2020 Wildfire Mitigation Plan Overview

Debbie Powell Community Wildfire Safety Program



Wildfire Risks in PG&E's Service Area

Fire Threat Tiers by California IOUs



Sources: PG&E – Company data, SCE – Grid Safety and Resiliency Program Application; SDG&E – PG&E analysis

Following the wildfires in 2017 and 2018, some of the changes included in this presentation are contemplated as additional precautionary measures intended to further reduce future wildfire risk.



PG&E faces significant wildfire challenges due to the size and geography of its service area.



Land Area in Forest California, in %

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97%

2019/2020 Wildfire Mitigation Plan

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PROGRAM	COMPLETE	Contemporation 2020 Target
SYSTEM HARDENING	171	241
Stronger poles, covered lines and/or targeted undergrounding	LINE MILES	LINE MILES
ENHANCED VEGETATION MANAGEMENT	2,498	1,800
Inspecting, pruning and removing vegetation	LINE MILES	LINE MILES
HIGH-DEFINITION CAMERAS	133	200
Improving real-time monitoring of high-risk areas and conditions	CAMERAS	CAMERAS
WEATHER STATIONS	426	400
Enhancing weather forecasting and modeling	STATIONS	STATIONS
SECTIONALIZING DEVICES	298	592
Separating the grid into small sections for operational flexibility	DEVICES	DEVICES
TRANSITION LINE SWITCHES Enabling targeted transmission outages to lessen downstream customer inputs	0 DEVICES	23 DEVICES
COMMUNITY RESOURCE CENTERS Safe, energized locations for customers to recieve basic resources and information	111 SITES ACTIVATED	171 SITES TARGETED

Objective #1: Reduce Wildfire Ignition Potential



Reducing the risk of catastrophic wildfires from electrical equipment by mitigating the known causes of ignitions

Enhanced Vegetation Management



- Conduct 1,800 line-miles of 12 foot radial clearance and remove high-risk trees and overhangs
 - Focus on expanding Rights-of-Way on lower voltage transmission to reduce wildfire risk and footprint of future PSPS events
- Clearance goes above and beyond State requirements

System Automation

- Continue to enable Supervisory Control and Data Acquisition (SCADA) devices and reclosers to allow operators to remotely prevent a line from automatically reenergizing after a fault
- Testing Rapid Earth Fault Current Limiter (REFCL) technology that can automatically reduce the electrical current in a downed wire.

Asset Repair and Inspection

 Incorporating enhanced inspection process and tools from 2019 Wildfire Safety Inspection Program into routine inspection program: annual inspection of Tier-3 areas and 3-year cycles for Tier-2

System Hardening

 Replacing 241 line-miles of existing overhead conductor through asset elimination, installing covered conductors with stronger and more resilient poles, or targeted undergrounding

Public Safety Power Shutoffs

 Utilizing PSPS during extremely high-risk conditions to eliminate ignition risks; 2020 PSPS events will be smaller in scope, shorter in duration, and smarter in performance

Objective #2: Improved Situational Awareness

Improving understanding of upcoming and real-time weather and fire conditions, to reduce fire ignitions, respond faster, and minimize PSPS event scope

Situational Awareness

- Create highly localized weather and fire risk forecasts (2x better granularity than 2019) and real-time conditions to identify high-risk locations, share with first responders and activate field response
- 400 additional weather stations
- 200 additional HD cameras



Wildfire Safety Operations Center and Meteorology



- Operate 24/7 Wildfire Safety Operations Center to monitor fire threats
- Coordinate and mobilize response efforts with first responders, government, media and others during potential or active wildfires
- Using satellite fire detection system that compiles data from 5 satellites and one of the largest, highresolution climatological datasets in the utility industry
- Direct operational modifications and fire safety resources

Objective #3: Reduce Impact of PSPS



Make any future PSPS events <u>smaller</u> in scope, <u>shorter</u> in duration and <u>smarter</u> in performance

Reduce Impacted Customers

- Improving meteorological data and forecasting
- Safely minimizing transmission impacts
- Deploying customer-centric solutions that include:
 - Temporary and permanent generation at substations
 - Mid-feeder microgrids
 - Supporting community-enabled microgrids
- Targeting to have any 2020 PSPS events affect ~1/3rd fewer customers than a comparable event would have in 2019 (based on an analysis of planned programs under the conditions of October 2019 PSPS events).

Reduce Duration

- Deploying additional helicopters to speed daylight post-PSPS inspections and fixed-wing aircraft with infrared technology to allow for nighttime inspections
- Improving restoration goal by 50%, to 12 daylight hours

Reduce Frequency

- More accurate weather and fire risk forecasting plus improvements that continue to drive down ignition risks can reduce need for PSPS
- Analyzing all ~550 transmission lines in HFTDs to determine if risk has been reduced enough that the PSPS threshold for a line could be materially increased.

Improve Coordination with and Support Communities and Customers

- Continued extensive county and tribal engagement
- Additional community open houses
- Additional listening sessions

- Additional joint identification of critical facilities
- Designated PG&E community and government liaisons
- Improve access and functional needs (AFN) community support

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Community Support



Community Resource Centers (CRCs)

- Working with counties and tribes to streamline and enhance the overall CRC process
- Goal of establishing 5+ hardened locations in each county with tribal proximity
- Determining resources and amenities



Access and Functional Needs (AFN) Advisory Council

- Establishing an AFN Advisory Council in Q1 2020 to inform outreach, programs, and resources for the AFN community and medically-sensitive populations
- Council will consist of members that can speak and act on behalf of the represented organization
- Additional consultation will continue through pre-existing channels for engagement with low income, limited English communities, tribes, etc.



California Foundation for Independent Living Centers (CFILC)

- Partnering with the CFILC to help serve the AFN community before, during and after a PSPS event or other emergency
- During the October and November PSPS events, CFILC provided, but not limited to:
 - 217 hotel-night stays
 - 197 portable backup batteries
 - 53 charging devices for businesses
 - 21 options for accessible transportation to CRCs and/or hotels

Medical Baseline Information Sharing

 Partnering with cities, counties, tribes and agencies to share medical baseline customer information for emergency preparedness planning

2020 Engagement by the Numbers

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		2019 Outreach	2020 Outreach*
	OPEN HOUSES	23	40-50
	WEBINARS	4	12+
	COUNTY OES / TRIBAL ENHANCED OUTREACH	N/A	40-50+
1111 1111	PSPS PLANNING EXERCISES	17	TBD
	PROACTIVE ENGAGEMENT TO CITIES, COUNTIES, TRIBES, CUSTOMERS, SAFETY AGENCIES AND KEY STAKEHOLDERS	1,000+	~1,000
	CUSTOMER EMAILS	25 EMAILS 7M+ SENT	75+
	DIRECT MAIL LETTERS, POSTCARDS, BROCHURES, BILL INSERTS/PACKAGING	17 (32.2M PIECES)	~20+

*2020 Outreach plans under development, estimates as of 2/10/20

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For questions regarding PG&E's Community Wildfire Safety Program, please:



Call us at 1-866-743-6589



Email us at wildfiresafety@pge.com



Visit pge.com/wildfiresafety



Visit <u>www.pge.com/wildfiremitigationplan</u> for a copy of the 2020 WMP and related details





Factors affecting wildfire causes

2019 PG&E CPUC-reportable fire causes in high fire-threat districts (HFTD)

Vegetation

Condition

- Type and species
- Growth rates (including re-growth response)
- Vegetation density
- Forestry clearance history
- PG&E clearance history (including vendor quality control results)

Location

- Line voltage and significance
- Protected areas and rightof-ways

Environmental Condition

- Change in environmental conditions (disease and pest infestations)
- Climate factors (drought, high winds)
- Soil condition



- Size and material
- Areas of repair or maintenance (could be tiered or above a specific frequency)
- Inspection results
- Load profile
- Age
- Type / manufacturer

Location

- Line voltage and significance
- Fire break requirements

Environmental Condition

 For overhead, change in condition of supporting poles and pole-top crossarms



Ignition Causes

Following the wildfires in 2017 and 2018, some of the changes included in this presentation are contemplated as additional precautionary measures intended to further reduce future wildfire risk.

YTD Ignition Performance

The count of ignitions in 2019 was down compared to the corresponding average over the past three years.

CPUC-reportable ignitions in HFTDs (Tier 2 & Tier 3) associated with PG&E assets by primary cause:

TIER 2 & 3 - IGNITIONS (TRANSMISSION AND DISTRIBUTION)						
Basic Cause	2016	2017	2018	3-yr Avg (2016- 2018)	2019	Reduction (2019-3yr avg)
Vegetation	56	69	59	61	53	-14%
Equipment / Facility Failure	30	43	35	36	25	-31%
3rd Party	21	26	30	26	11	-57%
Animal	10	12	21	14	13	-9%
Unknown or Other	3	3	9	5	8	60%
Total	120	153	154	142	110	-23%



2019 PSPS Events

	EVENT DETAILS	JUNE 8 - 9	SEPT 23 - 26	ОСТ 5 - 6	ОСТ 9 - 12	OCT 23 - 25	OCT 26 - NOV 1	NOV 20 - 21
	CUSTOMERS IMPACTED	~22,000	~50,000	~12,000	~735,000	~179,000	~968,000	~49,000
5	COUNTIES IN SCOPE	5	7	3	35	17	38	11
	CRCs OPEN	4	8	3	33	28	77	34
	PEAK WIND GUSTS	63 mph	58 mph	51 mph	77 mph	80 mph	102 mph	75 mph
	DAMAGE/ HAZARDS	5	4	2	116	26	554	15
	AVG. OUTAGE DURATION AFTER ALL CLEAR	5 HRS	7 HRS	4 HRS	25 HRS	5 HRS	14 HRS ¹	10 HRS
Ō	AVG. OUTAGE DURATION TOTAL	16 HRS	16 HRS	14 HRS	37 HRS	25 HRS	55 HRS	25 HRS

Note: All data is subject to change based on ongoing data reconciliation.

¹Restoration time is calculated using the "all clear" time associated with the Oct 29 event after which final restoration occurred for customers who were impacted by both Oct 26 and Oct 29 events but not restored between events. Further analysis of outage metrics for these consecutive events in progress.

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