

Activity: Power System Impacts

Goal of this Activity

In this activity, you will identify the impacts associated with threats to your power sector.

Introduction

Impacts describe the effects that threats have on power system infrastructure, systems, or processes. The identification of impacts associated with each threat is an important step in assessing vulnerabilities. Every threat could impact the power system in multiple ways. For example, strong winds from tornadoes could cause transmission poles and lines to fall—resulting in power outages, additional costs for repairs, and financial loss due to decreased generation requirements.

The output of this activity will provide an initial list of the impacts associated with the top five threats identified earlier.

Key Terms

Before identifying impacts, it is helpful to clarify a few key terms in relation to power sector resilience.

Threats—anything that can expose a vulnerability and, either intentionally or accidentally, can damage, destroy, or disrupt the power system. Threats can be natural, human caused, or technological. Threats are not typically within the operator's control. They can include wildfires, hurricanes, storm surges, cyberattacks, and more. For additional information on threats, refer to the *Threats* section of this guidebook.

Impacts—the extent to which a threat affects power sector infrastructure, systems, or processes (e.g., a tornadoes causes wind damage to transmission lines).

Exercise: 1 Identifying Impacts

For your top five threats from the *Identifying Threats* activity, consider the impacts of each threat. Fill in each row of the table below, listing the impacts of each threat on the various components of the power system.

Discussion Questions

To guide the discussion, consider the following questions:

1. Has critical power sector infrastructure ever gone off-line or experienced reduced operability?
 - How many hours, days, or weeks was the infrastructure off-line or inoperable?
2. What was the impact (at the city, national, or multinational scale) of losing this power sector infrastructure?
 - Impact on power sector?
 - Impact on local, city, and regional government operations?
 - Impact on society?
 - Impact on national government operations?

Exercise 1: Identify the potential impacts that each of the top five threats may have on the power sector

	Generation	Transmission	Distribution	Customer	Operations	Workforce	Financial	Other
Example Earthquakes	Reduced generation capacity	Fallen transmission poles	Fallen distribution poles or cut lines	Loss of power	Need to compensate for load imbalance	Unable to access damaged infrastructure due to debris blocking access roads	Cost of rebuilding transmission infrastructure, loss of revenue, assets, production	
Threat 1								
Threat 2								
Threat 3								
Threat 4								
Threat 5								

Exercise 2: Identify the potential end-user impacts of the top five threats in Exercise 1

Use this chart to identify potential impacts of the top five threats. Fill in the chart below, noting how the threats at left impact the power sector dependent systems at the bottom of the chart.

	Population 	Communications 	Transportation 	Government Operations 	Medical Service 	Other
Example <i>Strong Winds</i>	<i>Loss of power and economic activity</i>	<i>Disruption in communications for emergency services</i>	<i>Increased traffic and accidents due to traffic light outage</i>	<i>Lack of access to vital computer systems for governance</i>	<i>Lack of power in critical infrastructure</i>	
Threat 1						
Threat 2						
Threat 3						
Threat 4						
Threat 5						