



Working with Customers to Successfully Respond to Summer-Fire Activities

“BPA System Operations Post-Summer Update”

— hosted by —

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Vice President

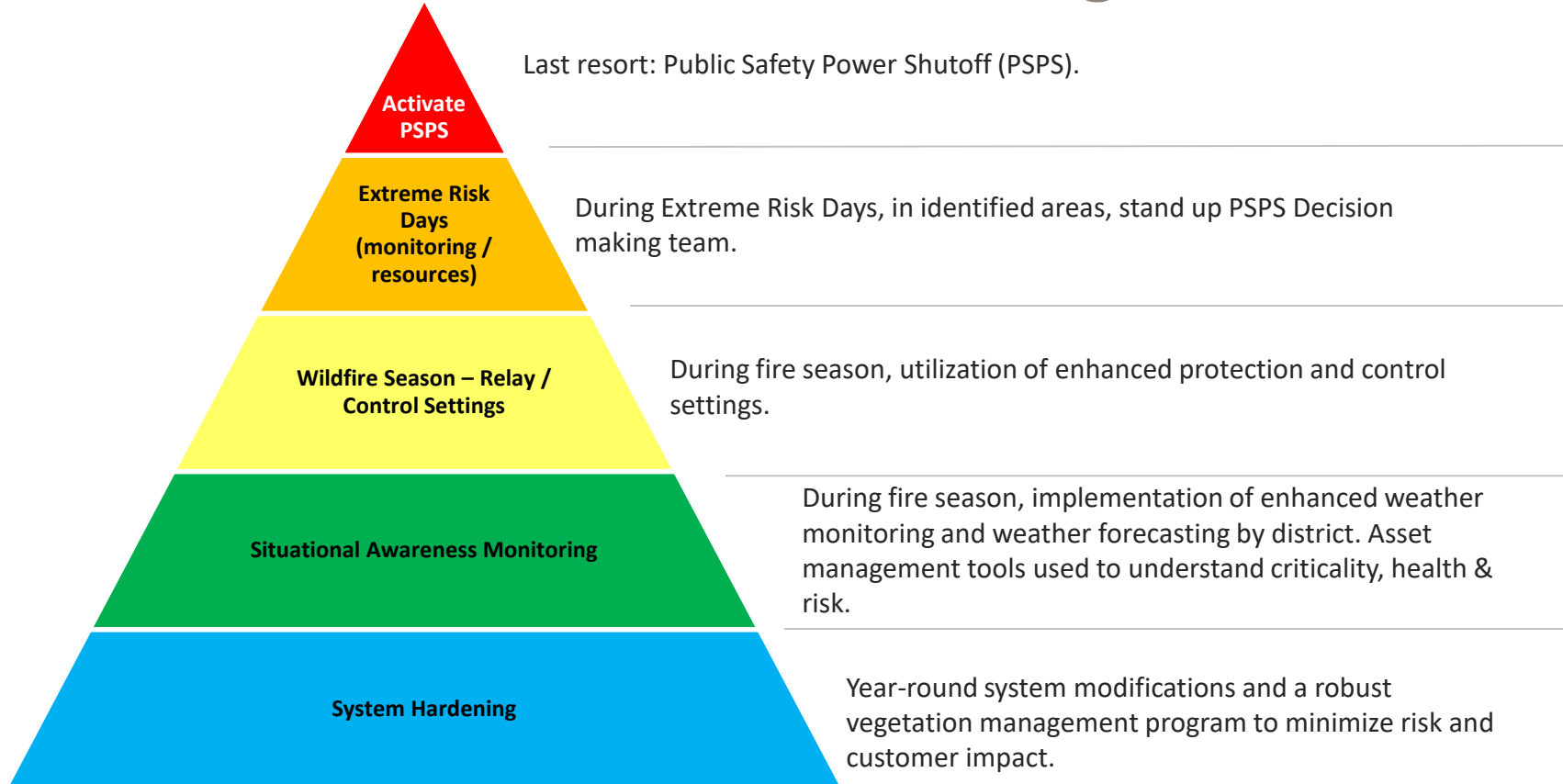
BPA Transmission System Operations



Introduction

- Types of Wildfire Related Outages
 - Public Safety Power Shutoff (PSPS)
 - De-energization for fire-fighting activities
 - Relay action from smoke or fire

BPA's Wildfire Mitigation



Public Safety Power Shutoff



BPA's PSPS Program Development

- Development began after Labor Day 2020 fires
- Determined high-risk facilities using risk-based analysis
- Outreach to stakeholders in Spring 2021
- Activated and implemented one time on June 21, 2021

Positive Observations

- Program
 - Risk based analysis to identify high-risk lines
 - Prioritization of maintenance to remove facilities from high-risk list
 - Strong design standards
 - Strong vegetation management
- Activation
 - Asset-specific, risk-based decision-making
 - Steps to minimize load impact

Areas of Improvement

- Program
 - Continuing maturation of process
 - Grid Mod project for improved wildfire modeling tools
 - Resourcing wildfire experts
- Activation
 - Earlier communication with customers on potential activation – DONE
 - Communication with customers with secondary impacts - DONE

Bootleg Fire



Bootleg Fire: Timeline

Date	Time	Details
7/6/2021		Bootleg Fire started
7/9/2021	13:00	Identification of credible multiple contingency, and associated studies and system adjustments
7/9/2021	15:33	Grizzly-Captain Jack #1 500kV line relayed out of service
7/9/2021	15:41	Grizzly-Malin #2 500kV line relayed out of service
7/9/2021	15:41	Summer Lake-Malin #1 500kV line relayed out of service
7/13/2021	14:03	Grizzly-Captain Jack 500kV line in service
7/13/2021	14:08	Summer Lake-Malin 500kV line in service
7/14/2021	16:36	Grizzly-Malin 2 500kV line in service
7/23/2021	13:24	Bootleg Fire restriction was removed



Sources: National Interagency Fire Center, NASA, NOAA, Oregon Department of Forestry
Map: Mark Friesen/staff

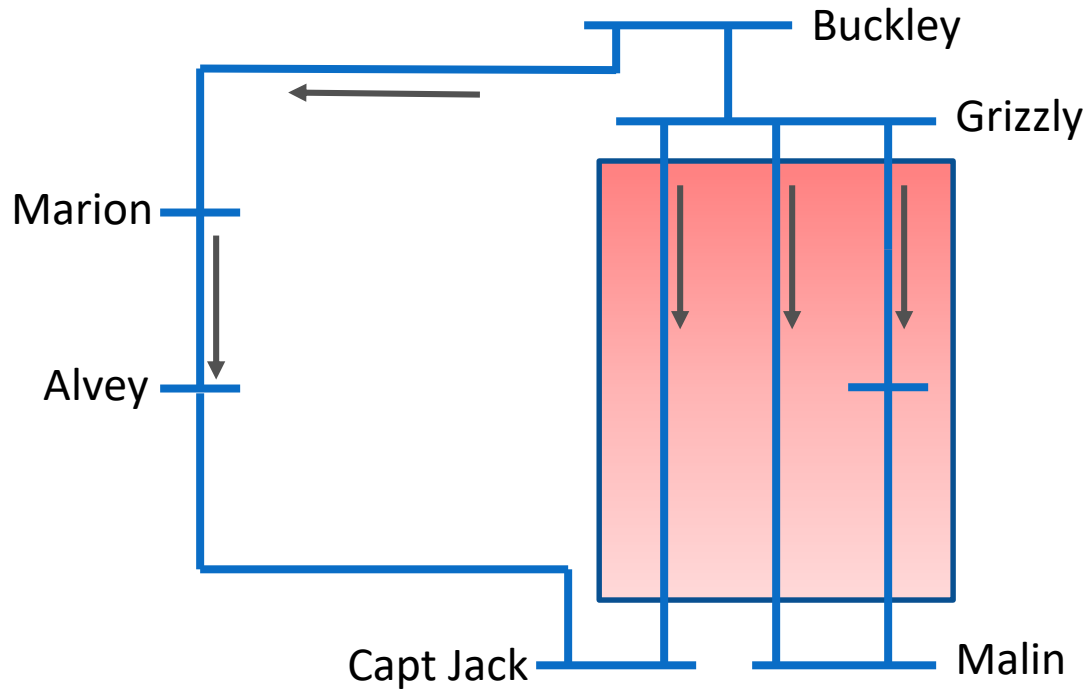
Positive Observations

- Proactive identification and adjustment for conditionally credible multiple contingencies
- Coordination with fire fighters
 - Clearing vegetation around key stations
 - Identifying safe times to patrol lines
- 500kV lines are on steel structures and far off the ground

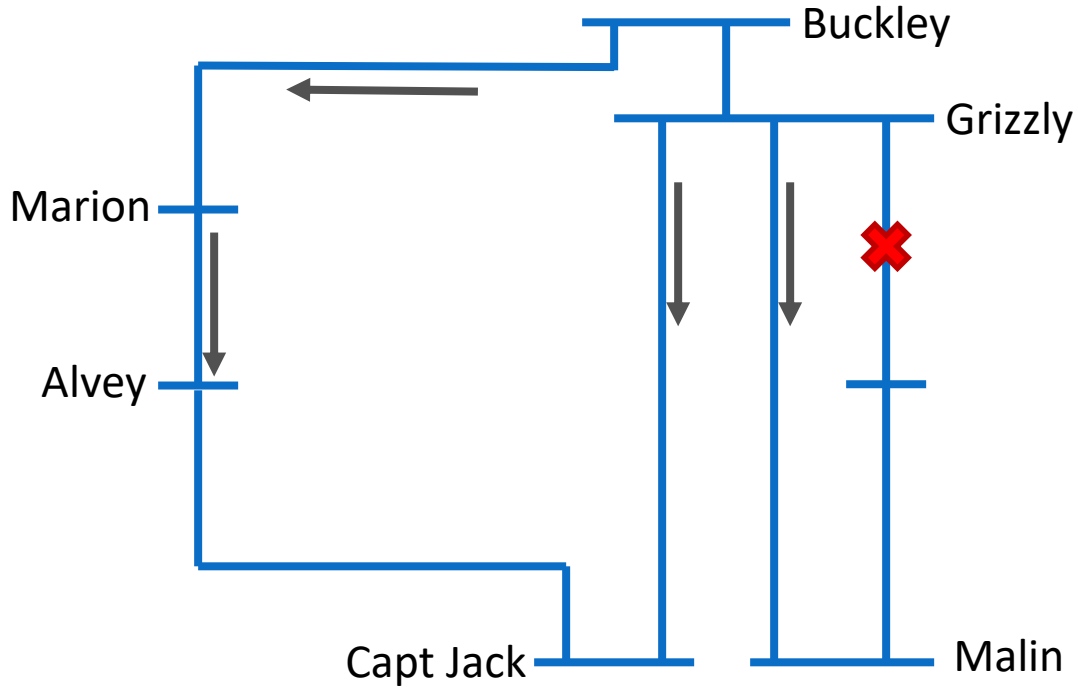
Credible Multiple Contingency

- Transfer capabilities are determined using contingency analysis
- The system must be capable of maintaining reliability and stability following a credible contingency
- In normal conditions, a Credible Contingency is often a single line loss
- Conditionally Credible Multiple Contingencies

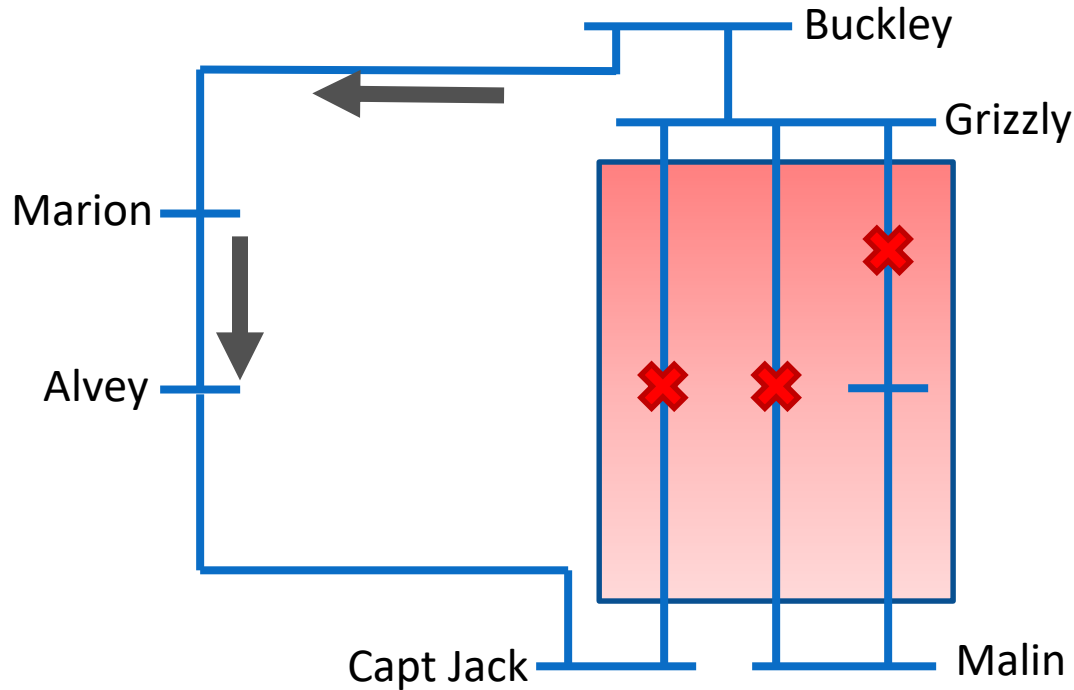
Normal System Conditions



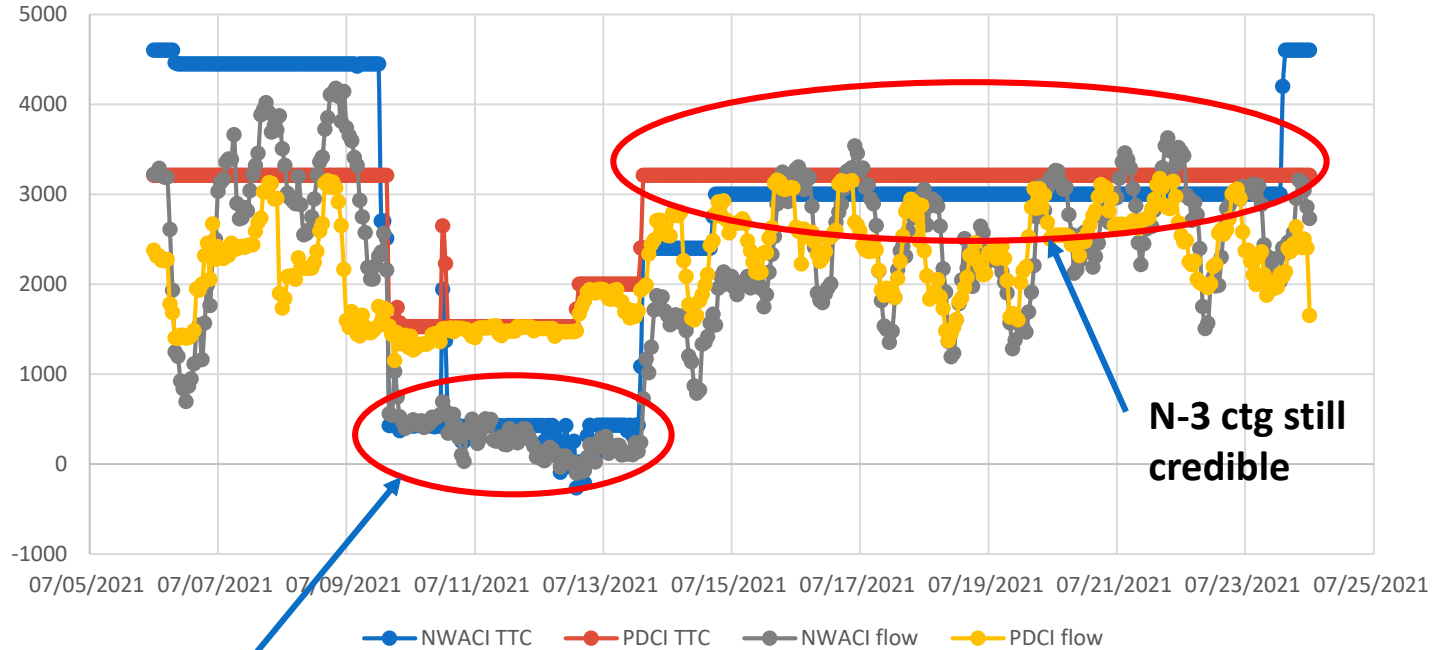
Single Contingency



Multiple Credible Contingency



NWACI and PDCI flows and TTCs



All three corridor lines out of service

N-3 ctg still credible

Coordination with fire fighters



500kV Line Design



Potential Future Improvements

- Real-time Stability tools
- Case Study Automation tool
- Wildfire modeling and risk tools
- Additional vegetation clearing around stations

Questions?



Brasada-Harney #1 115kV Line – PSPS Activation

Date	Time	Action
6/21/2021	12:43	The PSPS Team received the weather alert
	13:00	The PSPS Team was triggered due to the Brasada-Harney was in a red flag area and winds were forecasted to be at 60 mph or above.
	16:00	Decision to de-energize Brasada-Best Lane section of Brasada-Harney #1 115 kV from 6/21/2021 1800 – 6/22/2021 0700
	16:45	Executives met with impacted customers (CEC and HEC)
	18:20	Brasada-Best Lane section of Brasada-Harney #1 115 kV de-energized, customer affected was CEC with loss of 4MWs of load.
	23:32	BPA's TLM crew completed patrol and line was re-energized