=12, 5,6 rating n=23, 7-10 rating n=264) Use caution when interpreting Neutral and Negative Rating motivations.

# Price Sensitivity Measures

# Importance of Reducing Number of Outages

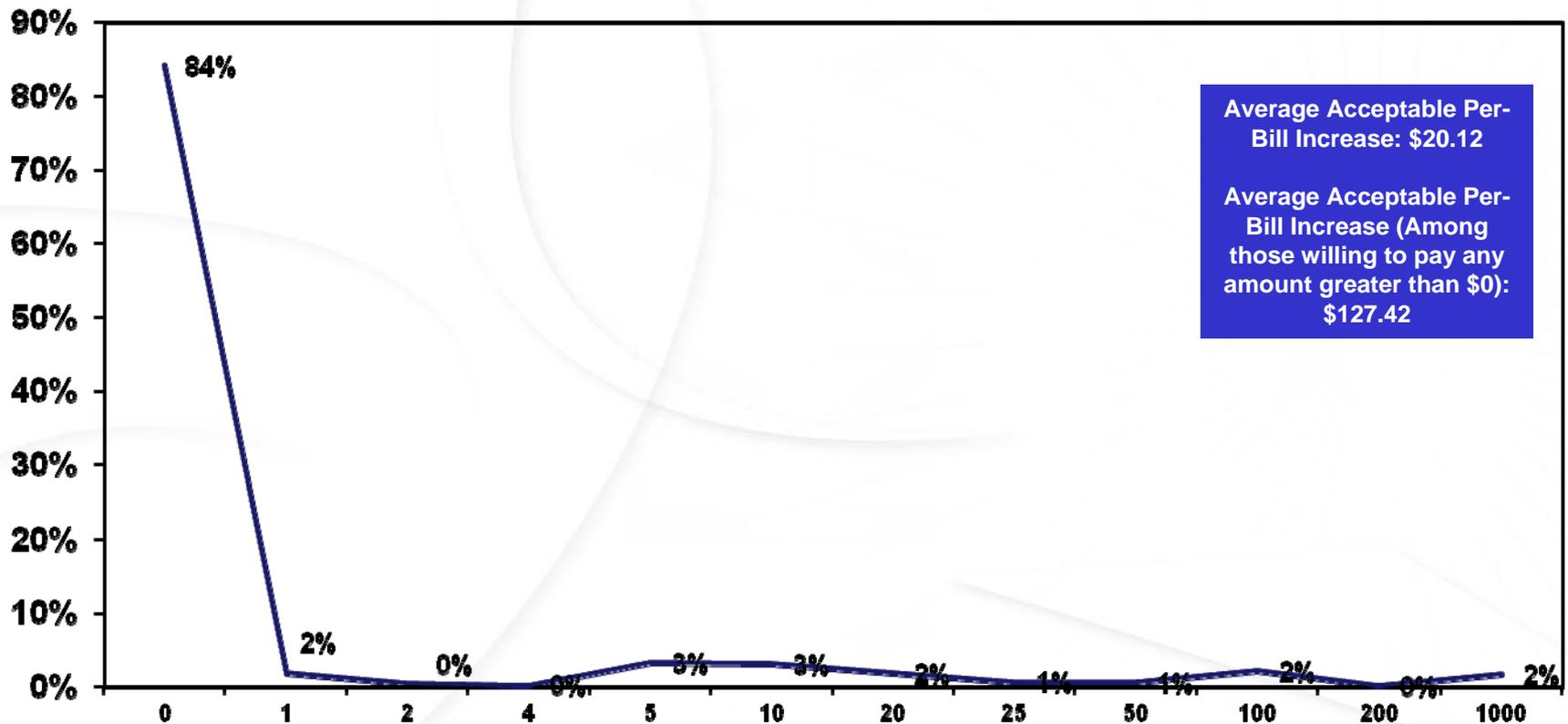
- Three-quarters of Ontario businesses say that it's important that improvements are made to Ontario's electricity system to reduce outages to near-zero; only 8% feel that it is not at all important.
- The higher the consumption, the more intensely businesses feel that outages should be reduced to near-zero: while low-consumption businesses average at 7.81 out of 10 on the importance scale, Industrial-sized businesses articulate an average of 9.17 on the importance scale.



51. On a scale of 1 to 10, where 1 is “not important at all” and 10 is “very important”, how important is it that your electricity provider introduces improvements to the electricity system to decrease power outages to near-zero? (N=301)

# Acceptable Bill Increase to Reduce Outages

- Despite a strong majority believing that it is important to reduce outages to near-zero, an equally strong majority say that they do not want to pay extra for such improvements to the system. Among the few who indicate they would be willing to pay, the average per-bill increase would need to be less than \$127.42 in order to achieve buy-in.

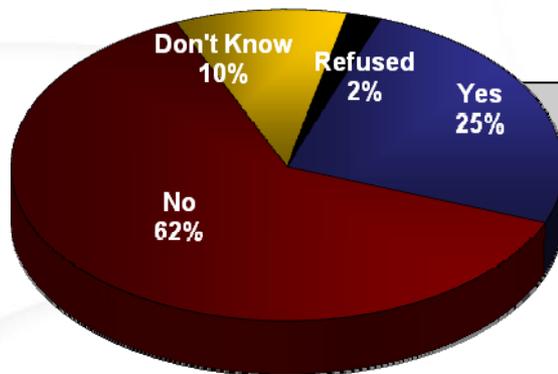


52. And, if these improvements were made, what is the highest increase you would be willing to pay, if anything, on your electricity bill in order to pay for these improvements? (N=301)

# Willingness to Accept More Outages for Lower Bill

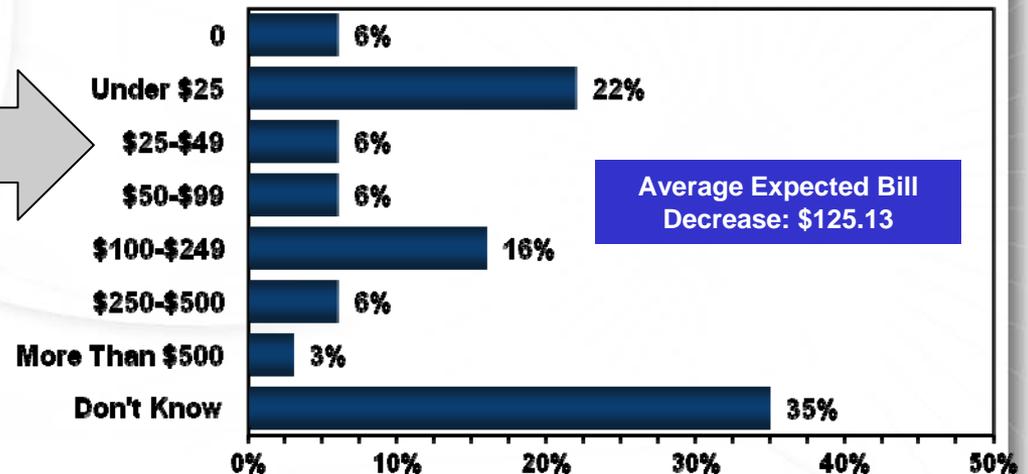
- A majority of businesses say that they would not be willing to accept more power outages, even if it meant a reduction in their bill (62%). Among those who said that this would be acceptable, the average bill decrease required would need to be \$125.13, or about 5% of the average bill for a business consuming less than 3,300kW.

Willing to accept more outages for lower bill?



If YES then:

How much of a reduction required?

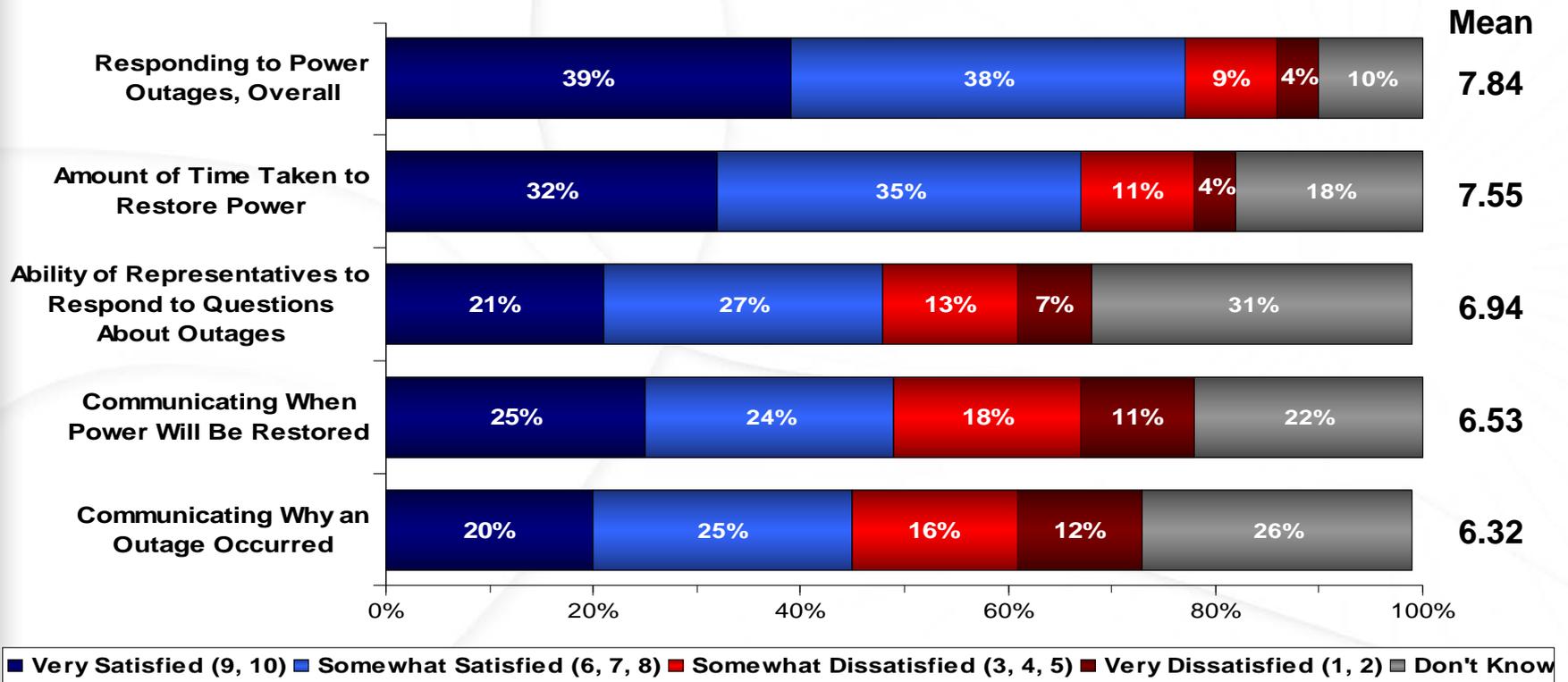


53. Would you be willing to accept your provider not making these improvements, and therefore, having the number of unplanned outages increase, if it meant that you paid less on your electricity bill? (N=301)
54. [IF YES TO PREVIOUS] And by what amount must your bill decrease, in order to compensate for the increase in unplanned outages? In other words, what is the smallest reduction that you would accept on your bill? (N=70)

# **Satisfaction with Unplanned Outages**

# Satisfaction Ratings on Outages

- Just over three-quarters of businesses say that they are at least somewhat satisfied with how their distributor responds to power outages, overall (77%) while two-thirds are satisfied with the amount of time it takes to restore power in the event of an outage (67%). Fewer are satisfied with communications measures, though a substantial portion of businesses (at least 22%) say that they don't know enough to evaluate their distributor on these measures.
- Urban-based businesses are slightly more intensely satisfied with their distributor's response to power outages (7.96 compared to 7.50 for rural businesses).



4-8. Now, I'd like to talk to you specifically about unplanned power outages. On a scale of 1 to 10, where 1 means "very dissatisfied" and 10 means "very satisfied", how satisfied are you with your electricity provider on the following, when it comes to unplanned power outages, overall? What about... [N for each = 301]

# Satisfaction Ratings on Outages

*Though more of those who have experienced an outage are satisfied with their distributors' communications of why an average occurred and when power will be restored, they are less intensely satisfied, overall, than those who have not experienced an outage.*

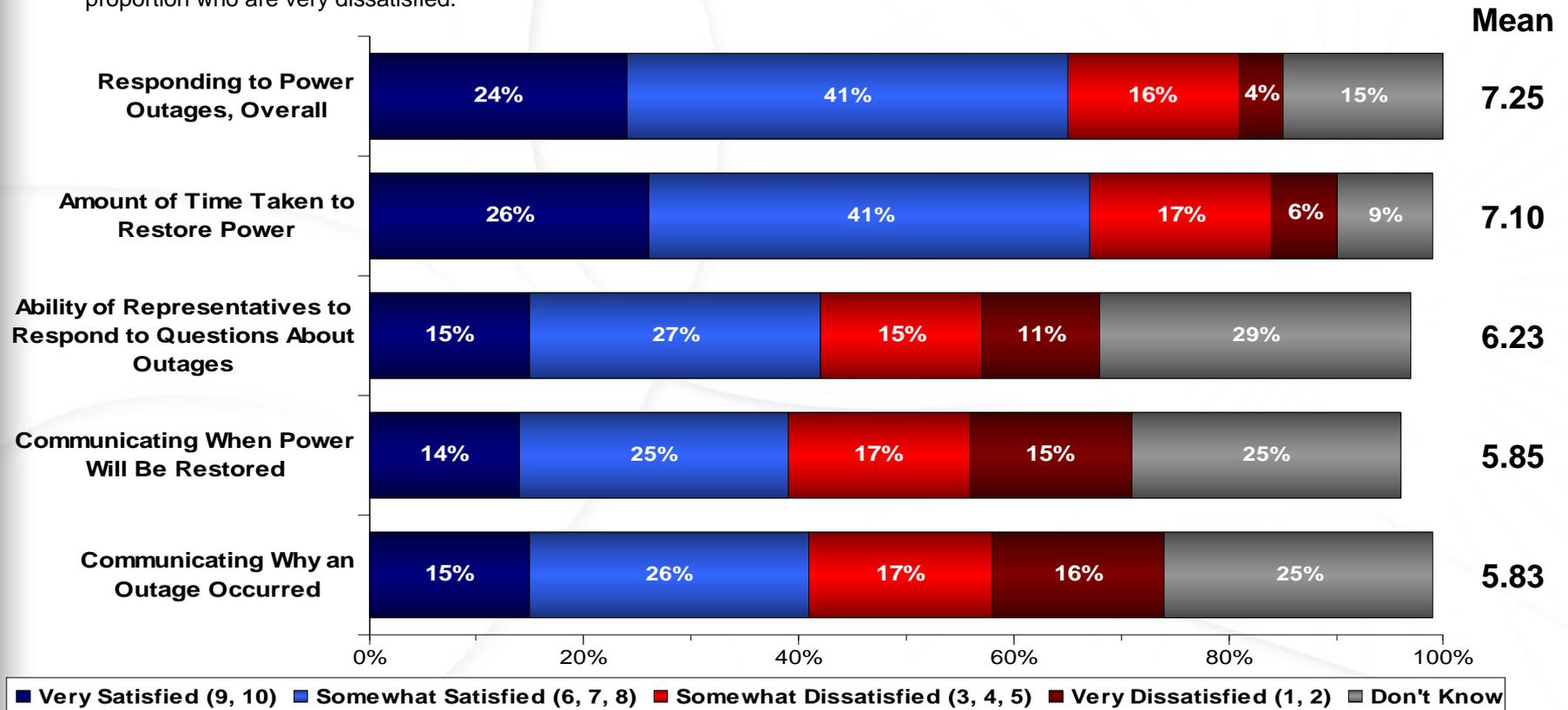
	Those who have NOT experienced an outage in the past year.		Those who HAVE experienced an outage	
	% Satisfied	Mean	% Satisfied	Mean
Responding to Power Outages, Overall	74%	8.37	78%	7.57
Communicating Why an Outage Occurred	40%	6.93	47%	6.02
Communicating When Power will be Restored	42%	7.02	52%	6.29
Time it Takes to Restore Power	57%	8.05	70%	7.31
Ability to Respond to Questions Regarding Outages	50%	7.81	48%	6.50

**4-8.** Now, I'd like to talk to you specifically about unplanned power outages. On a scale of 1 to 10, where 1 means "very dissatisfied" and 10 means "very satisfied", how satisfied are you with your electricity provider on the following, when it comes to unplanned power outages, overall? What about... [N for each = 301]

# Satisfaction Ratings on Outages – After Discussion

*Businesses that experienced an outage were asked to rate their distributor on key performance attributes again, after discussing their most recent outage experience.*

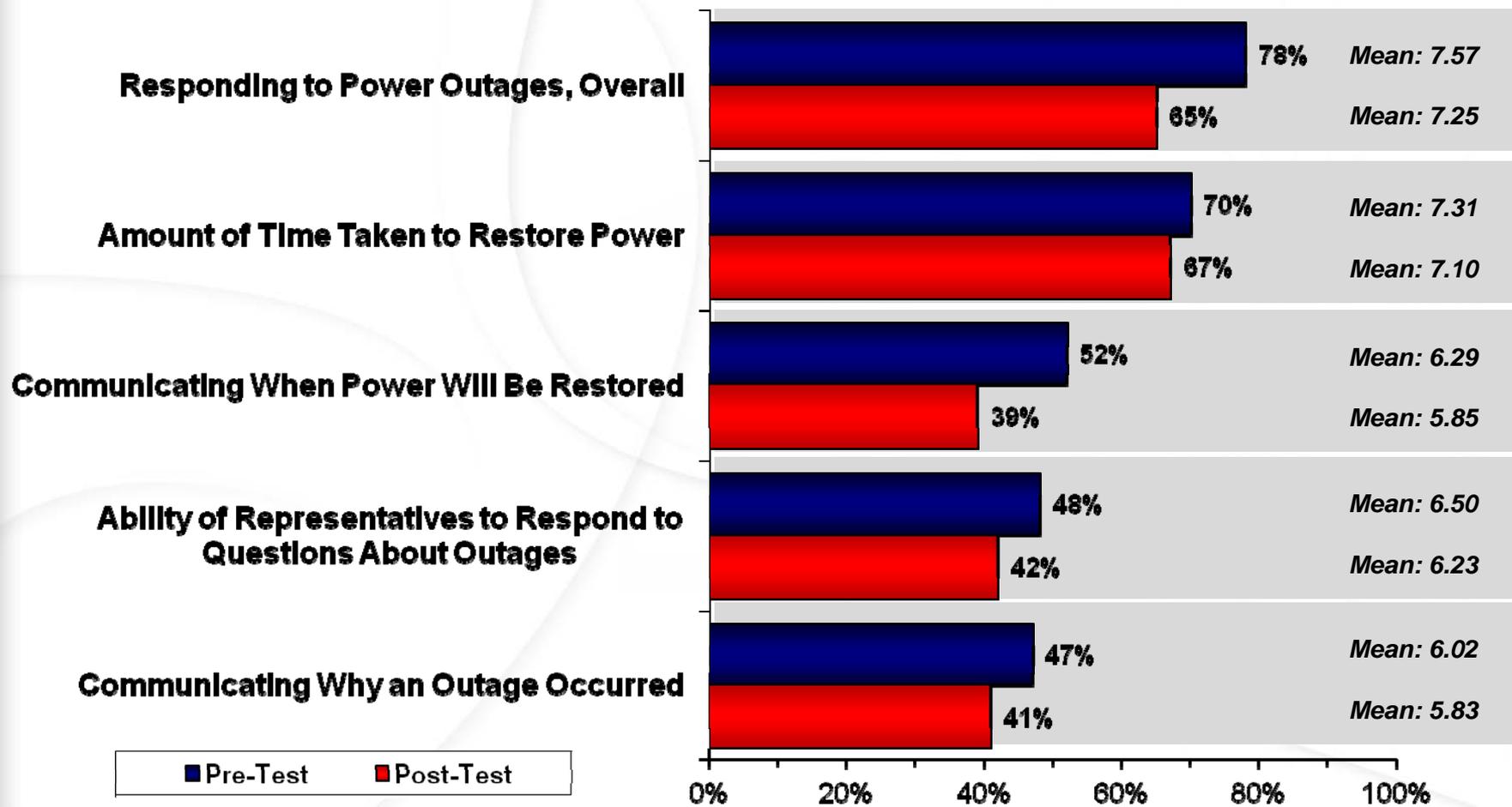
- Among those businesses that have experienced at least one outage in the past year, satisfaction continues to be less intense through the post-test measure. While majorities are still satisfied with distributors' response to power outages overall (65%) and the time taken to restore power (67%), less than a majority indicate that they are satisfied with communications measures, such as the ability to answer questions (42%), when power will be restored (39%), and why outages have occurred (41%).
- Notably, for communicating when power will be restored, and why an outage occurred, the proportion who are very satisfied is equalled by the proportion who are very dissatisfied.



37-41. Now, I'd like to talk to you specifically about unplanned power outages. On a scale of 1 to 10, where 1 means "very dissatisfied" and 10 means "very satisfied", how satisfied are you with your electricity provider on the following, when it comes to unplanned power outages, overall? What about... [N for each = 194]

# Among Those who Experienced Outage: Satisfaction with Provider, Before and After Discussion of Most Recent Outage Experience

- Despite a thirteen-point drop in satisfaction overall, the average intensity of satisfaction with distributors' response to power outages overall dips only slightly, from 7.57 out of 10 to 7.25 out of 10.



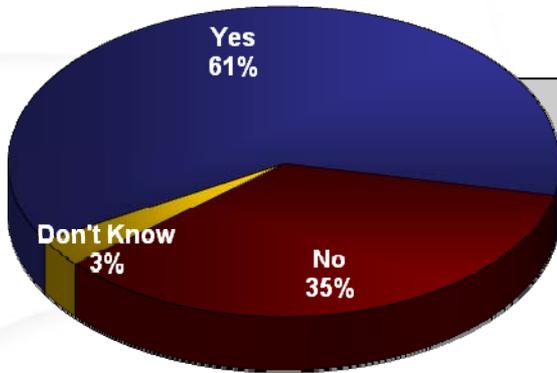
Among those who have experienced outage in the past year, Pre- to Post-Test (N=634) 4-8 and 37-41. Now, I'd like to talk to you specifically about unplanned power outages. On a scale of 1 to 10, where 1 means "very dissatisfied" and 10 means "very satisfied", how satisfied are you with your electricity provider on the following, when it comes to unplanned power outages, overall? What about...

# **Experience with Power Outages**

# Experience with Power Outages – Past Year

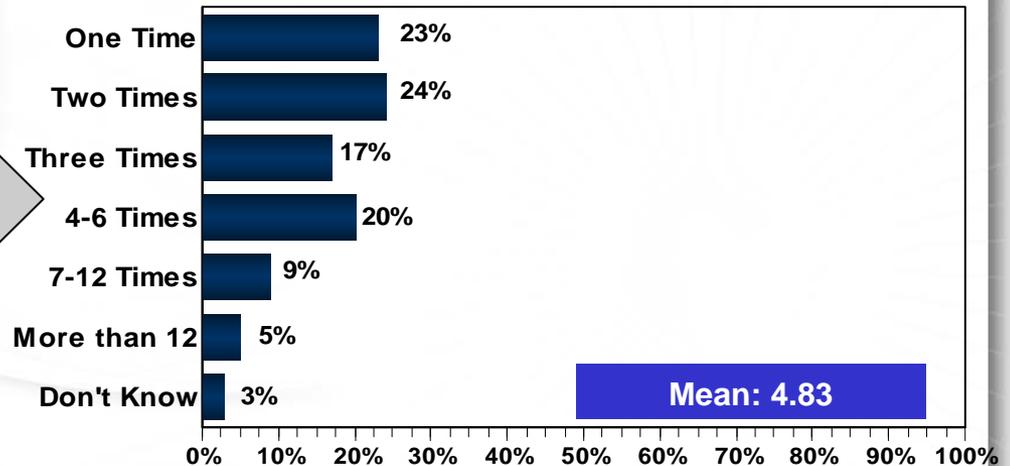
- Three-in-five businesses report having lost power in the past year, and an additional 1% would have lost power, had it not been for a back-up power device in their office. Of this group, 83% report having lost power between once and six times in the past year, and overall, businesses in Ontario who have lost power at least once say that this has happened an average of 4.83 times in the past year, or just over once every three months.
- Overall, large consumers report having had more power outages (on average, 5.40) than both small (4.94) and mid-consuming (3.98) businesses.

**Has Business Lost Power in Past Year?**



If YES then:

**How Many Times in Past Year? (Ontario, Overall)**

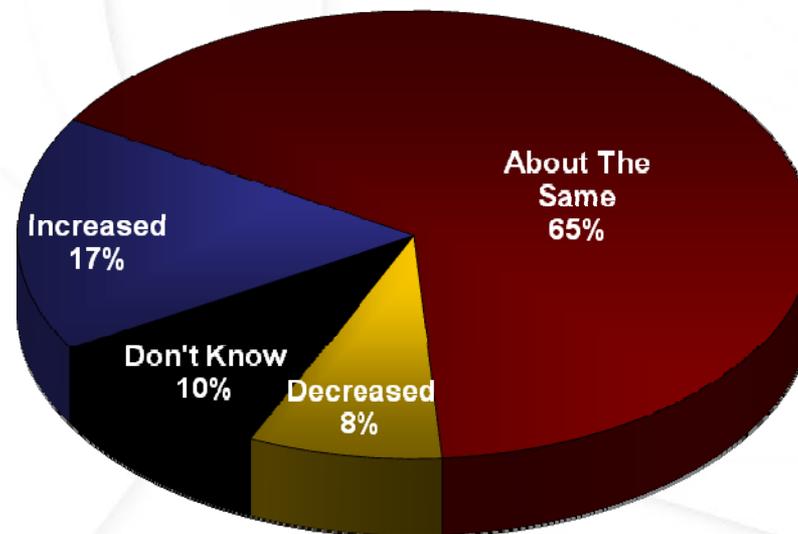


	Less than 50kW	Greater than 50kW	Industrial
Mean # of Outages	4.94	3.98	5.40

9. Thinking back over the past year, did your business ever experience an outage? (N=301)  
 11. [IF YES TO 9] Approximately how many times has your house lost power in the past year? [PROBE: Best estimate is fine.] (N=194)

# Experience with Power Outages – Five Year Trend

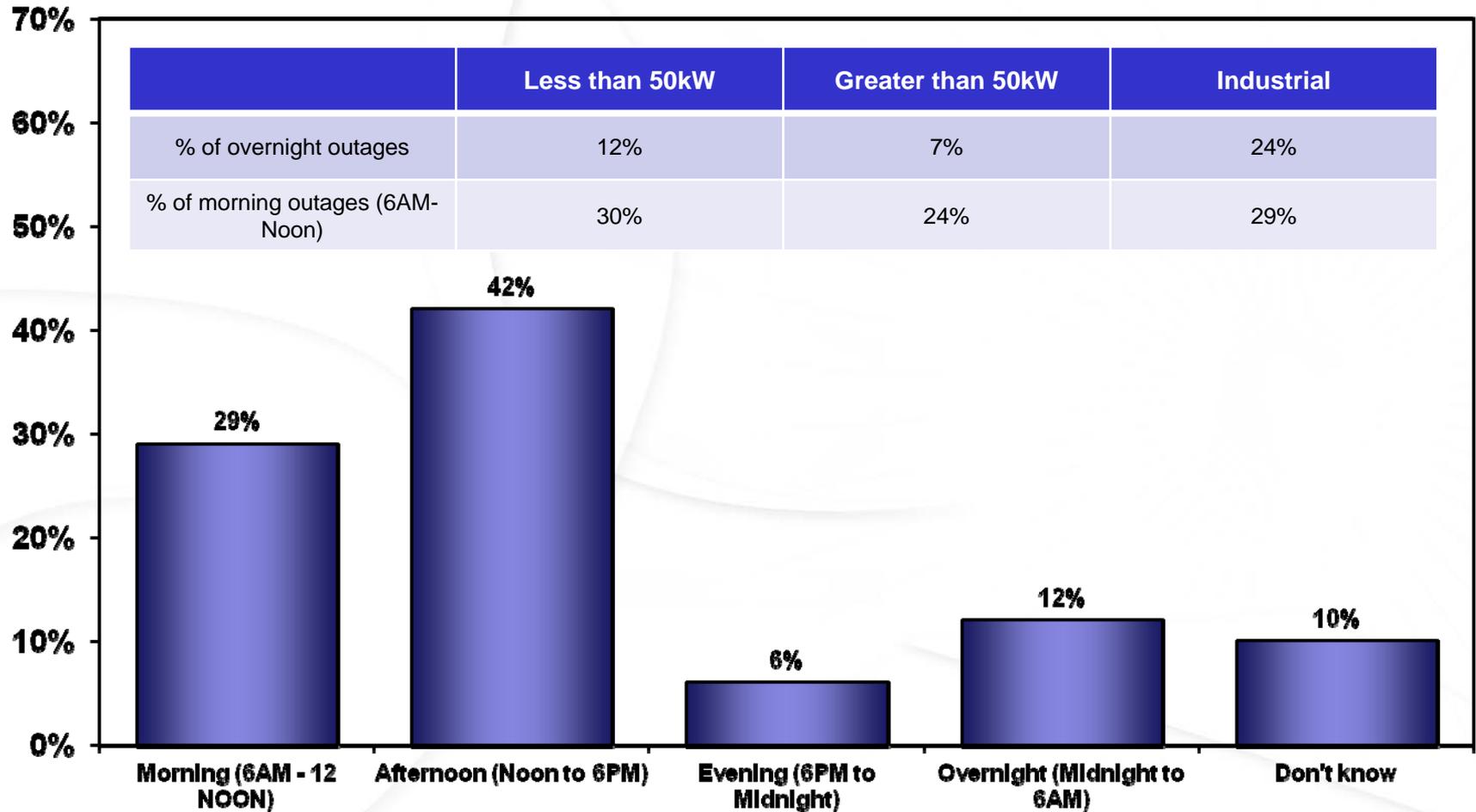
- Just under two-thirds of businesses say that the number of power outages they have experienced in the past year is about the same as what they've experienced over the past five years. Only 8% say that the number of outages they have experienced has decreased, while 17% indicate that the number of outages has increased.
- Businesses in Toronto are more likely than others to report an increase (33%); by comparison, more businesses in the GTA say that outages have decreased (12%) than increased (9%).
- Businesses that have back-up power generation capacity are also more likely than those that do not to report an increase in outages (30% and 8%, respectively).



21. Over the past five years, would you say that the number of power outages your business has experienced has [rotate] increased, decreased, or stayed about the same? (N=194)

# When Most Recent Outage Occurred (Time of Day)

- 71% of businesses that report an outage say that the most recent one happened during their general operating hours (between 6AM and 6PM). By comparison, only 12% note that their most recent outage occurred in an overnight period.

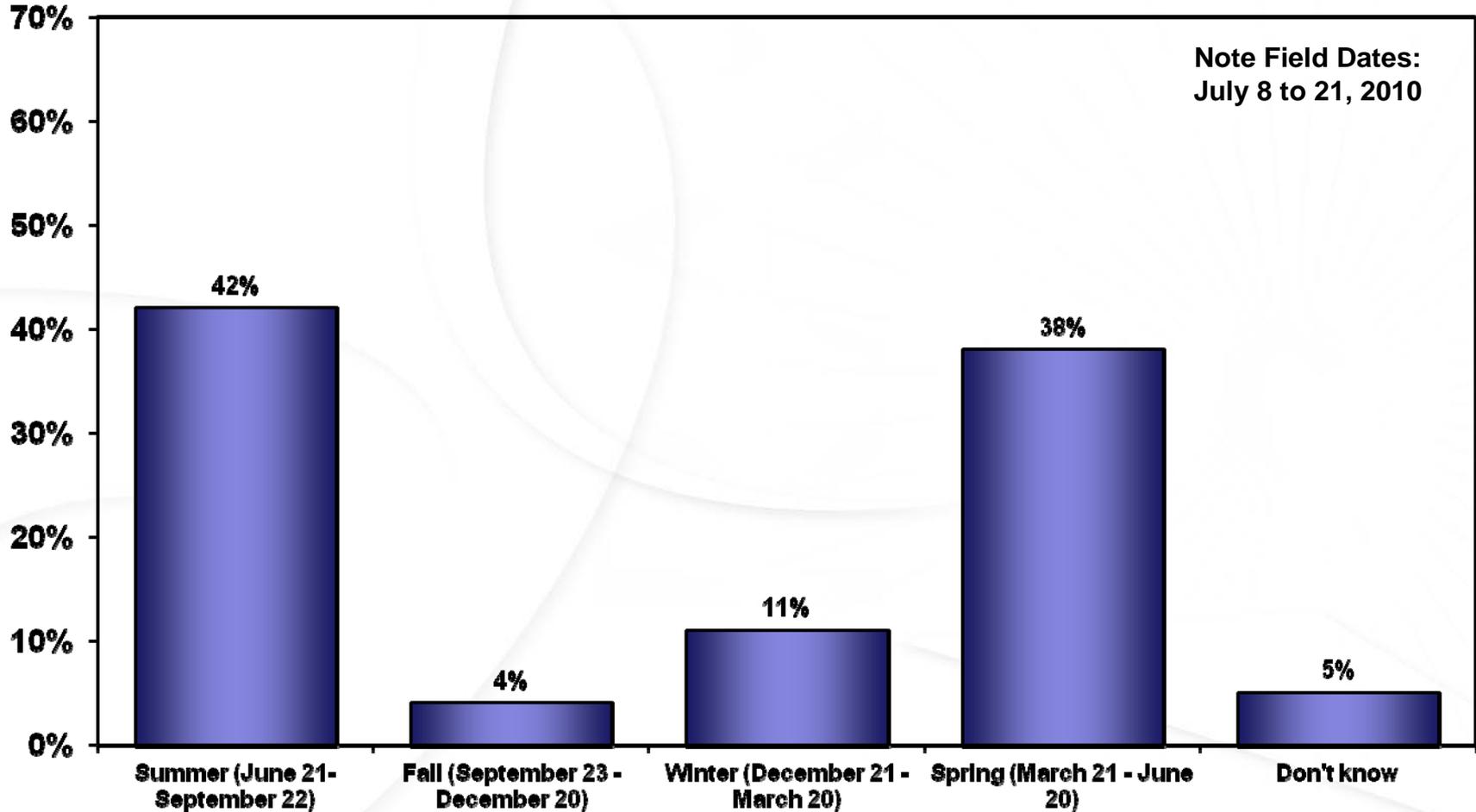


13. Thinking about your most recent power outage, approximately what time of day did it start? Was it...[Probe: Your best estimate is fine.] (N=194)

# When Most Recent Outage Occurred (Season)

*Given field dates, responses indicate that businesses report that their most recent outage occurred in the past few months.*

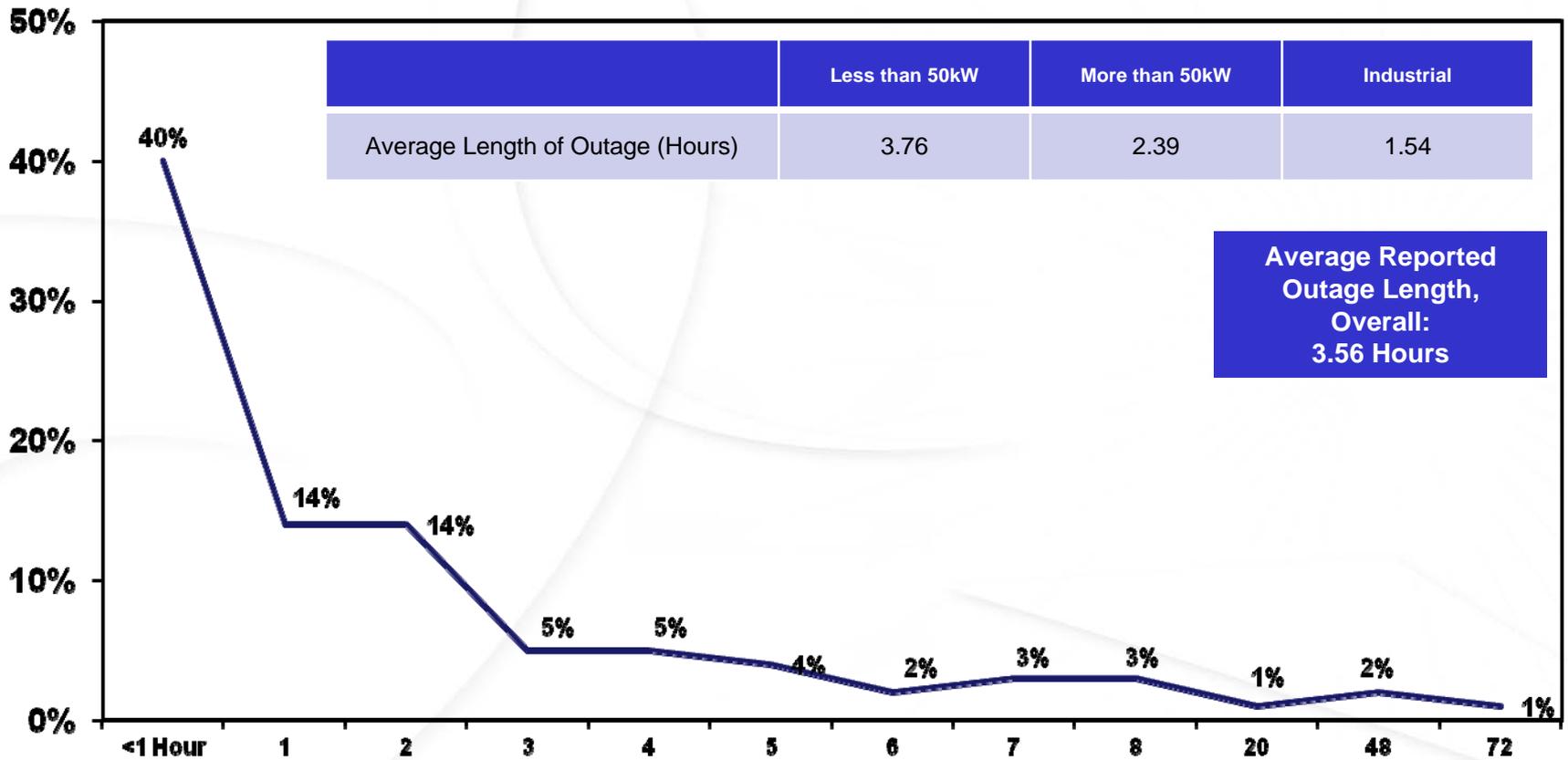
- Just over two-fifths of businesses that experienced a power outage indicate that it occurred recently (42% “summer”) while a further 38% indicate that it happened in the springtime.



14. *And, to the best of your recollection, what season of the year was that most recent outage? Was it during... (N=194)*

# How Long Most Recent Outage Lasted

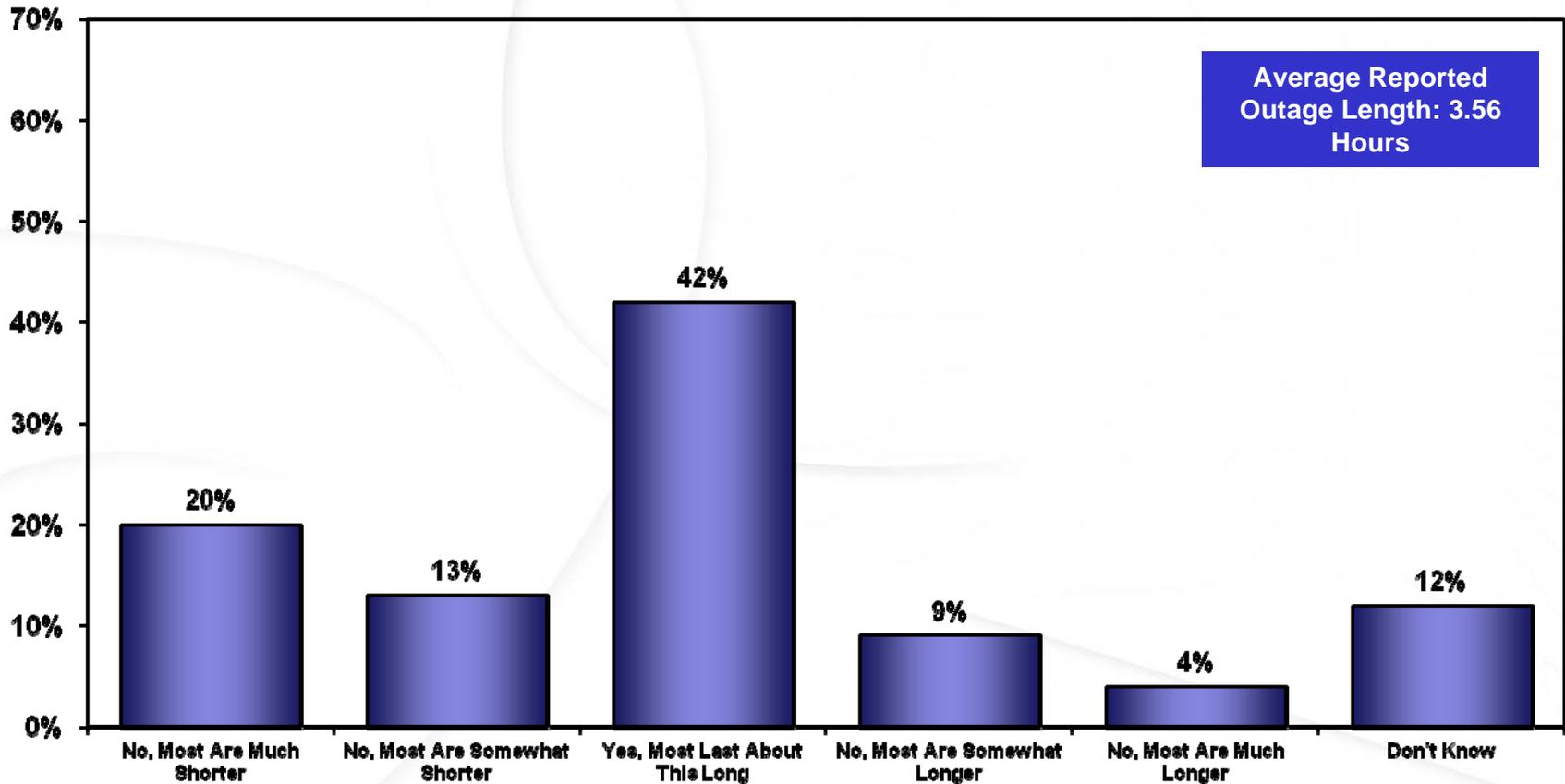
- Though larger consuming businesses report the highest average number of outages per year, they also indicate that their most recent outage was much shorter, on average (1.54 hours), while smaller businesses report the longest outages, at just over three and three-quarters hours long.
- Of those businesses that report power outages, 40% say the outage lasted less than an hour; a further 28% indicate that the outage lasted less than three hours.



17H. Approximately how long (in hours) did the outage last? [COMBINED VARIABLE] (N=194).

# Representativeness of Most Recent Outage

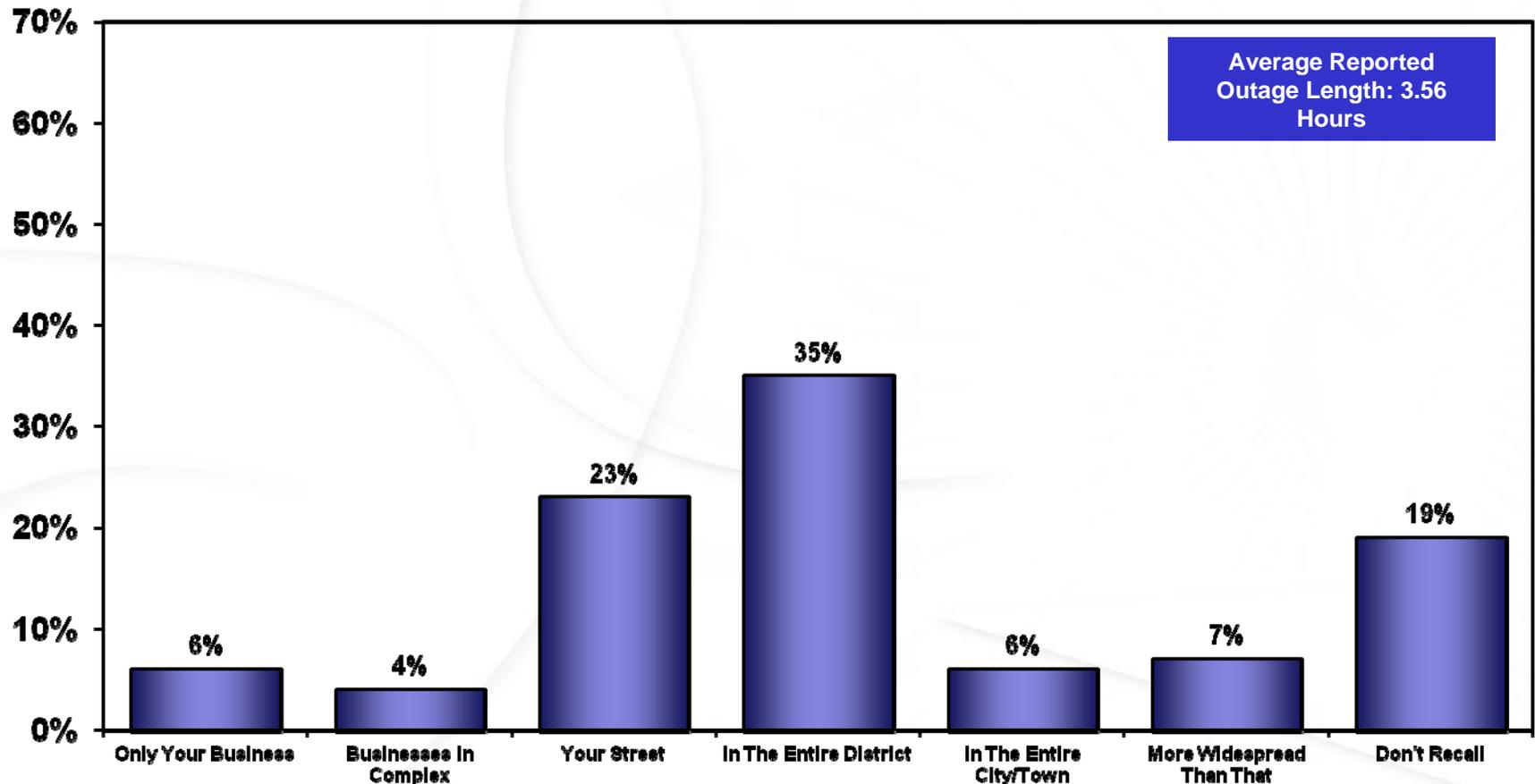
- A plurality of businesses that have reported an outage say that it is the typical length that they experience; a further 33% indicate that most of their outages are at least somewhat shorter, while 12% don't know.
- Smaller-consuming businesses (less than 50kW) are more likely than larger consumers to say that their outages are about as long as the most recent one they experienced. 41% of large-consuming businesses, and 43% of mid-consuming businesses say that most of their outages are shorter.



18. Overall, would you consider that to be the typical length of the power outages you experience? Or would you say that most of your power outages have been longer or shorter than that? And is that a lot longer/shorter, or only somewhat longer/shorter? (N=194)

# Most Recent Outage – How Widespread

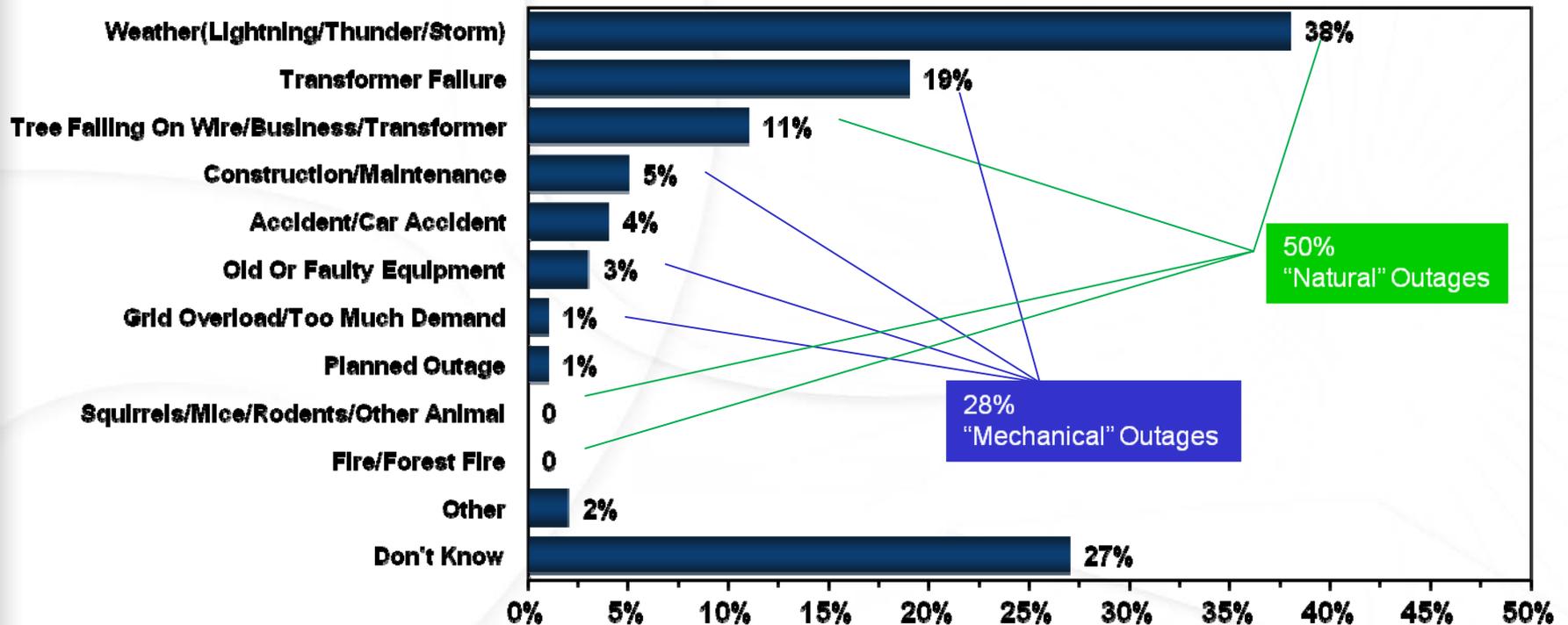
- Nearly one-in-five cannot recall how widespread their most recent power outage was, however 35% indicate that their most recent outage covered the entire business district in their area, while 23% indicate that it was a street-wide outage.
- Nearly half of the largest-consuming businesses say that their entire district experienced the last power outage that they report (47%).



19. Again, thinking about the most recent power outage you experienced, can you recall how widespread the outage was? Was it... (N=194)

# Perceived Cause of Most Recent Outage

- Just over one-quarter of businesses that experienced an outage don't know the cause of the most recent blackout they had. However, 50% report that their most recent outage was due to "natural" causes, such as weather or a rodent, while 28% attribute the power failure to a mechanical cause.
- Rural businesses are more likely to attribute their most recent power outage to the weather (56%), while urban businesses are more likely to attribute their most recent outage to a transformer failure (23%).

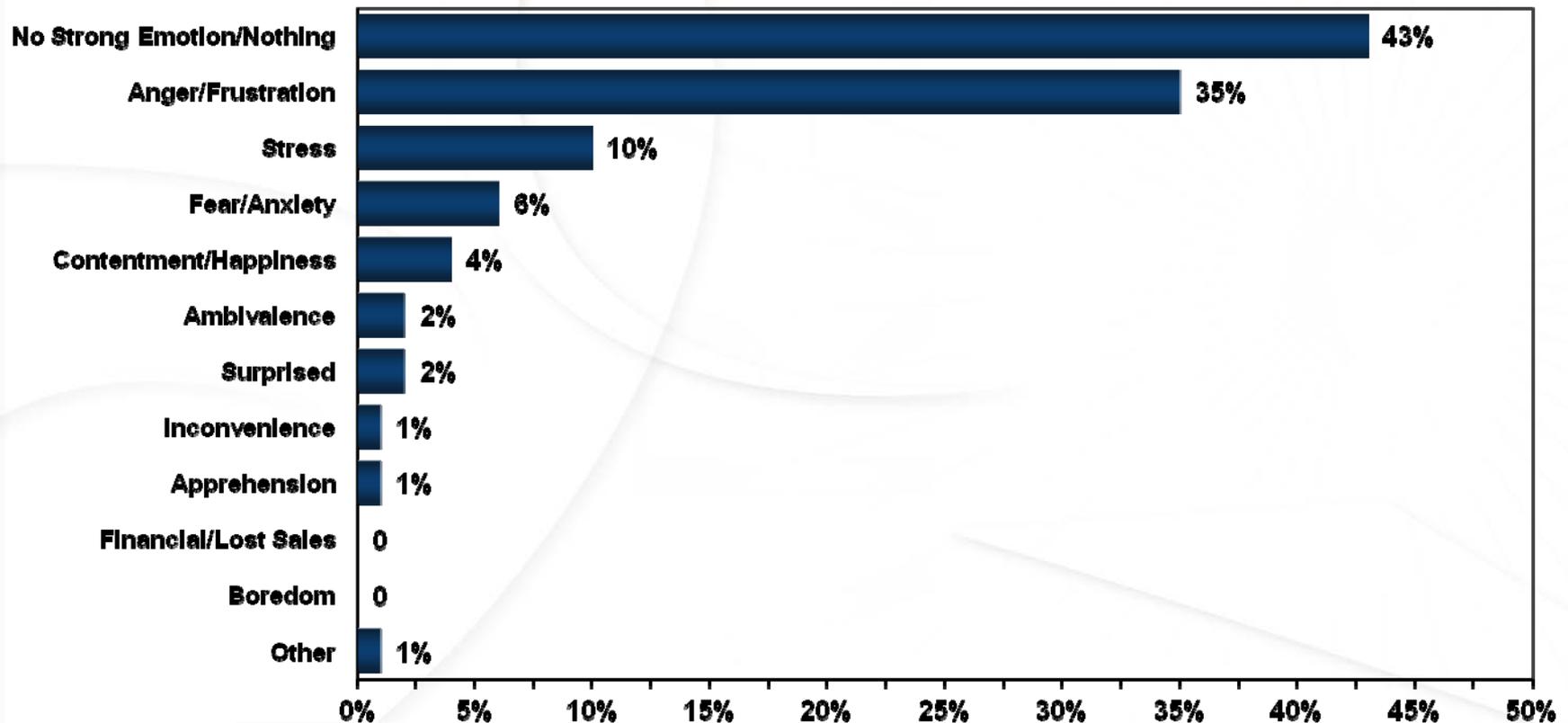


19. And, to the best of your knowledge, what caused the most recent power outage that you experienced? [OPEN, ACCEPT TWO; MULTIPLE MENTION COMBINED] (N=194)

# **Impact of Power Outages**

# Emotional Response to Most Recent Outage

- Though three-in-ten business representatives who experienced an outage say that their last one left them feeling no particular strong emotion, one-third say that it left them angry or frustrated (35%) with an additional 10% who felt more stressed.
- Businesses that consumed more than 50kW that also experienced an outage in the past year are more likely to report feeling stressed as a result of their most recent outage (16%), and are less likely to report feeling no strong emotion (35%).

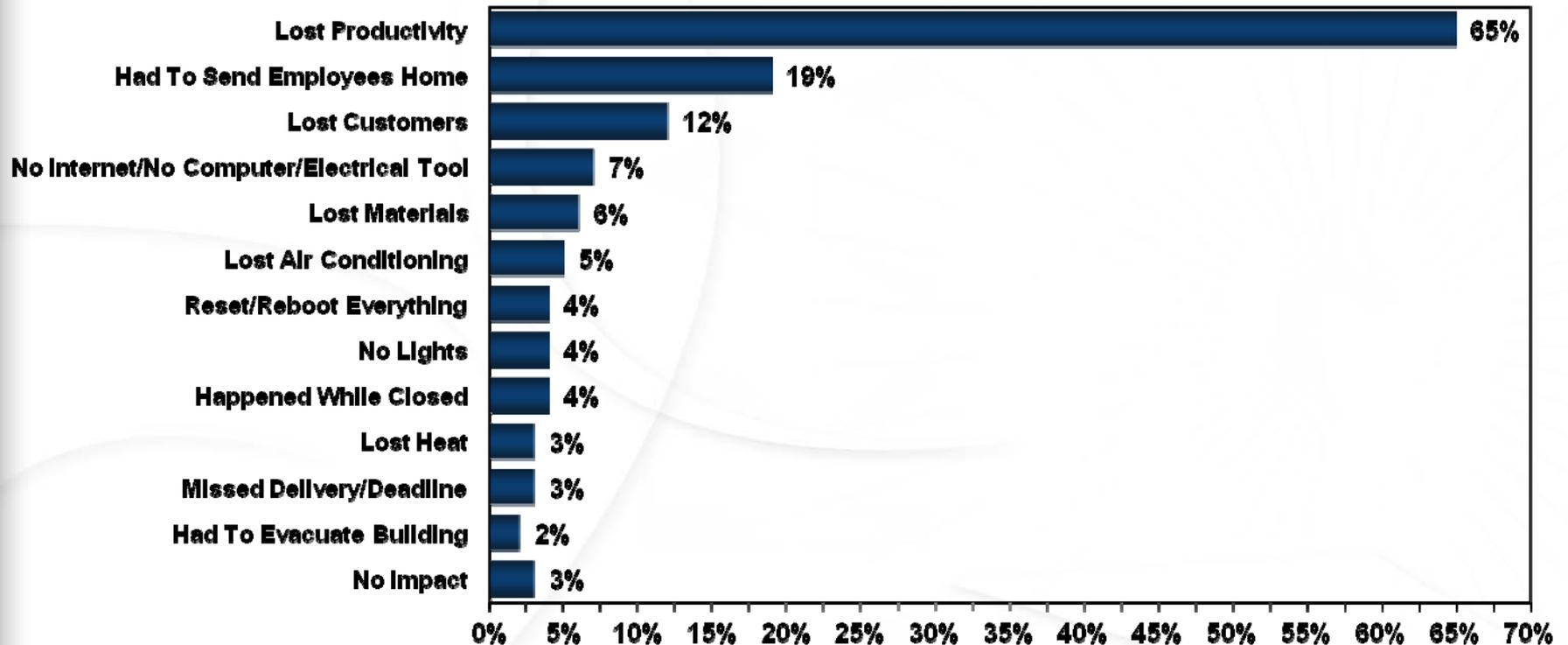


22. And, thinking again about that most recent power outage, what sort of emotion best reflects how you felt when the power went out, if any? [OPEN, ACCEPT TWO; MULTIPLE MENTION COMBINED] (N=194)

\*Use caution when interpreting sub-group numbers due to small sample sizes.

# Impact of Outage on Business

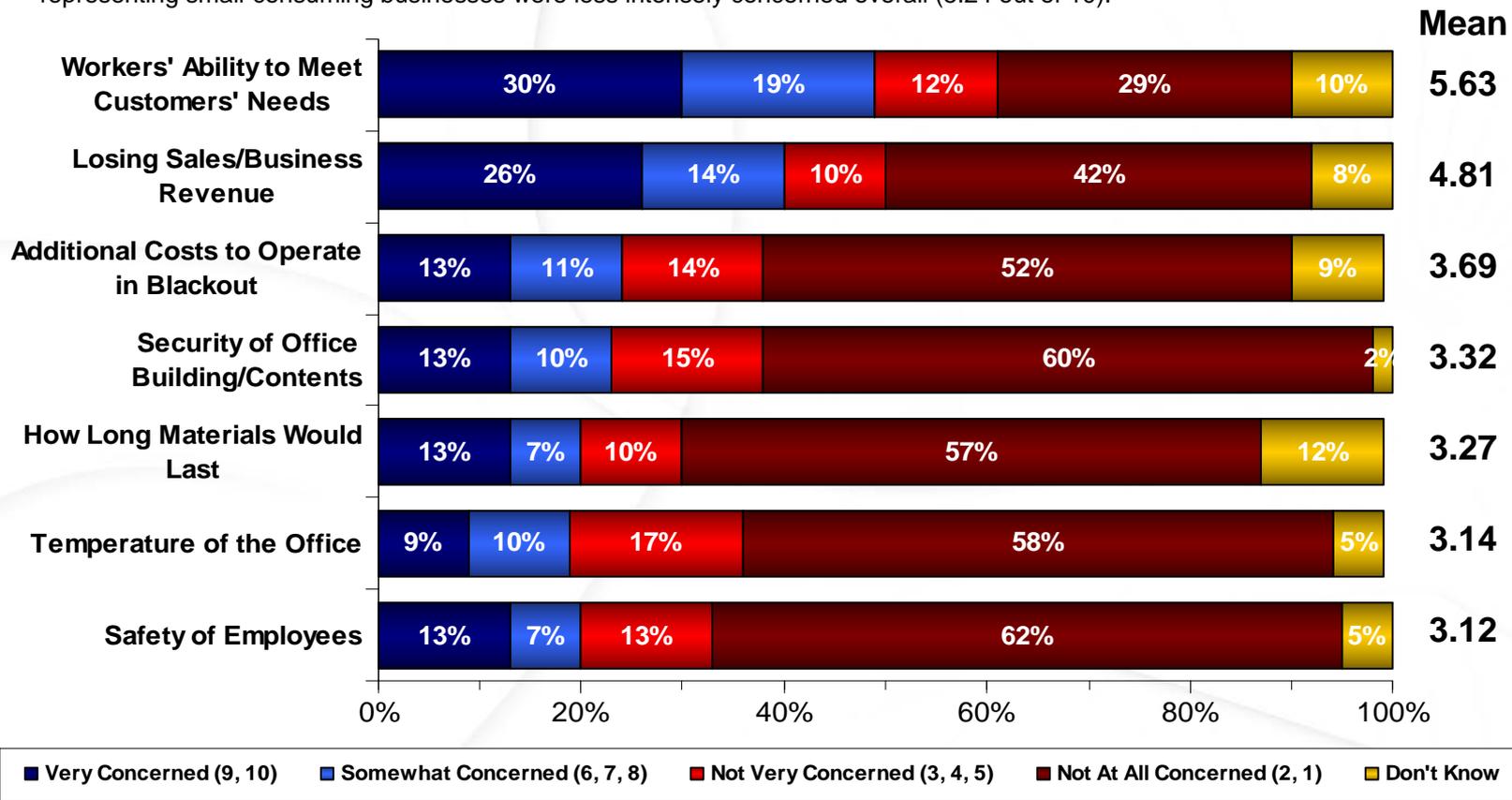
- Sixty-two per cent of businesses that have had an outage in the last year indicate that their business was impacted by the most recent one they experienced. Of that group, nearly two-thirds report lost productivity, and nearly one-in-five had to send their employees home (19%). Twelve per cent say that they lost customers.



23. And, did it have any impact on your business? AMONG 62% "YES": What impact did it have?  
[OPEN, ACCEPT THREE; MULTIPLE MENTION COMBINED] (N=117)

# Concern about Impact of Outage on Business

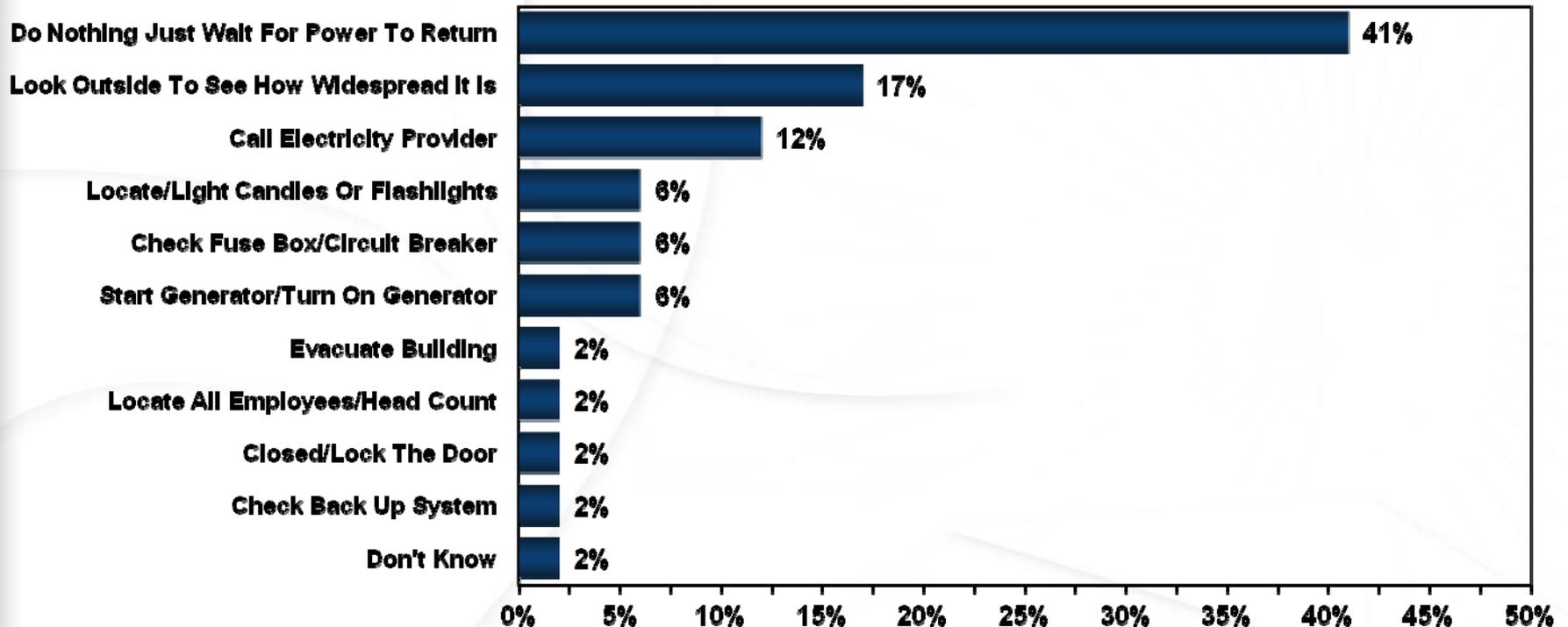
- The greatest concerns for business representatives during their last blackout surrounded productivity: the ability of employees to meet customers' needs (49% at least somewhat concerned) and 40% concerned about losing sales or business revenue. On the whole, however, significant proportions of business representatives were not at all concerned with any of the tested impacts.
- Industrial-size businesses were most intensely concerned with their ability to meet customers needs (mean 6.41 out of 10), while those representing small-consuming businesses were less intensely concerned overall (5.24 out of 10).



24-30. Thinking back to that most recent power outage again, and using a 1 to 10 scale where 1 is "not at all concerned" and 10 is "very concerned", how concerned were you about the following? What about...? [N for each = 194]

# First Action at Power Outage

- Two-in-five did nothing when they first noticed their most recent power outage (41%), while 17% sought information on how widespread it was. Just over one-in-ten thought first of contacting their provider (12%).
- Businesses operating in urban areas were more likely to look outside to see how widespread their most recent outage was (20% compared to 8% of rural businesses) while rural businesses were more likely to call their provider (18% compared to 9% of urban businesses).

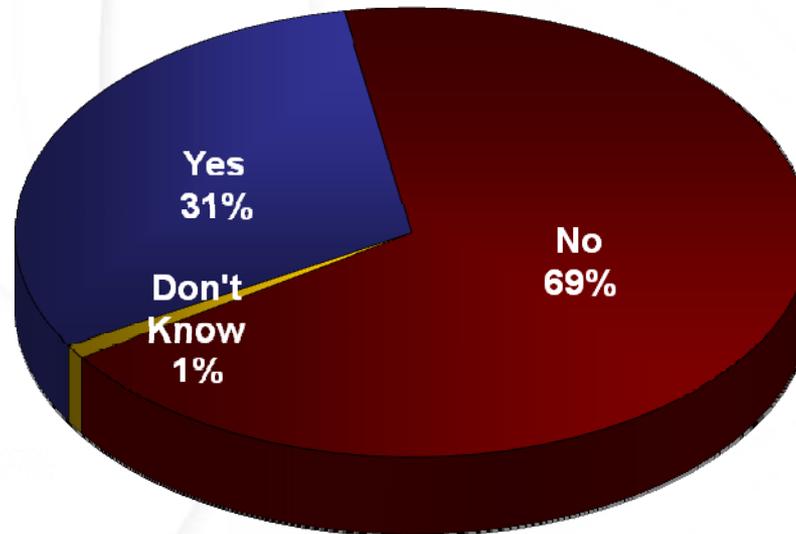


31. Now, when the power went out most recently, what did you do first? [OPEN, ACCEPT ONE ONLY]  
(N=194)

# **Customer Service Ratings and Impact**

# Customer Reporting of Outages

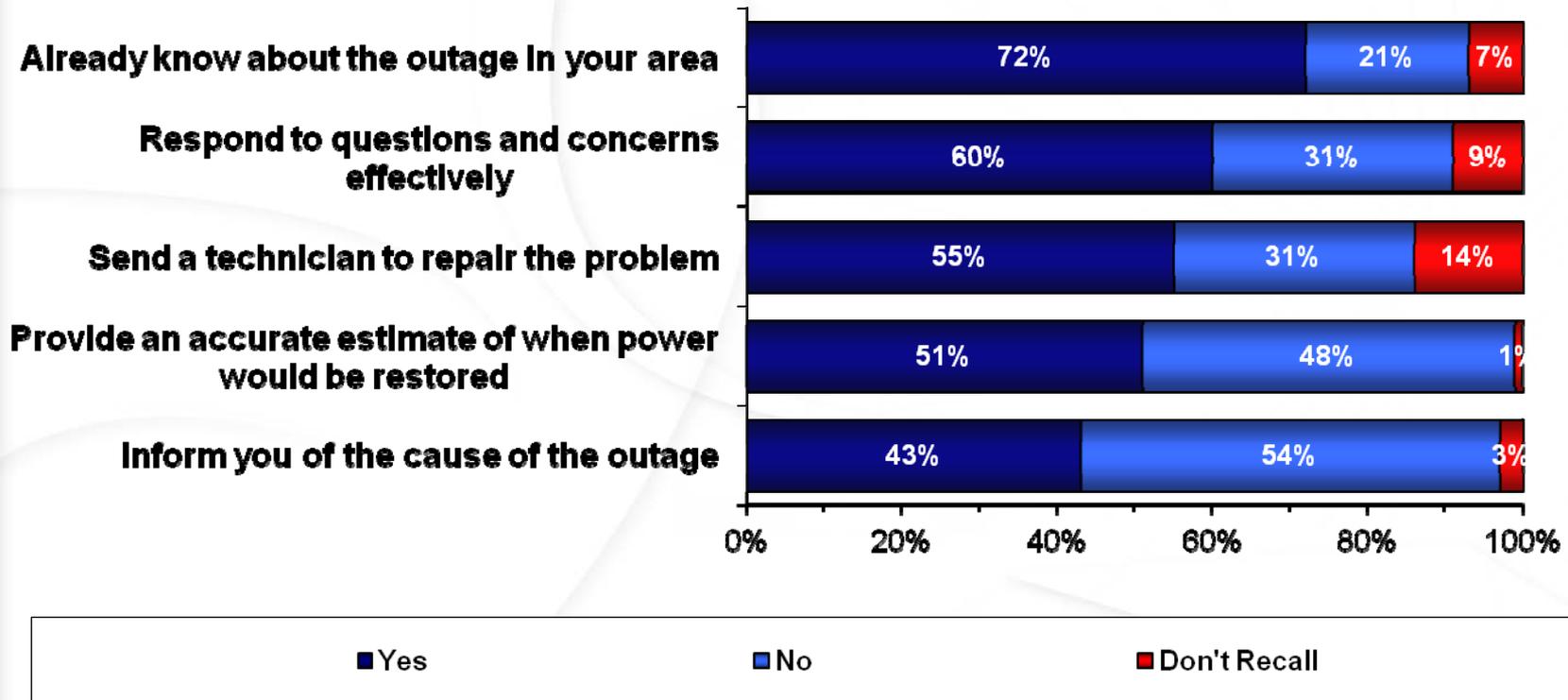
- Just over three-in-ten businesses that experienced an outage reported it to their distributor.
- Businesses with backup generators were more likely than those without backup power to contact their distributor (35% and 29%, respectively).
- Representatives of Toronto businesses (who are more likely to indicate that the number of outages they experience is increasing) are the least likely to say that they called their provider to report the outage (21%).



**32. Did you contact your electricity provider to report this most recent power outage, or to find out more information about the outage in your area? [N=194]**

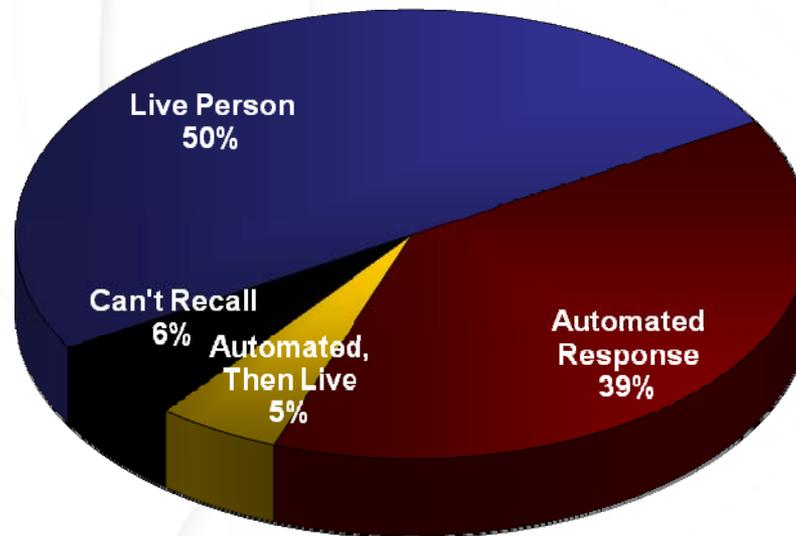
# Customer Service when Contacted about Outage

- Just over seven-in-ten business representatives who called their distributor about the last outage they experienced say that the distributor already knew about it; a majority indicate that the distributor was able to respond to their questions effectively (60%) or that they sent a technician to repair the problem (55%) and provided an accurate estimate of when power would be restored (51%).
- 14% of business representatives who contacted their distributor cannot recall if a technician was sent to repair the last outage their business experienced.



# Response to Provider Contact

- Half of businesses that reported their most recent outage to their distributor say that they were able to speak to a live person on the phone. Businesses in urban areas (52%) are as likely as those in rural areas (48%) to indicate that a live person was on the other end when they called to report their most recent outage.

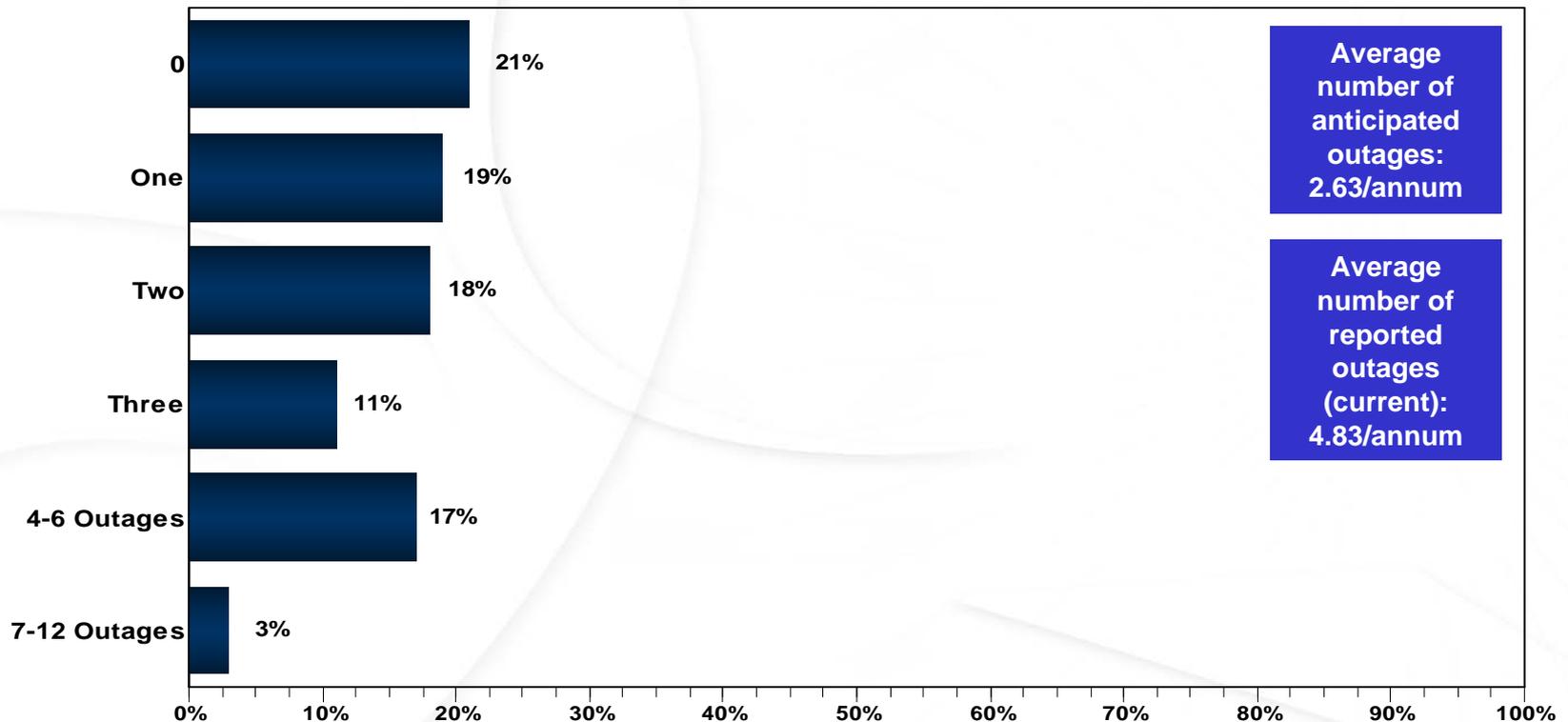


38. [IF YES TO 28] When you called your electricity provider about the power outage, did you speak to a live person, or was it an automated response? (N=67)

# **Expectations for Number and Duration of Outages**

# Expectations for Number of Outages

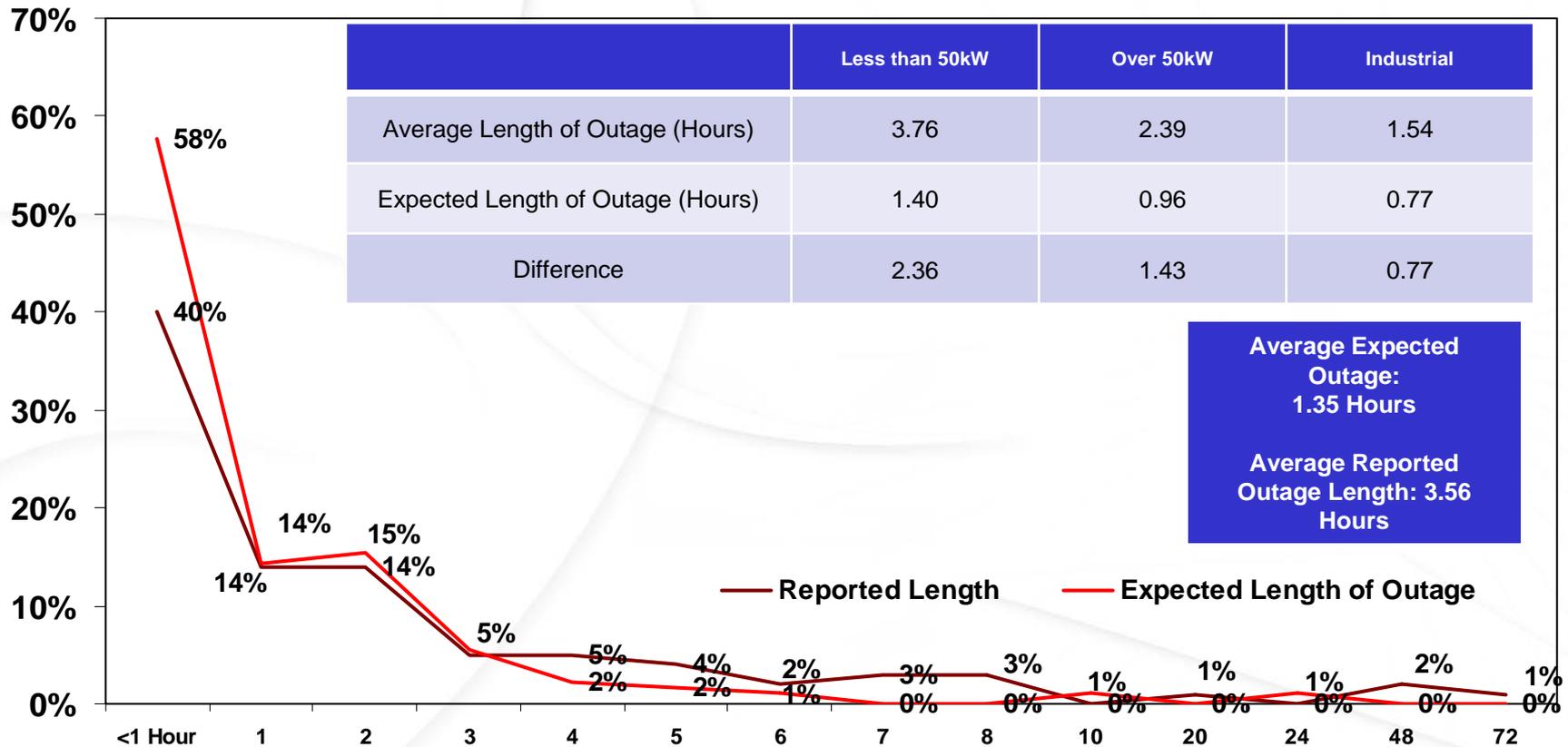
- One-fifth of Ontario businesses expect that they will not have any outages in a given year; a majority (64%) indicate that they anticipate getting between 1 and 6 outages annually, with the overall average being 2.63 outages per year, or just over one every six months. This compares to the current number of reported outages, at 4.83 per annum, among businesses who have experienced an outage in the last year.
- Lower-consumption businesses (less than 50kW) anticipate fewer outages, on average, than the largest-consumption businesses (2.52 and 3.33 per year, respectively).



44. Now, thinking about the electricity distribution system in Ontario and your local electrical utility...How many unplanned power outages do you expect to happen at your business in a typical year? [N=301]

# Expectations for Length of Outage

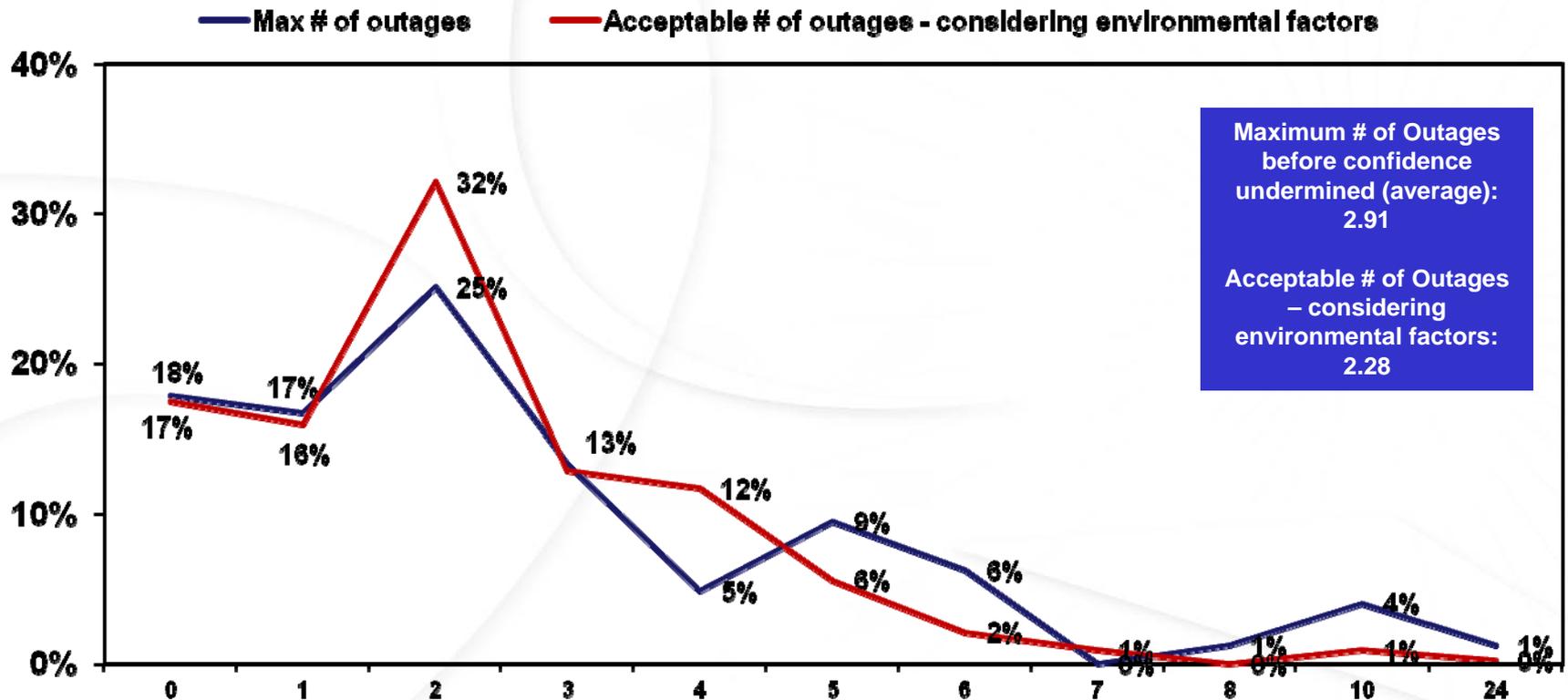
- While 58% of business representatives expect that a typical outage they experience would be less than one hour long, only 40% of businesses who have experienced an outage say that their most recent experience fits this profile.
- Regardless of how much electricity they consume, businesses anticipate power outages that are less than half as long as the outages that are reported currently.



17H. Approximately how long (in hours) did the outage last? [COMBINED VARIABLE] (N=194).  
 47H. And, on average, how long (in hours) do you expect the typical outage to be? [COMBINED VARIABLE] (N=301)

# Expectations for Number of Outages

- In order to ascertain if there was any difference in tolerance for outages when considering the potential causes of outages, this question was asked two different ways: what was the maximum number of outages you would experience before losing confidence in the system, and what is the maximum number of outages you would expect, considering the potential causes of an outage?
- When considering environmental or other factors, the tolerance for power outages stands, on average, at 2.28 outages per year (just over one every six months). However, it would take slightly more outages, on average, in order to undermine confidence in the electricity system: 2.91 outages per year, on average (just under one in every four months).

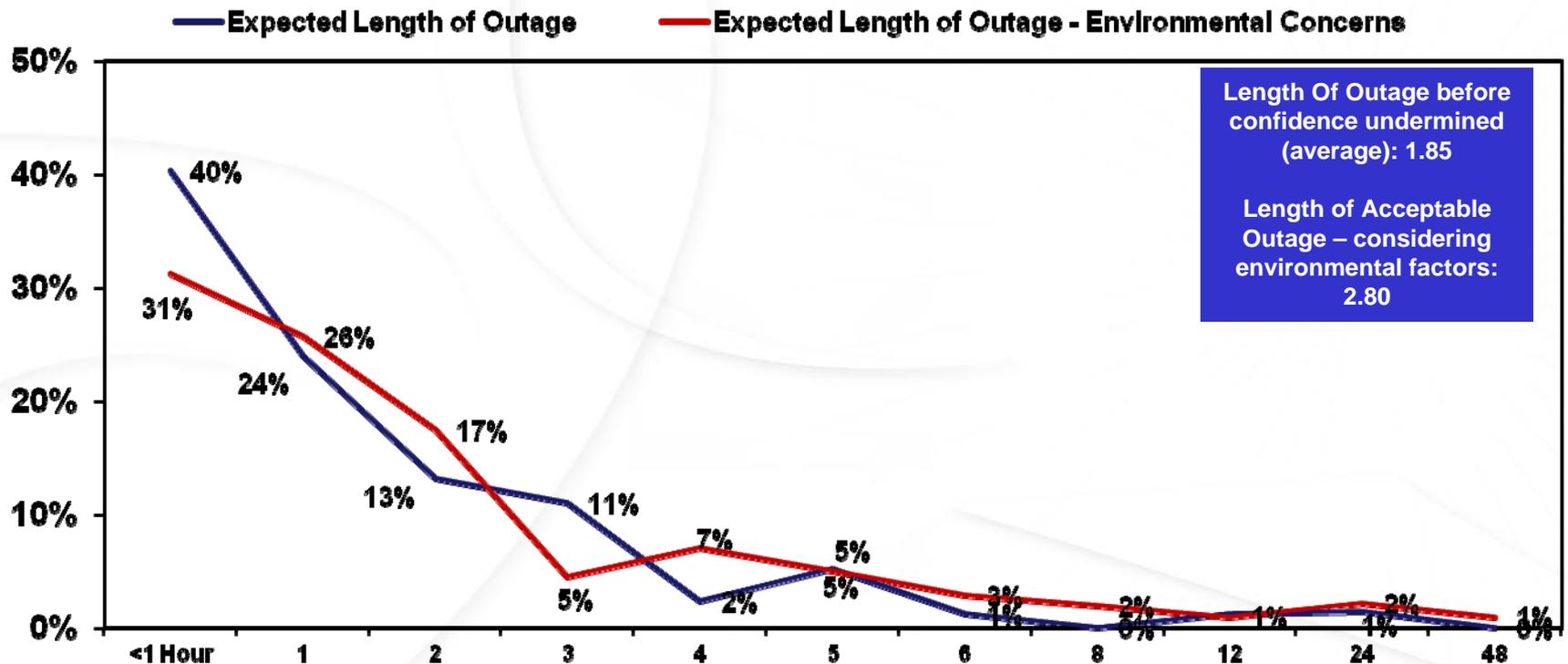


47A. All things considered, approximately how many unplanned power outages per year would you consider acceptable? That is, what would be the maximum number of outages that you would consider reasonable that would not significantly impact your satisfaction with or confidence in the electricity system? (N=137)

49A. And, thinking about how natural accidents, fallen trees, wildlife and weather interference as well as equipment failure can cause unplanned power outages, approximately how many unplanned power outages per year would you consider acceptable? (N=164)

# Expectations for Length of Outage

- After being asked either the maximum number of outages they would have to experience before losing confidence in the system, or what is the maximum number of outages they would expect, considering the potential causes of an outage, businesses were asked how long they would expect either outage to be.
- While they may expect fewer outages that they attribute to a cause, than what they would tolerate before feeling less confidence in the electricity system, the *length* of the acceptable outages renders the opposite result: businesses feel that, on average, outages of 1.85 hours or longer (or about an hour and 51 minutes) would begin to erode their confidence in the system. By contrast, when considering environmental or other factors, the tolerance level increases to an average of 2.80 hours, or two hours and 48 minutes.



48A. And, all things considered, what would you consider an acceptable length of time for an average unplanned outage? That is, what would be the maximum length of an outage that you would consider reasonable, that would not significantly impact your satisfaction with or confidence in the electricity system? (N=137)

50A. And, still thinking about how natural accidents, fallen trees, wildlife and weather interference as well as equipment failure, can cause unplanned power outages, what would you consider an acceptable length of time for an average unplanned outage? (N=164)

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