



Emergency Procedures: Introduction

Overview of Emergencies at PJM

Student Guide

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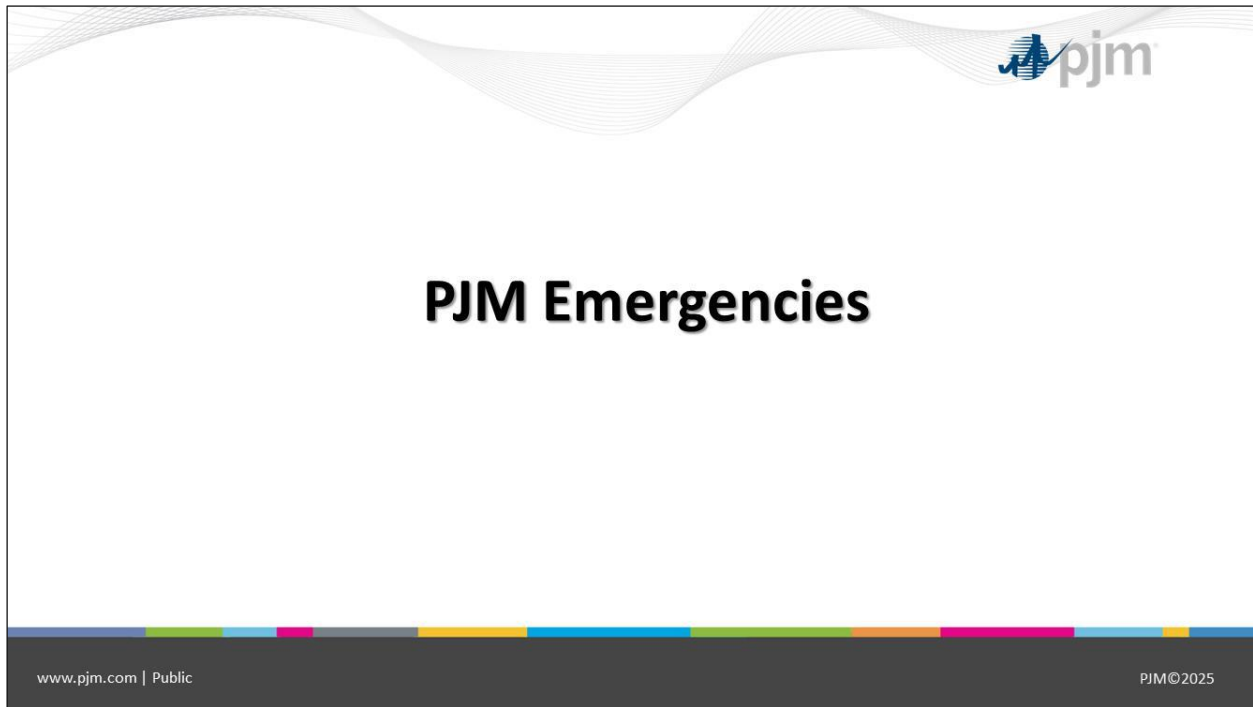
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Objectives

- Describe PJM's approach to implementing Emergency Procedures

What is an Emergency?



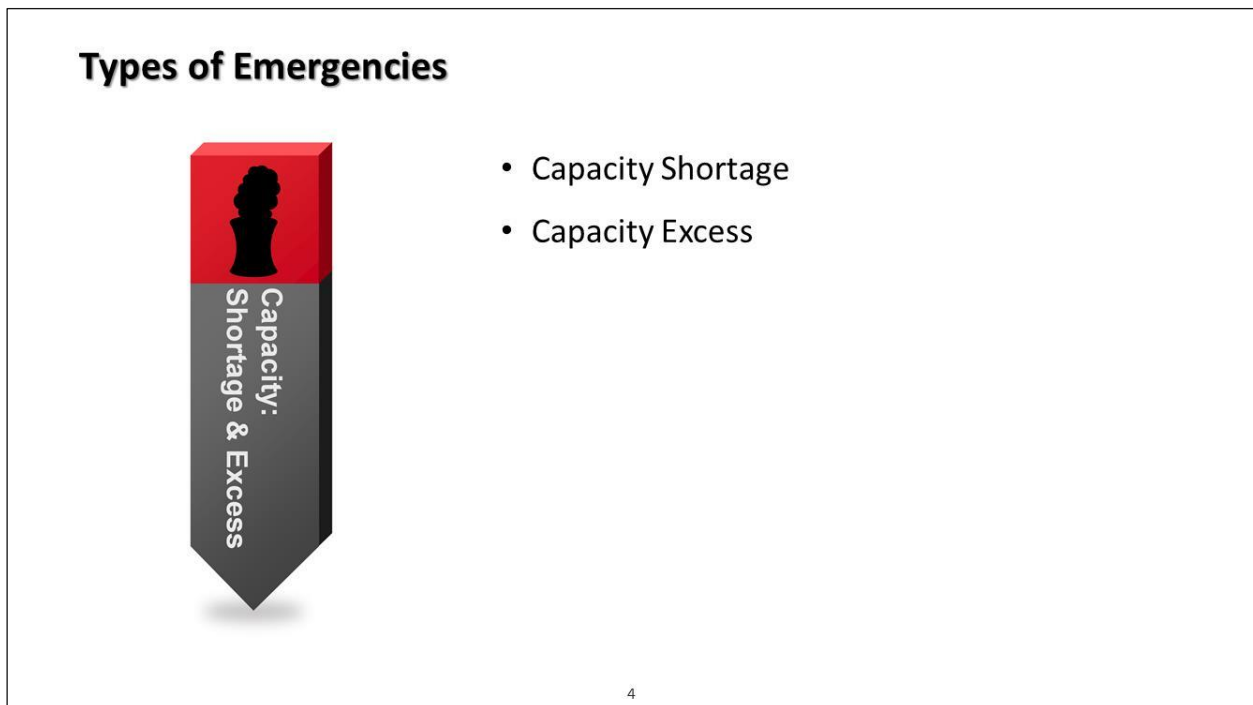
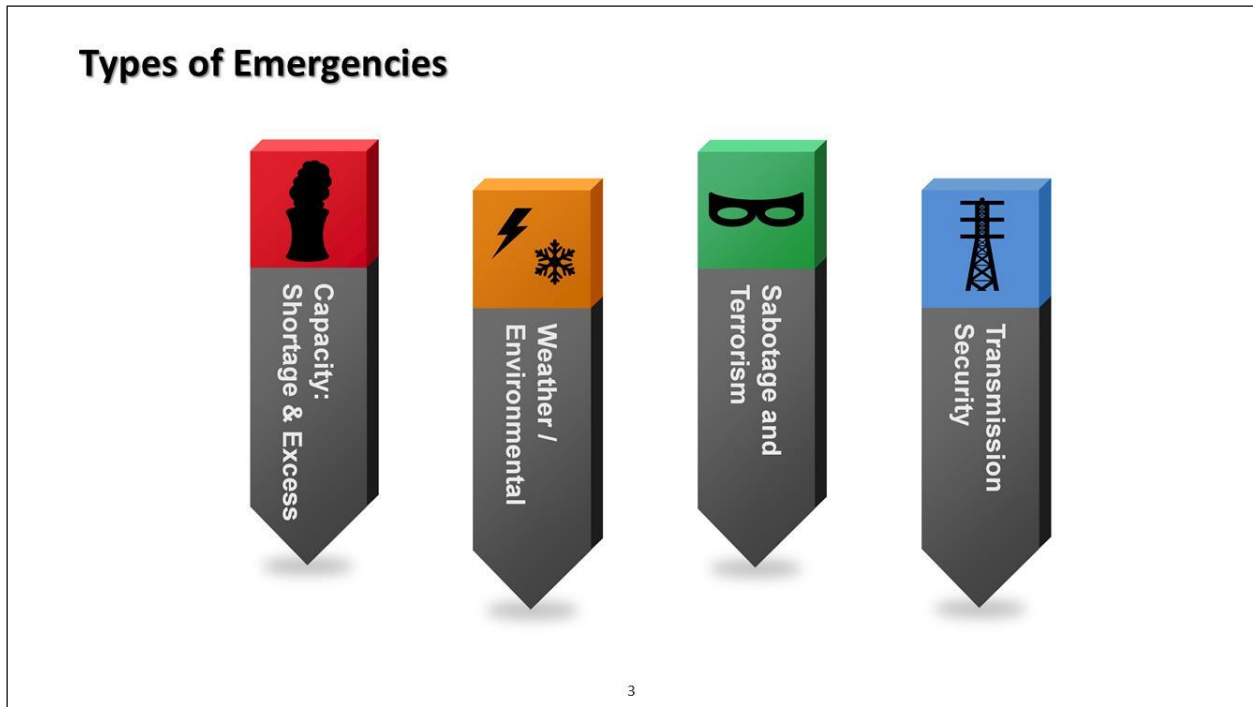
What is an Emergency?

PJM Defines an **Emergency** as:

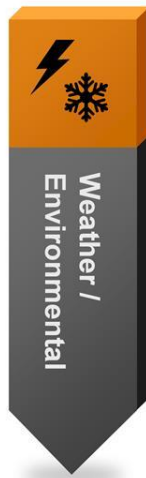
- An abnormal system condition requiring manual or automatic action to:
 - Maintain system frequency
 - Prevent loss of firm load or equipment damage
 - Prevent tripping of system elements that could adversely affect reliability or safety
- Capacity deficiency or capacity excess conditions
- A fuel shortage requiring departure from normal operating procedures
- Abnormal natural events or man-made threats that would require conservative operations
- Abnormal event external to PJM that may require PJM action



Types of Emergencies



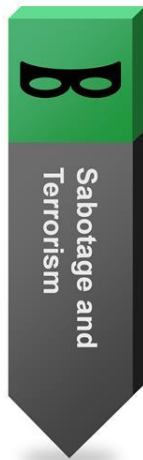
Types of Emergencies



- Cold Weather Advisory/Alert
- Hot Weather Alert
- Inter RTO Natural Gas Coordination
- Thunderstorms and Tornadoes
- Geo-Magnetic Disturbance
- Wildfires

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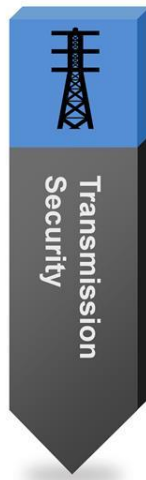
Types of Emergencies



- Elevated Threat
- Imminent Threat

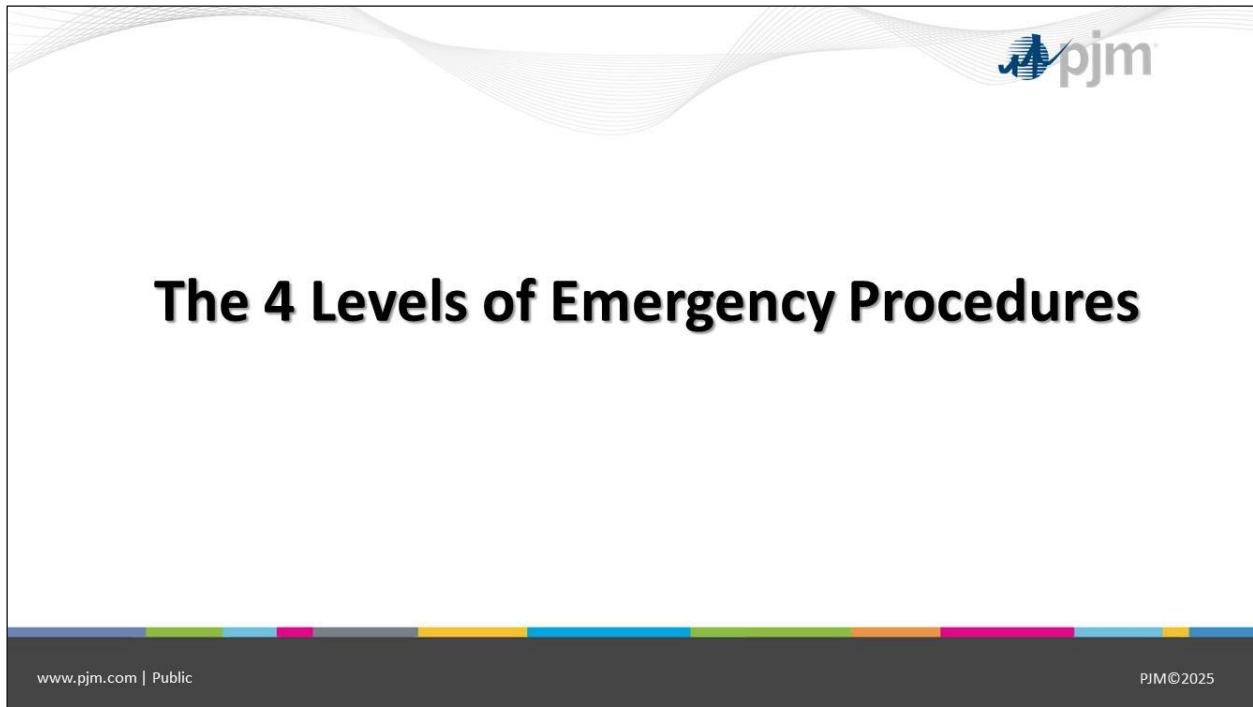
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Types of Emergencies



- High or Low Voltage
- Transmission Security
- Shortage Pricing
- Post Contingency Local Load Relief
- Interconnection Reliability Operating Limit
Manual Load Dump
- Transmission Loading Relief

The 4 Levels of Emergency Procedures



The 4 Levels of Emergency Procedures

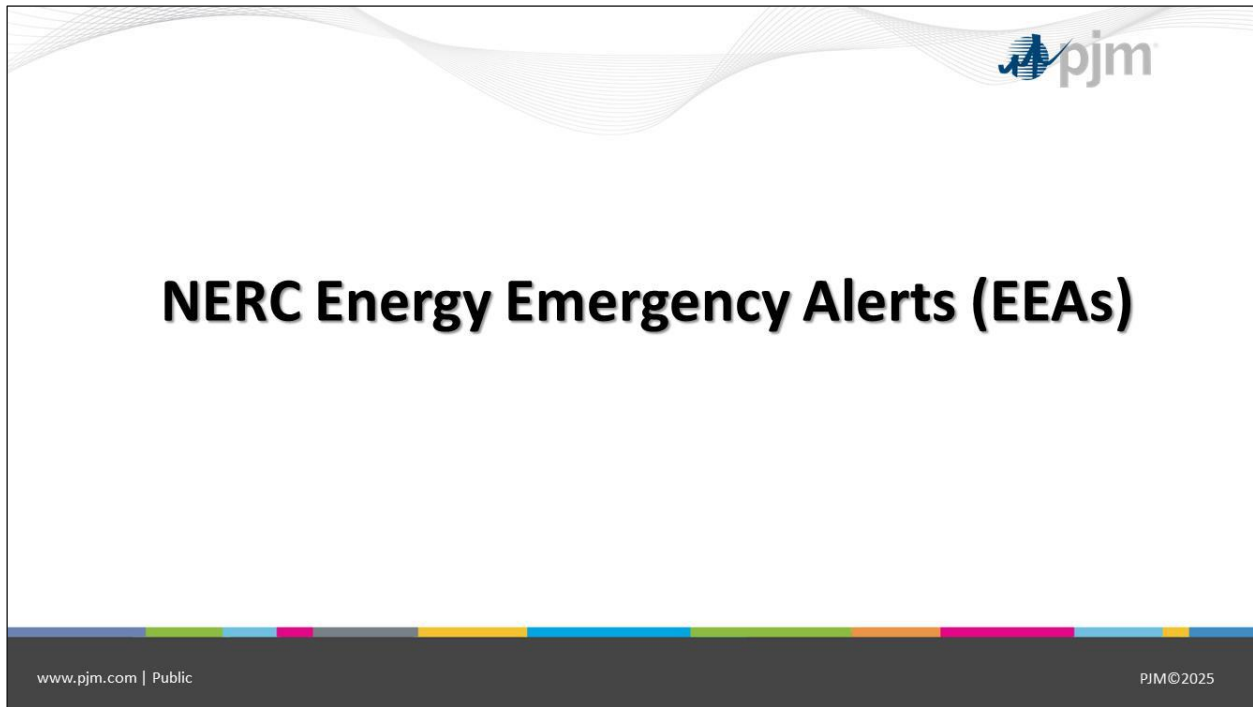


- Most Advisories, Alerts, Warnings and Actions are communicated via:
 - PJM ALL-CALL
 - Posted to various PJM Websites
- Advisories and Alerts are typically issued in advance of the operating day
 - Alerts may be issued during the operating day in advance of a scheduled load period to allow sufficient time for members to prepare for anticipated initial capacity shortages
- Warnings and Actions are issued during the operating day

The 4 Levels of Emergency Procedures

- PJM dispatchers have the flexibility to:
 - Implement the emergency procedures in whatever order is required
 - Exit the emergency procedures in a different order than they are implemented, when needed
- PJM Members are expected to implement all emergency procedures immediately
 - Desired relief expected within 30 minutes, unless directed otherwise

NERC Energy Emergency Alerts (EEAs)



NERC Energy Emergency Alerts (EEAs)

- To ensure all Reliability Coordinators clearly understand potential and actual Energy Emergencies in the Interconnection, North American Electric Reliability Coordinator (NERC) has established three levels of EEAs.
- The Reliability Coordinators will use these terms when communicating Energy Emergencies to each other via the Reliability Coordinators Information System (RCIS).
- The EEA levels do not need to be issued sequentially. Reliability Coordinators (RC) can declare any level needed to address the Energy Emergency.

NERC Energy Emergency Alerts (EEAs)

EEA Level 1

- The Balancing Authority (BA) is experiencing conditions where all available generation resources are committed to meet firm Load, firm transactions, and reserve commitments, and is concerned about sustaining its required Contingency Reserves.
- Non-firm wholesale energy sales (other than those that are recallable to meet reserve requirements) have been curtailed.
- Declared by PJM when a Maximum Generation Emergency / Load Management Alert is issued

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NERC Energy Emergency Alerts (EEAs)

EEA Level 2

- Load management procedures are in effect. The BA is no longer able to provide its expected energy requirements and is energy deficient.
- Declared by PJM when an Emergency Load Management Reduction Action, Deploy All Resources Action, or Voltage Reduction Action are issued.

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NERC Energy Emergency Alerts (EEAs)

EEA Level 3

- Firm Load interruption is imminent or in progress. The BA is unable to meet the Contingency Reserve requirements.
- Declared by PJM when a Manual Load Dump Action is issued



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Summary

Summary



In this presentation, we:

- Described PJM's approach to implementing Emergency Procedures

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Questions?

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