**Community Wildfire Safety Program** NAPA & SONOMA AGRICULTURE, WINE & TOURISM PUBLIC SAFETY POWER SHUTOFF (PSPS) WEBINAR

May 28, 2020



## Safety



We know that everyone is currently focused

## on the response to COVID-19.

We appreciate your participation during this challenging time and hope the following information is helpful in understanding how PG&E is working to reduce wildfire risk.



## **Community Wildfire Safety Program**

## **REDUCE WILDFIRE POTENTIAL**

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- Asset inspection and repair
- Enhanced vegetation management
- System automation
- System hardening
- Public Safety Power Shutoffs







## **IMPROVE SITUATIONAL AWARENESS**

- Weather stations
- High-definition cameras
- Wildfire Safety Operations Center (WSOC)
- Meteorology



- Reduce impacted customers
- Reduce duration
- Reduce frequency
- Improve coordination with and support communities and customers



PROGRAM	COMPLETE	Contemporation 2020 Target
<b>SECTIONALIZING DEVICES</b>	287	<b>592</b>
Separating the grid into small sections for operational flexibility	DEVICES	DEVICES
<b>TRANSMISSION LINE SWITCHES</b>	<b>O</b>	<b>23</b>
Enabling targeted transmission outages to lessen downstream customer impacts	DEVICES	DEVICES
<b>COMMUNITY RESOURCE CENTERS</b>	<b>111</b>	<b>201</b>
Safe, energized locations for customers to receive basic resources and information	SITES ACTIVATED	SITES TARGETED
WEATHER STATIONS	<b>426</b>	400
Enhancing weather forecasting and modeling	STATIONS	STATIONS
HIGH-DEFINITION CAMERAS	<b>133</b>	<b>200</b>
Improving real-time monitoring of high-risk areas and conditions	CAMERAS	CAMERAS
ENHANCED VEGETATION MANAGEMENT	<b>2,498</b>	<b>1,800</b>
Inspecting, pruning and removing vegetation	LINE MILES	LINE MILES
SYSTEM HARDENING	<b>171</b>	241
Stronger poles, covered lines and/or targeted undergrounding	LINE MILES	LINE MILES

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	SONOMA		NAPA COUNTY		
WILDFIRE SAFETY AND CUSTOMER	2019	2020	2019	2020	
SUPPORT PROGRAM EFFORTS	COMPLETE	TARGET	COMPLETE	TARGET	
Weather Stations Enhancing weather forecasting and modeling	<b>31</b> STATIONS	<b>2+</b> IN PROGRESS*	<b>27</b> STATIONS	IN PROGRESS*	
High-Definition Cameras Improving real-time monitoring of high-risk areas and conditions	<b>6</b> CAMERAS	IN PROGRESS*	<b>6</b> CAMERAS	IN PROGRESS*	
<b>Community Resource Centers</b> Provide basic power needs and up-to-date information	<b>4</b> EXECUTED	IN PROGRESS	<b>7</b> EXECUTED	IN PROGRESS	
Sectionalizing Devices	<b>31</b>	<b>49</b>	<b>8</b>	<b>43</b>	
Separating the grid into small sections for operational flexibility	DEVICES	DEVICES	DEVICES	DEVICES	
System Hardening	<b>8</b>	<b>14</b>	<b>14</b>	<b>7</b>	
Stronger poles, covered lines and/or targeted undergrounding	LINE MILES	LINE MILES	LINE MILES	LINE MILES	
<b>Temporary Microgrids</b>	<b>O</b>	<b>6</b>	<b>2</b>	<b>3</b>	
Safely energize customers during a PSPS event	EXECUTED	POSSIBLE	EXECUTED	POSSIBLE	
Enhanced Vegetation Management	<b>214</b>	172	87	<b>96</b>	
Inspecting, pruning and removing vegetation	LINE MILES	LINE MILES	LINE MILES	LINE MILES	

All data is preliminary and based on early 2020 work planning. Data as of April 2020.

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

\*Locations identified on a monthly basis

## **Advanced Weather Station Network**

We're adding advanced weather stations to better understand how severe weather can impact our system and proactively respond to potential threats.

#### SONOMA COUNTY

PGSE



#### **NAPA COUNTY** (5) Mustang Court **Butts Canyo** It St Helena East Canyon hway 128 Sonom Pickett (eves Ave Chiles Pop Valley Road rrvessa Knoxville Road Sout Upper Soda per Canyon Road Lower Atlas Soda Road Wooden Valle It Veede 27 Wild Horse PG&E 12 Solano County **Stations** American Canyon

Data is publicly available at mesowest.utah.edu pge.com/weather

PG&E Weather Station

Remote Automated Weather Stations (RAWS) within PG&E's service area

## **Monitoring for Wildfires**

We're supporting the installation of new HD cameras in high fire-threat areas, which allow PG&E and first responders to monitor potential wildfire threats in real time.

### SONOMA COUNTY

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# NAPA COUNTY elena Sout



## Images publicly available at alertwildfire.org pge.com/weather



## **Electric Power Supply**

**Transmission lines carry high-voltage electricity over long distances**, like the freeways of the electric system. The higher the voltage, the more power that line is carrying.



Data is publicly available at:

PFSF

PGE Wildfire Mitigation Plan 👆 Cou

**County Energy Commission (CEC):** 

cecgiscaenergy.opendata.arcgis.com

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## **Local Sectionalizing**

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We're installing new sectionalizing devices to limit the number of customers impacted during a PSPS event.



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## **System Hardening**

We are **installing stronger and more resilient poles** and **covered power lines** in high-risk areas, **replacing equipment**, and conducting **targeted undergrounding** where appropriate.

#### SONOMA COUNTY

PFRF



### NAPA COUNTY



**2020 TARGET 7** LINE MILES

## **MAP LEGEND:**

- Wildfire risk reduction planned project
- PSPS mitigation planned project

Substation

**Note:** Map reflects projects in planning and/or underway and may not include all miles planned for 2020

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**2020 TARGET** 

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**14** LINE MILES

## **Enhancing Vegetation Work in Your Community**

We are exceeding state vegetation and fire safety standards by addressing vegetation that poses a higher potential for wildfire risk to maximize the safety of our customers and communities.

COUNTY	2020 TARGET	2020 Area Work
SONOMA	172 LINE MILES	
NAPA	96 LINE MILES	SONOMA
12 ft.	12 ft.	

## **30-Year Weather Analysis**



## **30-Year Weather Analysis**

PG&E analyzed 30 years of high-resolution data covering ~80 billion data points, as well as 26 years of wildfire data in our service area to help determine the average likelihood and frequency of a PSPS event.

## The following weather model data points were analyzed:





**Fosberg Fire Weather Index** 

**National Fire Danger Rating** System Outputs (4 Main Outputs)

During an event, the meteorology model is updated and run 4x daily.

## PG&E collaborates with the following agencies:

- ✓ US Forest Service
- National Weather Service  $(\checkmark)$
- $\langle \checkmark \rangle$ Northern and Southern California Geographic Area **Coordination Center**
- ✓ CAL FIRE
- External fire agencies
- San Jose State University Fire Weather Research Lab

All data is preliminary and based on early 2020 work planning. Data as of March 2020.

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## **Below is an estimate of potential PSPS events in your communities** based on a review of 30 years of weather data.



The number of events in any particular year will be exclusively driven by the weather pattern experienced and the above historical weather analysis may not be representative of the experience in a particular year.

## **Probability of Outage Producing Winds (OPW)**

## **KEY TAKEAWAYS**

#### Datasets/Model

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- PG&E 30-year climatology
- Outage activity from 2008 (over 300,000 unplanned events)

#### Analysis/Results

- Wind speeds were extracted for each outage record per location per hour from climatology
- Numerous wind-outage model fits were tested
- Operational high-resolution model predicts the frequency of unplanned outages based on location-specific windoutage model



### **KEY TAKEAWAYS**

#### Datasets/Model

- PG&E 30-year climatology
- Fire Occurrence dataset from USFS (1992 2018)

#### Analysis/Results

- Benchmarked FPI against agency and utility best practices
- Evaluated dozens of parameters to determine best predictors of large fires
- Constructed over 4,000 FPI model variants for predictive analysis
- PG&E FPI outputs the probability of large fire occurrence



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The **Utility Fire Potential Index** and **Outage Producing Winds Model** are used in unison to analyze what conditions existed during the most catastrophic fires in California history to forecast when ignitions are most likely to intensify into catastrophic fires.



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## Public Safety Power Shutoff (PSPS)



#### **Overview**



The purpose of a PSPS is to reduce the risk of major wildfires during severe weather.



With more than half of the area where our customers live and work now at high risk for wildfires, PSPS is an important tool for keeping our state safe.



**Throughout 2019, we proactively turned off electric power for safety** when gusty winds and dry conditions combined with a heightened fire risk on **seven separate occasions.** 

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In 2020, our work is focused on reducing the impacts on our customers without compromising safety.

## Wildfire Risks Across PG&E's Service Area

PFSF



Numbers are approximate

## PG&F CPUC High Fire-Threat District (HFTD) Map



#### The map can be accessed at: cpuc.ca.gov/FireThreatMaps

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## What Weather Could Lead to a PSPS?

## While no single factor will drive a Public Safety Power Shutoff, some factors include:





## LOW HUMIDITY LEVELS generally 20% and below



FORECASTED SUSTAINED WINDS GENERALLY ABOVE 25 MPH AND WIND GUSTS IN EXCESS OF APPROXIMATELY 45 MPH, depending on location and sitespecific conditions such as temperature, terrain and local climate





ON-THE-GROUND, REAL-TIME OBSERVATIONS from PG&E's Wildfire Safety Operations Center and field observations from PG&E crews

## **Advance PSPS Alerts for Customers**

We provide advance notice prior to turning off power and updates until power is restored. This year, notifications will include more details about when the power will be shutoff and restored.

## **Timing of Notifications** (when possible)



Notifications will provide an estimated window of time when the power will be shutoff and restored.



Additional Updates

We will also use **social media** and keep **local news and radio outlets** informed and updated. We expect to be able to restore power most customers within 12 daylight hours after extreme weather has passed, a 50 percent improvement from 2019.



**Note:** Because extreme weather can last several hours or days, for planning purposes, we suggest customers prepare for outages that could last multiple days.

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		GOAL	INITIATIVES
	<b>SMALLER</b> IN SIZE	Reduce the number of customers impacted by PSPS events by one-third compared to 2019	<ul> <li>Installing sectionalizing devices on the transmission and distribution systems capable of redirecting power and limiting the size of outages</li> <li>Developing microgrids that use generators to keep the lights on</li> <li>Conducting targeted undergrounding as part of system hardening</li> </ul>
	_		
	SHORTER IN DURATION	Restore customers twice as fast after severe weather has passed	<ul> <li>Adding more field crews to speed inspection of lines</li> <li>Expanding helicopter fleet from 35 to 65 for aerial line inspections</li> <li>Commissioning two new airplanes for aerial line inspections</li> <li>Utilizing infrared equipment to inspect at night</li> </ul>
Ý	SMARTER Provacci SMARTER	Provide more accurate/timely communications and additional resources	<ul> <li>Enhancing meteorology technology to pinpoint severe weather</li> <li>Bolstering website capacity</li> <li>Improving customer alerts and notifications</li> <li>Upgrading Community Resource Centers</li> <li>Improving coordination with local agencies and critical service providers</li> </ul>
FOR	FOR CUSTOMERS	Deliver more assistance before, during and after a PSPS event	<ul> <li>Working with the California Foundation for Independent Living Centers and other Community Based Organizations to support vulnerable customers</li> <li>Making it easier for eligible customers to join the Medical Baseline program</li> <li>Expanding in-language communications</li> </ul>

## DO WE HAVE YOUR CURRENT CONTACT INFORMATION?

### WEATHER AND PSPS FORECASTING

Live weather information, a 7-day PSPS potential lookahead and images from PG&E's high-definition cameras deployed in high fire-threat areas.

pge.com/weather

## pge.com/mywildfirealerts

## **BACKUP POWER**

Information on backup power options, safety tips, financing options, a marketplace to search major backup power retailers and more.

## pge.com/backuppower

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#### SAFETY ACTION CENTER

Information about wildfire risks and what customers can do before, during and after an emergency to keep their home, family or business safe.

safetyactioncenter.pge.com



#### **PREPARING FOR OUTAGES**

Tips for making a safety plan, building an emergency kit, planning for medical needs and more.

prepareforpowerdown.com,

KEEP UP TO DATE DURING A PSPS EVENT

pge.com/PSPSupdates

## **Additional Preparedness Resources**



#### prepareforpowerdown.com

Statewide education and awareness resource, led jointly by PG&E, San Diego Gas & Electric and Southern California Edison at the direction of the CPUC

#### ready.gov

Disaster preparedness information from the U.S. Department of Homeland Security

#### readyforwildfire.org

CAL FIRE's wildfire preparedness website

#### cpuc.ca.gov/wildfiresinfo

Information on the CPUC's wildfire safety efforts

#### caloes.ca.gov

California Governor's Office of Emergency Services website

#### cafiresafecouncil.org

California Fire Safe Council website

#### noaa.gov

National Oceanic and Atmospheric Administration website

## YOUR LOCAL REPRESENTATIVES

#### Joe Horak

Senior Manager, Local Customer Experience and Division Lead Phone: 707-486-0953 | Email: Joseph.Horak@pge.com

## **Lloyd Coker**

Customer Relationship Manager Phone: 707-327-8937 | Email: lloyd.coker@pge.com

## **Cindy Hoogerhyde**

Customer Relationship Manager Phone: 415-290-8563 | Email: cindy.hoogerhyde@pge.com



## **Thank You**

For more information, please:

- Call us at 1-866-743-6589
- Email us at wildfiresafety@pge.com
- Visit pge.com/wildfiresafety



## Appendix



## **2019 PSPS Overview – Systemwide**

EVENT DETAILS	JUNE 8 - 9	SEPT 23 - 26	ОСТ 5 - 6	ОСТ 9 - 12	ОСТ 23 - 25	OCT 26 - NOV 1	NOV 20 - 21
CUSTOMERS IMPACTED	~22,000	~49,000	~12,000	~735,000	~179,000	~968,000	~49,000
	5	7	3	35	18	39	11
CRCs OPEN	4	8	2	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	22 HRS	10 HRS
AVG. OUTAGE DURATION TOTAL	16 HRS	16 HRS	14 HRS	37 HRS	24 HRS	55 HRS	25 HRS

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

All data is preliminary and based on early 2020 work planning. Data as of April 2020.

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## October-November 2019 PSPS Overview: Damage/Hazards



Napa County 10/26-11/1 Event Tree fell, broken conductors

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**Sonoma County** 10/26-11/1 Event Tree fell, broken conductors



Napa County 11/20-11/21 Event Tree failure, broken secondary pole