

# Activity: Country Risk Assessment

## Goal of this Activity

In this activity, you will assess risks to your power sector by linking and scoring the vulnerabilities and threats you determined in previous activities.

## Introduction

The output of this activity will provide a foundation for identifying and prioritizing resilience solutions in the coming steps of the process. Risk is the product of both the vulnerability and the likelihood of the threat that can expose it.

Not all threats directly influence each vulnerability. The first step in assessing risk involves determining which threats and vulnerabilities are linked. Risk scores are then calculated for all linked threats and vulnerabilities. The scores are often placed in a risk-matrix heat map, as shown in the *Guide to Risk Assessments*, which highlights the highest-risk vulnerability-threat pairs. This matrix can use either quantitative or qualitative scores. For a quantitative analysis, calculate risk using the formula:

$$\text{Risk Score} = \text{Threat Likelihood Score} \times \text{Vulnerability Severity Score}$$

## Key Terms

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

**Vulnerabilities**—weaknesses within infrastructure, systems, or processes that can be modified and mitigated to either prevent a disruption from occurring or lessen the impact of a disruption. Vulnerabilities are identified through stakeholder interviews with technical base and country staff that are familiar with system operations and maintenance as well as through review of planning documents<sup>1</sup>.

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

**Risk**—the potential for loss, damage, or destruction of key resources or power system assets resulting from a threat. Risk scores are the product of the *threat likelihood score* and the *vulnerability severity score*.

## Exercise 1: Assessing Risk

This is an example of how risk scores are calculated for demonstration and educational purposes. In an actual risk assessment, we will use a more sophisticated, computer-based spreadsheet to score and assess risk.

- List your top five vulnerabilities in the left column of the table in order from highest severity to lowest severity, as you determined in *Activity: Developing Vulnerability Statements and Assigning Vulnerability Severity Scores*.
- List your top five threats in the top row, from most likely to least likely, as determined in *Activity: Identifying Threats*.
- If a vulnerability in any given row is linked with a hazard in any column, write "yes" or "no" next to "Linked."
- In the boxes for the linked vulnerability-threat pairs, assign each pair a risk score equal to threat likelihood score x vulnerability severity score.

	Threat 1: _____ Likelihood Score: _____	Threat 2: _____ Likelihood Score: _____	Threat 3: _____ Likelihood Score: _____	Threat 4: _____ Likelihood Score: _____	Threat 5: _____ Likelihood Score: _____
Vulnerability 1: _____ Severity Score: _____	Linked <u>Yes/No</u>	Linked _____	Linked _____	Linked _____	Linked _____
Vulnerability 2: _____ Severity Score: _____	Linked _____	Linked _____	Linked _____	Linked _____	Linked _____
Vulnerability 3: _____ Severity Score: _____	Linked _____	Linked _____	Linked _____	Linked _____	Linked _____
Vulnerability 4: _____ Severity Score: _____	Linked _____	Linked _____	Linked _____	Linked _____	Linked _____
Vulnerability 5: _____ Severity Score: _____	Linked _____	Linked _____	Linked _____	Linked _____	Linked _____