

Chapter 5 *Resilience: Managing Disruptive Events*

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PGE

Resilience Definitions

Resilience

The ability to anticipate, adapt to, withstand, and quickly recover from disruptive events

Reliability The availability of service

Hardening

A tool to create stronger infrastructure to protect customers from weather or other environmental impacts

Disruptive Events

High Impact, Low Frequency (HILF) environmental conditions that threaten to interrupt service to customers.

Examples include high winds, ice & snow, wildfires, floods, landslides, earthquakes, and geomagnetic storms.

Physical and Cyber Security is addressed by the Integrated Security Steering Committee (ISSC)

Infrastructure Resilience, aimed at limiting the magnitude and/or duration of disruptive event impacts, requires four outcome-based abilities*:

Robustness

The ability to absorb shocks and continue operating

Infrastructure Resilience

Resourcefulness

The ability to skillfully manage a crisis as it unfolds

Operational Resilience

Rapid Recovery

The ability to get services back as quickly as possible

Operational & Infrastructure Resilience

Adaptability

The ability to incorporate lessons learned from past events

Infrastructure & Operational Resilience

Chapter Regulatory Response

Section	Summary Description	Action
4.4.b.ii	Roadmap of the utility's planned investments, tools and activities to advance the long-term DSP vision, using a 5-10-year planning horizon: Explanation of how the investments reduce customer costs, improve customer service, improve reliability, facilitate adoption of demand-side and renewable resources, and convey other system benefits	Resilience investments will improve customer service through better outage response and restoration, improve reliability through infrastructure investments and promote adoption of DERs to mitigate outage impacts.
4.4.b.v	Roadmap of the utility's planned investments, tools and activities to advance the long-term DSP vision, using a 5-10-year planning horizon: Plans to further build community needs assessment and co-created community solutions into DSP roadmap	PGE is working with communities to establish communication plans, coordinated responses, aid stations and resilience centers in the case of Public Safety Power Shutoffs.
5.2	At its core, a grid needs identification answers the question of what technical requirements must be addressed to ensure a safe, reliable and resilient system that provides adequate power quality to the customers it serves. Adding to this core, a holistic approach to grid needs identification anticipates DER adoption by customers, as well as the social and economic needs of the communities that depend on distribution systems, and the contributions they can make to strengthen it.	Assessments of critical customers and infrastructure and identification of investments that will make them more resilient will enable those facilities to continue serving customers during disruptive events.
5.3	Solution identification proposes the equipment, technology or program(s) the utility will advance to meet identified grid needs. Previously, a distribution System Plan would rely on traditional hardware solutions (such as substation upgrades, reconductoring, and additional transformer deployment). These Guidelines advance more holistic distribution system planning, calling for consideration of a wider range of potential solutions (for example increased system monitoring automation, expanded switching capability, distributed energy resources).	Resilience-based solutions will be proposed based on the grid and community needs identified.



PGE established a Resilience team that focuses on improving our ability to meet customer and community expectations for resilient power delivery. There are three areas of focus.

Resilience Overview



Customer Infrastructure Resilience -

investigation into customer-sited solutions, such as microgrids, batteries, and other DERs, that enable customers to ride through events and, during normal conditions, provide services to the grid.

PGE Infrastructure Resilience – investment in infrastructure, such as grid hardening, integrated grid, energy supply hardening, that mitigates the occurrence of outages during an event such as wildfire, wind and ice.

Operational Resilience – improvements in PGE's ability to meet customers' needs during events and accelerate the restoration of service through emergency preparedness, outage response and customer support.

Customer Infrastructure Resilience



Community Resource Centers

Partner with municipalities to:

- Ensure the availability of clean water
- Enable emergency services to continue functioning
- Provide a place of respite for citizens to cool off, warm up, get connected and power equipment



Residential Battery Pilot

Help customers afford whole-home backup power
Lay the groundwork for expanding microgrid capabilities



Microgrids

• Provide customers with solutions to prevent loss of inventory, keep patients safe, and allow them to remain open when customers need them most

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Infrastructure Workstreams & Initiatives

Wildfire Mitigation



- Wildfire Risk Assessment & Modeling
- Situational Awareness
- Design & Construction Standards
- Inspection & Maintenance Plans

Event Learnings



- Feb Ice Storm Event Learnings
- Texas Energy Crisis Event Learnings
- June Heatwave Event Learnings
- Environmental Withstand Criteria Updates

Customer Resiliency Planning



- Mt Hood Improvements
- Willamette Valley Improvements
- Planning & Design Criteria Updates
- Critical Customer (public safety related) Reliability Assessments

Data Resiliency Planning



- Telecom Single Points of Failure Analysis
- Telecom Risk Modeling
- AMI Resilience Improvements



Operational Workstreams & Initiatives



- Outage Management Planning and Preparation
- Community Engagement and Public Information Tools

Tools & Equipment

- Portable Generators
- Device Batteries
- Tablets
- Contract Crew Work Tracking Tool

Playbooks

- Staging Site Operational Plan
- End-to-End Assessment Process
- Wire-down, Wirewatcher and Damage Assessment program

Supply Chain



- Storeroom readiness
- Partnerships
- Critical Materials & Service Provider Requirements
- Inventory Management

PGE provides my community with service that I can rely on. PGE understands our needs and is planning for the future, adapting and leading the way. I trust that my electric service will be safe, reliable and resilient.

I believe in PGE.



Chapter Take-Aways

Shifts in the climate as well as a shift toward electrification put a spotlight on the importance of resilience and resilience measures that focus on the customer

The OPUC and DSP Stakeholders want to know what PGE is doing to enable customer resilience



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The Resilience team is developing resilience metrics that will influence PGE's actions and investment decisions

Questions?

Please email us at dsp@pgn.com

