Community Wildfire Safety Program
All-Customer Webinar

August 12, 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.
Introductions

Vanessa Bryan  Manager, Local Customer Experience
Laura Wetmore  Senior Manager, East Bay and Mission Division
Stew Roth  Public Safety Specialist
Matt Pender  Director, Community Wildfire Safety Program

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.
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PG&E’s Electric System
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Wildfire Risks Across PG&E’s Service Area

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

Numbers are approximate
What Is A Public Safety Power Shutoff?
High winds can cause tree branches or debris to contact energized electric lines, which could damage our equipment and cause a major wildfire. We may need to turn off power during severe weather for public safety to prevent such fires. This is called a Public Safety Power Shutoff (PSPS).

**What Is A Public Safety Power Shutoff?**

The most likely electric lines to be turned off for safety are those that pass through Tier 2 or Tier 3 areas.

Power lines travel long distances. That means your power can be affected by high winds and severe weather that threaten the system miles away.
As each weather situation is unique, we carefully review a combination of factors when deciding if power must be turned off. Some factors include:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW HUMIDITY LEVELS</td>
<td>generally 20% and below</td>
</tr>
<tr>
<td>FORECASTED WINDS</td>
<td>above 25 mph and gusts above 45 mph</td>
</tr>
<tr>
<td>CONDITION OF DRY MATERIAL</td>
<td>on the ground and live vegetation (e.g., moisture content)</td>
</tr>
<tr>
<td>A RED FLAG WARNING</td>
<td>declared by the National Weather Service</td>
</tr>
<tr>
<td>ON-THE-GROUND, REAL TIME OBSERVATIONS</td>
<td></td>
</tr>
</tbody>
</table>
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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:

- Wind Speed
- Relative Humidity
- Dead Fuel Moisture (4 Types)
- Wind Gust
- Precipitation
- Live Fuel Moisture
- Temperature
- Fosberg Fire Weather Index
- National Fire Danger Rating System Outputs (4 Main Outputs)

Regional webinars with county-specific maps can be accessed at: [pge.com/wildfirewebinar](http://pge.com/wildfirewebinar)
Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

### How Are We Improving For This Year?

<table>
<thead>
<tr>
<th>GOAL</th>
<th>INITIATIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMALLER IN SIZE</strong></td>
<td>Reduce the number of customers affected by a PSPS event by one-third compared to last year</td>
</tr>
<tr>
<td></td>
<td>• Installing <em>sectionalizing devices</em> that limit the size of outages</td>
</tr>
<tr>
<td></td>
<td>• Installing <em>microgrids</em></td>
</tr>
<tr>
<td></td>
<td>• Placing lines underground in targeted locations</td>
</tr>
<tr>
<td></td>
<td>• Using better <em>weather monitoring technology and installing new weather stations</em></td>
</tr>
<tr>
<td><strong>SHORTER IN LENGTH</strong></td>
<td>Restore customers twice as fast after severe weather has passed</td>
</tr>
<tr>
<td></td>
<td>• Deploying <em>more PG&amp;E and contactor crews</em> for inspection and restoration efforts</td>
</tr>
<tr>
<td></td>
<td>• Expanding <em>helicopter fleet</em> and using two new airplanes for aerial line inspections</td>
</tr>
<tr>
<td></td>
<td>• Utilizing <em>infrared equipment</em> to inspect at night</td>
</tr>
<tr>
<td><strong>SMARTER FOR CUSTOMERS</strong></td>
<td>Provide better information and additional resources</td>
</tr>
<tr>
<td></td>
<td>• Improving PG&amp;E’s <em>website bandwidth</em></td>
</tr>
<tr>
<td></td>
<td>• Improving <em>customer notifications</em></td>
</tr>
<tr>
<td></td>
<td>• Opening <em>Community Resource Centers</em></td>
</tr>
<tr>
<td></td>
<td>• Working more collaboratively with local agencies and critical service providers</td>
</tr>
<tr>
<td></td>
<td>Provide more assistance before, during and after a PSPS event</td>
</tr>
<tr>
<td></td>
<td>• Working with <em>community-based organizations</em> to support customers with medical needs</td>
</tr>
<tr>
<td></td>
<td>• Making it <em>easier for eligible customers to join and stay in the Medical Baseline Program</em></td>
</tr>
<tr>
<td></td>
<td>• Providing <em>emergency information in 13 languages</em></td>
</tr>
</tbody>
</table>

*Table showing the goals and initiatives for improving in size, length, and smarter for customers.*
Working To Prevent Wildfires
Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

### Wildfire Mitigation Plan Progress

#### PROGRAM

<table>
<thead>
<tr>
<th>WEATHER STATIONS</th>
<th>2019 COMPLETE</th>
<th>2020 TARGET</th>
<th>2020 PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhancing weather forecasting and modeling</td>
<td>426 STATIONS</td>
<td>400 STATIONS</td>
<td>169 STATIONS</td>
</tr>
<tr>
<td>HIGH-DEFINITION CAMERAS</td>
<td>133 CAMERAS</td>
<td>200 CAMERAS</td>
<td>75 CAMERAS</td>
</tr>
<tr>
<td>Improving real-time monitoring of high-risk areas and conditions</td>
<td>426 STATIONS</td>
<td>400 STATIONS</td>
<td>169 STATIONS</td>
</tr>
<tr>
<td>SYSTEM HARDENING</td>
<td>171 LINE MILES</td>
<td>241 LINE MILES</td>
<td>138 LINE MILES</td>
</tr>
<tr>
<td>Stronger poles, covered lines and/or targeted undergrounding</td>
<td>171 LINE MILES</td>
<td>241 LINE MILES</td>
<td>138 LINE MILES</td>
</tr>
<tr>
<td>SECTIONALIZING DEVICES</td>
<td>287 DEVICES</td>
<td>600 DEVICES</td>
<td>469 DEVICES</td>
</tr>
<tr>
<td>Separating the grid into smaller sections to increase flexibility and reduce customer impact of PSPS events</td>
<td>287 DEVICES</td>
<td>600 DEVICES</td>
<td>469 DEVICES</td>
</tr>
<tr>
<td>TEMPORARY MICROGRIDS</td>
<td>4 EXECUTED</td>
<td>62 READY TO OPERATE</td>
<td>45 READY TO OPERATE</td>
</tr>
<tr>
<td>Safely energize customers during a PSPS event</td>
<td>4 EXECUTED</td>
<td>62 READY TO OPERATE</td>
<td>45 READY TO OPERATE</td>
</tr>
<tr>
<td>ENHANCED VEGETATION MANAGEMENT</td>
<td>2,498 LINE MILES</td>
<td>1,800 LINE MILES</td>
<td>1,345 LINE MILES</td>
</tr>
<tr>
<td>Address vegetation that poses a higher potential for wildfire risk</td>
<td>2,498 LINE MILES</td>
<td>1,800 LINE MILES</td>
<td>1,345 LINE MILES</td>
</tr>
<tr>
<td>COMMUNITY RESOURCE CENTERS (CRCs)</td>
<td>111 SITES ACTIVATED</td>
<td>80* SITES TARGETED</td>
<td>24* SITES READY</td>
</tr>
<tr>
<td>Safe, energized locations for customers to receive basic resources and information</td>
<td>111 SITES ACTIVATED</td>
<td>80* SITES TARGETED</td>
<td>24* SITES READY</td>
</tr>
</tbody>
</table>

*PG&E originally targeted 201 CRC sites for the 2020 PSPS season; due to COVID-19 we have adjusted PSPS customer support programs during this time including creating multiple deployment strategies for CRCs (hardened sites, temporary sites, open-air tents and mobile, vehicle-based CRCs).

DATA AS OF 7/29

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.
We are installing real-time tools to better understand how severe weather can impact our system and proactively respond to potential threats.

We’re targeting about one station every 20 miles of electric lines in high fire-threat areas by 2021.

2020 TARGET: 400 WEATHER STATIONS
2020 PROGRESS: 169 WEATHER STATIONS*

*Installed

MAP LEGEND:
- PG&E weather station installed
- Remote Automated Weather Stations (RAWS) within PG&E’s service area

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

To sign up for daily email notification regarding PSPS, visit cloud.em.pge.com/PSPS-7day-Signup.

All data is preliminary and based on early 2020 work planning. Data as of July 2020. Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.
Monitoring For Wildfires With High-Definition Cameras

We’re installing new high-definition cameras in high fire-threat areas, which allows PG&E and first responders to monitor wildfires in real time.

We’re targeting visibility of more than 90% of the high fire-risk areas we serve by 2022.

2020 TARGET 200 CAMERAS
2020 PROGRESS 75 CAMERAS*

*Installed

MAP LEGEND:
- PG&E high-definition camera installed
- Non-PG&E camera that looks into PG&E’s service area

Images are publicly available:
- alertwildfire.org
- pge.com/weather

All data is preliminary and based on early 2020 work planning. Data as of July 2020. Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.
System Hardening And Resiliency

As part of our efforts to prevent wildfires, we are strengthening the electric system to further reduce wildfire risk and better withstand severe weather.

These improvements will occur over several years across 7,100 miles of distribution lines in the highest risk fire-threat areas, and include:

- Installing stronger and more resilient poles
- Replacing bare conductors
- Installing more poles than previously needed
- No longer using trees to support infrastructure
- Adding down guys and anchors
- Placing lines underground

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

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

We’re installing new sectionalizing devices throughout our service territory that separate the grid into smaller parts to reduce the number of customers affected during a PSPS event.

If weather or debris threatens a section of our electric system, a sectionalizing device can turn off power to the impacted section, keeping the electricity on for customers outside the impacted area while PG&E crews work to fix the issue.

**2020 TARGET** 600 DEVICES

**2020 PROGRESS** 469 DEVICES

*Power may be shut off due to weather, debris or other factors that may threaten our electric system.

All data is preliminary and based on early 2020 work planning. Data as of July 2020. Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.
We are working to lessen PSPS impacts through establishing additional temporary microgrids that can utilize backup generation sources to keep portions of communities energized.

The ability to energize these substations with temporary generation during a PSPS event will be subject to operational constraints, the specific circumstances of each event, and the available supply of temporary generation.

62 sites currently being considered across PG&E’s service area

2020 PROGRESS

45 SITES READY
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.

Our enhanced vegetation management work includes:

- Exceeding state standards for minimum clearances around power lines
- Conducting additional inspections, beyond routine patrols, to remove hazardous vegetation

2020 TARGET 1,800 LINE MILES

2020 PROGRESS 1,345 LINE MILES
Preparing For Public Safety
Power Shutoffs
We provide advance notice prior to turning off power and updates until power is restored. This year, notifications will include more details about when it’s anticipated that the power will be shut off and restored.

**Timing of Notifications (when possible)**

- **2 days** before power is turned off
- **1 day** before power is turned off
- **Just before** power is turned off
- **During** the PSPS event
- **Once** power has been restored

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

**Direct Customer Notifications**
We will attempt to reach customers through automated calls, texts and emails.

**Additional Updates**
We will also use social media and keep local news and radio outlets informed and updated.

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PG&E’s dedicated weather webpage offers a 7-day PSPS potential forecast that indicates the potential weather conditions that could necessitate a PSPS.

The 7-day PSPS potential forecast is updated daily by PG&E’s meteorology team.

PG&E’s weather webpage also offers an interactive weather map updated in real time using information from weather stations and cameras throughout PG&E’s service territory.

To sign up for daily email notifications regarding PSPS, visit cloud.em.pge.com/PSPS-7day-Signup.

pge.com/weather
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This is PG&E calling with a PSPS outage alert. On 10/5/20, your power may be shut off for safety. To continue in English press 1. To replay this message at any time, press #.

Due to current weather forecasts 1234 EL ANYWHERE COURT is currently under a Watch for a Public Safety Power Shutoff. Weather forecasts including high winds and dry conditions, may require us to turn off your power to help prevent a wildfire.

ESTIMATED SHUTOFF TIME: 10/7/20 between 6 pm and 10 pm. Shutoff times may be delayed if winds arrive later than forecast. We expect weather to improve by 6 am on 10/8/20. After weather has improved, we will inspect equipment before restoring power.

ESTIMATED RESTORATION TIME: 10/8/20 by 4 pm. Changes in weather can affect shutoff & restoration times. pge.com/pspsupdates Reply w/ “1” to verify receipt.

If you rely on power to operate life-sustaining medical devices or have access and functional needs, additional support may be available. For more information, visit pge.com/specialresources.

If this is not the correct phone number for 1234 EL ANYWHERE COURT, press 2. Press # to repeat this message.

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

WARNING EMAIL

Public Safety Power Shutoff

PSPS Outage Warning
To protect public safety, PG&E has upgraded the Public Safety Power Shutoff watch to a warning.

ADDRESS:
123 Main Street

ESTIMATED SHUT OFF:
Wednesday, October 7th
6PM-10PM
Shutoffs may be delayed if weather improves

ESTIMATED RESTORATION:
Thursday, October 8th
by 4PM

Power will remain off until weather conditions improve and equipment inspections are complete. This restoration time could change due to weather conditions or equipment damage.

PG&E PSPS Outage Alert
10/7/20: PG&E will turn off power for safety at 1234 EL ANYWHERE COURT on 10/7/20. Estimated shutoff: 6:00pm – 10:00pm or later if weather improves. Estimated restoration: 10/8/20 by 4:00 pm depending on weather & equipment damage. Info: pge.com/pspsupdates Reply w/ “1” to verify receipt.

WARNING TEXT
We immediately upgraded our website to serve higher levels of traffic during a PSPS event following the October 2019 PSPS event and website failure.

We are increasing website hosting capability to support even higher web traffic in the future, including:

- Moving pge.com to the Cloud
- Building a new stand-alone, cloud-based website specifically for emergencies
  - Automatically redirecting traffic
  - Developing an “all-in-one” map
  - Developing lower bandwidth options
  - Simpler language and layouts
  - Faster upload of information
  - Fully multilingual-translated content with ADA accessibility

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Community Resource Centers (CRCs)

During a PSPS event, PG&E will open CRCs to provide a safe location where community members can access basic resources, as well as up-to-date information. The following resources may be available:

- Heating and cooling
- Device charging
- Bottled water
- Non-perishable snacks
- Wi-Fi service
- Coffee/tea
- Blankets
- ADA-compliant restrooms and hand washing stations
- Security personnel
- Chairs and tables

During a PSPS event, CRC locations will be shared on pge.com/pspsupdates and via social media.

COVID-19 CONSIDERATIONS

PG&E is adapting our approach to CRCs to reflect appropriate COVID-19 public health considerations.

We will offer Micro CRCs (smaller, open air tents) and Mobile CRCs (vans) to supplement Indoor CRCs if shelter-at-home and physical distancing recommendations prevent the use of Indoor CRCs.

We are also taking measures to:

- Require facial coverings in accordance with state and county guidelines
- Administer temperature checks before entering indoor facilities
- Limit attendance to maintain physical distancing
- Regularly sanitize surfaces

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PG&E is working with the California Foundation for Independent Living Centers (CFILC) to fund resources to help prepare for disasters and extended power outages.

**Application Process:** The CFILC will determine who qualifies for resources. Medical needs and income will be taken into account.

Applications are available online or at Independent Living Centers (ILCs) and will be accepted at regional ILC locations.

**Coordination of resources takes time.** Individuals are encouraged to engage with their local ILC and plan before a PSPS event is imminent.

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Where To Go For Additional Information

DO WE HAVE YOUR CURRENT CONTACT INFORMATION?

pge.com/mywildfirealerts

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

BACKUP POWER

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

pge.com/backuuppower

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

MEDICAL BASELINE PROGRAM

Learn more about PG&E’s Medical Baseline Program for those who rely on power for medical devices.

pge.com/medicalbaseline

KEEP UP TO DATE DURING A PSPS EVENT

pge.com/pspsupdates

For more information about our Community Wildfire Safety Program, please: Call 1-866-743-6589 Email wildfiresafety@pge.com Visit pge.com/wildfiresafety

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Appendix
## 2019 PSPS Overview – System-wide

<table>
<thead>
<tr>
<th>EVENT DETAILS</th>
<th>JUNE 8 - 9</th>
<th>SEPT 23 - 26</th>
<th>OCT 5 - 6</th>
<th>OCT 9 - 12</th>
<th>OCT 23 - 25</th>
<th>OCT 26 - NOV 1</th>
<th>NOV 20 - 21</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CUSTOMERS IMPACTED</strong></td>
<td>~22,000</td>
<td>~49,000</td>
<td>~12,000</td>
<td>~735,000</td>
<td>~179,000</td>
<td>~968,000</td>
<td>~49,000</td>
</tr>
<tr>
<td><strong>COUNTIES IN SCOPE</strong></td>
<td>5</td>
<td>7</td>
<td>3</td>
<td>35</td>
<td>18</td>
<td>39</td>
<td>11</td>
</tr>
<tr>
<td><strong>CRCs OPEN</strong></td>
<td>4</td>
<td>8</td>
<td>2</td>
<td>33</td>
<td>28</td>
<td>77</td>
<td>34</td>
</tr>
<tr>
<td><strong>PEAK WIND GUSTS</strong></td>
<td>63 mph</td>
<td>58 mph</td>
<td>51 mph</td>
<td>77 mph</td>
<td>80 mph</td>
<td>102 mph</td>
<td>75 mph</td>
</tr>
<tr>
<td><strong>DAMAGE/HAZARDS</strong></td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>116</td>
<td>26</td>
<td>554</td>
<td>15</td>
</tr>
<tr>
<td><strong>AVG. OUTAGE DURATION</strong></td>
<td><strong>5 HRS</strong></td>
<td><strong>7 HRS</strong></td>
<td><strong>4 HRS</strong></td>
<td><strong>25 HRS</strong></td>
<td><strong>5 HRS</strong></td>
<td><strong>22 HRS</strong></td>
<td><strong>10 HRS</strong></td>
</tr>
<tr>
<td><strong>AVG. OUTAGE DURATION</strong></td>
<td><strong>16 HRS</strong></td>
<td><strong>16 HRS</strong></td>
<td><strong>14 HRS</strong></td>
<td><strong>37 HRS</strong></td>
<td><strong>24 HRS</strong></td>
<td><strong>55 HRS</strong></td>
<td><strong>25 HRS</strong></td>
</tr>
</tbody>
</table>

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

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.
How Is PG&E Improving Restoration Times?

We expect to be able to restore power to most customers **within 12 daylight hours after severe weather has passed**, a **50% improvement** from 2019.

**WEATHER ALL CLEAR**

**PATROL & INSPECT**

Crews visually inspect for potential weather-related damages by **foot, vehicle and air**

**ISOLATE & REPAIR DAMAGE**

Crews work to **isolate and fix damage**

**RESTORE POWER**

The **PG&E Control Center** restores power to the affected areas

**NOTIFY CUSTOMERS**

Customers are notified that **power has been restored**

**After severe weather has passed**, crews begin inspections

**Note:** Because severe 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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