

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Examine Electric
Utility De-Energization of Power Lines in Dangerous
Conditions.

Rulemaking 18-12-005
(Filed December 13, 2018)

**PACIFICORP'S PHASE 2 GUIDELINES
SECOND PROGRESS REPORT**

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December 7, 2020

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PacifiCorp d/b/a Pacific Power (PacifiCorp or company) submits this Phase 2 Guidelines Progress Report consistent with Decision 20-05-051, Decision Adopting Phase 2 Updated and Additional Guidelines for De-Energization of Electrical Facilities to Mitigate Wildfire Risk (the "Phase 2 Decision"), and specifically paragraph No. 4 of the Order (Phase 2 Decision at 100). The Phase 2 Decision requires the submission of "two progress reports detailing progress towards implementation of the guidelines set forth in Appendix A" (Phase 2 Decision at 100). This Progress Report is the second of those two submissions and details PacifiCorp's progress in implementing the Phase 2 guidelines. Since filing its first PSPS progress report on August 5, 2020, PacifiCorp implemented its first actual PSPS event, in Weed City on September 13, 2020. The company has drawn lessons learned from this event and continues to improve its PSPS procedures, as discussed below.

Progress Report Regarding the Phase 2 Guidelines.

PacifiCorp has implemented within its PSPS planning processes, the Phase 2 guidelines set forth in Appendix A to the Phase 2 Decision ("Appendix A"). Consistent with the structure in Appendix A; this Progress Report is organized by the following guideline subject areas: (A)

wildfire advisory board; (B) de-energization exercises; (C) communication and notification plans; (D) community resource centers; (E) power restoration; (F) critical infrastructure and resiliency; (G) access and functional needs (AFN) populations; and (H) transparency.

A. Wildfire Advisory Board

Consistent with subsection (a) of the Appendix, a wildfire advisory board organized by PacifiCorp advises on a range of wildfire matters including all aspects of PacifiCorp's public safety power shutoff (PSPS) plan. Members of the board have not changed since the August 5, 2020 Progress Report. Representing PacifiCorp are Allen Berreth, Vice-President of Transmission & Distribution Operations; Heide Caswell, Director of Asset Performance and Wildfire Mitigation; Todd Andres, Regional Business Manager; Drew Hanson, Senior Communications Representative; and Jeff Bolton, Emergency Management. Representing local government and community organizations are Heather Hadwick, Modoc County Emergency Services; Juliana Lucches, Mayor of Dunsmuir and City Planner for Mt. Shasta; Steve Baker, City Manager, Yreka; Jasen Vela, Deputy Director, Siskiyou County Emergency Services; Nancy Ogren, Supervisor Elect, Siskiyou County; Veronica Rivera, Director of Facilities, College of the Siskiyou; Ed Valenzuela, Supervisor, Mt. Shasta Region, Siskiyou County; Giselle Nova, Chair, Siskiyou County Fire Council; Paul Hamann, General Manager, Roseburg Forest Products. PacifiCorp is actively attempting to recruit a member devoted to representation of the access and functional needs (AFN) community, with a goal of adding such a member by the first quarter 2021 board meeting.

The wildfire advisory board held its first full meeting via teleconference on August 13, 2020. At the meeting, similar to the approach taken by San Diego Gas & Electric (SDG&E), PacifiCorp presented an overview of its PSPS plan, both refreshing members of the board who

have participated in PSPS meetings and orientating members less familiar with the details of PacifiCorp's PPS plan. PacifiCorp also provided a summary of the system hardening efforts, completed, underway and planned, which the company is implementing as part of its efforts to minimize both the potential of a PPS event and to mitigate the impact of a PPS event if one is necessary. PacifiCorp's presentation from the first advisory board meeting is provided here as Attachment A.

The next wildfire advisory board meeting is scheduled for December 17, 2020. The agenda will focus on identifying and implementing best practices related to PPS, as well as achieve greater coordination across the various agencies and stakeholders in PacifiCorp's communities, in the event de-energization does occur. Specifically, PacifiCorp representatives will present the plans for community resource centers during a PPS watch event and the role of critical facilities, which was an issue raised as a result of the PPS watch event that occurred in September 2020. The board members will discuss whether any updates or modifications to the current PPS plan are warranted.

PacifiCorp will also look to attend the next quarterly Regionalized Working Group (RWG) convened by the large IOUs. Through its attendance at the RWG, PacifiCorp will look for best practices and lessons learned regarding PPS protocols that can be integrated and shared with the wildfire advisory board for additional feedback. PacifiCorp will also explore the potential benefits of a working group among the small and multi-jurisdictional utilities to address PPS issues with an emphasis on solutions implemented in smaller service territories.

B. De-Energization Exercises

As indicated in the August 5, 2020 Progress Report, PacifiCorp's next table-top de-energization simulation exercise is planned for the spring of 2021. Lessons learned from the

exercise showed a few potentials for plan improvement. Focus was given to identifying ways to prevent duplication of effort regarding notifications, training prior to exercise, and streamlining functional needs procedures. The after-action report is attached is Attachment B. Like the prior event (which occurred on June 3, 2020), PacifiCorp plans to again invite staff of the California Public Utilities Commission and representatives of the Wildfire Safety Division, CalFIRE, CalOES and Siskiyou County, along with the wildfire advisory board. For the 2021 event, PacifiCorp plans to also invite representatives from the telecommunications sector and AFN communities.

C. Who Should Receive Notice, When Should Notice Occur, and How Should Notice Occur?

It is PacifiCorp's goal to provide clear and timely information to customers, community stakeholders and regulators before, during and after a PSPS Event. The company uses a variety of channels to maximize its customer reach, including its website, bill inserts, emails, community events, social media, printed materials such as brochures and flyers, radio advertisements and press releases/pro-active media engagement. Due to current limitations amidst the COVID-19 pandemic, the company has utilized webinars and video content to reach customers in lieu of in-person community events. PacifiCorp is also conducting outreach with local government and community-based organizations and has provided materials, such as brochures and safety checklists for distribution amongst customers. The company is performing outreach in prevalent languages – which includes Chinese traditional, Chinese simplified, Tagalog, Vietnamese, Mixteco, Zapoteco, Hmong, German and Spanish – and continues its efforts to identify and reach medical baseline and access and functional needs customers in its service territory.

PacifiCorp's communication and notification plan has two primary systems. First, direct communications, through pre-identified channels, are used to provide detailed notices to key

stakeholders, namely public safety partners and critical facilities and critical infrastructure. Second, a series of automated notices (email, text and direct phone calls) to customers, together with published information on the company’s website, social media channels, and proactive media outreach, are employed to provide notice to the general public at critical stages of the PSPS process, including for pre-event warnings, an actual event, and re-energization. Medical baseline and access and functional needs customers are provided additional notices, as discussed in greater detail in Section G below. Targeted media outlets that cover identified PSPS areas include:

Media Outlet	City
Weed Press, The	Mount Shasta
Dunsmuir News	Mount Shasta
Mount Shasta Herald	Mount Shasta
Saturday Magazine - KVIP-AM	Redding
Record Searchlight	Redding
KVIP-AM	Redding
KRCR-TV	Redding
KQMS-AM	Redding
Modoc County Record	Alturas
Lassen County Times	Susanville
KCFJ-AM	West Covina
KPOD-AM	Crescent City
Del Norte Triplicate	Crescent City
Del Norte Triplicate	Crescent City
KCMX-AM	Medford
KDRV-TV	Medford
KFTS-TV	Medford
KMED-AM	Medford
KMVU-TV	Medford
KOBI-TV	Medford
KSYS-TV	Medford
KTVL-TV	Medford
Medford Mail Tribune	Medford
KDKF-TV	Klamath
KFLS-AM	Klamath
Klamath Falls Herald and News	Klamath
KOTI-TV	Klamath

To ensure that the public is able to access timely and detailed information about both potential and actual PSPS events relevant to a particular location, PacifiCorp has modified its main PSPS webpage, available at www.pacificpower.net/psps. A web-based tool allows members of the public to enter an address into a search bar to determine if that address is in an area which may be subject to a PSPS. An additional online tool is available for members of the public to see the “Public safety power shutoff forecasting” for that area over the following week. The status indicates whether the area is operating as “Normal,” whether there is a PSPS “Watch,” or whether there is an actual PSPS “Event.”

PacifiCorp has ensured that it has the bandwidth to manage its PSPS website, even under the extremely remote potential that all proactive de-energization zones in PacifiCorp’s service territory would be de-energized at the same time. When there is an event, transmission & distribution operations Emergency Operations Center personnel takes on the role of updating the PSPS website. The company’s PSPS website is fundamentally a content only (with PSPS area polygons imposed on maps) static site with no dependency on any backend applications. The Pacific Power website performed well serving content during the September windstorm event, where there was a significant surge in web visits 200,000+ web visitors with 1.6M+ web page views. This recent event demonstrated capable broadband performance. PacifiCorp will consult with the California Department of Technology (CDT) to confirm CDT’s agreement that this capacity exists and submit such information to the CPUC in the company’s next Progress Report.

As discussed in Section G below, PacifiCorp has engaged a vendor to survey AFN population to help inform the company’s outreach related to those customers, this includes assessing the need and type of communications for people with disabilities who may not be able

to use standard forms of communication. PacifiCorp also plans to continue consultation with the wildfire advisory board for feedback on PacifiCorp's communication and notification plan and will also address that topic at the 2021 table-top de-energization simulation exercise.

D. Community Resource Centers

PacifiCorp continues to evaluate and develop, incorporating lessons learned from 2020 events, its community resource center (CRC) plan. To this end, the company continues to engage with the wildfire advisory board and with senior citizen groups and public health and health care providers located within the areas where a proactive de-energization may occur, including Siskiyou County Emergency Management, Siskiyou County Public Health, Fairchild Medical Center and other associated clinics. PacifiCorp's CRC plan has been developed in coordination with appropriate emergency response and other local government agencies. The company is providing its most recent California Service Territory Proactive De-Energization, updated on October 30, 2020 and attached as Attachment C, within which is the CRC plan.

E. Power Restoration

Power restoration remains a key component of PacifiCorp's overall PSPS plan. Historic analysis conducted by PacifiCorp indicates that extreme fire weather conditions typically do not extend longer than 9 hours in PacifiCorp's service territory. In this analysis, there was only one instance of back-to-back days of extreme fire weather conditions. Consequently, PacifiCorp anticipates that PSPS events of extended duration should not be frequent. Further, PacifiCorp's PSPS areas are relatively small from geographic perspective, which limits impacts to customers and facilities and makes it easier to more rapidly re-energized. In general, PacifiCorp aims to complete restoration within 3 hours of the "all clear." Indeed, during its single PSPS activation event, the company used sectionalization strategies to accomplish restoration in less than an

hour. In this event, lines were de-energized for just under eight hours. While the weather conditions themselves ultimately dictate duration of an event, PacifiCorp anticipates that it will be able to accomplish restoration in similar timeframes for future PSPS events.

PacifiCorp also addresses restoration in its communication and notice plans. If a PSPS event occurs, the company will send notice of re-energization immediately after re-energization occurs. Timing of actual re-energization is unknown until patrols are complete; thereafter, re-energization and notice should occur rapidly, and PacifiCorp anticipates that such notice would go out well within one hour. Prior to actual re-energization, PacifiCorp will make a decision to initiate the process for re-energization once the extreme wildfire conditions necessitating the PSPS have subsided. With respect to that decision-point, PacifiCorp will notify public safety partners and operators of critical facilities and critical infrastructure within one hour of knowing that patrols will be initiated with the intent to re-energize a line once the patrols are complete. PacifiCorp will thereafter send a notice to the public.

F. Critical Infrastructure and Resiliency

As discussed in the August 5, 2020 Progress Report, PacifiCorp initiated an evaluation of both short and long-term opportunities for increasing the resiliency of electric vehicle (EV) charging infrastructure in areas potentially impacted by PSPS events. Since the last report, the company has engaged a consultant to help inform and properly design solutions that best meet the unique needs of PacifiCorp's California service territory. This consultant is in the process of investigating and developing a list of potential mobile charging solutions, with a cost estimate and examination of deployment procedures, including an assessment of communication and infrastructure requirements. The consultant is evaluating the use of mobile charging equipment in two distinct geographic areas: the first involving the Interstate-5 (I-5) corridor through

Dunsmuir, Mt. Shasta, and Weed, with denser and more developed transportation infrastructure, and the second near Happy Camp, which as a remote and rural location has very little existing EV use or charging capacity.

The company has initiated discussions with EV charging network providers, namely Tesla and ChargePoint, to gather information on their current resiliency efforts in the company's PSPS areas. The consultant engaged by PacifiCorp will identify potential partnership opportunities between the utility, network providers or other organizations interested in expanding access to EV charging infrastructure. The consultant will also review current access to charging networks and current utilization rates, together with a forward-looking estimate of how potential resiliency projects and expanded charging access might impact future utilization rates. The consultant will also evaluate the potential for expanding access to charging for medium and heavy duty vehicles along the I-5 corridor as identified in the West Coast Clean Transit Corridor Initiative Final Report,¹ and the opportunity for including resilient charging for light duty vehicles at the same location(s). This review will provide the company critical information on how to cost effectively bring back-up power to critical EV charging infrastructure.

The company will provide the EV charging network providers, as critical facilities, timely notification of potential de-energization events. To facilitate this effort, the Company has updated its critical customer list to include any locations that supply vehicle fueling, whether electric or not. The company is also continuing discussions with EV charging network providers and other California utilities in hopes of developing consistent communication channels that would efficiently supply important system information.

¹ West Coast Clean Transit Corridor Initiative: Interstate 5 Corridor Final Report, June 2020, available at: <https://westcoastcleantransit.com/>.

G. Medical Baseline and Access and Functional Needs Populations

PacifiCorp provides additional PSPS notifications to individuals classified as medical baseline customers in PacifiCorp's customer service system and to individuals who self-identify as having access and functional needs. PacifiCorp provides outreach on the mechanisms by which customers can self-identify as persons with access and functional needs. Since the last progress report, AFN identified households increased by three.

PacifiCorp has contracted with a third party vendor to conduct online and phone surveys with customers, including independent living, assisted living and skilled nursing centers and representatives of people/communities with access and functional needs and CBOs (Family and Community Resource Center of Weed, Mount Shasta CRC, Dunsmuir CRC, Happy Camp Family/CRC, Yreka CRC, HUB Communities, Tulelake/Newell FRC, Scott Valley CRC, Helping Right Now, among others) located in potential PSPS areas regarding its PSPS and wildfire safety communications. Survey results will be available by December 14, 2020. Feedback received via surveys will help inform the company's communication strategy related to the AFN population.

H. Transparency

PacifiCorp remains dedicated to the principle of transparency and strives to provide customers with usable and understandable information about their electric service. In addition to website materials regarding implementation of PacifiCorp's PSPS program and wildfire mitigation generally,² PacifiCorp will publish all PSPS post-event reports to its website, with a link from PacifiCorp's PSPS webpage.³

² Available at: <https://www.pacificpower.net/outages-safety/wildfire-safety.html>.

³ Available at: <https://www.pacificpower.net/outages-safety/wildfire-safety/public-safety-power-shutoff.html>.

PacifiCorp implemented its first PSPS event since the prior Progress Report, with power proactively de-energized in the city of Weed on September 13, 2020. Later, the company also initiated a watch event on October 25, 2020. The company filed post-event reports detailing the specifics of the events and continues to incorporate lessons learned from these experiences, namely in the areas of communications, process documentation, and external coordination, based on feedback received from AT&T following the September event. As a result, PacifiCorp is improving methods for providing GIS shape data to certain external stakeholders as events occur.

Conclusion

When a PSPS is warranted, PacifiCorp will effectively communicate with customers and work with local government officials to minimize the impact to its customers and communities, consistent with all the Guidelines identified in R.18-12-005, including those in the Phase 2 Guidelines.

Respectfully submitted,

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December 7, 2020

Attachment A



Pacific Power's California Wildfire Advisory Board

August 13, 2020





Agenda

- ✓ Introductions
- ✓ Purpose of the Wildfire Advisory Board
- ✓ Review PacifiCorp's California WMP
- ✓ Open Discussion
- ✓ Next Meeting



Introductions

Pacific Power

- ✓ Allen Berreth, Director of Delivery Assurance
- ✓ Heide Caswell, Director of Asset Performance and Wildfire Mitigation
- ✓ Todd Andres, Regional Business Manager
- ✓ Drew Hanson, Customer and Corporate Communications
- ✓ Jeff Bolton, Emergency Management

Board Members

- ✓ Heather Hadwick, Modoc County Emergency Services
- ✓ Juliana Lucches, Mayor of Dunsmuir and City Planner for Mt. Shasta
- ✓ Steve Baker, City Manager, Yreka
- ✓ Jasen Vela, Deputy Director, Siskiyou County Emergency Services
- ✓ Nancy Ogren, Supervisor Elect, Siskiyou County
- ✓ Veronica Rivera, Director of Facilities, College of the Siskiyous
- ✓ Ed Valenzuela, Supervisor, Mt. Shasta Region, Siskiyou County
- ✓ Giselle Nova, Chair, Siskiyou County Fire Council
- ✓ Paul Hamann, General Manager, Roseburg Forest Products



Purpose of the Wildfire Advisory Board

The wildfire advisory board will advise on all wildfire matters including all aspects of Pacific Power's mitigation plans, communications and public safety power shutoff.

Frequency of Meeting:

- *Quarterly meetings, however we can adjust as required (next meeting in November)*
- *Communication / updates could occur between meetings*

Information Coordinator:

- *Todd Andres will be the information coordinator for Pacific Power*

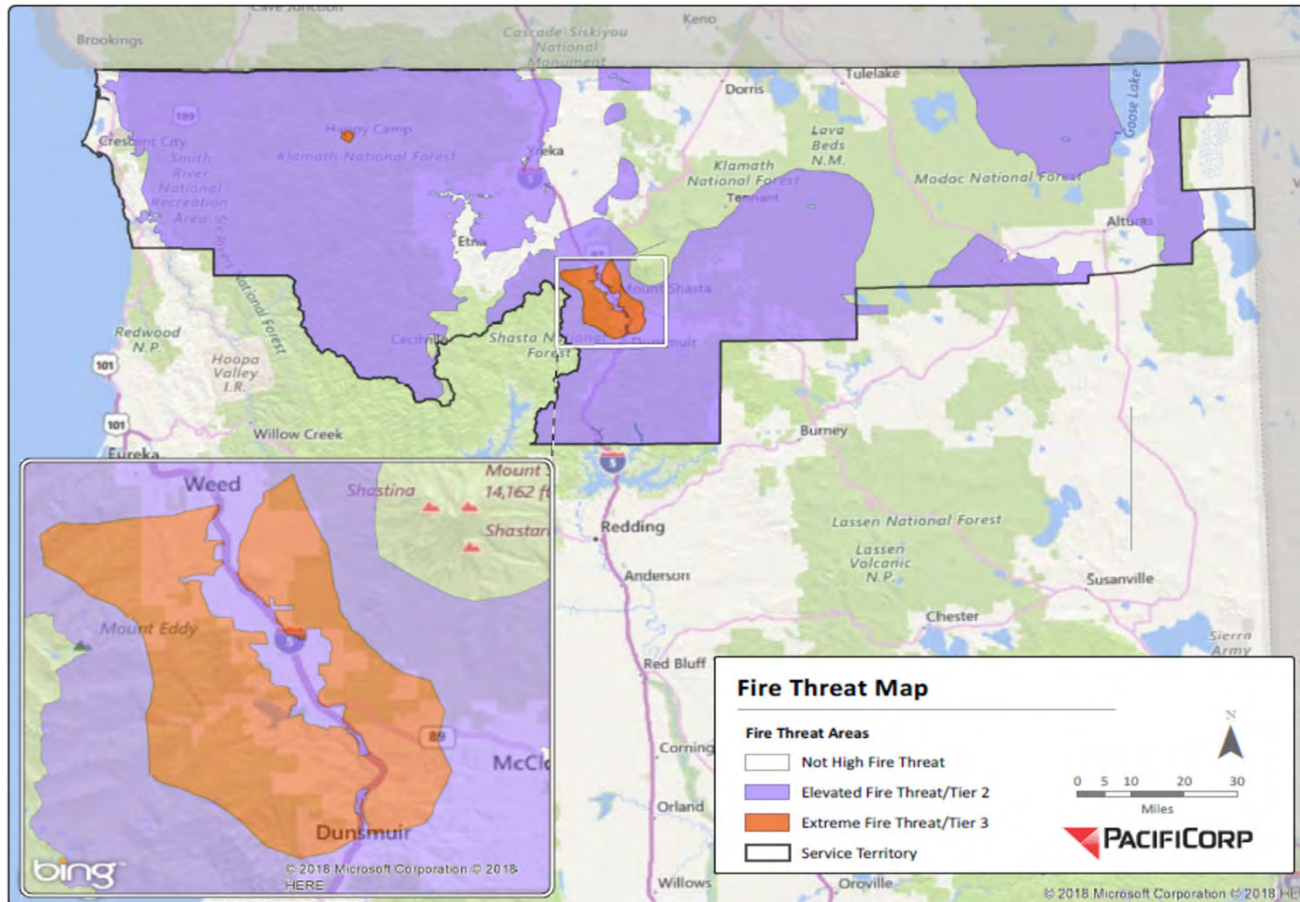
Open Questions:

- *Who else should be a member of the advisory board?*
- *Do you have any recommendation for additional members?*

Wildfire Mitigation Plan Overview

- ✓ Service territory summary
- ✓ Key objectives of the WMP
- ✓ WMP Elements
- ✓ Public Safety Power Shutoff plans and development

Pacific Power's California Service Territory



Pacific Power provides electricity to approximately **45,000 customers** via **63 substations** and **2,520 miles** of distribution lines and about **800 miles** of transmission lines across nearly **11,000 square miles**. Of which just under half is classified as **HFTD**.



Key objectives of the WMP



Initiatives
included

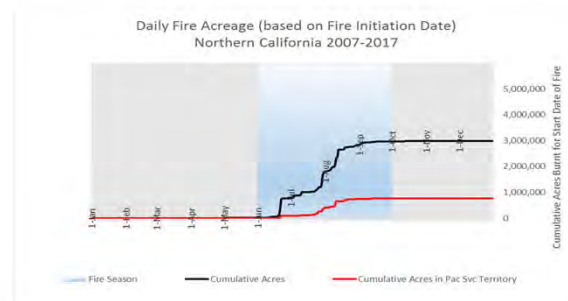
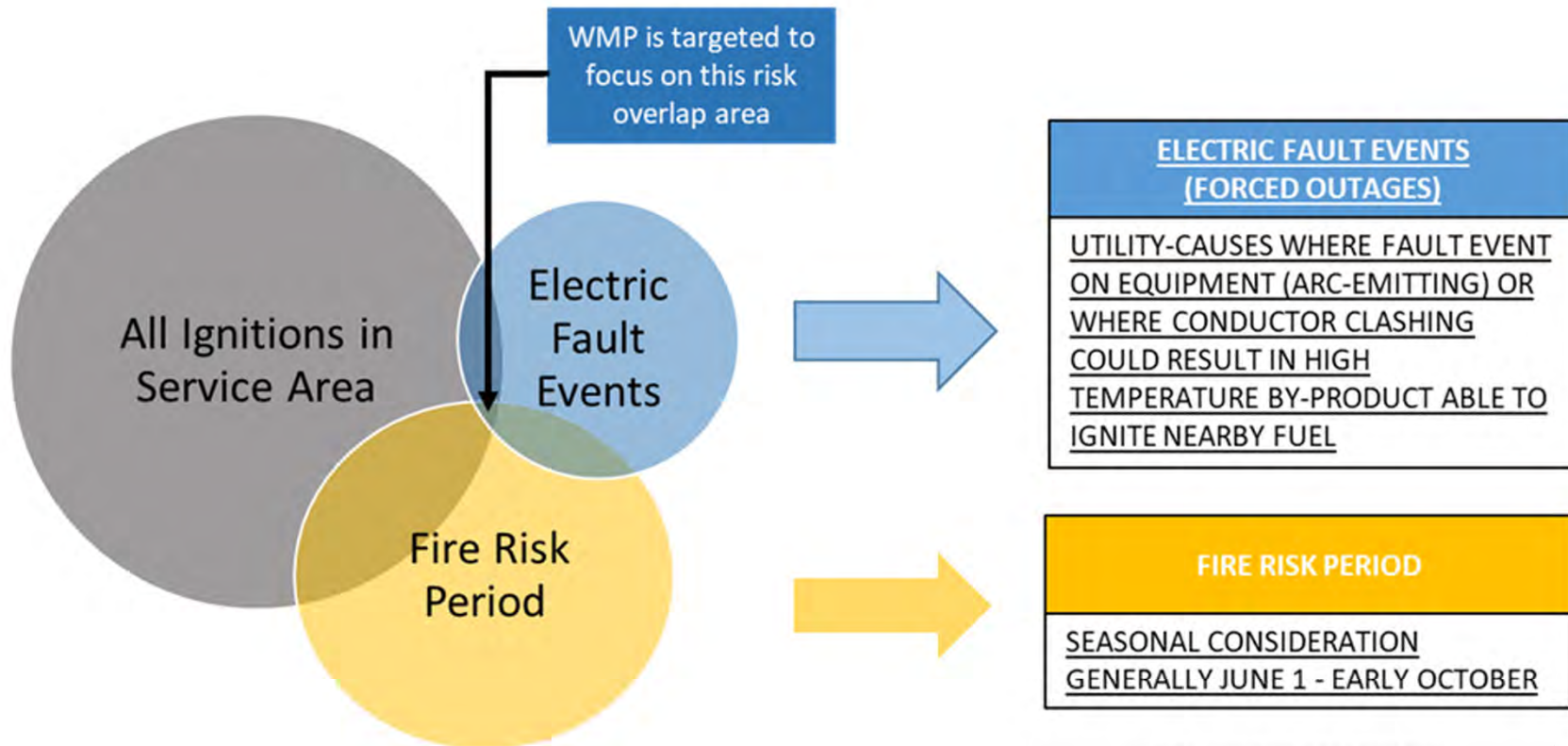
- Asset Hardening
- Inspect/Correct Programs
- Vegetation Management

- Risk-Informed Device Management
- Advanced Protection & Control Strategies
- Remotely Operable Electrical Devices

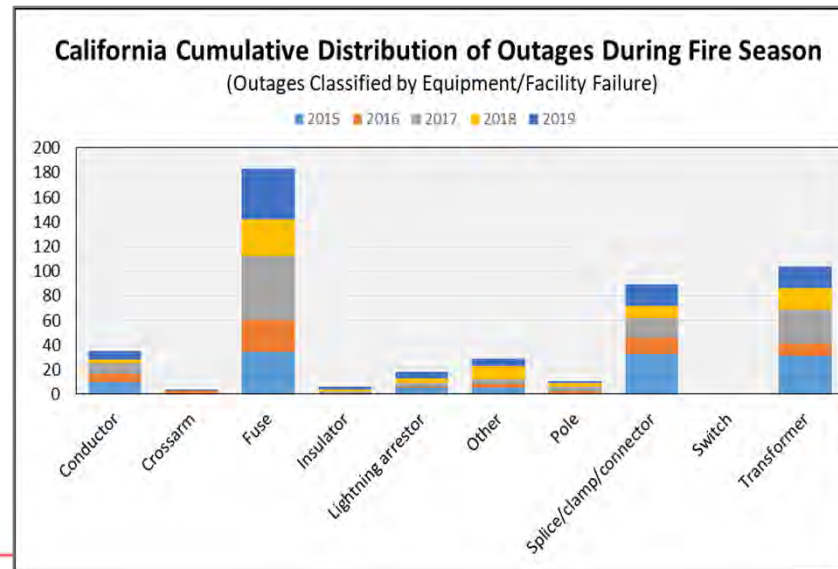
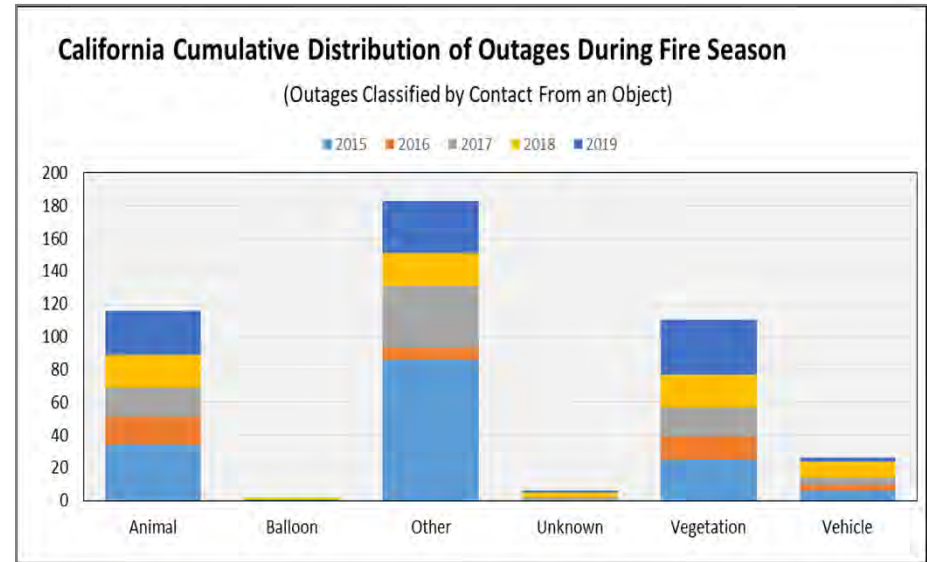
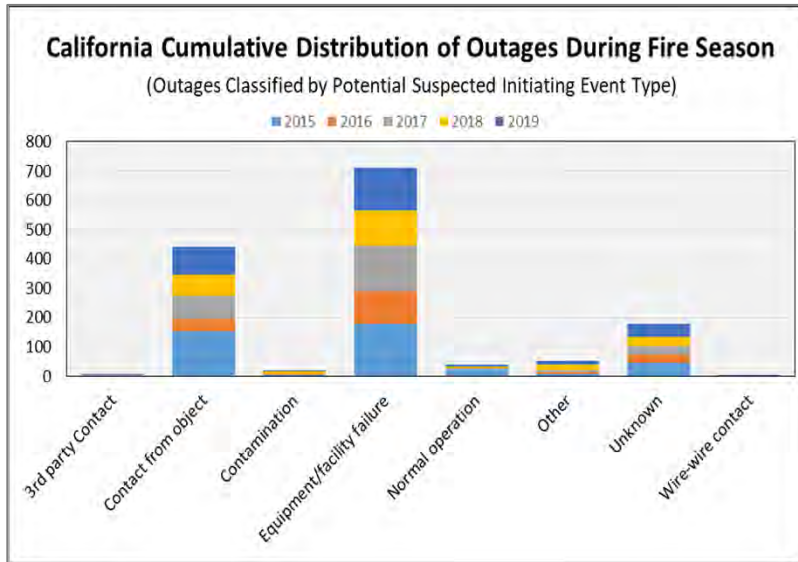
- Situational Awareness
- Operational Response



Pacific Power's Wildfire Risk Rubric



Outage Data: Potential Ignitions



2020 Wildfire Mitigation Plan Elements

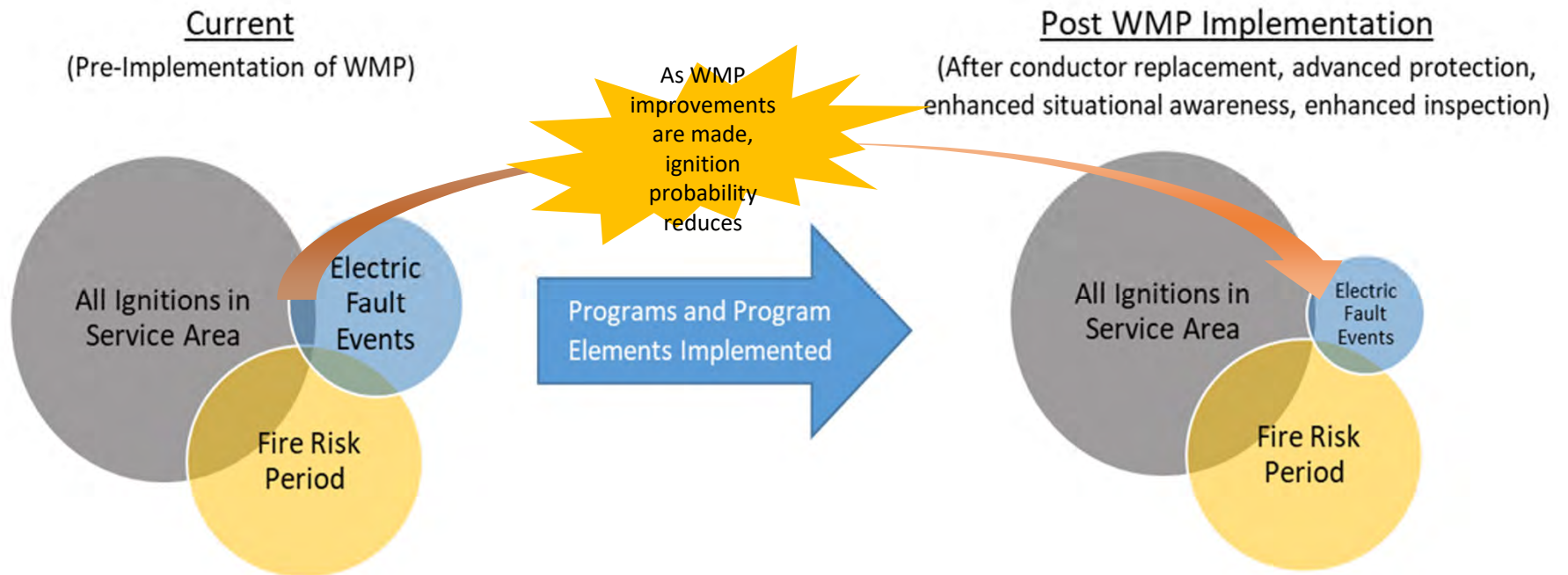


Strategy	Planned Activity
Enhanced Situational Awareness	<ul style="list-style-type: none">• Weather Stations• Risk Analysis modeling software• Probabilistic arc energy analysis on all circuits within the HFTD; probabilistic arc energy analysis on all small diameter circuits outside of the HFTD• Pilot distribution fault anticipation (DFA) technology• Lightning detection monitoring• Fire/fault specialists
System Hardening	<ul style="list-style-type: none">• Replace substation relays• Replace automatic reclosers & provide remote operability• Distribution covered re-conductor projects• Transmission covered re-conductor projects• Replace targeted wooden structures• Replace small diameter/capacity conductors
Enhanced Operational Practices	<ul style="list-style-type: none">• Vegetation clearances• Enhanced transmission line inspections• Enhance distribution line inspections• Expanded vegetation management• Utilization of sophisticated relays and recloser controllers to modify protective coordination settings



Pacific Power's Wildfire Risk Rubric

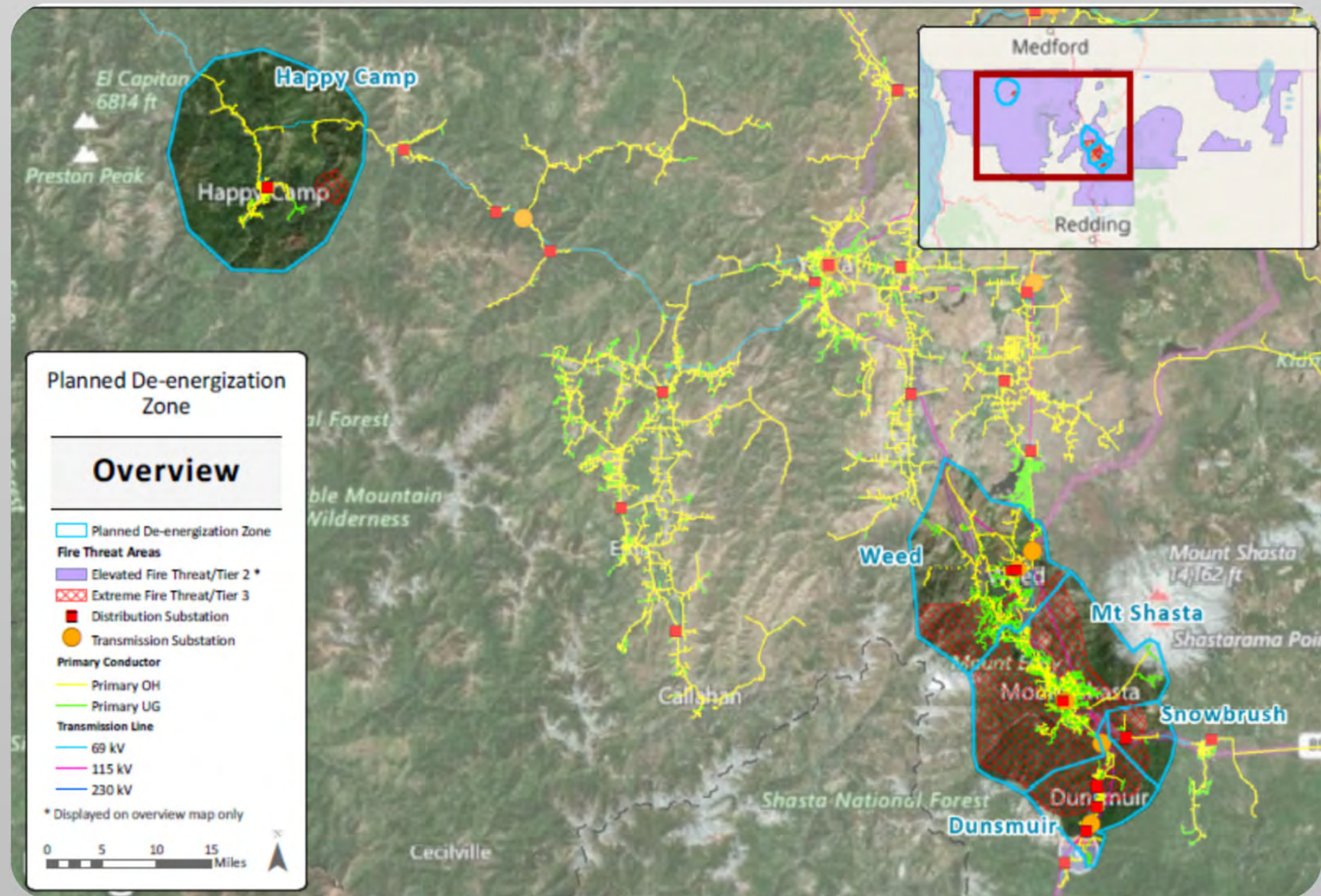
Throughout the life of the WMP



Public Safety Power Shutoff Overview

PacifiCorp's plan for proactive de-energization is currently limited to Tier 3 areas, which are the extreme risk areas.

Breaking the two main areas into five Proactive De-energization Zones (PDZ) was done to minimize customer impact where appropriate, based on weather monitoring capability and circuit topology.





Proactive De-Energization: PSPS Event Triggers*

	PDZ Name	Substation	Circuits	Customers	Distribution OH	Distribution UG
1	Happy Camp	Seiad, Happy Camp	3	865	48.4	5.9
2	Weed	Weed, International Paper	5	2,589	90.5	62.1
3	Mt. Shasta	Mt. Shasta	6	5,074	86.4	76.7
4	Dunsmuir	North & South Dunsmuir, Nutglade	5	1,806	30.0	8.6
5	Snowbrush	Snowbrush	1	17	4.2	1.2
	Total	9 Substations	20	10,351	259.5	154.5

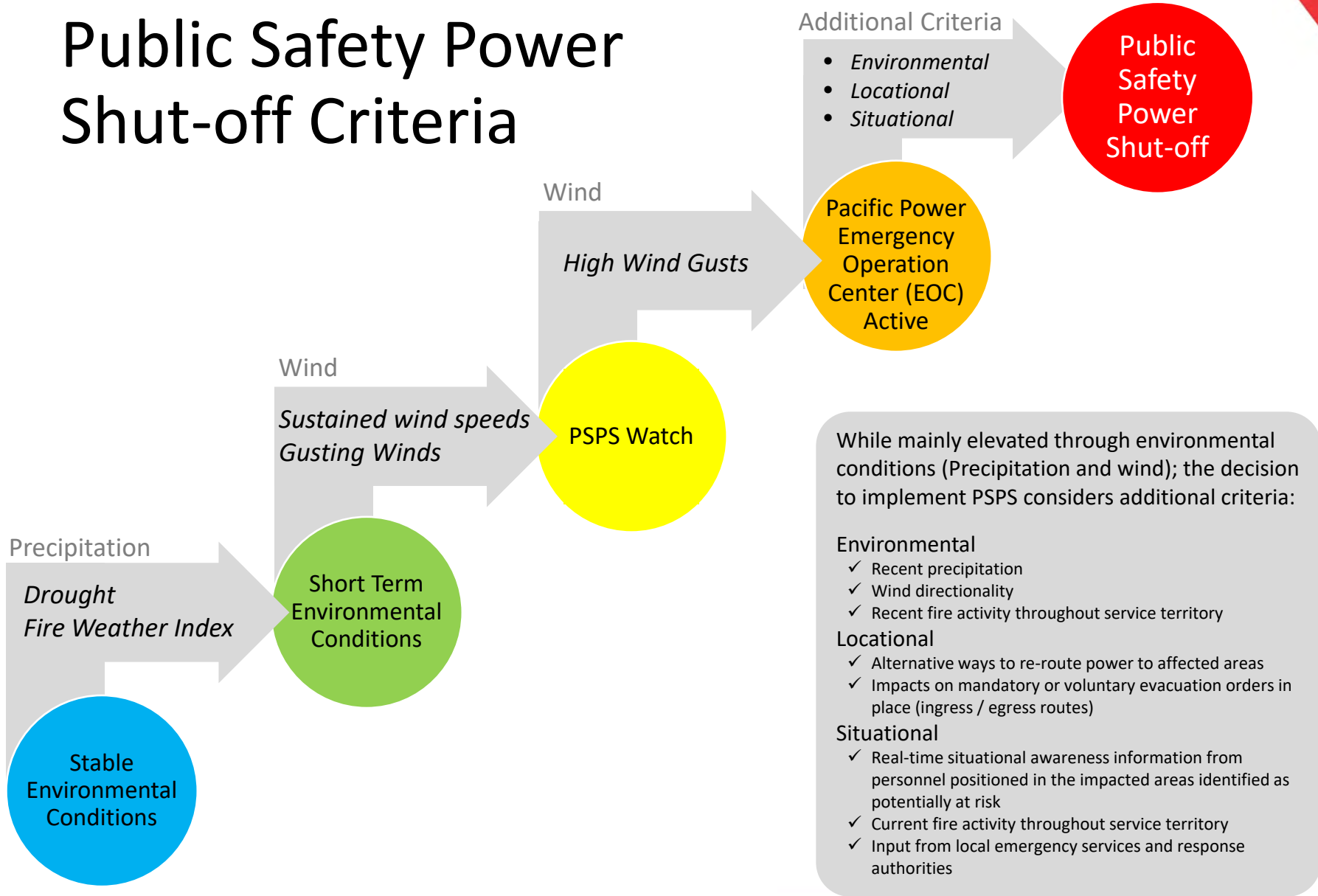
Proactive De-energization Zone (PDZ)	=	OR		+	AND	+	AND
		Wind gust (mph)	Sustained wind (mph)		FFWI6		KBDI
Happy Camp		31	16.7		30		622.2
Mt Shasta/Weed/Dunsmuir/Snowbrush		31	16.7		30		622.2

Criteria Definitions:

- Hourly Fosberg Fire Weather Index (**FFWI**) which uses temperature, relative humidity, 10-minute wind-speed factored into a single weather index which is correlated to influence on fire spread, over a 6 hour period (**FFWI6**).
- The Keetch-Byram Drought Index (**KBDI**) which assesses the risk of fire by representing the net effect of evapotranspiration and precipitation in producing cumulative moisture deficiency.

*PacifiCorp has recently incorporated the use of Vapor Pressure Deficit (VPD) as a PSPS criteria

Public Safety Power Shut-off Criteria



Daily (and week ahead) Assessment of Fire Risk



PacifiCorp CA Weather

Monday August 10, 2020 Issued 9:00 am

Highlights: Hot again today before a cooling trend provides some relief through midweek. Although temperatures will be less hot, winds will pick up and fire weather indices will increase. Additionally, there is a very slight chance for isolated thunderstorms tomorrow.

SHORT TERM FORECAST

TODAY	KBDI	FFWIS	6Hr Wind	Wind Gust	Wind Dir	Max Temp	Min RH	Cautionary Notes:
Happy Camp	737	19	7	17	NE-NW	103	14%	None
Weed	645	20	7	15	NW-SW	95	12%	
Mt. Shasta	839	24	9	19	NW-SW	93	14%	
Dunsmuir	676	18	8	15	NW-SW	97	16%	
Snowbrush	587	18	8	16	NW-SW	90	17%	

TONIGHT	6Hr Wind	Wind Gust	Wind Dir	Min Temp	Min RH	Cautionary Notes:
Happy Camp	--	--	3	9	NE-NW	56-61 42%
Mt. Shasta Area	--	--	4	12	N-Var	57-62 40%

Tuesday	KBDI	FFWIS	6Hr Wind	Wind Gust	Wind Dir	Max Temp	Min RH	Cautionary Notes:
Happy Camp	760	20	8	18	NE-NW	98	21%	Very slight chance for thunderstorms. Storms may produce dry lightning and strong gusts of wind.
Weed	652	26	10	21	S-SW	90	19%	
Mt. Shasta	845	27	11	25	S-SW	88	21%	
Dunsmuir	683	20	8	21	S-SW	92	23%	
Snowbrush	594	19	8	22	S-SW	85	24%	

Tuesday Night	6Hr Wind	Wind Gust	Wind Dir	Min Temp	Min RH	Cautionary Notes:
Happy Camp	--	--	4	9	NE-NW	56-61 52%
Mt. Shasta Area	--	--	5	15	NE-NW	57-62 50%

Wednesday	KBDI	FFWIS	Wind Spd	Wind Gust	Wind Dir	Max Temp	Min RH	Cautionary Notes:
Happy Camp	761	24	9	19	NW-W	86	14%	None
Weed	656	28	11	24	S-SW	88	11%	
Mt. Shasta	848	29	12	28	S-SW	86	14%	
Dunsmuir	689	26	10	24	S-SW	90	15%	
Snowbrush	599	25	10	25	S-SW	83	18%	

7 Day	Happy Camp		Weed		Mt. Shasta		Dunsmuir		Snowbrush	
	KBDI	FFWIS	KBDI	FFWIS	KBDI	FFWIS	KBDI	FFWIS	KBDI	FFWIS
TODAY	737	19	645	20	639	24	676	18	587	18
Tuesday	760	20	652	26	645	27	683	20	594	19
Wednesday	761	24	656	29	648	29	689	26	599	25
Thursday	763	23	660				28			
Friday	765	25	665				24			
Saturday	767	29	670				25			
Sunday	769	29	676				30			
	AVG KBDI					AVG FFWIS				

HAPPY CAMP/SEAD VALLEY EXTENDED FORECAST

Day	Avg KBDI	Max FFWIS	6Hr Wind	Wind Gust	Wind Dir	Max Temp	Min RH
Thursday	763	23	8	18	NE-NW	97	9%
Friday	765	25	9	18	NE-NW	100	11%
Saturday	767	29	10	20	NE-NW	102	5%
Sunday	769	29	10	21	E-W	102	6%

Extended Forecast Synopsis:
High pressure will recover over much of the West through the end of the week. Temperatures will see a warming trend while dry conditions remain. Troughing to the north of the region will likely maintain some occasionally breezy winds, allowing fire weather danger to persist.

MT. SHASTA AREA EXTENDED FORECAST

Day	Avg KBDI	Max FFWIS	6Hr Wind	Wind Gust	Wind Dir	Max Temp	Min RH
Thursday	660	28	10	25	NW-SW	91	6%
Friday	665	24	8	21	NW-SW	94	8%
Saturday	670	25	8	21	S-SW	98	5%
Sunday	676	30	11	28	S-SW	97	6%

Meteorologist, Kai Tawa

WESTERN WEATHER INC.
Forecasting & Instrumentation

530.342.1700
forecaster@westernwx.com

PacifiCorp Weather Station Network
Daily Meteorological Summary
Sunday, August 9, 2020

	Temperature		Rain		RH	Dew Pt	Fire Indices		WIND			Fuels			
	Max °F	Time occur	Min	Time occur	in	in	Avg °F	BHrMax FFWI	KBDI	Avg mph	Gust Dir	Max Temp	Avg Moisture		
Dunsmuir	94.3	16:13	66.5	06:58	0.00	18.56	17	48.11	11	668	4.6	16.8	N	109.1	3.9
Lake Siskiyou	91.9	16:28	58.2	06:40	0.00	13.15	17	48.20	5	634	1.4	12.2	WNW	-	-
Snowbrush	87.0	16:56	52.8	06:04	0.00	16.44	18	45.07	8	579	2.1	18.1	N	112.8	6.9
Pollard Flat	100.8	16:20	67.8	03:12	0.00	23.37	18	50.73	17	754	5.0	21.9	N	115.9	6.5
North Mt Shasta C	89.8	17:53	60.9	07:06	0.00	10.35	15	46.37	21	580	7.5	21.4	NNW	-	-
SW Weed	92.4	16:46	50.1	06:42	0.00	9.14	15	45.94	9	530	3.3	12.5	ESE	121.0	4.8
West Weed	90.0	16:53	56.7	06:40	0.00	10.29	14	44.49	6	638	1.6	12.4	S	-	-
North Weed	91.8	17:51	53.3	04:48	0.00	4.86	13	46.50	15	617	4.3	16.4	NE	-	-
West Seiad	98.0	16:14	53.7	06:28	0.00	11.71	19	51.54	8	711	1.6	10.6	SSW	117.3	6.5
Happy Camp	101.7	15:49	57.2	06:53	0.00	7.97	15	51.14	15	734	2.7	16.6	NE	-	-

*Please email forecaster@westernwx.com by noon on Fridays to request weekend forecasting

POWERING YOUR GREATNESS

PSPS Communication



Development of customer-facing PSPS tool

<https://www.pacificpower.net/outages-safety/wildfire-safety/public-safety-power-shutoff.html>

Public Safety Power Shutoff

[< Back to wildfire safety](#)

i If you have medical equipment in your home that requires electricity to function, please work with your medical provider to have a back-up plan if a power outage were to happen. Also call our customer care center at 1-888-221-7070 so we can mark it in our customer care system.

Some areas we serve are at an increased risk of catastrophic wildfires. As a safety precaution, electricity could be turned off in wildfire high risk areas during extreme weather events for public safety in an effort to prevent a fast-moving, hard to fight wildfire. The measure would only be used as a last resort to help ensure community safety.

The goal is to impact as few customers as possible in pre-identified areas through a highly-targeted, circuit by circuit manner in the rare chance a Public Safety Power Shutoff is used.

Check if you're in a Public Safety Power Shutoff area

The outlined areas on the map represent potential Public Safety Power Shutoff areas. Enter your address below to see if you are located within one.* You can click on an area of the map to see the zone name that corresponds to the table below.

**Some customers outside of Public Safety Power Shutoff areas could be impacted by a Public Safety Power Shutoff due to the interconnected nature of the electrical grid.*

Public safety power shutoff forecasting

This table shows the Public Safety Power Shutoff status.

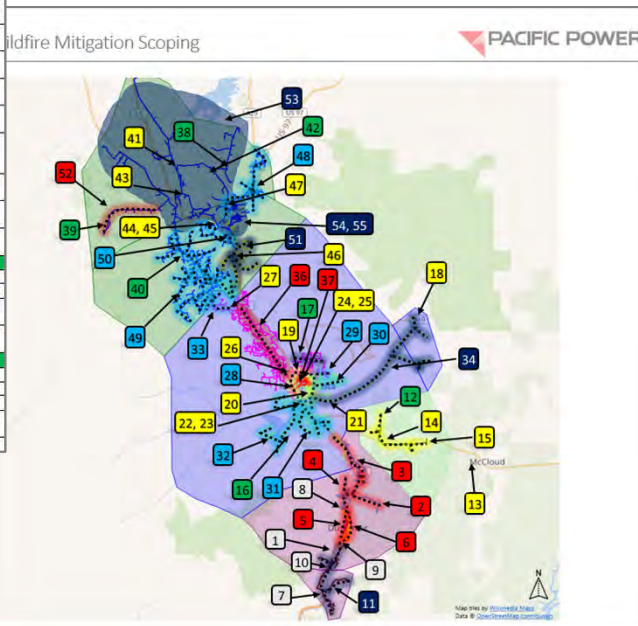
NAME	TODAY	TOMORROW	2 DAYS OUT	3 DAYS OUT	4 DAYS OUT	5 DAYS OUT	6 DAYS OUT
Azalea / Glendale / Wolf Creek / Sunny Valley	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Cascade-Siskiyou NM	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Dunsmuir	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Happy Camp	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Hood River / Wasco Rural	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Hood River Urban (SE)	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Hood River Urban (West)	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Illinois Valley	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lost Creek Lake	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Merlin	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Mt Shasta	Normal	Normal	Normal	Normal	Normal	Normal	Normal



PSPS Mitigation Project Data

- Mitigation Plans have been developed for all areas identified to be at risk for PSPS
- Priorities were established based upon historic PSPS risk duration, combined with impacts to customers and communities, with special consideration to priority (or critical) customers
- Efforts are underway and the data management process is being developed to align with reporting requirements (while recognizing the impacts of reporting cycles on long-term projects)
- Utilizing centrally-housed spreadsheet correlated to geographically-displayable project references
- Toolset is being modified to improve process

Shasta Wildfire Mitigation Scoping		
3	Rebuild 7.6 miles to covered conductor, re-conductoring and converting the two phase portion of 5669 between 5679 and Dunsmuir Substation to three phase. This is a transmission <u>underbuild</u> project and overhead taps are also to be re-conductored.	2020/2021
4	Rebuild 3.9 miles to covered conductor, re-conductoring the remainder of 5669 overhead portions serving the Shasta Retreat area out of North Dunsmuir Substation.	2021
5	Rebuild 6.0 miles to covered conductor, re-conductoring the overhead portions of circuits 7671 and 7673 out of North Dunsmuir Substation. The two circuits will be constructed at 15kV but remain energized at 4.16kV.	2021
6	Rebuild 3.5 miles to covered conductor, re-conductoring the entirety of the overhead portions of circuits 7675 out of South Dunsmuir Substation. This circuit will be constructed at 15kV but remain energized at 4.16kV.	2021
7	Rebuild 8.4 miles to covered conductor, re-conductoring the overhead portions of 8095 out of <u>Mustache</u> Substation, however timing and necessity are expected to be informed by continuing analysis of fire and weather risks.	6
8	Replace <u>28022</u> using SEL 551 capable of remote reconfiguration (communications required). Configured with fire settings (which allow for four setting profiles, in addition to high impedance fault detection capabilities) and will be remotely communicable. FP-06238004-0114000	2020
9	Substation Relay Replacement at North Dunsmuir Substation (5669, 7671, 7673). Replace Relays with SEL 751s including high impedance fault detection.	2020
10	Substation Breaker and Relay Replacement at North Dunsmuir Substation (7675). Replace Relays with SEL 751s including high impedance fault detection.	2020
11	Substation Breaker and Relay Replacement at <u>Mustache</u> Substation (8095). Replace Relays with SEL 751s including high impedance fault detection.	2020
Unassigned PSPS Area		
12	Install Weather Station will provide greater detail of weather conditions in and around the central Snowbrush area.	2019
13	Install Weather Station will provide greater detail of weather conditions in and around the eastern Snowbrush area.	2020
14	Substation Breaker and Relay Replacement at Snowbrush Substation (6610). Replace Relays with SEL 751s including high Impedance fault detection. (Talk to Darrell about this one)	2020
15	Rebuild 4.2 miles to covered conductor, re-conductoring the overhead portions of circuit 66101 out of Snowbrush Substation. This circuit will be constructed at 15kV but remain energized at 7.2kV.	2021
Unassigned PSPS Area		
16	Install Weather Station will provide greater detail of weather conditions in and around the northern Mt Shasta area.	2019
17	Install Weather Station will provide greater detail of weather conditions in and around the southern Mt Shasta area.	2019
18	Install Weather Station will provide greater detail of weather conditions in and around the southern Mt Shasta area.	2020
19	Rebuild 2.0 miles to covered conductor, re-conductoring the main line portion (north ring fence) of circuit 5677. This project will create a hardened backbone which includes the service of Mercy Medical Center. Taps on this line are not included.	2020
20	Rebuild 1.8 miles to covered conductor, re-conductoring the main line portion (south ring fence) of circuit 5679. This project will be	2020



Pacific Power Delivery Assurance									
Wildfire Mitigation PMO									
Distribution Relays									
		100	100	2	\$ 14.0				
		Per Unit							
PSPS Area	Circuit	Order	Year	WP	FC	AC	W		
Proj		Project Name / Scope							
d	41	5645	10068422	2019	1	1	1	\$	
d	41	5656	10068422	2019				\$	
d	41	5683	10068422	2019				\$	
d	41	5645	10072428	2020	1	1		\$	
d	41	5683	10072428	2020	1	1		\$	
d	41	5657	10072428	2020	1	1		\$	
d	N/A	5686	10068473	2020	1	1		\$	
d	N/A	5687	10068473	2020	1	1		\$	
d	By Camp	2	5624	10068423	2020	1	1	\$	
d	By Camp	2	5626	10068423	2020	1	1	\$	
d	5671	9	5669	10068474	2020	1	1	\$	
d	5671	9	7671	10068474	2020	1	1	\$	
d	5671	9	7673	10068474	2020	1	1	\$	
d	5671	11	6695	10068439	2021	1	1	\$	
d	N/A	5697	10069500	2020	1	1		\$	
d	N/A	5699	10069500	2020	1	1		\$	
d	6610	14	66101	10068475	2021	1	1	\$	
d	6610	19	7675	10068420	2020	1	1	\$	
d	N/A	568	10068476	2020	1	1	1	\$	
d	5610	28	5610	10049825	2021	1	1	\$	
d	5617							\$	



Open Discussion

- ✓ Questions
- ✓ Ideas / specific topics for the next meeting?
- ✓ Next Meeting to be scheduled for November

Thank you!

Attachment B



California PSPS Tabletop Exercise

Incident Summary, After-Action Report

Pacific Power

June 3, 2020

Report submitted by:

Jeff Bolton

Emergency Manager

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EVENT SUMMARY

EXERCISE GOALS

- Overall
 - Test operational communications
 - Test situational awareness and common operating picture
 - Test operational coordination
 - Test public information and warning system
- Pacific Power
 - Hone working relationships within the public private partnership
 - Validate response plan
 - Validate communications protocols
 - Verify capability to support community during mitigation actions

SITUATION

- 3 day weather forecasts are such that PSPS event has become possible for the California Proactive De-energization Zones
- Pacific Power does not have any other incidents within their service territories making all resources available
- Siskiyou County does not have any existing incidents

NOTIFICATION

- Notification was conducted in accordance with the Public Safety Power Shutoff Playbook.

RESPONSE

- Response was conducted within each jurisdictions normal response structure
- Unified command to include Pacific Power representation was used for the first time with good results
- Unified Command requested community support shelter activation

ATTENDEE ROSTER

Name	Organization
Adam Heilman	Siskiyou County Emergency Management
Alan Meyer	Pacific Power
Christina Kruger	Pacific Power
Christopher Meyer	CPUC
David Van Dyken	CPUC
Erik Brookhouse	Pacific Power
Heide Caswell	Pacific Power
Jasen Vela	Siskiyou County Emergency Management
Jeff Bolton	Pacific Power
Junaid Rahman	CPUC
Karin Nguyen	CPUC
Lana Tran	CPUC
Pooja Kishore	Pacific Power
Richard Harris	Pacific Power
Steve Duncan	City of Weed
Todd Andres	Pacific Power
Trish Barbeieri	Siskiyou County Public Health

SUMMARY BY DEPARTMENT

T&D

- Provided technical expertise and tactical control at the Incident Command Post and with field resources
- Acted as commander for Pacific Power assets within Unified Command structure

SYSTEM OPERATIONS

- Directed Emergency Operations Center activities
- Provided Emergency Management expertise
- Coordinated appropriate dispatch and switching activities
- Led exercise planning and execution

CUSTOMER SERVICE AND EXTERNAL COMMUNICATIONS

- Coordinated public messaging with the county's Joint Information Center
- Showed customer contact capability and provided direct customer contact messaging

PUBLIC SECTOR

- Activated Incident Command System structure for tactical control of event

- Activated Emergency Operations Center for response and community support during event
- Activated Joint Information Center for public facing messaging during event
- California PUC participated providing regulatory input and oversight

LESSONS LEARNED

This “lessons learned” section provides information on processes, training and tools (e.g., forms and plans) that worked well and observations which occurred which provide opportunities for improvement.

SUCSESSES

- Excellent cohesion between county and Pacific Power roles and responsibilities for response
- Siskiyou County plans match up with PacifiCorp plans well
- CPUC identified the exercise was well executed and cross platform problem solving was effective

OBSERVATIONS

- Due to pandemic response very few people were able to attend in person which added to difficulty for exercise execution
- Pacific Power
 - Need to identify key customers which require personal phone calls
 - How do we prevent duplication of effort during public notification?
 - Memorandums of Understanding need created for community support locations
- Siskiyou County
 - These exercises require more participation from the city level officials which were invited
 - Providing time for training in advance of exercise would be appreciated
 - Concerns regarding staff being overwhelmed should a second incident occur within the region in addition to PSPS
 - Functional need procedures seem divorced between Pacific Power and the County Health and Human Services. Finding a way to share information would streamline all responses
- CPUC
 - Need to identify areas for secondary power regarding concerns for dispensing fuel
 - Suggest recording webcast next time

REPORT CONTRIBUTORS

The following personnel provided information that contributed to this report.

Bolton, Jeff Pacific Power Emergency Manager
Nguyen, Karin..... California Public Utilities Commission
Vela, Jasen Siskiyou County Emergency Manager

Attachment C



California Service Territory Proactive De-Energization

Mitigating Fire Risk

Executive Sponsor

David Lucas

Principal Author

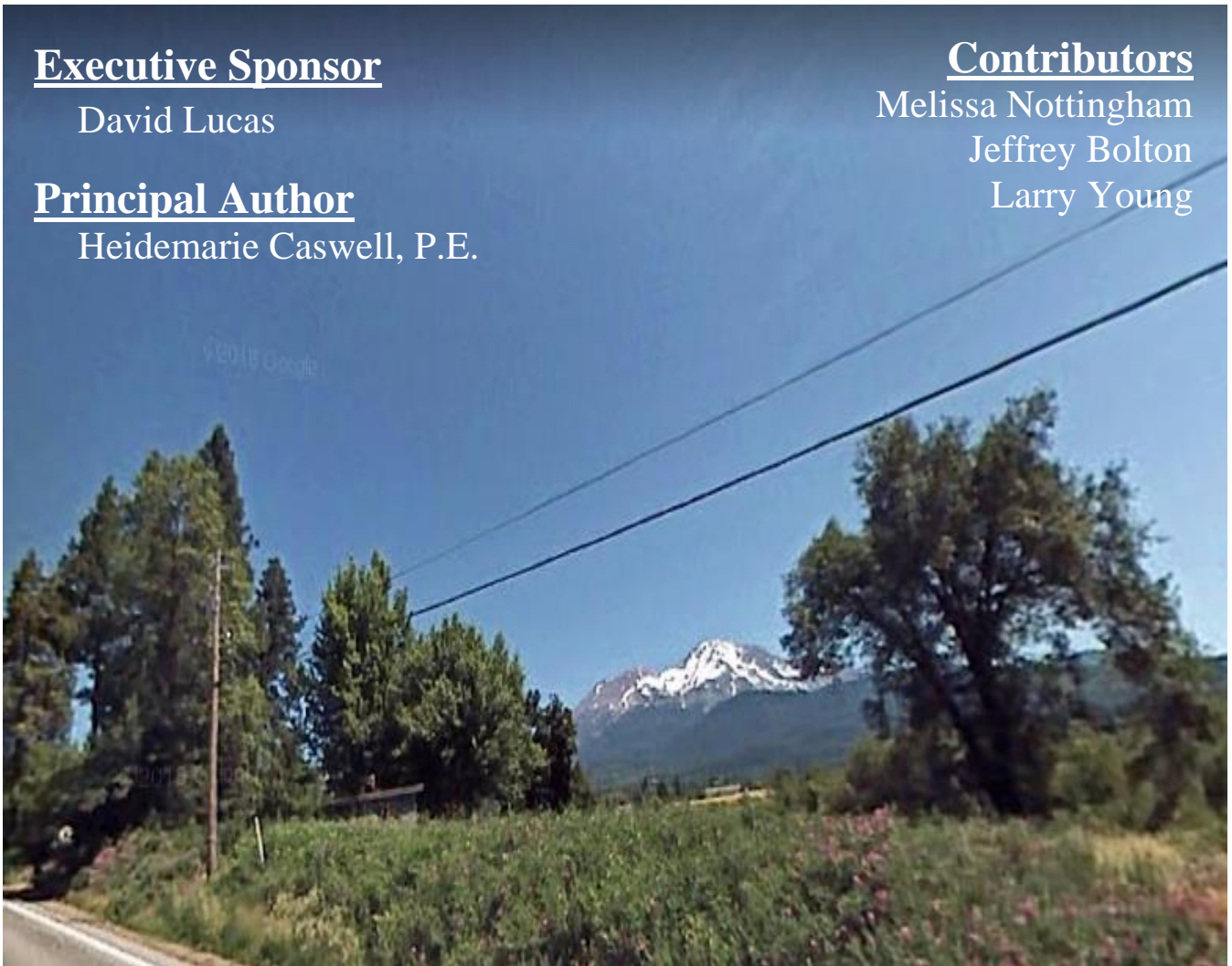
Heidemarie Caswell, P.E.

Contributors

Melissa Nottingham

Jeffrey Bolton

Larry Young



Last Updated: October 30, 2020

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PURPOSE

The purpose of this plan is to mitigate fire risk in Pacific Power’s California service territory designated to be a Tier 3 area using a fire threat forecasting model and setting clear responsibilities of its operations personnel associated with proactive de-energization of electrical circuits during fires season. It is also intended to comply with Pacific Power’s regulatory obligations associated with Resolution ESRB-8.

In Resolution ESRB-8 investor-owned utilities in California were provided a series of pillars to use in developing proactive de-energization plans. The key elements included notification, reporting, reasonableness demonstration, public outreach, notification & mitigation of impacts. The summary of the requirements are below. A portion of them were a requirement of D.12-04-024, while the remainder were strengthened in ESRB-8.

SUMMARY

This report outlines the methods taken by Pacific Power to enact proactive de-energization of power lines, in response to California Public Utility Commission’s Electric Safety and Reliability Branch (ESRB) initiated a resolution, ESRB-8,¹ to offer this opportunity to investor owned utilities across the state, but also imposing specific elements as part of the process.

Since approximately 2012 San Diego Gas & Electric (SDG&E) has successfully implemented proactive de-energization² in the event of high risk weather conditions in order to limit the potential for overhead utility equipment creating an ignition source which could quickly and catastrophically impact communities they serve. In 2018, the ESRB initiated a resolution (ESRB-8), for which many of the elements were developed during the implementation of the SDG&E process. Specifically these relate to reasonableness, notification, mitigation and reporting regarding the de-energization action.

Using much of the same data used by fire management professionals, including the Fosberg Fire Weather Index³ (FFWI), both hourly values and a 6 hour running value, as well as a fire probability measure called the Keetch-Byram Drought Index⁴ (KBDI), in combination with wind gust and wind speed Pacific Power established a statistically tested model, from which operational triggers were derived; Annex A details the technical evaluation performed. As such a candidate de-energization would be initiated based on forecasts when the FFWI6 and KBDI are at or above certain levels. The company will target at least 48 hours advance notice for de-energization events; while monitoring updated forecasts to ascertain if thresholds continue to be exceeded. As the forecast window narrows and it is determined the FFWI and KBDI indices are likely to be exceeded (i.e. no forecasted rain event), Pacific Power will review wind projections to include sustained and peak gust forecasts. Severe thunderstorm or red flag warnings will also be considered for enacting a proactive de-energization event. If wind forecasts are expected to exceed the local threshold values a proactive de-energization action would be considered by the authorized approvers, particularly Vice President, T&D Operations & Vice President, System Operations. If approved, the plan and all its elements would then be implemented. Assessment by response personnel, in addition to input from weather and emergency service personnel will dictate how long the de-energization action remains in place.

¹ <http://docs.cpuc.ca.gov/publisheddocs/published/g000/m218/k186/218186823.pdf>

² D.12-04-024

³ Fosberg Fire Weather Index is discussed at <https://www.spc.noaa.gov/exper/firecomp/INFO/fosbinfo.html>

⁴Keetch and Byram (1968) designed a drought index to be used for assessing fire potential. Further details at <https://www.wfas.net/index.php/keetch-byram-index-moisture--drought-49>

PLAN DEVELOPMENT

The following sections outline the regulatory requirements of proactive de-energization, the methodology applied to identify candidate de-energization zones, triggers for activation, subsequent communications, as well as resource estimates and restoration protocols. Further appended are data analytic details for threshold selection, event flow chart, and draft forms for logging communications and key triggers in a given activation event.

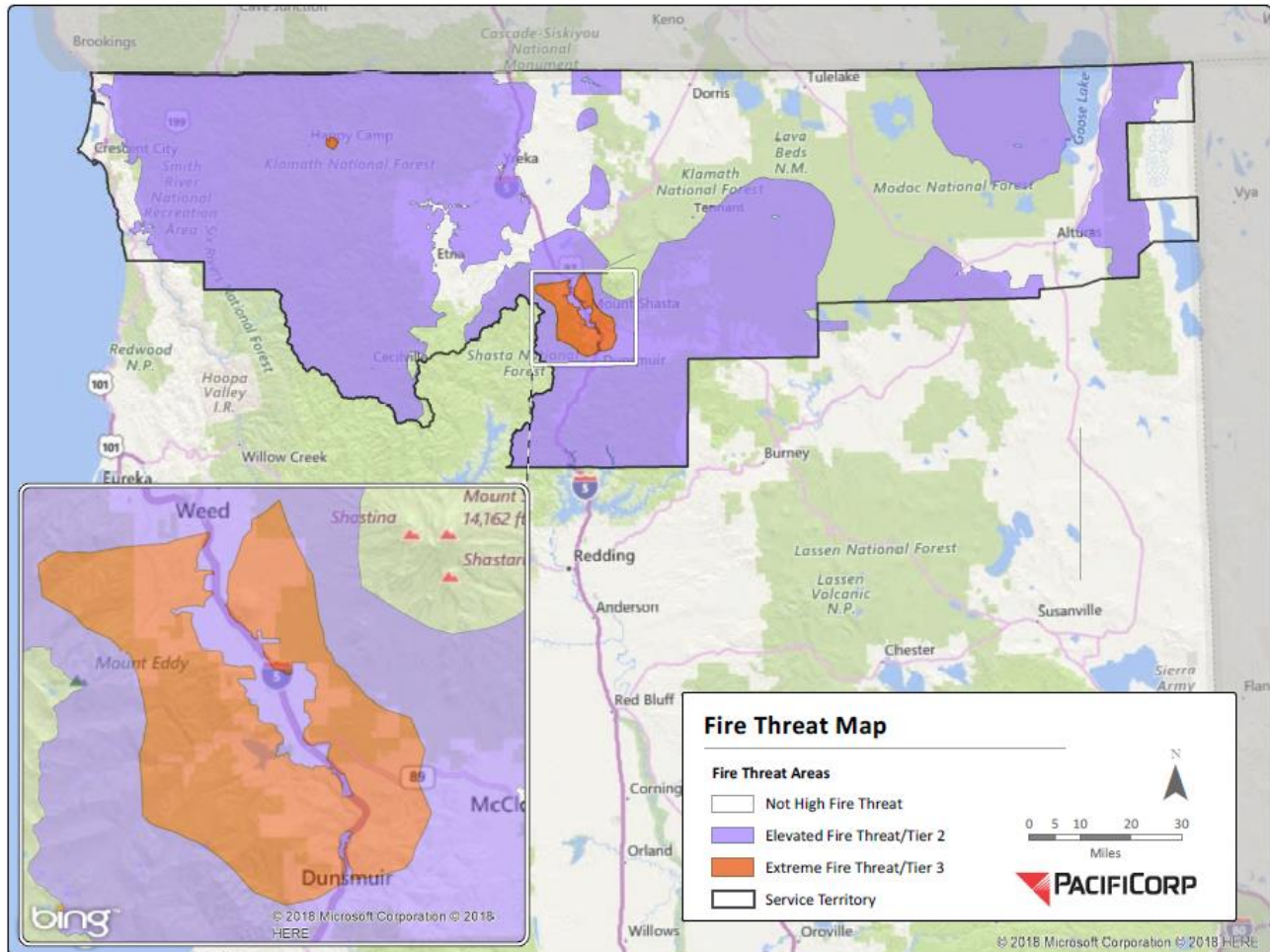
REGULATORY OBLIGATION

The table below summarizes the regulatory requirements for proactive de-energization as outlined in D.12-04-024 and ESRB-8.

Requirement	Timing
Reporting	
Notification to Director SED: Event Date, Planned time, affected customers, estimated restoration time.	As soon as practical after decision is made, no later than 12 hours after power shut-off
Report to Director SED: Explanation of rationale, factors, customers (by priority), damage, notice. Outline community reps notified, GO95 Tier classification. If 2 hours' notice (at least) not provided, explanation. Summarize complaints (number and nature). Restoration Steps (detailed). Addresses of community assistance locations, facility type, assistance available, days and hours	Within 10 business days after event ends
Reasonableness Review	
Burden on IOU demonstrating necessity of shut-off	
Reliance on other measures to avoid shutting off power	
IOU must believe imminent, significant risk	
IOU must consider how to mitigate adverse impacts on customers	
Other additional factors to demonstrate necessity	
IOU must reasonably believe imminent significant risk that strong winds will damage facilities or vegetation that will cause impacts on utility facilities	
Public Outreach, Notification & Mitigation	
Provide notice and mitigation to customers as feasible whenever power shut-off occurs	
Not practical to have absolute requirement to provide advance notification	
Convene informational workshops	Within 90 days of effective date
Report on public outreach	Within 30 days of effective date
Communicate publicly de-energization policies: Available on website, meet with community representatives, provide policy, and discuss details of plan and coordination.	
Event Communication: Notify affected customers, communicate with emergency response personnel, government, communications providers and community choice aggregators. Discuss with government and community reps how to lesson negative impacts. Ensure critical facilities are aware.	
Documentation: Community meetings & information provided (electronically), Assist critical facility customers to evaluate emergency equipment, retain records of customer notifications.	1 year after de-energization event or 5 years after meeting, whichever is first.

SELECTION OF IMPACTED AREAS

Pacific Power, consistent with other California investor owned utilities, constrains proactive de-energization to Tier 3 areas. Pacific Power has two Tier 3 areas within California, as shown in the graphic below.



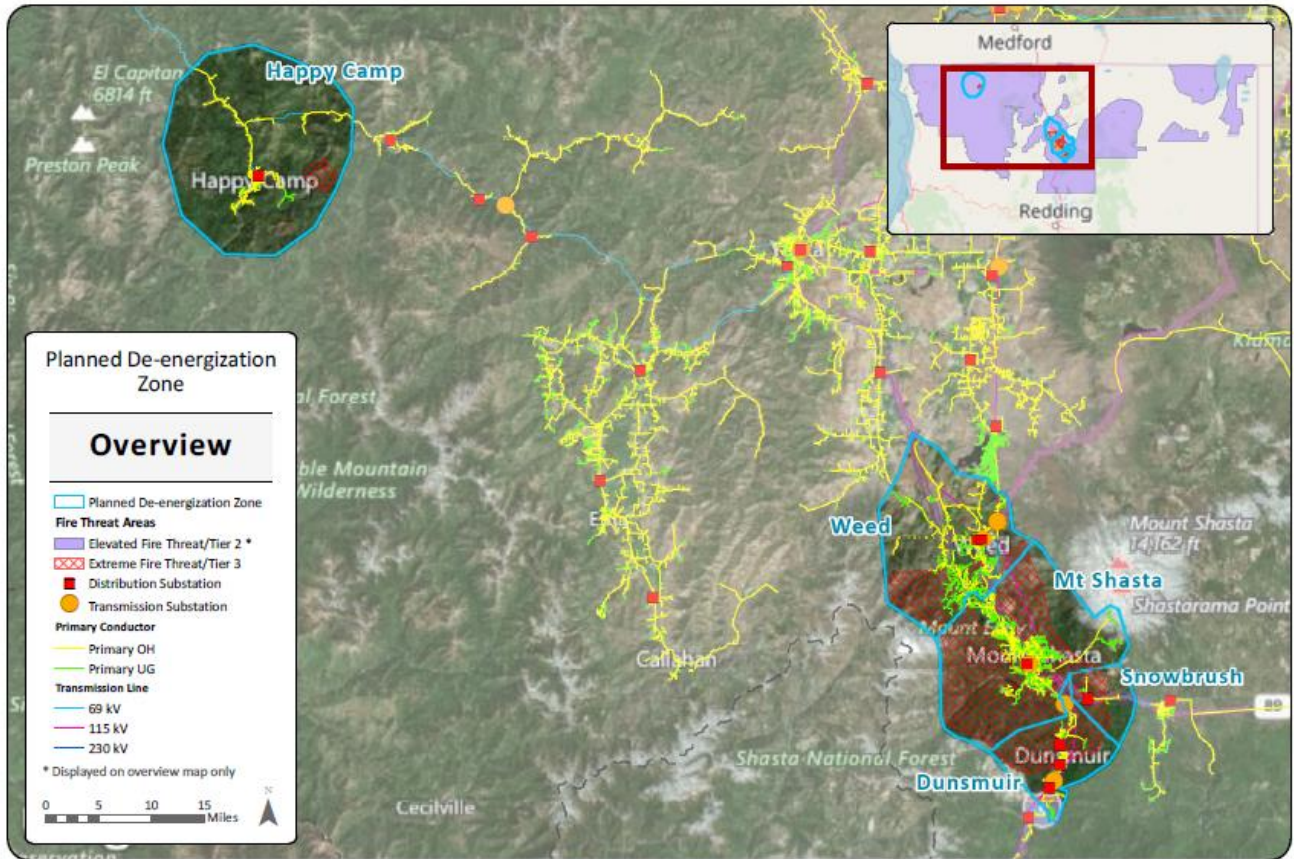
A Tier 3 designation itself does not require the development of a proactive de-energization plan, rather it identifies high threat locations requiring further evaluation to determine if proactive de-energization should be considered for mitigating fire risk. This is particularly relevant in the Happy Camp area which while the Tier 3 footprint contains no overhead electric equipment, has frequent weather of a widespread nature which could result in impacts to the community.

Nor must the de-energization zone be fully contained within the Tier 3 area; the shape instead is a result of similar risk levels given the weather history and other environmental factors in combination with associated electrical equipment in the area. It is also important to note that if the electrical system is being fed abnormally, equipment that might not previously have been candidates for PSPS could now be considered due to electric connectivity with assets that extend into the HFTD or particular Tiers.

Pacific Power reviewed fire threat, terrain, fire history, fuel characteristics and weather in determining its de-energization zones. It also considered wildland urban interface, probability of maintained defensible space, impacts to customers and facilities to establish its proactive de-energization zones.

PROACTIVE DE-ENERGIZATION ZONES

Pacific Power, through its review, identified two primary Proactive De-energization Zones (PDZ) in its California service territory as shown below.



The two primary zones were further subdivided into smaller areas (shown outlined in the graphic above) minimizing customer impact where appropriate based on weather monitoring capability and circuit topology. Individual PDZ graphics are contained in following sections.

This approach resulted in five discrete PDZ areas with a mix of circuit topology and customer impacts as summarized in the below table.

	PDZ Name	Substation	# of Circuits	Customers	Distribution OH	Distribution UG
1	Happy Camp	Seiad, Happy Camp	3	865	48.4	5.9
2	Weed	Weed, International Paper	5	2,589	90.5	62.1
3	Mt. Shasta	Mt. Shasta	6	5,074	86.4	76.7
4	Dunsmuir	North & South Dunsmuir, Nutglade	5	1,806	30.0	8.6
5	Snowbrush	Snowbrush	1	17	4.2	1.2

California Proactive De-energization
Mitigating Fire Risk



	Total	9 Substations	20	10,351	259.5	154.5
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CRITERIA FOR PROACTIVE DE-ENERGIZATION

Building upon work completed in developing the California state-wide fire map in D.17-12-024, Pacific Power utilized weather data, geographic topography, fire probability and ignition data and historic fire data to determine the criteria for triggering proactive de-energization in each of the five proactive de-energization zones (PDZ). While the primary triggers in Mt Shasta/Weed/Dunsmuir/Snowbrush are the same; it is expected that by using microclimatology information there is an opportunity for de-energizing smaller areas at a time. It would be an extremely rare condition that all four PDZs would simultaneously be activated.

Criteria Inputs

- Hourly Fosberg Fire Weather Index (FFWI) which uses temperature, relative humidity, 10-minute wind-speed factored into a single weather index which is correlated to influence on fire spread, over a 6 hour period.
- The Keetch-Byram Drought Index (KBDI) which assesses the risk of fire by representing the net effect of evapotranspiration and precipitation in producing cumulative moisture deficiency.
- While Red Flag Warnings provide the public awareness of heightened fire risk conditions, they do not sufficiently correlate to the history evaluated to require they function as a key input to activation of the proactive de-energization process.

CRITERIA	=	OR		+	AND	+	AND
		Wind gust (mph)	Sustained wind (mph)		FFWI		KBDI
Action							
Watch		25	16.7		30		622.2
Event		31	-		30		622.2

SYSTEM MONITORING

Pacific Power has developed an operating procedure (PCC-201-CA) that documents the process for monitoring weather information from the PDZ areas and triggering a proactive de-energization event. The operating procedure is included in Annex E for reference but the main process outline is summarized below.

- 1) Utilizing automated weather systems monitoring an alert is generated based on the criteria noted above, and a proactive de-energization event is triggered.
- 2) When an event is triggered a Proactive De-energization Event Proposal is prepared which contains the timing details, area, and forecasted duration of the event.
- 3) Once approved by the Vice President of System Operations and the Vice President of Operations, notifications are then made to departments for next steps:
 - a. Customer Service for customer notification
 - b. Emergency Management for local emergency services notification
 - c. Regulation for notification to the director of the CPUC safety and enforcement division (SED).
 - d. Local Operations for required switching / line patrolling
 - e. Local RBM for preparation of customer care centers and large customer contact
- 4) Conditions are continuously monitored and when thresholds are no longer exceeded, lines are patrolled for damage, and re-energized.

COMMUNICATION PLAN

Community Coordination

In compliance with the PSPS Phase II Guidelines outlined in D.20-05-051, PacifiCorp established a Wildfire Safety Advisory Board which includes stakeholders from the community and several agency partners. The Advisory board will advise on a range of wildfire matters including all aspects of PacifiCorp’s public safety power shutoff (PSPS) plan. The board held its first quarterly meeting on August 13, 2020 and will continue quarterly meetings as scheduled.

Event Notification

In the event of Proactive De-energization, identified personnel will receive an email notification from System Operations (as documented in PCC-201-CA). The email will include the current or forecasted weather conditions triggering an event, the affected area, and when the date and time of the event. The goal is to begin notifying customers 48 hours in advance of a potential de-energization event. If this is not possible due to weather or any other changing conditions, the notification process will begin as soon as possible.

Customer Communications

- The list of affected customers (generated by System Operations from the impacted circuits noted in the De-Energization Event Plan as part of PCC-201-CA) is sent to *_CallCenterOutageManagement*.
- The subject line should designate at what point in the notification process is relevant to the pending event. For example, the subject line should state: 48 Notice of PSPS or sooner if the event is pending.
- Using this list, the contact center will begin sending notifications utilizing preapproved templates for each state of the notification process.

Timeline	Type of Notice
48 hours	Conditional
24 hours	Updated Conditional
2 hours	Imminent
1 hour	Immediate
2 hour	Restoration

During the Public Safety Outage, customers will receive updates to the status of the outage. The trigger for an update will be when the status of the outage or the estimated time of restoration changes. If a previously noticed Public Safety Outage is cancelled, customers will receive a cancellation notice.

Method of Notification

- Customers will be contacted by text, email, or phone call based on their preference. If no preference is selected, a phone call will be made to the primary phone number on the account.
- Notifications for a Public Safety De-energization event are exempted from the 48 hour notification prior to a planned outage as required under Rule 25 under both the Force Majeure and Safety clauses listed under approved exemptions.
- Messages will be posted on social media, local media, and press release.

Outreach in advance of the implementation of a Public Safety Shut-Off

Pacific Power will provide information regarding proactive de-energization on the public website, including the following:

- Actions taken to harden the system to reduce risk,
- Monitoring conditions,
- Criteria for triggering an event,
- Map of tiers in California,
- Notification before, during, and at the conclusion on an event, and

- Restoration information.

Vulnerable Customers

- Known vulnerable customers (medical conditions, etc.) will receive additional outreach from the company requesting they evaluate the safety of their situations and consider a back-up plan in case of a shut off or any emergency outage.

Public Safety authorities, local municipalities, Emergency Responders

Utilizing the contact information below, the Pacific Power Emergency Manager will notify the appropriate local agencies based on the PDZ that was activated. Pacific Power will work with agencies to minimize the impact of de-energization as much as possible and fully communicate the impacted areas and expected duration. The notification will be documented for reporting purposes after the event has ended.

Name	Organization	Physical Address	E-mail Address	Office	Emergency
Barbara Wagner	Mt Shasta City	305 N Mt Shasta Blvd. Mt Shasta	bwagner@mtshasta.ca.gov	646 584 5664	same
Billy Gansel	Mercy Medical Center	914 Pine St. Mt Shasta	billy.gansel@dignityhealth.org	530 926 9313	same
Bruce Pope	Mt Shasta City Manager	305 N Mt Shasta Blvd. Mt Shasta	bpope@mtshasta.ca.gov	530 926 7519	530 318 3518
Craig Sharp	Weed Public Works	550 Main St. Weed	sharp@ci.weed.ca.us	530 938 5020	530 859 5028
Michael Kobseff	Weed Supervisor	1312 Fairlane Rd Yreka	mkobseff@co.siskiyou.ca.us	530 859 1524	same
Dan Padilla	Dunsmuir Fire Dept	5915 Dunsmuir Ave. Dunsmuir	dpadilla@ci.dunsmuir.ca.us	530 235 2551	530 925 0106
Jason Vela	Siskiyou County OES	806 S Main St. Yreka	jvela@co.siskiyou.ca.us	530 841 2155	530 598 9241
Ed Valenzuela	Siskiyou County Supervisor	1312 Fairlane Rd Yreka	Dist2sup@sbcglobal.net	530 926 1733	same
Jess Bray	Siskiyou County OES	806 S Main St. Yreka	jbray@co.siskiyou.ca.us	530 841 2145	530 340 0981
Mark Brannigan	Dunsmuir City Manager	5915 Dunsmuir Ave. Dunsmuir	mbrannigan@ci.dunsmuir.ca.us	530 235 4822	530 925 3806
Martin Nicholas	Weed Police Dept	550 Main St. Weed	nicholas@ci.weed.ca.us	530 938 5000	530 859 5007
Michael Petrucelli	National Weather Service	4003 Cirrus Dr. Medford Or.	michael.petrucelli@noaa.gov	315 973 1067	same
Mike Reusic	Siskiyou County Power Authority	190 Greenhorn Rd. Yreka	mreusic@co.siskiyou.ca.us	530598 7765	same
Ron Larue	Dunsmuir Public works	5915 Dunsmuir Ave. Dunsmuir	wwtp@ci.dunsmuir.ca.us	530 235 2325	530 925 0871
Ron Stock	Weed City Manager	550 Main St. Weed	stock@ci.weed.ca.us	530 938 5020	same
Steve Duncan	Weed Fire Dept	128 Roseburg Pkwy. Weed	steve.duncan@ci.weed.ca.us	530 859 1200	same

LOCAL OPERATIONAL RESPONSE

Upon notification of proactive de-energization local operations will secure appropriate resources for required switching, restoration line patrolling, and response to public requests. In each PDZ plan, specific resource estimates have been provided. Further in each of these plans switching has been identified that can aid in the quicker restoration of priority customers while patrolling continues on the remaining portions of the circuit.

COMMUNITY RESOURCE CENTERS

Pacific Power has obtained logistical support for deployment of Community Resource Centers should the need arise during a Public Safety Power Shutoff event. Community Resource Centers will be established upon recommendation of the Unified Command; this recommendation will be based upon community needs, the expected duration of deployment and conditions that the community is currently experiencing, such as extreme heat or cold, recent events that may have rendered the community vulnerable. The center(s) will be open from 8am to 10pm (or generally daylight hours) with the potential to stay open longer based on community needs.

The Community Support Center tent (if needed) is able to sustain winds of 55mph gusting to 65mph.

Pacific Power personnel will staff the center(s) to assist and provide information to community members.

Siskiyou County

A Community Support Center location is established within each PDZ and will provide the ability for the community to have specific needs met. Services provided include:

- Shelter from environment
- Air conditioning
- Potable water
- Seating and tables
- Restroom facilities
- Refrigeration for medicine and/or baby needs
- Interior and area lighting
- On-site security
- Communications capability such as Wi-fi access, SatPhone, Radio, Cellular phone etc.
- Televisions
- On-site medical support (EMT-A at a minimum, Paramedic preferred)
- Charging stations for Cell Phones, AM/FM/Weather radios, computers, etc.
- Adherence with any existing local, county, state or federal public health orders

Shasta PDZ

- Mt Shasta Community Center

Weed and Snowbrush PDZ

- Weed Community Center

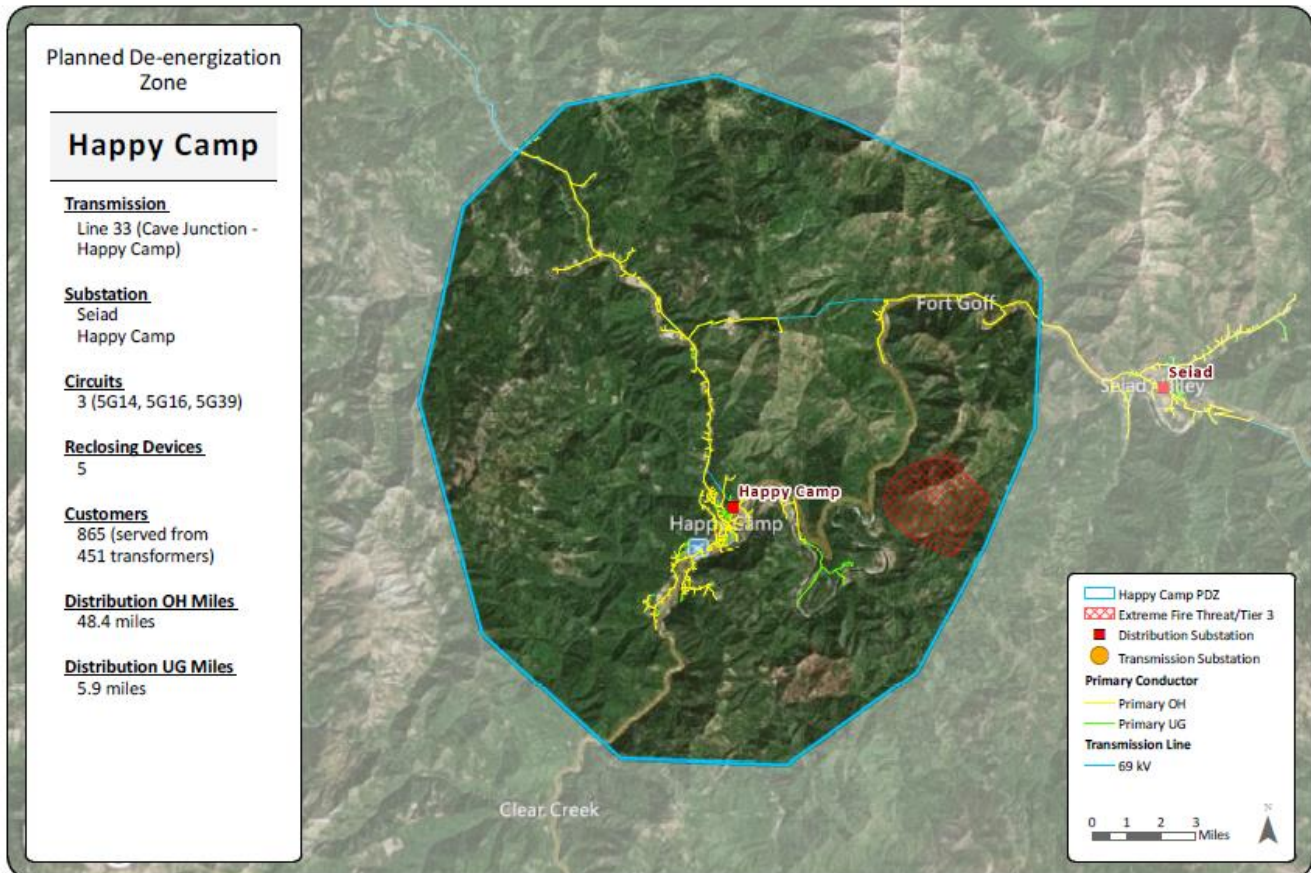
Dunsmir PDZ

- Dunsmir Community Center

AFTER ACTION REPORTING / PLAN UPDATES

As outlined in D.12-04-024 and ESRB-8 there are reporting requirements following a proactive de-energization event. The forms and logs listed in Annex B will be used to document required information throughout an event. In addition an annual refresh of the proactive de-energization process and documentation will be conducted and any necessary updates to the plan documented.

HAPPY CAMP PDZ PLAN



Priority Customers

PDZ	Service City	Circuit ID	Customer Name	Priority Type	Phone	Address
Happy Camp	HAPPY CAMP	5G14	HAPPY CAMP SANITARY	Sewage	530-493-5293	HIGHWAY 96 # BB 15
Happy Camp	HAPPY CAMP	5G14	KARUK TRIBE	Solid Waste	530-331-9847	2501 CHINA GRADE RD SHOP
Happy Camp	HAPPY CAMP	5G16	CA ST HIGHWAY PATROL	1RSP_CMP	916-843-3540	SLATER BUTTE CHP
Happy Camp	HAPPY CAMP	5G16	HAPPY CAMP SANITARY	Sewage	530-493-5293	35 FOWLER RD # PUMP
Happy Camp	HAPPY CAMP	5G16	HAPPY CAMP SANITARY	Sewage	530-493-5293	65862 KLAMATH RIVER HWY SHOP
Happy Camp	HAPPY CAMP	5G16	HAPPY CAMP SANITARY	Sewage	530-493-5293	HIGHWAY 96 A15 LIFT STA
Happy Camp	HAPPY CAMP	5G16	HAPPY CAMP SANITARY	Sewage	530-493-5293	PARK WAY RD END PMP
Happy Camp	HAPPY CAMP	5G16	HAPPY CAMP SANITARY	Solid Waste	530-493-5293	1 INDIAN CREEK RD PUMP
Happy Camp	HAPPY CAMP	5G16	HAPPY CAMP SANITARY	Solid Waste	530-493-5293	BUCKHORN RD SHP
Happy Camp	HAPPY CAMP	5G16	HAPPY CAMP SANITARY	Solid Waste	530-493-5293	BUCKHORN RD PMPS
Happy Camp	HAPPY CAMP	5G16	HAPPY CAMP SCH E	Primary School	530-493-2267	114 PARK WAY
Happy Camp	HAPPY CAMP	5G16	KARUK TRIBE	Day Care	530-331-9847	632 JACOBS WAY
Happy Camp	HAPPY CAMP	5G16	KARUK TRIBE	Res Care	530-331-9847	64105 HILLSIDE RD # MH
Happy Camp	HAPPY CAMP	5G16	KARUK TRIBE	Res Care	530-331-9847	64236 2ND AVE # MAIN BLDG
Happy Camp	HAPPY CAMP	5G16	SISKIYOU COUNTY	AIRPORT	530-841-4378	64738 AIRPORT RD # YARD
Happy Camp	HAPPY CAMP	5G16	SISKIYOU TEL CO	Telecom	530-467-6168	64140 HIGHWAY 96
Happy Camp	HAPPY CAMP	5G16	SISKIYOU TEL CO	Telecom	530-467-6168	SLATER BUTTE CARRIER
Happy Camp	HAPPY CAMP	5G16	SISKIYOU UNION HIGH SCHOOL DIS	Primary School	530-926-3006	234 INDIAN CREEK RD
Happy Camp	HAPPY CAMP	5G16	USDA FOREST SERVICE	Fire station	541-618-2160	SLATER BUTTE USFS
Happy Camp	SEIAD VALLEY	5G39	SISKIYOU TEL CO	Telecom	530-467-6168	49717 HIGHWAY 96 CARRIER
Happy Camp	SEIAD VALLEY	5G39	SISKIYOU TEL CO	Telecom	530-467-6168	52539 HIGHWAY 96

Priority Customer Constraints

Karuk Tribe – Clinic and Headway Building. Both have generators that can operate indefinitely dependent on fuel availability.
 The tribe has an emergency response trailer. Satellite communication (phone/internet)
 Happy Camp Sanitary District (waste water) 3 days capacity, with their on-site generator
 Happy Camp Community Services District (treated water) 3 days capacity, with their on-site generator

PDZ Restoration Process, by Substation

Substation: Happy Camp

Circuits: 5G14, 5G16

The entirety of both 5G14 and 5G16 are encompassed in the PDZ.

- There are 21 priority customers in the Happy Camp PDZ.
- These customers are primarily in the urban area of Happy Camp, with the exception of two that are 6.9 miles from the substation.
- There are not any alternate possibilities to re-energize any of the priority customers.
 - The short term restoration plan would require the patrol of both feeders before re-energization.

Substation: Seiad

Circuits: 5G39

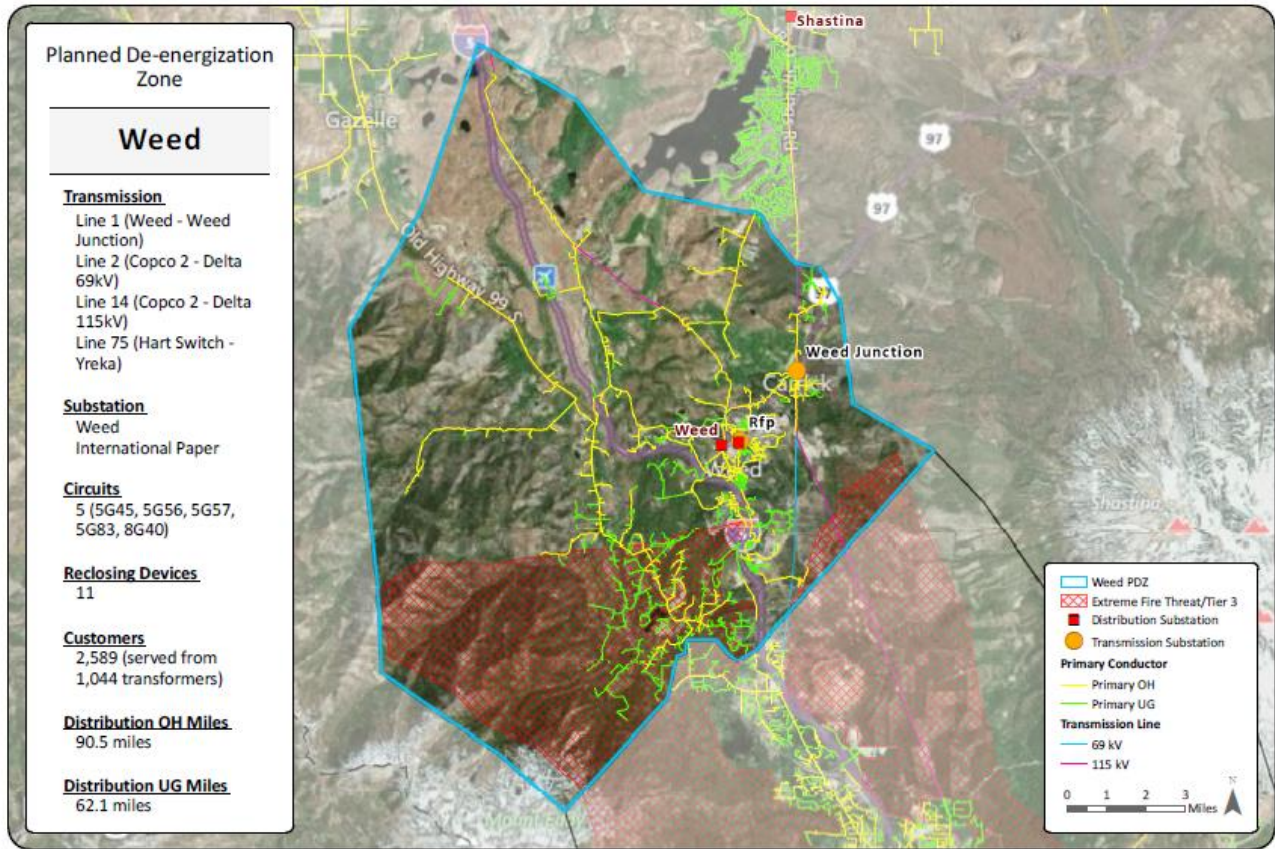
There is a western extreme edge of the feeder that extends into the PDZ and has two priority customers. There is an existing 25T fuse at 06246012.046560 outside of the PDZ that can be used to de-energize the portion of 5G39 in the PDZ. This would be the short term restoration plan and would require the portion of the feeder beyond the isolation point to be patrolled before re-energization.

PDZ Restoration Resource Estimates

PDZ	Circuit	Number of Personnel	Required Material	Hours to Patrol	Comments (Switching Points, etc.)
Happy Camp	5G14	3-Singleman	3- service trucks	3 hours	This assumes de-energization at the circuit breaker. 5G14 would be the 3rd priority in this PDZ.
	5G16	6-Singleman	6- service trucks	5 hours	This assumes de-energization at the circuit breaker. 5G16 would be the 1st priority in this PDZ.
	5G39	4-Singleman	4- service trucks	4 hours	This assumes de-energization at the circuit breaker. 5G39 would be the 2nd priority in this PDZ.

Note: In addition to the circuit resources listed in the table a 3 man crew and 1 Logistics personnel would be required to support the repairs of any damage found during patrols. (3 man crew vehicles & logistics truck)

WEED PDZ PLAN



Priority Customers

PDZ	Service City	Circuit ID	Customer Name	Priority Type	Phone	Address
Weed	MOUNT SHASTA	5G45	TWIN HILLS PROPERTY ASSOCIATIO	Fire station	530-926-6810	ABT N OLD STAGE LOOP
Weed	WEED	5G45	MERCY MED CENTER MT SHASTA	Gen Hosp	701-667-6792	100 ALAMO AVE
Weed	WEED	5G45	SHASTA VIEW ESTATE INC	Skilled Nursing	971-301-8206	475 PARK ST
Weed	WEED	5G45	STATE OF CALIFORNIA	Jail	707-951-2655	550 PARK ST
Weed	WEED	5G45	WEED CITY	1RSP_CMP	530-938-5020	550 MAIN ST
Weed	WEED	5G45	WEED CITY	Solid Waste	530-938-5020	400 E VISTA DR PUMPHOUSE
Weed	WEED	5G83	BUTTEVILLE UNION SCH E	Primary School	530-938-2255	24512 EDGEWOOD RD
Weed	WEED	5G83	BUTTEVILLE UNION SCH E	Primary School	530-938-2255	24512 EDGEWOOD RD # MODULAR
Weed	WEED	5G83	Inactive or Disconnected	Primary School	0-0-0	575 WHITE AVE
Weed	WEED	5G83	SISKIYOU COUNTY AUDITOR	Fire station	530-842-3516	8800 N OLD STAGE RD
Weed	WEED	5G83	WEED CITY	Sewage	530-938-5020	1542 ALAMEDA AVE # PMP2
Weed	WEED	5G83	WEED CITY	Water Supply	530-938-5020	1542 ALAMEDA AVE # PUMP1
Weed	WEED	5G83	WEED CITY	Water Supply	530-938-5020	19359 MAPLE AVE
Weed	WEED	5G83	WEED UNION ELEMENTARY SCHOOL D	Primary School	530-938-6103	575 WHITE AVE
Weed	WEED	8G40	ROSEBURG FOREST PROD CO	1RSP_CMP	541-679-2124	98 MILL ST

Priority Customer Constraints

City of Weed:
 Municipal Water – Gravity flow, 3 day capacity, reduced flow impacts fire-fighting ability.
 Sewer lift stations - 3 days capacity, with city generators.
 Water Treatment plant – 3 day capacity, utilizing retention ponds.
 Emergency Services: No back-up generator, critical need is 4 hours, communication through repeater sites is essential.

PDZ Restoration Process, by Substation

Substation: Weed

Circuits: 5G45, 5G83, 8G40

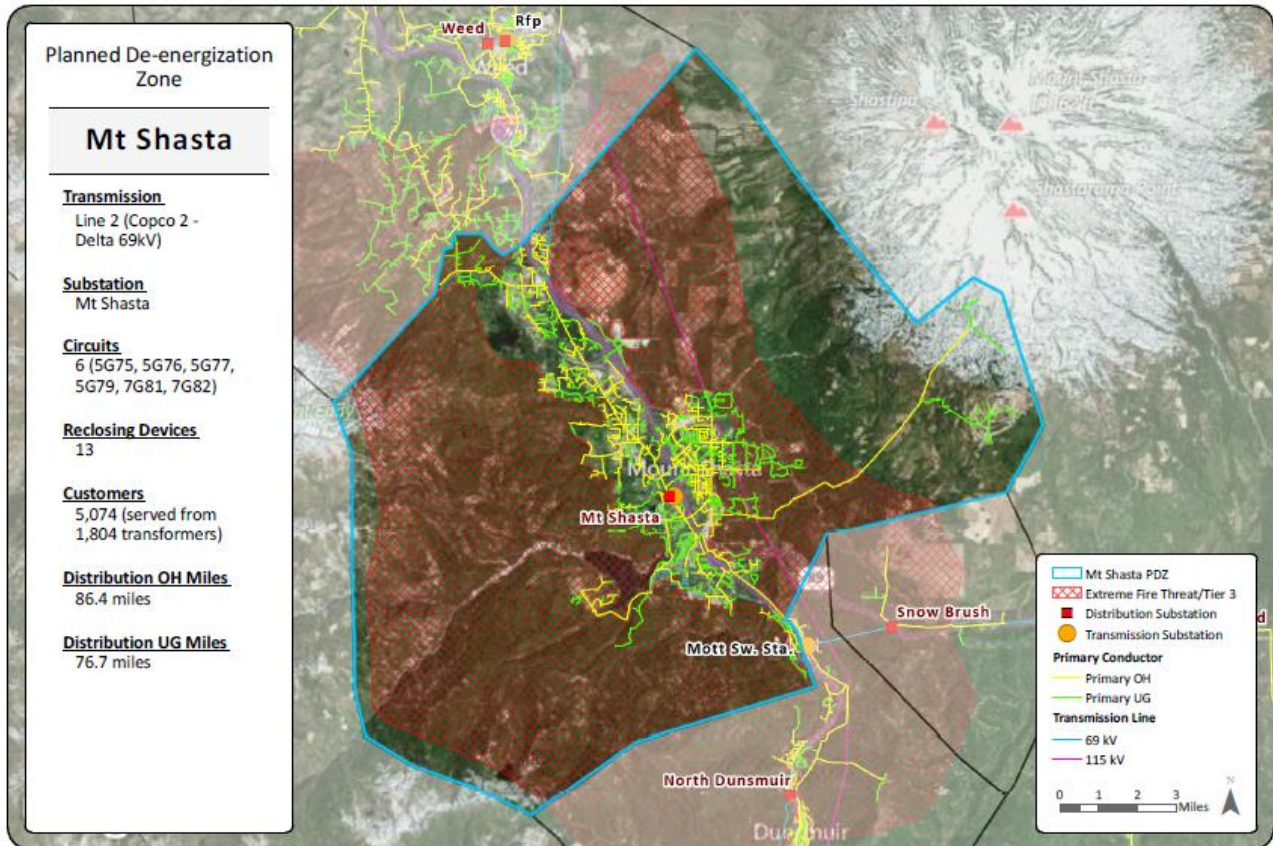
- There are three priority customers on 5G83 in Weed that are not in a PDZ but will be affected by de-energization due to the source being within the PDZ. Since the source is within the PDZ, short term restoration will require that the Weed substation feeders be patrolled prior to re-energization.
- All other priority customers are in the PDZ and would not be able to be energized during a proactive de-energization event without the installation of covered conductor and devices that are defined as exempt by the CalFire Power Line Fire Prevention Field Guide. The short term restoration plan would require the patrol of both Weed substation feeders before re-energization.

PDZ Restoration Resource Estimates

PDZ	Circuit	Number of Personnel	Required Material	Hours to Patrol	Comments (Switching Points, etc.)
Weed	5G45	5-Singleman	5- service trucks	4 hours	This assumes de-energization at the circuit breaker. 5G45 would be the 2nd priority in this PDZ.
	5G56	NA	NA	NA	There is no load on Circuit. 5G56 is open at the CB
	5G57	NA	NA	NA	There is no load on Circuit. 5G57 is open at the CB
	5G83	6-Singleman	6- service trucks	5 hours	This assumes de-energization at the circuit breaker. 5G83 would be the 1st priority in this PDZ.
	8G40	1-Singleman	1- service trucks	0.5 hours	This assumes de-energization at the circuit breaker. 8G40 would be the 3rd priority in this PDZ.

Note: In addition to the circuit resources listed in the table a 3 man crew and 1 Logistics personnel would be required to support the repairs of any damage found during patrols. (3 man crew vehicles & logistics truck)

MT SHASTA PDZ PLAN



Priority Customers

PDZ	Service City	Circuit ID	Customer Name	Priority Type	Phone	Address
Mt Shasta	MOUNT SHASTA	5G77	LINDSAY J. FOX M.D. MEDICAL CO	Gen Hosp	530-918-9331	830 PINE ST
Mt Shasta	MOUNT SHASTA	5G77	MERCY MED CENTER MT SHASTA	Gen Hosp	701-667-6792	914 PINE ST
Mt Shasta	MOUNT SHASTA	5G77	MERCY MED CENTER MT SHASTA	Gen Hosp	701-667-6792	914 PINE ST # STORAGE
Mt Shasta	MOUNT SHASTA	5G77	MERCY MED CENTER MT SHASTA	HOSPITAL	701-667-6792	914 PINE ST
Mt Shasta	MOUNT SHASTA	5G77	MERCY MED CENTER MT SHASTA	Spec Hospital	701-667-6792	902 PINE ST
Mt Shasta	MOUNT SHASTA	5G77	MERCY MED CTR MRI	Gen Hosp	530-926-6111	914 PINE ST # MRI
Mt Shasta	MOUNT SHASTA	5G77	MT SHASTA CITY	Fire station	530-926-0702	4508 N OLD STAGE RD
Mt Shasta	MOUNT SHASTA	5G77	MT SHASTA CITY	Water Supply	530-926-7510	ROCKFELLOW DR & ADAMS RD PUMP
Mt Shasta	MOUNT SHASTA	5G77	MT SHASTA CITY	Water Supply	530-926-7510	WASHINGTON DR PUMPS
Mt Shasta	MOUNT SHASTA	5G77	MT SHASTA PKS REC DIST	Water Supply	530-926-2494	DUDES AND DAISY BUILDING
Mt Shasta	MOUNT SHASTA	5G77	MT SHASTA PKS REC DIST	Water Supply	530-926-2494	ROCKFELLOW DR ADAMS DR PUMPHO
Mt Shasta	MOUNT SHASTA	5G77	PONY TRAIL WATER SYSTEM	Water Supply	530-926-1253	PONY TRAIL DR PMP
Mt Shasta	MOUNT SHASTA	5G77	SHASTA MANOR II	Skilled Nursing	530-926-5339	1176 KINGSTON RD # FIRE
Mt Shasta	MOUNT SHASTA	5G77	SISKIYOU UNION HIGH SCHOOL DIS	Primary School	530-926-3006	720 EVERITT MEMORIAL HWY
Mt Shasta	MOUNT SHASTA	5G77	SISKIYOU UNION HIGH SCHOOL DIS	Primary School	530-926-3006	720 ROCKFELLOW DR
Mt Shasta	MOUNT SHASTA	5G77	SISSON SCH E	Primary School	530-926-3846	601 E ALMA ST
Mt Shasta	MOUNT SHASTA	5G77	SISSON SCH E	Primary School	530-926-3846	601 E ALMA ST # PMP
Mt Shasta	MOUNT SHASTA	5G77	UPTON HIGHLAND PROPERTY OWNERS	Fire station	530-925-2208	NORTH RIDGE DR # 2
Mt Shasta	MOUNT SHASTA	5G77	UPTON HIGHLAND PROPERTY OWNERS	Fire station	530-925-2208	NORTH RIDGE DR # 3
Mt Shasta	MOUNT SHASTA	5G79	CA ST HIGHWAY PATROL	Police	916-843-3540	1001 I-5 S
Mt Shasta	MOUNT SHASTA	5G79	I AM SCHOOL, INC	Primary School	530-926-6263	116 SISKIYOU AVE
Mt Shasta	MOUNT SHASTA	5G79	I AM SCHOOL, INC	Primary School	530-926-6263	118 SISKIYOU AVE
Mt Shasta	MOUNT SHASTA	5G79	LK SISKIYOU MUTUAL WATER	Water Supply	530-926-5370	OLD STAGE RD REAM AVE
Mt Shasta	MOUNT SHASTA	5G79	LYDIA P COCHRAN	Fire station	530-926-1672	MONROE WAY
Mt Shasta	MOUNT SHASTA	5G79	MERCY MED CENTER MT SHASTA	Gen Hosp	701-667-6792	1109 REAM AVE # B
Mt Shasta	MOUNT SHASTA	5G79	MONTE SHASTA MTL WTR CO	Water Supply	916-926-2064	108 SHASTA WAY BEHIND # SUB PM
Mt Shasta	MOUNT SHASTA	5G79	MONTE SHASTA MTL WTR CO	Water Supply	916-926-2064	SHASTA WAY LT 42
Mt Shasta	MOUNT SHASTA	5G79	MT SHASTA CITY	Police	530-926-7510	WASHINGTON DR
Mt Shasta	MOUNT SHASTA	5G79	MT SHASTA CITY	Sewage	530-926-7510	OLD STAGE RD SEWER PLANT # 5
Mt Shasta	MOUNT SHASTA	5G79	MT SHASTA CITY	Water Supply	530-926-7510	WASHINGTON DR PUMPS
Mt Shasta	MOUNT SHASTA	5G79	OWENS HEALTHCARE	Primary School	530-244-6873	216 N MOUNT SHASTA BLVD
Mt Shasta	MOUNT SHASTA	5G79	SHADOW MOUNTAIN MHP, LLC	Water Supply	949-388-8191	1934 S OLD STAGE RD # PMP
Mt Shasta	MOUNT SHASTA	5G79	SISKIYOU COUNTY	Sewage	530-841-4378	4239 WA BARR RD # LIFT
Mt Shasta	MOUNT SHASTA	5G79	SISKIYOU COUNTY	Solid Waste	530-841-4378	1516 S MOUNT SHASTA BLVD # A
Mt Shasta	MOUNT SHASTA	5G79	SISKIYOU LK HIGH MUT WT	Sewage	530-938-2608	GRANT RD & CHRISTIAN WAY
Mt Shasta	MOUNT SHASTA	5G79	SISKIYOU LK HIGH MUT WT	Water Supply	530-938-2608	GRANT RD & CHRISTIAN WAY
Mt Shasta	MOUNT SHASTA	5G79	ST GERMAIN FOUNDATION	Sewage	530-235-2994	1104 MCCLOUD AVE # 25HP
Mt Shasta	MOUNT SHASTA	5G79	SUN MTN MUTUAL WTR CO	Water Supply	530-926-3072	AZALEA RD 1/4 M S
Mt Shasta	MOUNT SHASTA	5G79	THE MOUNT SHASTA RESORT	Sewage	530-926-3030	1000 SISKIYOU LAKE BLVD # A
Mt Shasta	MOUNT SHASTA	5G79	THE MOUNT SHASTA RESORT	Water Supply	530-926-3030	1000 SISKIYOU LAKE BLVD # A
Mt Shasta	MOUNT SHASTA	7G82	CA ST HIGHWAY PATROL	1RSP_CMP	916-843-3540	618 W JESSIE ST
Mt Shasta	MOUNT SHASTA	7G82	MT SHASTA CITY	1RSP_CMP	530-926-7510	303 N MOUNT SHASTA BLVD
Mt Shasta	MOUNT SHASTA	7G82	MT SHASTA CITY	Fire station	530-926-0702	308 PINE ST
Mt Shasta	MOUNT SHASTA	7G82	MT SHASTA SCH E	Primary School	530-926-3846	433 W JESSIE ST
Mt Shasta	MOUNT SHASTA	7G82	MT SHASTA SCH E	Primary School	530-926-3846	501 CEDAR ST
Mt Shasta	MOUNT SHASTA	7G82	MT SHASTA SCH E	Primary School	530-926-3846	W JESSIE ST

Priority Customer Constraints

City of Mt Shasta:
 Municipal Water – Gravity flow, 4 day capacity, reduced flow impacts fire-fighting ability.
 Sewer lift stations - 3 days capacity, with city generators.
 Water Treatment plant – 3 day capacity, utilizing retention ponds.
 Emergency Services: No back-up generator, critical need is 4 hours, communication through repeater sites is essential.

PDZ Restoration Process, by Substation

Substation: Mt Shasta

Circuits: 7G81, 7G82, 5G77 (5G76), 5G79

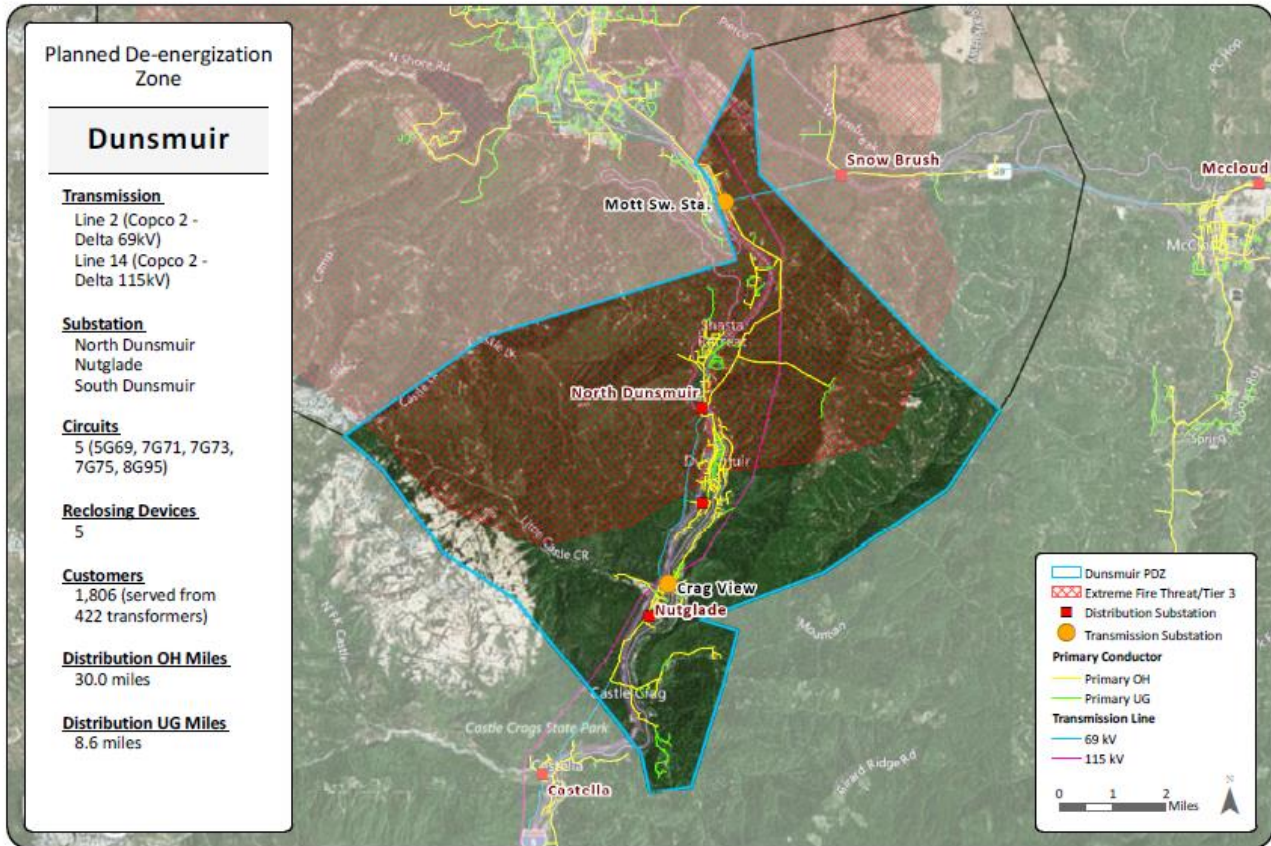
- There are 55 priority customers in the Mt Shasta PDZ. There are not any priority customers outside of the PDZ that would be affected by the proactive de-energization of the Mt Shasta feeders. The short term restoration plan for this area would require the patrol of the four Mt Shasta feeders before re-energization.
- There are 20 customers on Mt Shasta that are outside of the PDZ and would be affected by the proactive de-energization 5G79. There is not an alternate source for these customers.

PDZ Restoration Resource Estimates

PDZ	Circuit	Number of Personnel	Required Material	Hours to Patrol	Comments (Switching Points, etc.)
Mt. Shasta	5G75	NA	NA	NA	There is no load on Circuit. 5G75 is open at the CB
	5G76	5-Singleman	5- service trucks	5 hours	This assumes de-energization at the circuit breaker. 5G76 would be the 2nd priority in this PDZ.
	5G77	NA	NA	NA	There is no load on Circuit. 5G77 is open at the CB
	5G79	6-Singleman	6- service trucks 1	5 hours	This assumes de-energization at the circuit breaker. 5G79 would be the 1st priority in this PDZ.
	7G81	2-Singleman	2- service trucks	1 hour	This assumes de-energization at the circuit breaker. 7G81 may not need to be de-energized due to most or all of the circuit not being in the Tier 3 area. 7G81 would be the 4th priority in this PDZ.
	7G82	2-Singleman	2- service trucks	1 hour	This assumes de-energization at the circuit breaker. 7G82 may not need to be de-energized due to most or all of the circuit not being in the Tier 3 area. 7G82 would be the 3rd priority in this PDZ.

Note: In addition to the circuit resources listed in the table a 3 man crew and 1 Logistics personnel would be required to support the repairs of any damage found during patrols. (3 man crew vehicles & logistics truck)

DUNSMUIR PDZ PLAN



Planned De-energization Zone

Dunsmuir

Transmission

Line 2 (Copco 2 - Delta 69kV)
Line 14 (Copco 2 - Delta 115kV)

Substation

North Dunsmuir
Nutglade
South Dunsmuir

Circuits

5 (5G69, 7G71, 7G73, 7G75, 8G95)

Reclosing Devices

5

Customers

1,806 (served from 422 transformers)

Distribution OH Miles

30.0 miles

Distribution UG Miles

8.6 miles

Legend

- Dunsmuir PDZ
- Extreme Fire Threat/Tier 3
- Distribution Substation
- Transmission Substation
- Primary Conductor**
- Primary OH
- Primary UG
- Transmission Line**
- 69 kV
- 115 kV

0 1 2 Miles

Priority Customers

PDZ	Service City	Circuit ID	Customer Name	Priority Type	Phone	Address
Dunsmuir	DUNSMUIR	5G69	DUNSMUIR CITY	AIRPORT	530-235-4822	MOTT AIRPORT RD AIRPRT
Dunsmuir	DUNSMUIR	5G69	DUNSMUIR CITY	Solid Waste	530-235-4822	OFF OF SISKIYOU AVE
Dunsmuir	DUNSMUIR	5G69	DUNSMUIR SCH E	Primary School	530-235-4828	4760 SISKIYOU AVE # A
Dunsmuir	DUNSMUIR	5G69	DUNSMUIR SCH E	Primary School	530-235-4828	4760 SISKIYOU AVE # B
Dunsmuir	DUNSMUIR	7G71	DUNSMUIR CITY	1RSP_CMP	530-235-4822	5915 DUNSMUIR AVE
Dunsmuir	DUNSMUIR	7G71	SHATTERED PULP AND VINYL	Fire station	805-618-8967	5814 DUNSMUIR AVE
Dunsmuir	DUNSMUIR	8G95	CASTELLA FIRE DIST	Fire station	530-925-0805	Crag View DR FIRE HALL
Dunsmuir	DUNSMUIR	8G95	Crag View Water District	Solid Waste	530-225-5661	ABT RAILROAD PARK
Dunsmuir	DUNSMUIR	8G95	Crag View Water District	Water Supply	530-225-5661	RAILROAD PARK
Dunsmuir	MCCLLOUD	5G69	CA ST HIGHWAY PATROL	Police	916-843-3540	SODA RIDGE BEACON

Priority Customer Constraints

City of Dunsmuir:
 Municipal Water – Gravity flow, 4 day capacity, reduced flow impacts fire-fighting ability.
 Sewer lift stations - 3 days capacity, with city generators.
 Water Treatment plant – 4 day capacity, utilizing retention ponds.
 Emergency Services: No back-up generator, critical need is 4 hours, communication through repeater sites is essential.

PDZ Restoration Process, by Substation

Substation: Nutglade

Circuit: 8G95

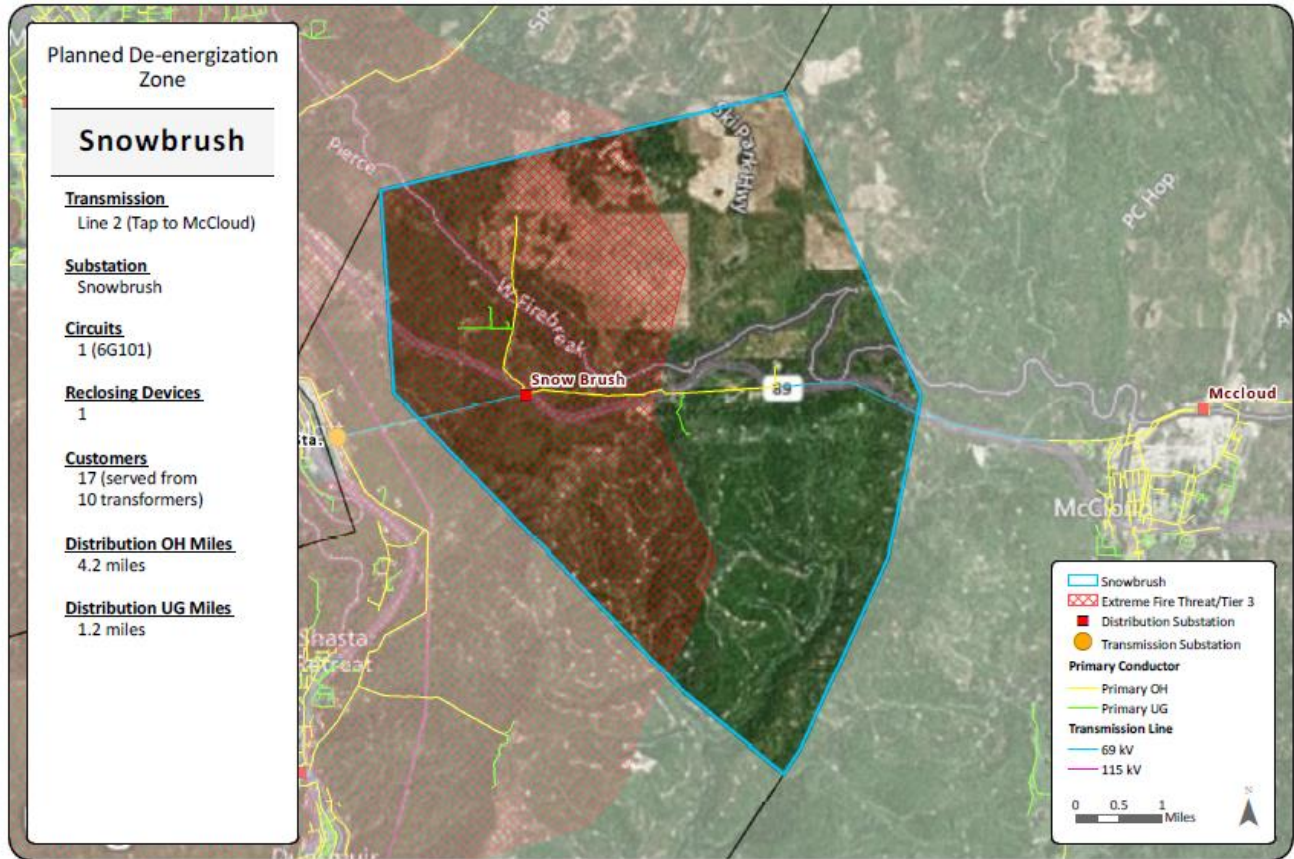
- The Nutglade substation and the northern portion of the feeder is located in the PDZ. The short term restoration plan would require the patrol of the Nutglade feeder before re-energization.

PDZ Restoration Resource Estimates

PDZ	Circuit	Number of Personnel	Required Material	Hours to Patrol	Comments (Switching Points, etc.)
Dun-smuir	5G69	4-Singleman	4- service trucks	3 hours	This assumes de-energization at the circuit breaker. 5G69 would be the 1st priority in this PDZ.
	7G71	3-Singleman	3- service trucks	2 hours	This assumes de-energization at the circuit breaker. 7G71 would be the 2nd priority in this PDZ.
	7G73	3-Singleman	3- service trucks	2 hours	This assumes de-energization at the circuit breaker. 7G73 would be the 3rd priority in this PDZ.
	7G75	3-Singleman	3- service trucks	2 hours	This assumes de-energization at the circuit breaker. 7G75 would be the 4th priority in this PDZ.
	8G95	4-Singleman	4- service trucks	3 hours	This assumes de-energization at the circuit breaker. 8G95 would be the 1st priority in this PDZ. It appears a majority of this circuit is not in Tier 3.

Note: In addition to the circuit resources listed in the table a 3 man crew and 1 Logistics personnel would be required to support the repairs of any damage found during patrols. (3 man crew vehicles & logistics truck)

SNOWBRUSH PDZ PLAN



Priority Customers

No priority customers were identified based upon customer classifications.

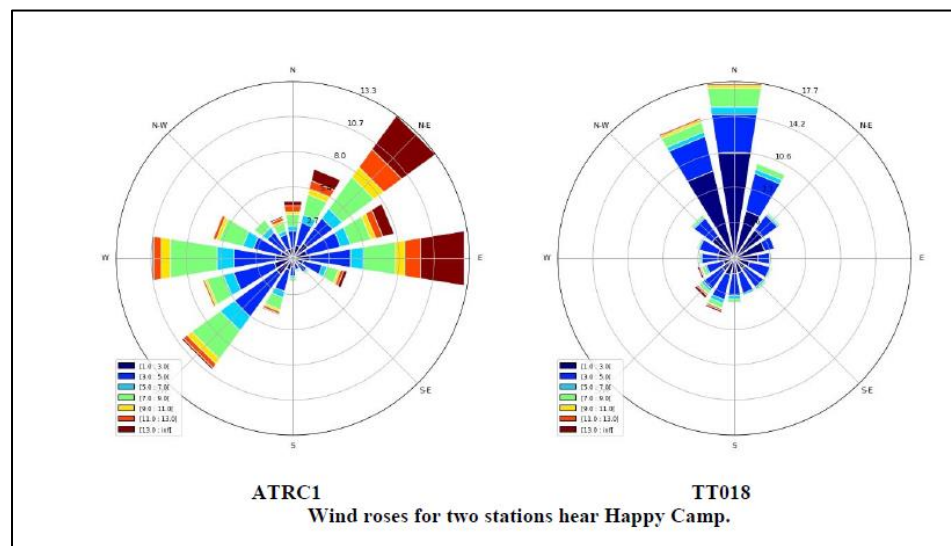
Priority Customer Constraints

Priority customer constraints were not relevant in this PDZ, since no priority customers were identified.

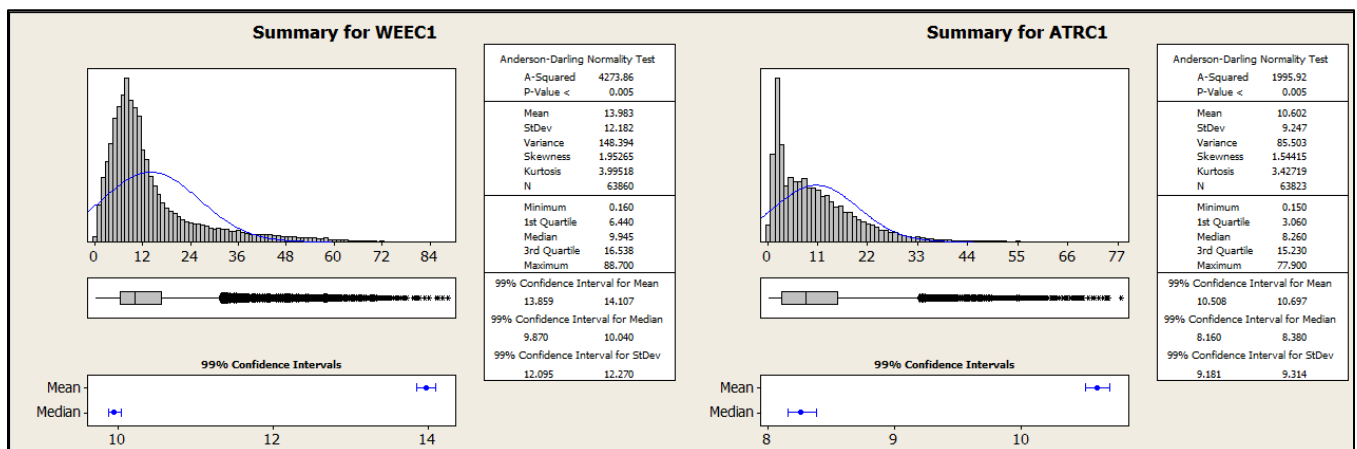
PDZ	Circuit	Number of Personnel	Required Material	Hours to Patrol	Comments (Switching Points, etc.)
Snow-brush	6G101	3-Singleman	3- service trucks 1-ATV	2 hours	This assumes de-energization at the circuit breaker. 6G101 would be the 1st priority in this PDZ.

ANNEX A — TECHNICAL EVALUATION DETAILS

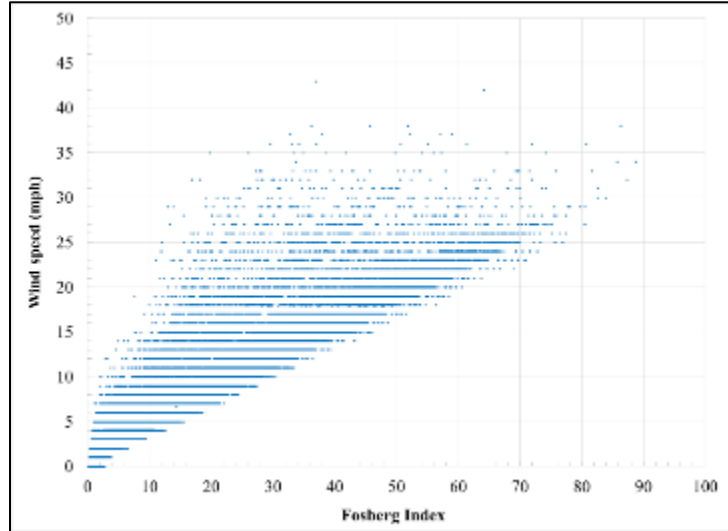
- 1) Assess climatology
 - a. Downloaded approximately 185 weather stations using the MesoWest API, data generally about 20 years, retaining only “fire season,” i.e. from June 1 through October 31 of each year.
 - b. Calculated hourly Fosberg Fire Weather Index (FFWI) which uses temperature, relative humidity, 10-minute wind-speed factored into a single weather index which is correlated to influence on fire spread.
 - c. Rank ordered from highest to lowest FFWI, and extract wind speed percentiles for each value. (create percentile association for FFWI and wind-speed)
 - d. Percentiles used included 90, 95, 96, 97, 98, 99, 99.99 and 99.999.
 - e. Reviewed locations for predominant wind directions and speeds, comparing probability of high winds on high FFWI days/hours. Establish trial use triggers for de-energization and bound area to be within proactive de-energization zone (PDZ).



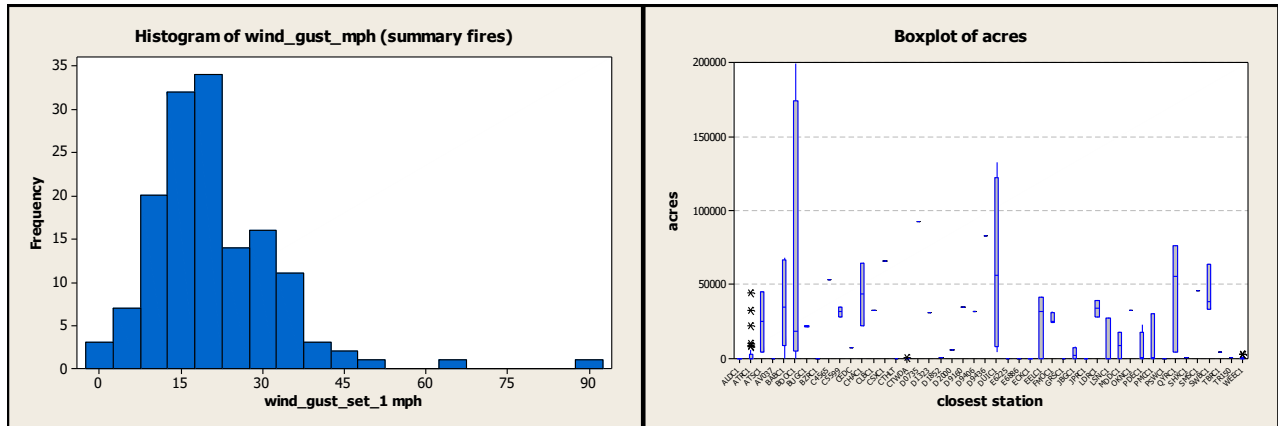
- 2) Back-cast model to assess validity of triggers to determine how often retrospectively a candidate de-energization may have occurred.



- 3) Evaluated methods to operationalize parameters, including preparing a more “durable” variable. This considered cumulative stable weather inputs, particularly Fosberg Fire Weather Index averaged over a 6 hour (“burn period”) basis (FFWI6), in combination with a newly adopted drought index, KBDI (which is inherently stable), in addition to National Weather Service (NWS) weather alerts, specifically “Red Flag Warnings” and “Severe Thunderstorms”.



- 4) Conducted detailed assessment of historic correlation between fires; 145 of 1174 were evaluated, including all fires recorded close to Weed or Happy Camp, all “power line” caused fires, in addition all fires above the average acreage in northern California (as measured by acreage) were evaluated. All relevant weather variables were recorded and statistics performed on these variables. Observed using histogram below that fires for larger acreage averaged wind gusts above about 25 mph, assessed across northern California.



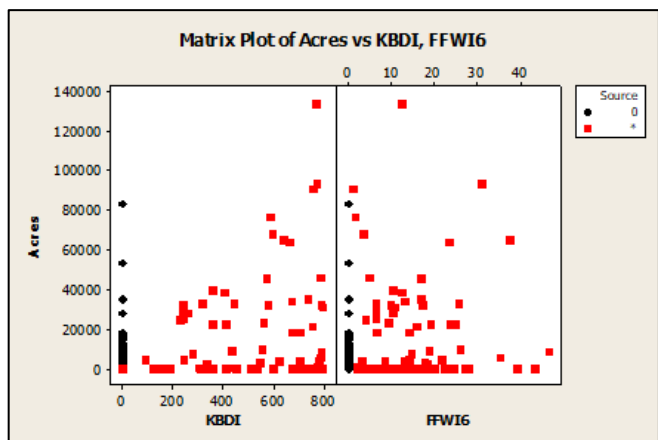
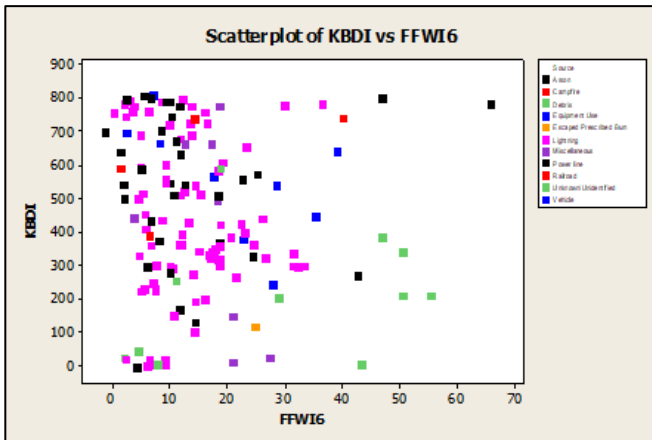
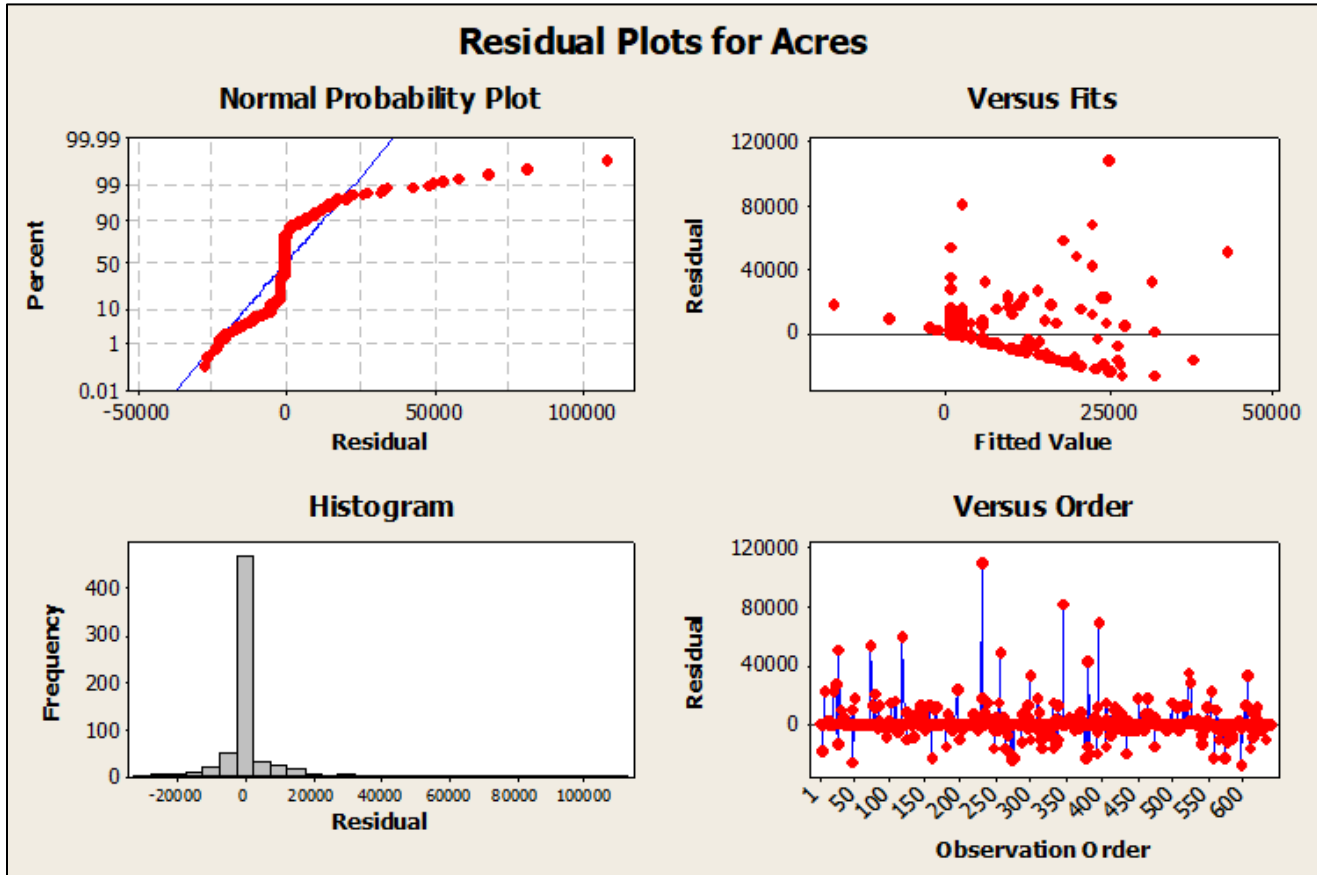
- 5) Prepared statistical model using regression model on a larger dataset, just under 700 fires, integrating relevant (statistically significant) variables as the independent variables against acreage, the dependent variable. A pair of acreage outliers were removed to achieve acceptable model correlation.

The regression summary

The regression equation is Acres = 815 + 274 wind_gust_ + 28.9 KBDI + 601 FFWI6 + 1468 Red Flag + 3153 Severe Thunder-storm - 1630 wind_speed + 31.2 mFFWII																																																																																					
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8	19.0	32893	11753	2067	21140	2.16RX		331	26.0	9966	26327	2422	-16362	-1.69 X																																																																							
21	14.0	46040	24514	2151	21526	2.21RX		335	21.0	114	14755	2173	-14641	-1.50 X																																																																							
24	16.0	39752	14065	1345	25687	2.59R		345	0.0	83581	2283	706	81299	8.15R																																																																							
28	24.0	92945	42980	3995	49965	5.45RX		374	21.1	58	-1782	2303	1840	0.19 X																																																																							
33	30.0	32493	27325	3546	5168	0.55 X		376	16.0	34	22795	2157	-22762	-2.33RX																																																																							
48	16.0	12	26950	2015	-26938	-2.75RX		382	42.0	64960	22318	3228	42642	4.51RX																																																																							
74	0.0	53699	815	520	52885	5.30R		384	24.0	6036	26575	3954	-20539	-2.24RX																																																																							
78	15.0	29814	9350	1219	20464	2.06R		394	42.0	119	6461	4278	-6342	-0.70 X																																																																							
95	25.0	31	9692	2533	-9661	-1.00 X		395	12.0	10	20664	2169	-20653	-2.12RX																																																																							
113	66.0	8416	14216	7923	-5801	-0.95 X		397	9.0	91125	22532	3048	68594	7.20RX																																																																							
119	2.0	76350	17886	2031	58464	5.97RX		407	29.0	461	16104	2056	-15643	-1.60 X																																																																							
146	9.0	30891	24356	2891	6535	0.68 X		408	29.0	35111	20725	2138	14386	1.47 X																																																																							
152	33.0	16	1289	4772	-1273	-0.14 X		415	31.1	15	-8818	3301	8833	0.94 X																																																																							
160	0.0	1038	24857	2716	-23819	-2.48RX		437	16.0	4016	24305	1954	-20290	-2.07RX																																																																							
179	26.0	11	15434	2155	-15423	-1.58 X		466	22.0	28073	11231	1964	16842	1.72 X																																																																							
195	15.0	32024	9350	1219	22674	2.29R		475	20.0	17	16244	2532	-16228	-1.68 X																																																																							
197	19.0	31995	32044	2371	-49	-0.01 X		524	0.0	35312	815	520	34498	3.46R																																																																							
230	22.0	133177	25032	2284	108146	11.11RX		525	0.0	28330	815	520	27515	2.76R																																																																							
231	22.0	33011	16013	2414	16999	1.75 X		535	26.0	170	-2481	2747	2650	0.28 X																																																																							
237	43.0	22267	7550	2754	14717	1.53 X		543	26.0	18	8094	2136	-8076	-0.83 X																																																																							
257	5.0	68095	20059	1872	48036	4.89R		556	19.0	45704	23776	1691	21928	2.23R																																																																							
265	25.0	21318	37788	3150	-16470	-1.74 X		559	9.0	169	23284	1911	-23115	-2.36R																																																																							
267	12.0	18494	26203	2014	-7710	-0.79 X		566	31.0	26	11049	2470	-11022	-1.14 X																																																																							
275	15.0	321	25179	2194	-24859	-2.55RX		574	5.0	194	23188	2089	-22994	-2.35RX																																																																							
277	22.0	154	23007	2473	-22853	-2.36RX		581	31.0	17	11049	2470	-11032	-1.14 X																																																																							
286	6.0	23344	16660	2051	6684	0.68 X		582	30.0	4923	12284	3827	-7361	-0.80 X																																																																							
299	31.0	29	11049	2470	-11020	-1.14 X		584	31.0	13	11049	2470	-11035	-1.14 X																																																																							
300	22.0	38417	5978	1714	32438	3.29R		586	20.0	18	7161	2615	-7143	-0.74 X																																																																							
310	21.7	14	-17141	4035	17155	1.88 X		599	15.0	4241	31874	2261	-27633	-2.84RX																																																																							
312	31.0	173	11049	2470	-10875	-1.12 X		606	12.0	63785	31444	3065	32341	3.40RX																																																																							
319	24.0	4491	13340	2095	-8849	-0.91 X		612	25.5	54	17964	4067	-17910	-1.96 X																																																																							
330	43.0	229	7550	2754	-7321	-0.76 X		615	27.0	22332	15073	2026	7259	0.74 X																																																																							
R denotes an observation with a large standardized residual. X denotes an observation whose X value gives it large leverage.																																																																																					

Residual Plots

Independent Variables: Wind gust, KBDI, FFWI6, Red Flag Warning, Severe Thunderstorm Warning, Wind speed, FFWI6. Dependent Variable: Acres



Triggers were found to be:

Note	Air Temp (°F)	Wind gust (average) mph	Sustained wind mph	FFWI 6	KBDI	Equipment failure outage wind gust mph
Happy Camp						
Majority of fires started due to lightning (36 of 39)	71.8	24.8	11	15	346	28
Mt Shasta/Weed/Dunsmuir/Snowbrush						
Only one larger fire due to lightning (balance are debris, arson, equipment use)	82.5	25.6	16.7	30	282	25

- 1) Evaluated gust wind speeds at which outages related to Equipment Failure have occurred in Happy Camp and the greater Mt Shasta area have occurred; observation indicated that between 25-28 mph wind gusts have resulted in fire season outage events in the past, thus as forecasts would approach these values, there is greater reduction of risk in invoking the proactive de-energization procedure.
- 2) Review PDZs to evaluate impacts to system, customers and operations and modify model. Consider segmenting PDZs, which is proposed for large area in and around Mt Shasta, as shown below.

ANNEX B — EVENT FORMS / LOGS

PacifiCorp Report on De-Energization Event

Date:

PSPS ID:

1) Impacted Area: PDZs

PDZ Name	PDZ Description	Weather Stations Utilized	Forecast Values & Weighting Percentages	Forecast Period

2) Determination of need to de-energize:

Forecast values

Forecasting Agency	Forecast Date/Time	Weather Station	Forecast Values	Effective Date/Time	FFWI6 ?	Sustained Wind (mph)	Gust Wind (mph)	KBDI Forecast?	Red Flag/Sever Thunderstorm?	Exceeds Limit(s)?

3) Forecasting Agency Summary

Insert forecasts here

4) Forecast Values Considered

Comparison of Forecast Values to Thresholds

Area De-energized	De-energization Date	De-energization Time	Time of Notification to Customers	Restoration Time	Full/Partial Restoration	Outage IDs	Tier Designation

5) Number of affected customers, by residential, medical baseline, Commercial / industrial and other.

Circuit	Customers Interrupted	Residential	Commercial/Industrial	Priority	Medical Baseline

6) Describe wind-related damage to overhead facilities in the areas where power was shutoff.

Observations of wind-related damage:

Wind-related observation 1

Observations of wind-borne debris-related damage:

Wind-borne debris-related observation 1

7) Customer Communications

Communication Time	Customer Groups Notified	Calling method	Description	Customer Groups Notified

8) Community Resource Centers

Address	Location Type (building/trailer/other)	Assistance Available	Staffed by	Start Date	Start Time	End Date	End Time

9) Local communities' representatives contacted prior to de-energization

Organization	Contact Individual	Date First Contacted	Time First Contacted	Contact By	Comments

10) Summarize the number and nature of complaints received

Claims (count)	Claim Type	Comments

11) Restoration Process

Weather forecast:

Local operations observations

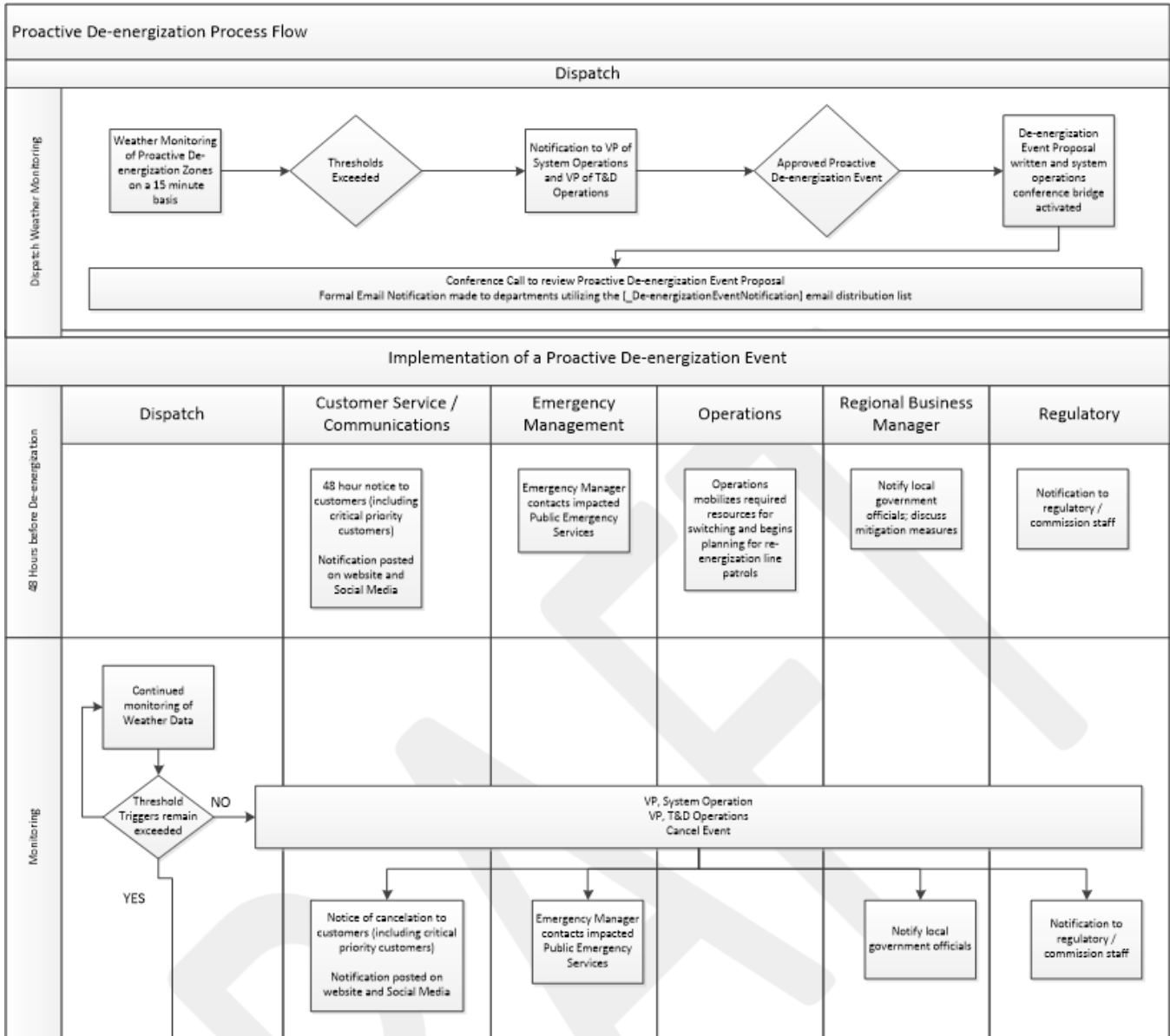
Local emergency responder input

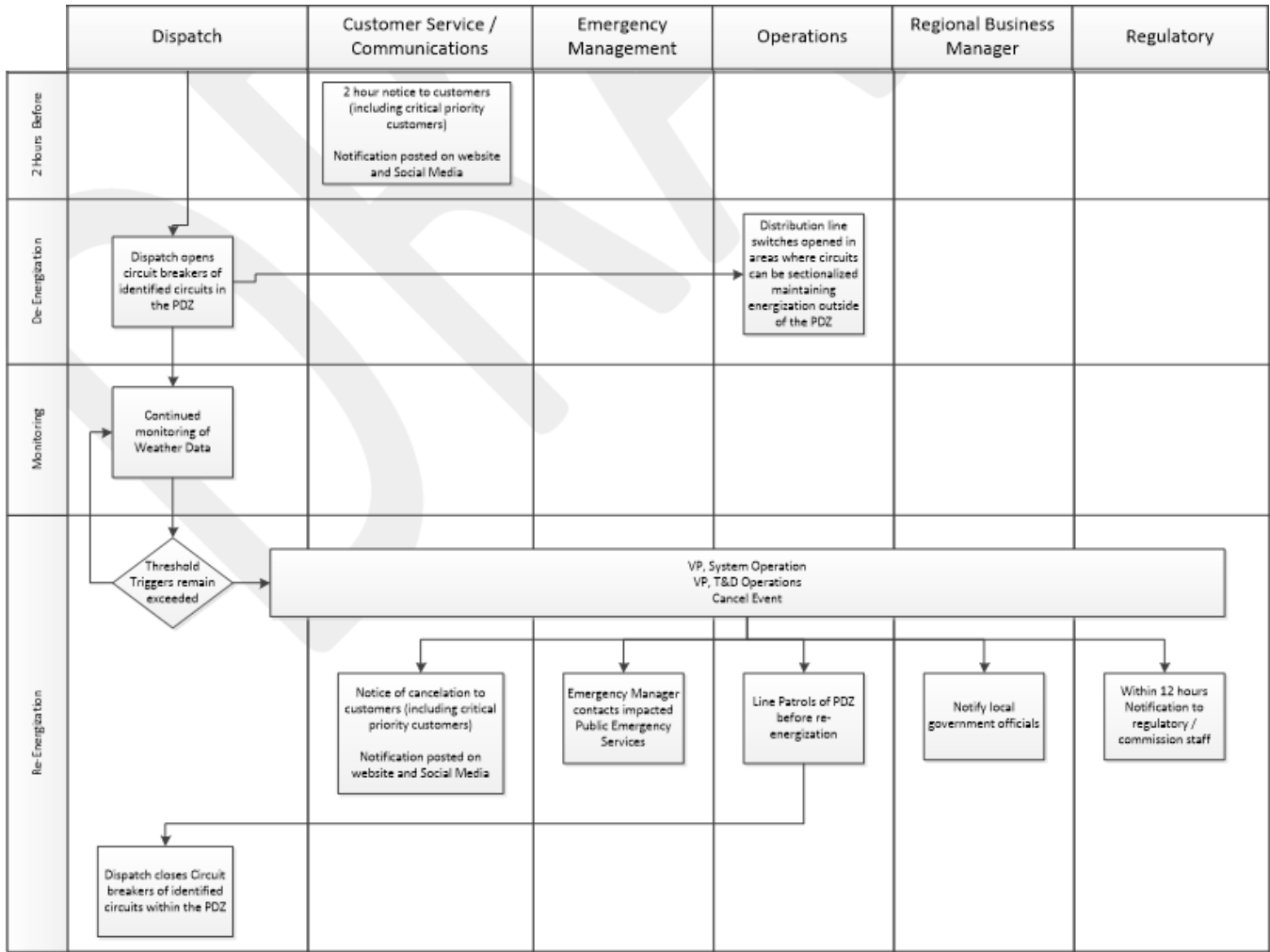
Response resources

Forecast favorable for re-energizing?	Patrol completed?	Electric responder?	Fire support?	Reenergizing Date/Time

Additional Data Relevant to Determination to De-energize

ANNEX C — EVENT FLOW





ANNEX D—COMMUNITY COORDINATION & COMMUNICATIONS

On September 19, 2018 at 6:00 PM PacifiCorp held its Annual Reliability Presentation at the Mt. Shasta Resort. No members of the public attended in person or dialed in for the meeting. The materials presented were posted to the company's website at https://www.pacificpower.net/content/dam/pacific_power/doc/Education_Safety/Reliability/2017_PacifiCorp_CA_Electric_Reliability_Report-Final.pdf

On September 19, 2018 at 1:00 PM PacifiCorp conducted an outreach discussion with emergency management professionals to review emergency response and proactive de-energization preparation.

On November 27th, 2018, a de-energization protocol and planning meeting was held with Siskiyou County stakeholders. Monte Mendenhall, California Regional Business Manager, Jeff Bolton, Emergency Services Manager and Richard Harris, Siskiyou County Operations Manager attended, representing Pacific Power. Twelve community members representing the three, tier 3 municipalities, Siskiyou County and Mercy Medical Center participated.

On December 11, 2018, additional discussions about proactive de-energization occurred with emergency service professionals as well as the Karuk Nation, who are critical customers receiving electric service delivered near the town of Happy Camp, California.

The standard agenda included;

- Discussion about ESRB-8 and an explanation of California Public Utility Commission requirement to develop a protocol associated with proactive electric supply de-energization;
- Review map of PacifiCorp service territory, particularly focusing on Tier 3 (extreme) fire threat areas;
- Assess organizations⁵ being represented to determine that appropriate sectors were invited;
- Determine if additional stakeholders should be contacted;
- Verify contact individuals, methods and preferred contact approach;
- discussion of limitations of operations within each jurisdiction;
- Communications using normal channels was proposed and supported, i.e. emergency managers communicate with each other, while hospitals or cities would be contacted by the local regional business manager;
- Emergency services acts as focal point to inform critical customers and jurisdictions as event progresses;
- Other support considered by Siskiyou County included; Reverse 911 and Red Alert System, use of Standard Notification (Emergency Services Manager to discuss and seek approval from county officials), county portable generators (4 of them currently, used as directed through Emergency Services);
- Stressed the importance of the 48 hour notice of potential activation, and that communications must remain intact throughout event;
- Shared information about SB 901 incentives for landowners to reduce excess fuels, and
- Inquired as to the operational limitations of critical facilities.

⁵ Critical facilities were defined by the stakeholder groups as those including municipal water systems, waste water lift stations, waste water treatment plants, Box Canyon generating station, Mercy Medical Center, assisted living facilities, and telecom/repeater sites. It was recognized by the attendees that schools, rural fire departments and tribal authorities may also need to be separately informed.

ANNEX E—PCC-201-CA