

**(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.

**A. Information about your facility**

**A-1.** Please provide some background information about your organization.

Company Name	<i>[Note to administrator: check the categories you think that best describe this organization (select all that apply)]</i> <input type="checkbox"/> Commercial fishing <input type="checkbox"/> Distribution and warehousing <input type="checkbox"/> Food processing <input type="checkbox"/> Transportation (including port/airport) <input type="checkbox"/> Utilities (water and sewage, waste collection, communication, etc.) <input type="checkbox"/> Other (please specify: _____)
Company address	
Categories	
Date and time of the interview	

**A-2.** What are your facility's operating hours on weekdays, Saturdays, and Sundays? If employees work in shifts, please state the hours that each shift covers. *[Note to administrator: use military time; if open 24 hours, use 00:00 to 00:00].*

	Weekday			Saturday			Sunday	
	Open	Close		Open	Close		Open	Close
Shift 1			Shift 1			Shift 1		
Shift 2			Shift 2			Shift 2		
Shift 3			Shift 3			Shift 3		

**A-3.** How many locations does your organization have?

- ☐ Single Location
- ☐ Multiple locations, all in (the community)
- ☐ Multiple locations, both in and outside (the community)

*[If the respondent answers “multiple locations, all in (the community)” or “multiple locations, both in and outside (the community),” ask the following question]*

Where are the locations of each of your organization’s facilities?

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

[Note to administrator: the response to Question A-3 so that you can ask the appropriate follow-up questions later in the survey.]

**A-4.** How many of each type of employee currently work at (the community) location(s)?

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 the total number of employees

**A-5.** Roughly how much does your organization pay for its monthly electricity bill in normal (non-COVID) times?

During shoulder seasons (Mar-May, Sep-Nov): \$ \_\_\_\_\_ /month  
 During summer (Jun-Aug): \$ \_\_\_\_\_ /month  
 During winter (Dec-Feb): \$ \_\_\_\_\_ /month

## B. Production and process description

**B-1.** Please describe the products or services that your organization provides.

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

**B-2.** What processes does your organization use to make these products and/or provide these services?

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

[Follow-up question if the answer to the following question cannot be inferred from the answer to the previous question]

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

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

Does your organization require electricity for refrigeration or freezing?

☐ Yes

☐ No

Does your organization require electricity for cooking?

☐ Yes

☐ No

[Note to administrator: Make a note of the answers to the above 2 questions so that you can ask the appropriate follow-up questions later in the survey.]

**B-3.** Has the COVID-19 pandemic directly affected your organization? For example, have you furloughed employees, suspended operations temporarily, or shifted to operating 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:

**B-4.** Please indicate where key suppliers for your organization are located.

- ☐ Only within (the community)  
☐ Only outside of (the community)  
☐ Both within and outside of (the community)

*[If the respondent answers “only outside of (the community)” or “both within and outside of (the community),” ask the following question]*

Where are the locations of the key suppliers who are based outside of (the community)?

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

**B-5.** Please indicate where your primary customers are located.

- ☐ Only within (the community)  
☐ Only outside of (the community)  
☐ Both within and outside of (the community)

**C. Outage experience, impacts of power outages, and impact mitigations**

**C-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

**C-2.** Does your organization’s facility 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 this non-electric heating system using the fuel stored in the tank or on site?

\_\_\_\_\_ hours

**C-3.** 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?

\_\_\_\_\_ 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

**C-4.** Has your organization purchased business interruption insurance?

☐ Yes ☐ No

*[Note the answer to question C-4 so that you can ask the appropriate follow-up questions later in the interview. If the respondent answers “yes,” ask the following questions]*

Your organization’s business insurance policy may help your organization cover some of the losses that result from a power outage. However, you will have to pay your insurance deductible first. Also, your insurance may cover only certain types of damages (for example, property damage, limited business interruption losses, spoilage).

What is the minimum geographic area of an outage and the minimum amount of time that an outage has to last for your organization’s business interruption insurance to kick in? Please describe:

Please enter your answer here. Use as much space as you need:

How much is your organization’s business interruption insurance deductible?

\$ \_\_\_\_\_

What is the coverage limit of your policy?

\$ \_\_\_\_\_

**C-5.** In general, how long can an outage last before your organization's operations are significantly affected so that the effects cannot be made up by working overtime, adding extra shifts, using accumulated inventory, etc.?

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

**C-6.** What would normally happen to your facility's operations during a prolonged power outage, as defined in the previous question, that is, an outage resulting in a significant impact that cannot be made up?

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

*[If the respondent answered Question A-3 stating that the organization has multiple locations, ask the following questions (C-7 and C-8); otherwise, move on to Question C-9]*

**C-7.** Does an outage at (the community) facility have financial effects on other sites operated by your company?

☐ Yes

☐ No

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

What types or durations of outages at (the community) location have financial effects on other sites operated by your company?

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

What would be the specific financial effects on the other sites?

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

**C-8.** When your organization's (the community) location experiences a power outage that affects (the entire community), could you transfer work and/or employees to other locations within or outside of (the community) that have access to power?

☐ Yes

☐ No

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

About what percent of work can be transferred to other locations with power?

\_\_\_\_\_ %

About what percent of employees can be transferred to the other locations with power?

\_\_\_\_\_ %

How long or how widespread would an outage need to be for you to transfer work and/or employees to other locations? How much would the relocation of work and/or employee cost?

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

**C-9.** During an outage that lasts multiple days or weeks, can you physically relocate your equipment or infrastructure, temporarily or permanently, to a location that has power, in order to enable your organization to continue to operate?

☐ Yes

☐ No

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

How long or widespread would an outage need to be for you to make the decision to relocate equipment or infrastructure? How much would the relocation of equipment cost?

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

**C-10.** In normal times (before COVID-19), if your organization was 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: \_\_\_\_\_%

*[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.*

	<b>Outage Scenario 1</b>	<b>Outage Scenario 2</b>	<b>Outage Scenario 3</b>
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	<b>(The entire community)</b>	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 costs and savings associated with the outages. *There are no right or wrong answers to these questions.* If a question is difficult for you to answer, please give 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 working unless your organization has your own back-up generator(s) 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 because they require electricity to run pumps or blowers.

*[Note to administrator: The next statement is only applicable if the respondent answered Question B-2 stating that his or her organization requires refrigeration or freezing for food]*

The United States Department of Agriculture recommends that perishable food such as fish may need to be discarded if the outage lasts longer than four hours. Your organization may be able to keep refrigerated perishable food, samples, or materials for a longer period of time using ice or in coolers that are on hand, but items stored in this way may not be safe to consume.

*[Note to administrator: The next statement is only applicable if the respondent answered Question C-4 stating that his or her organization has business interruption insurance]*

Your organization's business interruption insurance may cover the amount of your organization's loss of profit and/or food spoilage. However, your insurance deductible will need to be paid.



**1-1.** Would this 6-hour power outage affect your key suppliers?

☐ Yes ☐ No

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

Would there be any effects on your organization because your suppliers are affected? Is there any measure to mitigate the impacts of the supply disruption?

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

**1-2.** Would this 6-hour power outage affect your revenue from customer demand for the goods and services that your organization provides?

☐ Yes ☐ No

*[If the respondent says "yes," ask the following question]*

Please estimate the expected percentage change in revenue resulting from the changes in customer demand.

\_\_\_\_\_ % change in revenue due to the change in customer demand

*[Note to administrator: the answer will be >0 if there is an increase in demand, 0 if there is no change in demand, and <0 if there is a decrease in demand]*

**1-3.** 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 the facility's operations during this 6-hour outage?

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

Which 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?

\_\_\_\_\_ % of normal operations for \_\_\_\_\_ hours

*[Note to the administrator: if the organization cannot operate at all during the power outage, enter zero for both]*

*[If the respondent mentions "relying on backup power to continue (partial) operations," ask the following question before moving onto Question 1-4]*

How much would it cost to operate your organization's back-up generation equipment during the outage?

\$ \_\_\_\_\_

**1-4.** After power comes back on, would your organization be able to make up for the production of goods and/or services that were lost during the outage?

☐ Yes ☐ No

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

What steps would your organization take to make up for the lost production of goods and/or services?

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

What percentage could you recover of the revenue lost during the outage due to lost production of goods and/or services?

\_\_\_\_\_ % of the lost revenue

How much would it cost your organization, in dollars, to make up for the backlog of work resulting from the power outage, for example, by working overtime or extra shifts?

\$ \_\_\_\_\_

**1-5.** Overall, how much revenue, in dollars, would your organization lose during and after the power outage (for example, from lost sales of goods and/or services)?

*[Note to administrator: if the organization will not be affected by the outage or is expected to reap benefits during the power outage, enter zero.]*

\$ \_\_\_\_\_ lost revenue from the power outage

**1-6.** Would there be any costs of the power outage from damage to raw or intermediate materials, including perishable food that could spoil?

☐ Yes ☐ No

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

Please estimate a dollar amount for the damage cost to raw or intermediate materials.

\$ \_\_\_\_\_ damage to raw or intermediate materials

**1-7.** Sudden power outages can damage equipment. Would your organization be likely to have any damage costs from this 6-hour power outage, such as costs for damage to sensitive electrical or mechanical devices?

☐ Yes ☐ No

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

Please estimate a dollar amount for the damage to equipment.

\$ \_\_\_\_\_ damage to equipment

**1-8.** If you had to deal with outage-related issues such as replacing equipment damaged by the loss of power, would there be labor costs, above and beyond the labor costs for normal operations?

☐ Yes ☐ No

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

Please estimate the cost of additional labor to address the outage-related issues.

\$ \_\_\_\_\_ additional labor costs to address outage-related issues

**1-9.** Would there be other tangible costs from this power outage that have not already been mentioned, such as for extra materials, fuel, labor to re-start your facilities, or regulatory costs to dispose of hazardous materials?

☐ Yes ☐ No

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

Please estimate a dollar amount for the additional tangible costs.

\$ \_\_\_\_\_ additional tangible costs

**1-10.** Now that we have talked about direct costs from the power outage, we would like to ask you about intangible costs that your organization might experience as a result of the outage. Intangible costs are for things other than equipment, materials, and labor. Intangible costs include inconvenience, loss of goodwill of customers or suppliers, potential liability, and other similar effects. Would your organization experience any intangible costs from the outage?

☐ Yes ☐ No

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

Please describe the intangible costs your organization might experience during and after the outage.

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

**1-11.** Some organizations might save money during power outages, such as from using less electricity, consuming fewer materials, and using less labor if operations are reduced while the power is out. Would your organization experience any savings during the power outage?

☐ Yes ☐ No

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

Please estimate, in dollars, how much your organization might save during the outage:

\$ \_\_\_\_\_ savings due to the power outage

*[Question only for respondent who responds to question C-4 stating that his or her organization has business interruption insurance]*

**1-12.** What percentage of the outage cost do you expect to be covered by your organization's business interruption insurance policy?

\_\_\_\_\_ % of the loss covered by the insurance after paying a deductible of \$ \_\_\_\_\_

**1-13.** Based on the information you provided, we estimated the total cost to your organization from the 6-hour power outage we described which affects a part of (the community).

**Summary of the outage:**

**Time of year:** February, Tuesday

**Start time:** Morning (relatively warm, 36 °F)

**Outage duration:** 6 hours

**Affected areas:** Your organization and a few neighboring electricity customers

**Cause:** Power line damaged during digging

**Advance warning before the outage:** No

Category	Estimates
Cost to operate back-up generation equipment	\$ (calculate using the answer of Q1-3-4)
Additional labor costs to make up for the operations/production lost during the outage	\$ (calculate using the answer of Q1-4-2)
Lost revenue due to outage	\$ (calculate using the answer of Q 1-5)
Damage to raw materials and/or inventory due to outage	\$ (calculate using the answer of Q 1-6)
Damage to equipment due to outage	\$ (calculate using the answer of Q 1-7)
Additional labor costs to address outage-related issues	\$ (calculate using the answer of Q 1-8)
Other tangible costs, including re-start cost	\$ (calculate using the answer of Q 1-9)
Costs subtotal:	\$ (sum)
Savings due to the outage	\$ (calculate using the answer of Q 1-11)
Losses covered by business interruption insurance policy	\$ (calculate using the answer of Q 1-12)
Savings subtotal:	\$ (sum)
TOTAL NET COST:	\$ (Costs subtotal – Savings subtotal)

Your organization's total net cost of the outage is estimated to be \$(total cost estimate from the table). Do you think the estimate is reasonable?

☐ Yes

☐ No

*[If the respondent answers "no," ask the following questions]*

Please revise the total net power outage cost estimate.

\$ \_\_\_\_\_

Please explain the reason you revised the estimate. Were there any costs or savings that we did not include in our calculation?

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

**1-14.** Now we would like to ask you how the same outage would affect your organization if you had advance warning that the power was going to be out. Imagine that (the utility) tells you on a Monday in February that they are going to have to turn off the power for approximately 6 hours the next day, on Tuesday morning, so that they can do some routine system maintenance. Would this advance warning help your organization prepare for the power outage in such a way that the cost of the outage would be less than if it happened with no warning?

☐ Yes ☐ No

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

The total net cost of the 6-hour power outage without advance warning was estimated to be \$(total cost estimate after confirmation). What percentage of this cost do you estimate would be reduced if you had 24 hours advance warning of the outage?

\_\_\_\_\_ % decrease

**1-15.** Now let's consider whether the cost of the outage might be different at another time of year. The total net cost of the 6-hour power outage during February was estimated to be \$(total cost estimate after confirmation). Keeping in mind that if your organization has a business interruption insurance policy, it might cover some but only certain types of losses from the power outage, would your organization's cost due to the power outage change if the outage were to happen without advance warning in July instead of in February?

☐ Yes ☐ No

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

How might your organization's costs 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 organization's past experiences with lengthy outages and the plans for future outages of this type.

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 comments here. Use as much space as you need:

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

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

If power were lost for 1 week unexpectedly:

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

If power were lost for longer than 1 week unexpectedly:

Please enter the respondent's comments 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 comments 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 the 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 B-2 by stating that his or her organization requires refrigeration or freezing for food]*

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.

*[Note to administrator: the next statement should be included only if the respondent answered Question C-4 stating that his or her organization has business interruption insurance]*

Your organization's business interruption insurance may cover your loss of profit and/or food spoilage. However, your insurance deductible will need to be paid before insurance will pay.

2-1. Would the 2-day power outage affect your key suppliers?

☐ Yes

☐ No

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

Would there be any effects on your organization because your suppliers are affected? Is there any measure to mitigate the impacts of the supply disruption?

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

2-2. Would the 2-day power outage affect your revenue from customer demand for the goods and/or services that your organization provides?

☐ Yes

☐ No

*[If the respondent says "yes," ask the following question]*

Please estimate the expected percentage change in revenue resulting from the change in customer demand.

\_\_\_\_\_ % change in revenue due to the change in customer demand

*[Note to administrator: the answer will be >0 if there is an increase in demand, 0 if there is no change in demand, and <0 if there is a decrease in demand]*

2-3. 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 your facility's 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 and for how long?

\_\_\_\_\_ % of normal operations for \_\_\_\_\_ hours

*[Note to administrator: if the organization cannot operate at all during the power outage, enter 0]*

2-4. After the power comes back on, would your organization be able to make up for the production of goods and/or services that were lost during the outage?

☐ Yes

☐ No

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

What steps would your organization take to make up for the production of goods and/or services that were lost during the outage?



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

What percentage could you recover of the revenue lost during the outage due to lost production of goods and/or services?

\_\_\_\_\_ % of the revenue lost from lost production of goods and/or services

2-5. Using the table below, please estimate the costs and savings that your organization might experience due to this example 2-day power outage that affects (the entire community).

**Summary of the outage:**

**Time of year:** February, Tuesday

**Start time:** Morning (about average, 28 °F)

**Duration:** 2 days (48 hours)

**Affected areas:** (the entire community)

**Cause:** Heavy volcano ash cloud from a major eruption of Mount Redoubt

**Advance warning before the outage:** Only for volcanic eruption, not for the power outage

Category	Estimates
Cost to operate back-up generation equipment	\$
Additional labor costs to make up for the operations/production lost during the outage	\$
Lost revenue due to outage	\$
Damage to raw materials and/or inventory due to outage	\$
Damage to equipment due to outage	\$
Additional labor costs to address outage-related issues	\$
Other tangible costs, including re-start cost	\$
Costs subtotal:	\$ (sum)
Reduced personnel costs	\$
Other savings due to outage (for example, reduced electricity and material consumption)	\$
Savings subtotal:	\$ (sum)

*[Question only for the respondent who answered Question C-4 stating that his or her organization has business interruption insurance]*

What percent of the outage costs do you expect would be covered by your organization's business interruption insurance policy?

\_\_\_\_\_ % of the loss covered by the insurance after paying \$ \_\_\_\_\_ deductible amount

*[After the respondent finishes filling in the table and/or answering the insurance question, ask the following question]*

The total net power outage cost is estimated to be \$(total cost estimate, total cost estimate, costs subtotal – savings subtotal – insurance coverage). Do you think the estimate is reasonable?

☐ Yes

☐ No

*[If the respondent answers "no," ask the following questions]*

Please revise the total net power outage cost estimate.

\$ \_\_\_\_\_

Please explain the reason you revised the estimate. Were there any costs or savings that we did not include in our calculation?

Please enter your answer here. Use as much space as you need:

**2-6.** Would there be intangible costs due to this power outage, such as inconvenience, loss of goodwill of customers or suppliers, potential liability, etc.?

☐ Yes ☐ No

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

Please describe the intangible costs your organization might experience during and after the outage.

Please enter your answer here. Use as much space as you need:

*[If the respondent answered Question A-3 by stating that his or her organization has multiple locations, ask the following question]*

**2-7.** Would the power outage have direct or indirect effects on your organization's operations at other locations?

☐ Yes ☐ No

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

How would other locations be affected by the outage? Select all that apply.

- ☐ Other locations will also lose power.
- ☐ Other locations will not lose power. However, because the affected facility's products or services are inputs to other locations, supply will be disrupted.
- ☐ Other locations will not lose power. However, the production of products or services that cannot be produced or provided by the affected facility will be transferred to other locations.
- ☐ Other

*[If the respondent answers "other," ask the following question]*

Please describe the impact of the power outage on operations at other locations.

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

**2-8.** The total net cost of the 2-day power outage during February is estimated to be \$(total cost estimate after confirmation). Keeping in mind that your organization's business insurance policy might help your organization cover some of the losses that result from a 2-day power outage affecting (the entire community), but might cover only certain types of damages, would the outage consequences and the cost to your organization change if the outage were to occur in July rather than in February?

☐ Yes ☐ No

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

How might your organization's outage consequences and outage cost be different if the power outage occurs 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 with 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 get 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 freeze and burst if you are not able to heat the building or drain the pipes. Even if your organization has a business interruption insurance policy, your losses may not be covered because earthquake damage is often covered by a separate policy.

**3-1.** Would the 7-day (1 week) power outage affect your key suppliers?

☐ Yes

☐ No

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

Would there be any effects on your organization because your suppliers are affected? Is there any measure to mitigate the impacts of the supply disruption?

Please enter your answer here. Use as much space as you need:

**3-2.** Would the 7-day (1 week) power outage affect your revenue from customer demand for the goods and/or services that your organization provides?

☐ Yes

☐ No

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

Please estimate the expected percentage change in revenue resulting from the change in customer demand.

\_\_\_\_\_ % change in revenue due to the change in customer demand

*[Note to administrator: the answer will be >0 if there is an increase in demand, 0 if there is no change in demand, and <0 if there is a decrease in demand]*

**3-3.** Would your organization be able to resume operations during some or all of the outage?

☐ Yes

☐ No

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

Because it is expected to take a longer time to restore power than in the previous two outage scenarios we discussed, your organization might try to reduce the outage’s effects by taking steps that go beyond the steps you have mentioned already for the shorter outages we discussed. For example, your organization might be able to replace inputs that are in short supply because of the outage, or purchase raw materials from other suppliers who are not affected by the outage, or transfer operations and employees to other locations, or relocate equipment and infrastructure to unaffected locations. Please describe the steps that your organization might take during the power 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 and for how long?**

\_\_\_\_\_ % of normal operations for \_\_\_\_\_ days

*[Note to administrator: if the organization cannot operate at all during the power outage, enter 0]*

**3-4.** After the power comes back on, could your organization make up for the production of goods and/or services that were lost during the outage?

☐ Yes ☐ No

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

What steps would your organization take to make up for the production of goods and/or services lost during the outage?

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

What percentage could you recover of the revenue lost during the outage due to lost production of goods and/or services?

\_\_\_\_\_ % of the revenue lost from lost production of goods and/or services

**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 by exposure to extreme cold? Please describe:

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

**3-6.** Would your organization be able to heat its facility during the outage 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:

**3-7.** Please use the table below to estimate the costs and savings that your organization might experience due to the 7-day (1 week) power outage that affects all of Southcentral and Southeast Alaska.

**Summary of the outage:**

**Time of year:** February, Tuesday

**Start time:** Morning (relatively cold, 19 °F)

**Duration:** 7 days (1 week)

**Affected areas:** All of Southcentral and Southeast Alaska

**Cause:** Catastrophic earthquake

**Advance warning before the outage:** No

Category	Estimates
Cost to operate back-up generation equipment	\$
Additional labor costs to make up for the operations/production lost during outage	\$
Lost revenue due to outage	\$
Damage to raw materials and/or inventory due to outage	\$
Damage to equipment due to outage	\$
Damage to raw materials, equipment, and/or inventory due to exposure to extremely low temperatures	\$
Damage to equipment, buildings, and other structures from frozen water pipes	\$
Additional labor costs to address outage-related issues	\$
Other tangible costs including re-start cost	\$
Costs subtotal:	\$ (sum)
Reduced personnel costs	\$
Other savings due to outage	\$
Savings subtotal:	\$ (sum)

*[After respondent finishes filling in the table, ask the following question]*

Has your organization purchased a separate insurance policy that covers earthquake losses?

☐ Yes

☐ No

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

What portion of the outage cost do you expect would be covered by your organization’s earthquake insurance policy?

\_\_\_\_\_ % of the loss covered by the insurance after paying \$ \_\_\_\_\_ deductible amount

*[After the respondent answers the insurance question, ask the following question]*

The total net power outage cost is estimated to be \$(total cost estimate; costs subtotal – savings subtotal – insurance coverage). Do you think the estimate is reasonable?

☐ Yes

☐ No



*[If the respondent says “no,” ask the following questions]*

Please revise the total net power outage cost estimate.

\$ \_\_\_\_\_

Please explain the reason you revised the estimate. Were there any costs or savings that we did not include in our calculation?

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

**3-8.** Would there be intangible costs due to this power outage, such as inconvenience, loss of goodwill of customers or suppliers, potential liability, etc.?

☐ Yes

☐ No

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

Please describe the intangible costs your organization might experience during and after the outage.

Please enter your answer here. Use as much space as you need:

*[If the respondent answered Question A-3 by stating that his or her organization has multiple locations, ask the following question]*

**3-9.** Would the 7-day power outage have direct or indirect effects on your organization's operations at other locations?

☐ Yes

☐ No

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

How would other locations be affected by the outage? Select all that apply.

☐ Other locations will also lose power.

☐ Other locations will not lose power. However, because the affected facility's products or services are inputs to other locations, supplies will be disrupted.

☐ Other locations will not lose power. However, the production of products or services that cannot be produced or provided by the affected facility will be transferred to other locations.

☐ Other

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

Please describe the impacts of the power outage on operations at other locations.

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

**3-10.** Your organization's total net cost from the 7-day (1 week) power outage in February was estimated to be \$(total cost estimate after confirmation). Keeping in mind that your organization's insurance might cover some, but possibly only certain types, of losses from the power outage affecting all of Southcentral and Southeast Alaska,

would the consequences and the cost of the power outage to your organization change if the 7-day (1 week) power outage occurred in July rather than in February?

☐ Yes

☐ No

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

How might your organization's consequences and outage costs 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:

For the final part of this survey, we would like to collect some information about your organization, 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. Is your organization a:

- ☐ Sole proprietorship
- ☐ Partnership
- ☐ Franchise
- ☐ Branch in a larger chain or company
- ☐ Privately held company/corporation
- ☐ Publicly traded company/corporation
- ☐ Other; Please describe: \_\_\_\_\_

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 backup generator with a fuel tank)?

- ☐ Yes ☐ No

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

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 power more 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 comments 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.