

(Informed consent presented in the beginning)

Good morning (afternoon). My name is _____. As we explained in the consent form, all of your responses will be kept anonymous. Please keep in mind that when we ask you about a “power outage,” we are talking about a complete loss of electricity to your organization. Many factors can cause power outages, including severe weather, traffic accidents, planned maintenance, or unplanned equipment failures.

1. Please provide some background information about your organization.

Organization Name	
Organization address	
Types of organization	<i>[Note to administrator: check one of the categories you think that best describes this organization]</i> <input type="radio"/> Community organization <input type="radio"/> Critical public services – first responders (police, state troopers, fire, EMS, U.S. Forest Service, U.S. Coast Guard, etc.) <input type="radio"/> Education/training (schools, CAYAC, museum, science center, library, etc.) <input type="radio"/> Government services <input type="radio"/> Public healthcare/social services <input type="radio"/> Other (please specify): _____
Date and time of the interview	

Besides being used for lighting or heating your facility, is electricity used in any other way for the services that your organization provides?

☐ Yes ☐ No

Does your organization require electricity for refrigeration or freezing?

☐ Yes ☐ No

[Note to administrator: Make a note of the answer to the question above about refrigeration/freezing so that you can ask the appropriate follow-up question later in the survey.]

2. Has the COVID-19 pandemic directly affected your organization, such as causing you to suspend operations temporarily or carry out operations at a limited capacity?

☐ Yes ☐ No

[If the respondent answers “yes,” ask the following question]

Please describe how your organization has been affected by the COVID-19 pandemic.

Please enter the respondent’s answer here. Use as much space as you need:

3. Roughly how much does your organization pay for its monthly electricity bill in normal (non-COVID) times?

During shoulder season (Mar-May, Sep-Nov) : \$_____/month

During summer (Jun-Aug): \$_____/month

During winter (Dec-Feb): \$_____/month

What was your organization’s annual operating budget for FY 2019?

\$ _____ in FY 2019

4. How many of each type of employee currently work at the organization?

In normal times	During COVID-19 pandemic
_____ Full time, year-round	_____ Full time, year-round
_____ Part time, year-round	_____ Part time, year-round
_____ Contractor/project-based/temporary	_____ Contractor/project-based/temporary

What percentage of your employees work primarily in facility safety, security, and operations/maintenance?
 _____ % of total number of employees

5. In normal times (before COVID-19), if you were told that the power was likely to be out for 24 hours or more, would any employees be told not to come to work?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following question]

What percentage of employees would be told not to come to work during a power outage lasting 24 hours or longer?

Full-time employees: _____ %

Part-time employees: _____ %

Contractors/project-based/temporary employees: _____ %

6. Is there another organization in the region that could provide the services that your organization provides?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following questions]

About how far away is the other organization from your current location (check all that apply)?

- ☐ Inside city limits of the community
- ☐ Outside of the community, but located in coastal areas of Southcentral Alaska and Southeast Alaska
- ☐ Outside of the community and coastal areas of Southcentral Alaska and Southeast Alaska

In general, how long would an outage need to last before the individuals served by your organization would need to be transferred to the nearest alternative service provider?

_____ days _____ hours

7. Does your organization have a heating system that does not require electricity (for example, wood-fired stoves or furnaces)?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following questions]

What is the fuel source for the heating system?

Please enter the respondent's answer here. Use as much space as you need:

How long would you be able to run the non-electric heating system using the fuel stored on site?

_____ days _____ hours or ☐ Do not know

8. Does your organization have a back-up generator or electricity generation system?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following questions]

What is the maximum or starting wattage of the generator or generation system?

_____ Watts

What is the running wattage of the generator or generation system?

_____ Watts

How long would your organization be able to run the generator or generation system at full capacity with the fuel you have stored on site?

_____ days _____ hours

What is the fuel source for the generator or generation system?

Please enter the respondent's answer here. Use as much space as you need:

How much does it cost to run the generator or generation system?

\$ _____ to operate the generator (excluding fuel costs)

How much fuel does the generator use to produce electricity, in gallons per hour?

_____ gallons/hour to generate electricity

[Note to administrator: be ready to share the webpage with the outage scenario summary table, and give the respondents a minute to skim through the table. Move onto scenario 1 when the participants are ready.]

In the portions of the interview that come next, we will ask you to think about three different example power outages that might happen in **the community**. We just shared the screen with a table summarizing the three power outage scenarios that we will ask about. *When answering the questions about the outage scenarios, please assume that the COVID-19 pandemic has ended, and life has returned to normal.*

	Outage Scenario 1	Outage Scenario 2	Outage Scenario 3
Duration	6 hours	2 days	7 days
Time of year	February weekday	February weekday	February weekday
Weather condition	Relatively warm winter morning (36 °F)	Average winter morning (28°F)	Relatively cold winter morning (19°F)
Initiating event	Power line damaged during digging	Thick cloud of volcano ash	Severe earthquake
Geographic scope	A few neighboring electricity customers	The entire community	All of Southcentral and Southeast Alaska
Planned	No	No	No
Cell towers	Working	Down after several hours	Down after several hours
City water and sewer service	Working	Not working	Minimally working
Critical public services	Working	Working	Minimally working
Stores/Business	Open	Only a few with their own back-up generators and fuel are open	Most likely closed
Travel	Possible	Not possible (planes cannot fly)	Not possible (state of emergency declared)
COVID situation	The COVID-19 pandemic has ended, and life has returned to normal.		

We will first describe each outage scenario in detail and then ask you some questions about the consequences associated with the outages. *There are no right or wrong answers to these questions.* If a question is difficult for you to answer, please provide your best guess. At the end of the survey, you will be able to add comments about any of your answers.

[Scenario #1. Six-hour-long, localized power outage]

It is a **relatively warm (36 °F) winter morning** on a weekday in February with clear skies. The power has just gone out with no warning. When you call **(the utility)**, you find out that someone damaged a buried power line while digging to get to a frozen water pipe. This caused a power outage to your organization and a few other nearby electricity customers served by the power line. The utility already knows about the problem and is working to fix it. **You are told to expect that the power will come back on in about 6 hours.**

During the power outage, equipment that runs on a battery (if charged) or that does not need electricity will work. However, immediately after the outage, most of your operations that require electricity will stop unless your organization has its own back-up generators and stored fuel or has a contract for back-up power from **(the utility)**. If your organization relies on an electric heating system, it will not work during the outage. Most oil and gas heating systems will not work without a back-up generator because they require electricity to run pumps or blowers.

[Note to administrator: The next question applies only if the respondent answered Question 1 by stating that this or her organization requires electricity for refrigeration or freezing]

A closed refrigerator will stay cold for up to four hours. Your organization may be able to keep food, medicine, samples, or materials refrigerated for a longer period of time using ice cubes or coolers, but these items might not be safe to consume after being stored this way.

1-1. Would the 6-hour power outage affect client demand for the services your organization provides?

Please enter the respondent's answer here. Use as much space as you need:

1-2. Would your facility be able to continue normal operations during all or part of the outage?

☐ Yes

☐ No

[If the respondent says "yes," ask the following questions]

What steps might your organization take to continue operations during the outage?

Please enter the respondent's answer here. Use as much space as you need:

What operations would your organization be able to continue during the outage?

Please enter the respondent's answer here. Use as much space as you need:

What percentage of normal operations could your organization continue during the outage? [Note to administrator: if the organization cannot operate at all during the power outage, enter zero].

_____ % of normal operations for _____ hours

1-3. Would this loss of electric power to your organization directly result in public health and safety issues?

☐ Yes

☐ No

[If the respondent answers "yes," ask the following question]

Please describe the public health and safety issues directly related to your organization that would result from this power outage.

Please enter the respondent's answer here. Use as much space as you need:

Compared to your organization's normal operations, approximately how much of a percentage increase would the outage cause in your organization's response time to requests for public safety assistance?

_____ % increase in response time (for fire, police, ambulance services, public safety services)

What percentage increase would you expect to see in injuries or deaths during the outage?

_____ % increase in the number of injuries among population served

_____ % increase in the number of deaths among population served

1-4. Would your organization have any additional costs associated with addressing the effects of the power outage, including replacing equipment damaged by the outage?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following questions]

Please describe the additional costs your organization might experience due to the outage.

Please enter the respondent's answer here. Use as much space as you need:

Please estimate the dollar amount of the additional costs that your organization may experience due to the outage.

\$ _____ additional costs to address outage-related issues

1-5. Now we would like to ask whether the costs of the power outage would be the same if you had 24 hours advance warning that your organization was going to lose power for 6 hours. Imagine that (the utility) tells you on a Monday in February that they will have to turn off the power for approximately 6 hours the next day, on Tuesday morning, to perform some routine system maintenance. Would this advance warning help your organization prepare in ways that would reduce the effect of the power outage?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following question]

How might the consequences be different for your organization if you had advance warning of the outage?

Please describe.

Please enter the respondent's answer here. Use as much space as you need:

1-6. Now let's consider whether the consequences of the outage might be different at another time of year. Would the consequences to your organization change if the unexpected 6-hour power outage occurred in July instead of in February?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following question]

How might your organization's consequences be different if the power outage occurred in July? If there is any difference, what accounts for the difference? Please describe.

Please enter the respondent's answer here. Use as much space as you need:

Next, we would like to know about your organization's response to an imaginary outage that lasts several days or weeks. We will begin by asking a few questions regarding your past experiences and plans for future outages.

1. Has your organization ever experienced an unexpected power outage lasting longer than 2 days?

☐ Yes

☐ No

[If the respondent answers "yes," ask the following questions]

How long did the outage last? When did it occur? What caused the outage?

Please enter the respondent's answer here. Use as much space as you need:

What steps did your organization take to deal with the outage?

Please enter the respondent's answer here. Use as much space as you need:

2. What, if any, consequences would your organization experience:

If power were lost for 2 days unexpectedly:

Please enter the respondent's answer here. Use as much space as you need:

If power were lost for 1 week unexpectedly:

Please enter the respondent's answer here. Use as much space as you need:

If power were lost for longer than 1 week unexpectedly:

Please enter the respondent's answer here. Use as much space as you need:

3. Does your organization have a plan for what to do during an unexpected long power outage that would last several days to several weeks?

☐ Yes

☐ No

[If the respondent answers "yes," ask the following question]

Please describe the plan for an unexpected long power outage in a brief sentence or two:

Please enter the respondent's answer here. Use as much space as you need:

[Scenario #2. Two-day long, city-wide outage in winter]

It is an average (28 °F) winter morning on a weekday in February. The power goes out with no warning. You learn from your battery-operated radio that the Redoubt Volcano has had a major eruption, and the winds have brought a heavy ash cloud to the community. You can see ash in the air and on the ground when you look outside. The ash could damage the utility's diesel generators, so there is no back-up power from the utility. Because it is winter, the streams are frozen, so the hydroelectric power plants are not producing electricity. The Federal Aviation Administration issues a safety warning to pilots in Southcentral Alaska, so planes cannot fly. The utility says the weather forecast indicates that the wind will change in about 2 days (48 hours). The utility expects to restore power then.

During the outage, all regular power to the city will be shut off. Private and social services in the community that have their own emergency back-up generators with good air filters would continue to operate. Other public and private services that would normally receive back-up power from the utility and that do not have emergency generators would probably not be operating. This includes water and sewer service. Cellular towers have back-up power but only for several hours. Your organization will lose both mobile and internet services after the cellular towers lose power. If your organization has generators or wood-fired heaters, these could be used for heating, but note that these appliances should be used carefully because they can produce carbon monoxide.

[Note to administrator: the next statement should be included only if the respondent answered Question 1 by stating that his or her organization requires electricity for refrigeration or freezing]

A closed refrigerator will stay cold for up to four hours, and a full freezer will stay cold for approximately 48 hours if the door stays closed.

2-1. Would the 2-day power outage affect client demand for the services your organization provides?

Please enter the respondent's answer here. Use as much space as you need:

2-2. Would your organization be able to continue operations for all or part of the outage?

☐ Yes ☐ No

[If the respondent says "yes," ask the following questions]

What steps might your organization take to continue operations during the outage?

Please enter the respondent's answer here. Use as much space as you need:

What operations would your organization be able to continue during the outage?

Please enter the respondent's answer here. Use as much space as you need:

What percentage of normal operations could your organization continue during the outage? *[Note to administrator: if the organization cannot operate at all during the power outage, enter zero].*

_____ % of normal operations for _____ hours

2-3. Would this loss of power to your organization directly result in public health and safety issues?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following question]

Please describe the public health and safety issues directly related to your organization that would result from this power outage.

Please enter the respondent's answer here. Use as much space as you need:

Compared to your organization's normal operations, approximately how much of a percentage increase would the outage cause in your organization's response time to requests for public safety assistance?

_____ % increase in response time (for fire, police, ambulance services, public safety services)

What percentage increase would you expect to see in injuries or deaths during the outage?

_____ % increase in the number of injuries among population served

_____ % increase in the number of deaths among population served

2-4. Would your organization have any additional costs associated with addressing the impacts of the power outage, including replacing equipment damaged by the outage?

☐ Yes ☐ No

[If the respondent answers “yes,” ask the following questions]

Please describe the additional costs your organization might experience due to the outage.

Please enter the respondent’s answer here. Use as much space as you need:

Please estimate the amount of additional costs your organization might experience due to the outage.

\$ _____ additional costs to address outage-related issues

2-5. Would the consequences of the power outage to your organization change if the 2-day-long power outage that affects **the entire community** occurred in July rather than in February?

☐ Yes

☐ No

[If the respondent answers “yes,” ask the following question]

How might your organization’s consequences of the outage be different in July? If there is any difference, what accounts for the difference? Please describe.

Please enter the respondent’s answer here. Use as much space as you need:

[Scenario #3. 7-day-long (1-week-long), widespread outage]

Next, we would like to ask you about an even longer outage than the two we have discussed so far. It is a **relatively cold (19 °F) winter morning** on a weekday in February. At sunrise, you feel a big earthquake. The power goes out immediately. Fortunately, your organization's facility is not significantly damaged, and nobody is hurt. You learn from your battery-operated radio that the earthquake has severely disrupted the coastal areas of Southcentral Alaska and Southeast Alaska. The radio also tells you that **(the utility)**'s power plant and substation, and a number of other parts of the power system have been seriously damaged. Also, the underground fiber optic cables, communication system, and water supply and waste system are damaged. **(The utility) expects it will be a full week—7 days— before they can restore power to your organization and most of the community.**

You were given no warning and did not have a chance to prepare for this disaster. The government declares a state of emergency that bans all non-essential travel. **(The utility)**'s emergency generators are operated to power critical services, including undamaged portions of the water and sewer systems, some communications, **(the community)** community medical center, and other government buildings. The government is planning to evacuate all residents who have life-threatening medical conditions to nearby emergency shelters. Emergency responders tell you that they will begin to distribute basic supplies within the next day, including food, water, first aid supplies, flashlights, and batteries.

Because this outage is more widespread and takes a longer time to fix than the two previous scenarios, the consequences of this power outage would be very different. During this 7-day outage, only a few critical public services, including water and sewer service, communications services, and **(the community)** community medical center, would receive a limited amount of back-up power from **(the utility)**. Private and social services facilities that have their own emergency back-up generators and fuel stored on site would continue to operate. However, other services without back-up power will be immediately unavailable. If you cannot heat your facility, the temperature there may drop below freezing after a day or two. Exposure to low temperatures would damage temperature-sensitive equipment and facilities. Your water pipes could also freeze and burst if you are not able to heat the building or drain the pipes.

3-1. Would the 7-day (1 week) power outage affect client demand for the services your organization provides?

Please enter the respondent's answer here. Use as much space as you need:

3-2. Would your organization be able to continue operations for all or part of the outage?

☐ Yes

☐ No

[If the respondent answers "yes," ask the following questions]

What steps might your organization take to continue operations? Please describe.

Please enter the respondent's answer here. Use as much space as you need:

What operations would you be able to continue during the outage?

Please enter the respondent's answer here. Use as much space as you need:

What percentage of normal operations could you continue during the outage? *[Note to administrator: if the organization cannot operate at all during the power outage, enter zero].*

_____ % of normal operations for _____ days

3-3. Would this loss of electric power to your organization directly result in public health and safety issues?

☐ Yes

☐ No

[If the respondent answers "yes," ask the following question]

Please describe the public health and safety issues directly related to your organization that would result from this power outage.

Please enter the respondent's answer here. Use as much space as you need:

Compared to your organization's normal operations, approximately how much of a percentage increase would the outage cause in your organization's response time to requests for public safety assistance?

_____ % increase in response time (for fire, police, ambulance services, public safety services)

What percentage increase would you expect to see in injuries or deaths during the outage?

_____ % increase in the number of injuries among population served

_____ % increase in the number of deaths among population served

3-4. Would your organization have any additional costs associated with addressing the impacts of the power outage, including replacing equipment damaged by the outage?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following questions]

Please describe the additional costs your organization might experience due to the outage.

Please enter the respondent's answer here. Use as much space as you need:

Please estimate the dollar amount of additional costs your organization might experience during the outage.

\$ _____ additional costs to address outage-related issues

3-5. Does your organization have raw materials, equipment, and/or inventory that could be damaged or destroyed if they were exposed to extremely cold temperatures?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following questions]

What raw materials, equipment, and/or inventory could be damaged or destroyed? Please describe:

Please enter the respondent's answer here. Use as much space as you need:

Please estimate the dollar amount of the costs of raw materials, equipment, and/or inventory damaged by the outage.

\$ _____ damage to raw materials, equipment, and/or inventory

3-6. Would your organization be able to heat your facility or take other steps to avoid frozen water pipes?

☐ Yes ☐ No

[If the respondent answers "no," ask the following question]

What equipment, buildings, and/or other structures could be damaged or destroyed as a result of frozen water pipes? Please describe:

Please enter the respondent's answer here. Use as much space as you need:

Please estimate the dollar amount of damage to equipment, buildings, and other structures that could result from frozen water pipes.

\$ _____ damage to raw materials, equipment, and/or inventory

3-7. Would the consequences of the power outage to your organization change if the 7-day (1 week) power outage affecting all of Southcentral and Southeast Alaska occurred in July rather than in February?

☐ Yes ☐ No

[If the respondent answers "yes," ask the following question]

How might your organization's consequences be different in July? If there is any difference, what accounts for the difference? Please describe.

Please enter the respondent's answer here. Use as much space as you need:

For the final step in the interview, we would like to collect some information about past power outage experiences at your organization facility, any plans to protect your organization from the impacts of power outages, and any comments you want to add about your answers. Please answer the following questions to the best of your ability.

1. In a typical year, how many power outages does your organization experience?

Power outages lasting less than 5 minutes	_____ times per year
Power outages lasting between 5 minutes and 6 hours	_____ times per year
Power outages lasting between 6 hours and 2 days	_____ times per year
Power outages lasting between 2 days and 1 week	_____ times per year
Power outages lasting longer than 1 week	_____ times per year

2. Does your organization have any plans to protect itself from the effects of power outages (for example, buying a generator, batteries, battery wall, or stand-by back-up generator with a fuel tank)?

☐ Yes ☐ No

[If the respondent answers “yes,” ask the following question]

Please describe in more detail what steps your organization is planning to take to protect against power outages. What is the reason for your organization’s interest in making this investment?

Please enter the respondent’s answer here. Use as much space as you need:

What is the main goal of the investment (for example, to be able to continue some critical operations during power outages)?

Please enter the respondent’s answer here. Use as much space as you need:

3. Please share any additional comments:

Please enter the respondent’s answer here if there are any. Use as much space as you need:

Thank you very much for participating in this study.

If you have any questions or concerns, please feel free to contact the survey administrator.