Safety
Meeting Purpose and Discussion Topics

MEETING PURPOSE

• Share progress on important work to prevent wildfires and reduce PSPS impacts
• Co-create solutions to local issues
• Partner to prepare for PSPS events in 2020

We understand how busy your teams must be responding to COVID-19 and appreciate your time

DISCUSSION TOPICS:

☑ 2020 PSPS IMPROVEMENTS
☑ LOCAL PROJECTS
☑ 30-YEAR WEATHER ANALYSIS
☑ EVENT COORDINATION AND INFORMATION SHARING
☑ ELECTRIC GRID OVERVIEW
☑ DISCUSSION

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.
### 2020 PSPS Improvements

#### GOAL

<table>
<thead>
<tr>
<th>SMALLER IN SIZE</th>
<th>Reduce the number of customers impacted by PSPS events by one-third compared to 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Installing <strong>sectionalizing devices</strong> on the transmission and distribution systems capable of redirecting power and limiting the size of outages</td>
</tr>
<tr>
<td></td>
<td>• Developing <strong>microgrids</strong> that use generators to keep the lights on</td>
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<tr>
<td></td>
<td>• Conducting <strong>targeted undergrounding</strong> as part of system hardening</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>SHORTER IN DURATION</th>
<th>Restore customers twice as fast after severe weather has passed</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>• Adding <strong>more field crews</strong> to speed inspection of lines</td>
</tr>
<tr>
<td></td>
<td>• Expanding <strong>helicopter fleet</strong> from 35 to 65 for aerial line inspections</td>
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<tr>
<td></td>
<td>• Commissioning two new <strong>airplanes</strong> for aerial line inspections</td>
</tr>
<tr>
<td></td>
<td>• Utilizing <strong>infrared equipment</strong> to inspect at night</td>
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</tbody>
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<table>
<thead>
<tr>
<th>SMARTER FOR CUSTOMERS</th>
<th>Provide more accurate/timely communications and additional resources</th>
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<tbody>
<tr>
<td></td>
<td>• Enhancing <strong>meteorology technology</strong> to pinpoint severe weather</td>
</tr>
<tr>
<td></td>
<td>• Bolstering <strong>website capacity</strong></td>
</tr>
<tr>
<td></td>
<td>• Improving <strong>customer alerts</strong> and notifications</td>
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<tr>
<td></td>
<td>• Upgrading <strong>Community Resource Centers</strong></td>
</tr>
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<td></td>
<td>• <strong>Improving coordination</strong> with local agencies and critical service providers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Deliver more assistance before, during and after a PSPS event</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Working with the <strong>California Foundation for Independent Living Centers</strong> and other <strong>Community Based Organizations</strong> to support vulnerable customers</td>
</tr>
<tr>
<td></td>
<td>• Making it <strong>easier for eligible customers to join the Medical Baseline program</strong></td>
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<tr>
<td></td>
<td>• Expanding <strong>in-language communications</strong></td>
</tr>
</tbody>
</table>

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### WILDFIRE SAFETY AND CUSTOMER SUPPORT PROGRAM EFFORTS

<table>
<thead>
<tr>
<th>Effort</th>
<th>2019 Complete</th>
<th>2020 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weather Stations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhancing weather forecasting and modeling</td>
<td>41 STATIONS</td>
<td>IN PROGRESS*</td>
</tr>
<tr>
<td><strong>High-Definition Cameras</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improving real-time monitoring of high-risk areas and conditions</td>
<td>9 CAMERAS</td>
<td>IN PROGRESS*</td>
</tr>
<tr>
<td><strong>Community Resource Centers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide basic power needs and up-to-date information</td>
<td>4 EXECUTED</td>
<td>IN PROGRESS</td>
</tr>
<tr>
<td><strong>Sectionalizing Devices</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separating the grid into small sections for operational flexibility</td>
<td>6 DEVICES</td>
<td>15 DEVICES</td>
</tr>
<tr>
<td><strong>System Hardening</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stronger poles, covered lines and/or targeted undergrounding</td>
<td>12 LINE MILES</td>
<td>26 LINE MILES</td>
</tr>
<tr>
<td><strong>Temporary Microgrids</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safely energize customers during a PSPS event</td>
<td>0 EXECUTED</td>
<td>3 POSSIBLE</td>
</tr>
<tr>
<td><strong>Enhanced Vegetation Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspecting, pruning and removing vegetation</td>
<td>107 LINE MILES</td>
<td>138 LINE MILES</td>
</tr>
</tbody>
</table>

*Locations identified on a monthly basis

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Local Projects
**Weather Stations**

We’re installing **real-time tools** to better understand how severe weather can impact our system and proactively respond to potential threats.

Targeting **one station roughly every 20 circuit-miles** in high fire-threat areas by 2022.

**41**
Weather stations installed to date

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

Data is publicly available at [pge.com/weather](http://pge.com/weather) and [mesowest.utah.edu](http://mesowest.utah.edu).

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Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.
We’re supporting the installation of new HD cameras in high fire-threat areas, which allow PG&E and first responders to monitor wildfires in real time.

This will increase our coverage to more than 90 percent of our service area by 2022.

9*

Cams installed to date

MAP LEGEND:
- PG&E HD Camera installed
- PG&E HD Camera planned
- Non-PG&E Camera that looks into PG&E’s service area

*Two cameras overlap on West Peak

Images are publicly available at pge.com/weather and alertwildfire.org

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Community Resource Center (CRC) Locations

Our goal is to work together to identify and secure multiple CRC locations within each county/tribe in our service area.

<table>
<thead>
<tr>
<th>Proposed CRC Locations</th>
<th>Status/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 McArthur</td>
<td>All Reviews Completed; In License Negotiations</td>
</tr>
<tr>
<td>2 Cottonwood Community Center, Cottonwood</td>
<td>All Reviews Completed; Site under consideration</td>
</tr>
<tr>
<td>3 Anderson Senior Center, Anderson</td>
<td>Initial Review Completed; Site under consideration</td>
</tr>
<tr>
<td>4 Bella Vista Elementary School, Bella Vista</td>
<td>Initial Review Completed; Site under consideration</td>
</tr>
<tr>
<td>5 Burney VFW Hall, Burney</td>
<td>Initial Review Completed; Site under consideration</td>
</tr>
<tr>
<td>6 Mercy Oaks, North Redding</td>
<td>Initial Review Completed; Site under consideration</td>
</tr>
<tr>
<td>7 Happy Valley Community Center, Anderson</td>
<td>Initial Review Completed; Site under consideration</td>
</tr>
<tr>
<td>8 Burney High School, Burney</td>
<td>Initial Review Completed; Site under consideration</td>
</tr>
<tr>
<td>9 Shasta Lake Bible Fellowship, Mountain Gate</td>
<td>Initial Review Completed; Site under consideration</td>
</tr>
<tr>
<td>10 Foothill High School, Palo Cedro</td>
<td>Initial Review Completed; Site under consideration</td>
</tr>
<tr>
<td>11 Legion Hall, Cottonwood</td>
<td>All Reviews Completed; Site no longer in consideration due to multiple ADA concerns</td>
</tr>
<tr>
<td>12 Black Butte Union Elementary School, Shingletown</td>
<td>All Reviews Completed; Site no longer in consideration due to county feedback on microgrid</td>
</tr>
<tr>
<td>13 Black Butte Union Jr. High School, Shingletown</td>
<td>All Reviews Completed; Site no longer in consideration due to multiple ADA concerns</td>
</tr>
<tr>
<td>14 USDA Forest Service Shasta Lake Ranger Station or USFS District Office Parking Lot, Redding</td>
<td>Active; Agreement in place</td>
</tr>
<tr>
<td>15 Shasta College, Redding</td>
<td>Active; Agreement in place</td>
</tr>
<tr>
<td>16 Dollar General, Shingletown</td>
<td>Pending; Site under consideration pending owner response</td>
</tr>
</tbody>
</table>

Locations will be activated as needed, depending on event scope and potential customer impacts. During a PSPS event, the locations will be made available on pge.com/pspsupdates and via social media, local news and radio.

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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.

Electric Transmission Line | PG&E Facility
--- | ---
60 kV | ▲ Substation
115 kV |
230 kV |
500 kV |

2019 Peak Load: 144 MW

This data is also publicly available at:
- [www.pge.com/wildfiremitigationplan](http://www.pge.com/wildfiremitigationplan)
- County Energy Commission (CEC) website: [https://cecgis-caenergy.opendata.arcgis.com/](https://cecgis-caenergy.opendata.arcgis.com/)

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

**2020 TARGET 15 DEVICES**

**MAP LEGEND:**
- Distribution sectionalizing devices installed in late 2019 or planned in 2020
- Area potentially removed from scope due to planned sectionalizing (distribution level event only)
- New area now in scope
- No change from 2019
- PG&E Substation

*Note: Map reflects projects in planning and/or underway and is subject to change. Some data points may overlap.*
We are installing stronger and more resilient poles and covered power lines in high-risk areas, replacing equipment, and conducting targeted undergrounding where appropriate.

2019/2020 SYSTEM HARDENING

MAP LEGEND:
- Wildfire risk reduction planned project
- PSPS mitigation planned project
- Substation
- New SCADA enabled ET Switch

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

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We are working to lessen PSPS impacts through establishing additional temporary microgrids that can utilize backup generation sources to keep portions of communities energized.

In 2020, PG&E will have a portfolio of temporary generation assets that will support some of these microgrid locations across our service area.

50+ sites currently being considered across PG&E’s service area
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.

**2020 TARGET** 138 LINE MILES

*Work plan is subject to change due to weather, access or other schedule constraints*

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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:

- Wind Speed
- Dead Fuel Moisture (4 Types)
- Wind Gust
- Live Fuel Moisture
- Temperature
- Fosberg Fire Weather Index
- Relative Humidity
- National Fire Danger Rating System Outputs (4 Main Outputs)
- Precipitation
- 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
- Northern and Southern California Geographic Area Coordination Center
- CAL FIRE
- External fire agencies
- San Jose State University Fire Weather Research Lab

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The following is a conservative estimate of potential PSPS events in your community based on 30 years of data when Fire Potential Index (FPI) and Outage Producing Winds (OPW) met the PSPS criteria threshold.

**Potential historical PSPS events over 30 year period**

### Annual average of local PSPS events (1989-2018)

- **NOTE:** Additional factors are considered before turning power off for safety such as red flag warning days or conditions on the ground during winter months.

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Event Coordination and Information Sharing
Emergency Operations Center (EOC) Coordination

PG&E will offer the following resources to support local EOCs during a PSPS event:

**Local EOC Liaison** can be embedded in a county or tribe’s local EOC, upon request.

**Agency Representative** will be assigned to each county and tribe to act as a single point of contact during an event.

**GIS Technical Specialist** can be embedded in a county or tribe’s local EOC upon request; remote support is also available, if preferred.

**Third-Party Representative** such as cities, counties, tribes, water agencies and telecom providers may request to send a representative to observe the PG&E EOC during a PSPS event.

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**YOUR LOCAL REPRESENTATIVES**

**Mike Weaver**  
Public Safety Specialist leads outreach to State and County OES and other emergency responders  
Phone: 530-356-2197 | Email: Michael.Weaver2@pge.com

**Dan Blair**  
Local Public Affairs leads outreach to city/county elected and staff  
Phone: 530-592-5004 | Email: Dan.Blair@pge.com

**Carl Schoenhofer**  
Senior Manager Local Customer Experience and Division Lead leads outreach to critical customers and addresses escalated issues  
Phone: 707-320-3201 | Email: Carl.Schoenhofer@pge.com

**Reno Franklin**  
Tribal Liaison leads outreach to tribal groups  
Phone: 707-694-4783 | Email: Reno.Franklin@pge.com

**Paul Moreno**  
Media Rep serves as main point of contact between PG&E and local media  
Phone: 530-896-4290 | Email: Paul.Moreno@pge.com

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Once PG&E’s Emergency Operations Center (EOC) is activated, we will provide information through the following:

**Operational Areas Cooperators Call**
- Hosted twice-daily by Agency Representatives with each impacted county and tribe.
- Event-specific information changes will be reviewed.
- Opportunity to resolve local issues and ask questions.

**Systemwide Cooperators Call**
- Hosted once-daily by the EOC.
- Provide the latest high-level updates (inform only).
- Local and tribal agencies within the service area are welcome to join the call, as well as other public safety partners (i.e., telecom, water providers, transportation agencies, CCAs, etc.).

**Event-Specific Information**
- Up-to-date information will be provided twice-daily at regular intervals.
- Information provided will include counties and tribes in scope, estimated time of de-energization, estimated time of restoration, number of Medical Baseline customers and number and types of critical facilities in scope.

When possible, we will strive to provide timely information to emergency service agencies in advance of notifying customers.

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The portal includes the following:

<table>
<thead>
<tr>
<th>Before an Event</th>
<th>During an Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSPS Planning Maps (GIS, KMZ)</td>
<td>Event-specific Information and Maps (GIS, PDF, KMZ)</td>
</tr>
<tr>
<td>Summary of Potentially Impacted Customers</td>
<td>Activated CRC Location Information</td>
</tr>
<tr>
<td>List of Critical Customers (excluding Telecom)</td>
<td>Summary of Affected Customers</td>
</tr>
<tr>
<td>List of Medical Baseline Customers</td>
<td>List of Medical Baseline and Critical Customers</td>
</tr>
</tbody>
</table>

**CONCEPTUAL LAYOUT**

1,268 portal users as of 3/31/2020

**NOTE:** Though we are going to open the portal to all public safety partners (including telecom, water agencies and hospitals), not all partners will receive confidential customer data.

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Sample PSPS Event Map Refinement

- **2019 buffered event map** (polygon level)
- **Proposed event map** (parcel level)
Community Resource Centers (CRCs)

CRCs provide customers and residents with a safe, energized, ADA accessible location with basic resources, as well as up-to-date information.

The following resources may be available:
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Additional Support for Vulnerable Customers

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.

Resources include:

- Portable backup power
- Emergency preparedness assistance
- Accessible transportation
- Hotel vouchers and food stipends
- Medical Baseline application assistance

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 Interdependent Living Centers (ILCs) and will be accepted at regional ILC locations.

Your regional CFILC location is: 169 Hartnell Ave, #128 Redding, CA 96002

PSPS event specific AFN resources will be posted at pge.com/specialresources. Press releases, radio advertisements and leveraging our network of CBOs will also be used to communicate with vulnerable customers when possible during events.

Coordination of resources takes time. Individuals are encouraged to engage with their local ILC and plan before a PSPS event is imminent.
You can help your community take steps to prepare:

**Encourage customers to update their contact info**
(Visit [pge.com/mywildfirealerts](http://pge.com/mywildfirealerts) or call 1-866-743-6589)

**Inform customers that they may be eligible for the Medical Baseline Allowance**
(Visit [pge.com/medicalbaseline](http://pge.com/medicalbaseline))

**Remind residents to participate in a local Community Wildfire Safety Program webinar**
(Visit [pge.com/wildfiresafety](http://pge.com/wildfiresafety))

**Share preparedness messages through your newsletter, website or social media**

**Let us know about other outreach opportunities** and ways we can partner

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Electric Grid Overview
Weather Deep Dive
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**Probability of Outage Producing Winds (OPW)**

**KEY TAKEAWAYS**

**Datasets/Model**
- 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 wind-outage 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

PG&E Utility FPI

Weather
Wind Speed, Temperature and Humidity

Fuels
Dead Fuel Moisture and Live Fuel Moisture

Land Type
Forest, shrub/brush or grass-land dominated
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.

**Scenario: Winter Storm**
- **High** Outage Probability
- **Low** Probability of an Ignition Becoming a Large Fire

**Scenario: Blue Sky Day in February/March**
- **Low** Outage Probability
- **Low** Probability of an Ignition Becoming a Large Fire

**Scenario: Wind Event with Dry Fuels**
- **High** Outage Probability
- **High** Probability of an Ignition Becoming a Large Fire

**Scenario: Hot/Dry Summer Day**
- **Low** Outage Probability
- **High** Probability of an Ignition Becoming a Large Fire

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Discussion
<table>
<thead>
<tr>
<th>SLIDE #</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>Wildfire Risks Across PG&amp;E’s Service Area</td>
</tr>
<tr>
<td>35</td>
<td>Wildfire Mitigation Plan 2019 vs 2020 By the Numbers</td>
</tr>
<tr>
<td>36</td>
<td>Prioritizing Wildfire Mitigation Activities</td>
</tr>
<tr>
<td>37</td>
<td>Undergrounding</td>
</tr>
<tr>
<td>38</td>
<td>Inspection Plans</td>
</tr>
<tr>
<td>39</td>
<td>Community Microgrid Enablement Program (CMEP)</td>
</tr>
<tr>
<td>40-41</td>
<td>2019 PSPS Overview</td>
</tr>
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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>42</td>
<td>PSPS Transmission-Level Criteria</td>
</tr>
<tr>
<td>43</td>
<td>PSPS Decision Framework Summary</td>
</tr>
<tr>
<td>44</td>
<td>Identifying Critical Customers and Facilities</td>
</tr>
<tr>
<td>45</td>
<td>Medical Baseline Program</td>
</tr>
<tr>
<td>46</td>
<td>Additional Information</td>
</tr>
<tr>
<td>47</td>
<td>Preparedness Resources</td>
</tr>
</tbody>
</table>

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Wildfire Risks Across PG&E’s Service Area

50% of PG&E’s service area is in high fire-threat districts (HFTD)

<table>
<thead>
<tr>
<th></th>
<th>PG&amp;E SYSTEM-WIDE</th>
<th>SHASTA COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric customers served</td>
<td>5.5M</td>
<td>38,300</td>
</tr>
<tr>
<td>Electric customers in HFTD</td>
<td>505,600</td>
<td>21,500</td>
</tr>
<tr>
<td>Overhead distribution line miles</td>
<td>81,000</td>
<td>2,163</td>
</tr>
<tr>
<td>Overhead distribution line miles in HFTD</td>
<td>25,500</td>
<td>1,631</td>
</tr>
<tr>
<td>Overhead transmission miles</td>
<td>18,200</td>
<td>655</td>
</tr>
<tr>
<td>Overhead transmission miles in HFTD</td>
<td>5,500</td>
<td>552</td>
</tr>
</tbody>
</table>

Source: California Public Utilities Commission

Numbers are approximate
Wildfire Mitigation Plan 2019 vs 2020 By the Numbers

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>2019 COMPLETE</th>
<th>2020 TARGET</th>
<th>2020 PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM HARDENING</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stronger poles, covered lines and/or targeted undergrounding</td>
<td>171 LINE MILES</td>
<td>241 LINE MILES</td>
<td>65 LINE MILES</td>
</tr>
<tr>
<td>ENHANCED VEGETATION MANAGEMENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspecting, pruning and removing vegetation</td>
<td>2,498 LINE MILES</td>
<td>1,800 LINE MILES</td>
<td>811 LINE MILES</td>
</tr>
<tr>
<td>HIGH-DEFINITION CAMERAS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improving real-time monitoring of high-risk areas and conditions</td>
<td>133 CAMERAS</td>
<td>200 CAMERAS</td>
<td>27 CAMERAS</td>
</tr>
<tr>
<td>WEATHER STATIONS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhancing weather forecasting and modeling</td>
<td>426 STATIONS</td>
<td>400 STATIONS</td>
<td>61 STATIONS</td>
</tr>
<tr>
<td>SECTIONALIZING DEVICES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separating the grid into small sections for operational flexibility</td>
<td>287 DEVICES</td>
<td>592 DEVICES</td>
<td>147 DEVICES</td>
</tr>
<tr>
<td>TRANSMISSION LINE SWITCHES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enabling targeted transmission outages to lessen downstream customer impacts</td>
<td>0 DEVICES</td>
<td>23 DEVICES</td>
<td>20 DEVICES</td>
</tr>
<tr>
<td>COMMUNITY RESOURCE CENTERS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe, energized locations for customers to receive basic resources and information</td>
<td>111 SITES ACTIVATED</td>
<td>201 SITES TARGETED</td>
<td>1 SITE READY</td>
</tr>
</tbody>
</table>

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.
Prioritizing Wildfire Mitigation Activities

PG&E prioritizes wildfire mitigation work by evaluating which circuits in our service area are at the highest risk for wildfire. This is a dynamic and ongoing process.

We look at **three key factors** when determining a circuit’s risk for wildfire:

1. **Likelihood of an ignition**
2. **How quickly a fire could spread** in that location and potential impact
3. **How easy it is to get in and out** of the area in the event of a fire

Circuits at the greatest risk for wildfire are prioritized for:
- Inspections and repairs
- Enhanced vegetation management
- System hardening

**NOTE:** In some cases, PG&E made changes to the prioritization order of circuits based on other factors (i.e., environmental issues, safety, planned projects, geographic access and weather).

Working to include **PSPS likelihood** as an additional criteria

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Undergrounding

The process for identifying priority circuits for undergrounding includes the following steps:

**IDENTIFY** overhead circuits with highest wildfire risk.

**REVIEW** of circuits by PG&E or contract staff specialized in electric systems, fire prevention and suppression, construction and environmental impact.

**CONSIDER** if elimination of high-risk assets is possible (including if customers or communities can be served through alternate means).

**DETERMINE** the most effective, timely and feasible approach. If undergrounding is not feasible, a hardened and/or relocated overhead system can be pursued.

**CONFIRM** chosen risk mitigation approach and design (asset elimination, undergrounding or hardened overhead) will reduce wildfire risk.

We will engage with local officials throughout this process to discuss decision factors and considerations. **Note that undergrounding is a complex process that can take years to complete. We will continue to take immediate wildfire safety measures while work is planned.**
Our updated System Inspections Program evaluates our electric infrastructure on an ongoing basis to find and fix potential risks to the safety and reliability of our system.

- Continuing in 2020, we will evaluate Tier 2 and Tier 3 areas more frequently, while infrastructure in non-high fire-threat areas will be inspected at least every six years.

- In 2020, we plan to inspect more than 15,000 miles of electric lines, which includes:
  - All lines in Tier 3 areas
  - One-third of all lines in Tier 2 areas
  - Additional line miles in non-high fire-threat areas
Microgrids – Community Microgrid Enablement Program (CMEP)

PG&E is exploring the ability to support communities and customers to develop their own multi-customer or community-level microgrids as a way to reduce PSPS impacts.

This may include sponsoring enhanced technical support for project development, project tools and in some cases, one-time matching funds.

To qualify for this program, microgrid projects must meet the following criteria:

☑ Serve areas that experienced a PSPS event in 2019
☑ Located in an area that could be safely energized during a PSPS event
☑ Serve one or more critical facility
☑ Supported by local governments and stakeholders

This program is currently under development and pending approval by the California Public Utilities Commission (CPUC).
# 2019 PSPS Overview

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.

<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>CUSTOMERS IMPACTED</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>COUNTIES IN SCOPE</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>CRCs OPEN</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>PEAK WIND GUSTS</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>DAMAGE/HAZARDS</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>AVG. OUTAGE DURATION AFTER ALL CLEAR</td>
<td>5 HRS</td>
<td>7 HRS</td>
<td>4 HRS</td>
<td>25 HRS</td>
<td>5 HRS</td>
<td>22 HRS</td>
<td>10 HRS</td>
</tr>
<tr>
<td>AVG. OUTAGE DURATION TOTAL</td>
<td>16 HRS</td>
<td>16 HRS</td>
<td>14 HRS</td>
<td>37 HRS</td>
<td>24 HRS</td>
<td>55 HRS</td>
<td>25 HRS</td>
</tr>
</tbody>
</table>

Note: All data is subject to change based on ongoing data reconciliation.
# 2019 PSPS Overview for Shasta County

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<table>
<thead>
<tr>
<th>EVENT DETAILS</th>
<th>OCT 9 - 12</th>
<th>OCT 26 - NOV 1</th>
<th>NOV 20 - 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTOMERS IMPACTED</td>
<td>~27,800</td>
<td>~28,600</td>
<td>~10,500</td>
</tr>
<tr>
<td>CRCs OPENED</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>CRC VISITORS</td>
<td>~120</td>
<td>~1,020</td>
<td>~380</td>
</tr>
</tbody>
</table>

**Note:** All data is subject to change based on ongoing data reconciliation.
As part of our wildfire risk monitoring, we will review transmission lines in the potentially affected area.

• While no single factor will drive a PSPS, some factors for a transmission-level event include:
  - Severity and duration of weather
  - Site-specific environmental conditions that increase wear
  - Age and condition of the asset
  - Status of recent repairs
  - Real-time field observations

• If it is determined that a transmission line might be de-energized for safety, **PG&E works closely with the California Independent System Operator to assess the system impacts.**
### Distribution
(i.e., below 60kV) and select 115 kV

- **Outage Producing Winds**
  - Localized quantification of outage probability based on 11-year outage history and 30-year climatology analysis

- **Fire Potential Index**
  - Calibrated to PG&E’s service area using 30-year climatology, historical fire occurrence and fire spread modelling

- **Extreme-Plus Threshold**
  - OPW compared to FPI and normalized by location indicates a threshold for mitigating historical wind-driven fires of consequence

- **Threshold Analysis**
  - OPW vs. FPI analyzed at the 3 km x 3 km grid across all of PG&E’s service area during a potential PSPS event

- **Safety Shutoff Decision**
  - Decision is made at the meteorological impact area

### Transmission
(i.e., 60/70kV, 115kV, 230 kV, 500 kV)

- **Asset Health**
  - Risk assessed based on enhanced and accelerated inspections for all T-line structures in high fire-threat areas in Q4 2018 – Q2 2019

- **Wind Speed Threshold**
  - Determined wind speed threshold based on repair history and asset conditions; most conservative rating assumed for an entire T-line

- **CAISO Coordination**
  - Real-time coordination studies with CAISO determine direct and indirect impacts to grid integrity

- **Public Safety Impact**
  - Grid stability and potential de-energization impacts considered (i.e., non-consequential loss, generation loss)

- **Safety Shutoff Decision**
  - Decision is made on a transmission line level that intersects within a weather footprint

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Critical Facility Customers

PG&E provides certain critical facility customers* with advanced communication (where possible), prioritized restoration and other resources in advance of and/or during planned outages (e.g., Public Safety Power Shutoffs) and unplanned outages (e.g., winter storms).

Facilities Identified As Critical Include:

- Emergency Services Sector (Police, Fire, Emergency)
- Government Facilities Sector (Schools, Jails, Prisons)
- Healthcare and Public Health Sector (Health Departments, Medical Facilities)
- Energy Sector (Public/Private Utility Facilities)
- Water and Wastewater Systems Sector (Water/Wastewater facilities)
- Communications Sector (Communication Infrastructure)
- Chemical Sector (Chemical Manufacturing, Maintenance or Distribution facilities)

Critical Facility Identification & Agency Outreach

- PG&E has an existing process that identifies critical facility customers based on the criteria referenced above.
- Beginning in May, we will provide cities, counties and tribal governments with a list of all critical facility customers within their jurisdiction through our secure PSPS portal (excluding commercially sensitive customer data, including telecommunication facilities). Agencies will be encouraged to review and provide feedback to this existing list in alignment with CPUC criteria.

*As defined by the California Public Utilities Commission in Public Safety Power Shutoff Decision 19-05-042.

Additionally, PG&E also considers major local and national public transportation centers (e.g., BART, ferries and airports) as critical facility customers which means they also receive this additional support.

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Medical Baseline Program

What is Medical Baseline?

- The Medical Baseline Program provides financial assistance to residential customers that have special energy needs due to certain qualifying medical conditions.
- Eligible customers may receive a “standard” Medical Baseline quantity of approximately 500 kilowatt-hours (kWh) of electricity and/or 25 therms of gas per month, in addition to regular baseline quantities.

Who Qualifies for Medical Baseline?

A licensed medical practitioner must certify that a full-time resident in your home is:

- Dependent on life-support equipment used in the home.
- A paraplegic, hemiplegic, quadriplegic or multiple sclerosis patient with special heating and/or air-conditioning needs.
- A scleroderma patient with special heating needs.
- Being treated for a life-threatening illness, compromised immune system or other medical condition with special heating and/or air-conditioning requirements necessary to sustain the patient’s life or prevent deterioration of the patient’s medical condition.

Applying for Medical Baseline

1. Complete the “MedicalBaseline Allowance” application form. Forms can be found by visiting pge.com/medicalbaseline.
2. Mail the completed and signed application form to:
   PG&E
   Attention: Medical Baseline
   P.O. Box 8329
   Stockton, CA 95208

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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/backuppower |
| 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

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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

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