



**Pacific Gas and
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September 4, 2019

Leslie Palmer
Director, Safety and Enforcement
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA, 94102

Dear Mr. Palmer:

In accordance with Ordering Paragraph 3 of California Public Utilities Commission (CPUC) Decision (D.) 19-05-042, Pacific Gas and Electric Company (PG&E) respectfully submits its first progress report on the implementation of the guidelines set forth in Appendix A.

If you have any questions, please do not hesitate to call.

Sincerely,

A handwritten signature in black ink that reads 'Meredith E. Allen'.

Meredith E. Allen
Senior Director – Regulatory Relations

Enclosures

cc: Anthony Noll, SED
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*Pacific Gas and
Electric Company®*

Pacific Gas and Electric Company Progress Report on Implementation of De-Energization Guidelines

September 4, 2019

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1 Executive Summary

Pacific Gas and Electric Company's (PG&E) most important responsibility is the safety of our customers and the communities we serve. Given the continued and growing threat of extreme weather and wildfires, PG&E recognizes that we must do more, and with greater urgency, to address the new normal of significantly increased wildfire risk.

PG&E's Public Safety Power Shutoff (PSPS) program proactively de-energizes a portion of our electric system in the interest of public safety when there are forecasts of gusty winds and dry conditions combined with a heightened fire risk. PG&E's first PSPS was initiated in 2018. So far, in 2019, we have conducted one PSPS event in two locations on the same weekend. After each PSPS event, PG&E evaluates the response to identify areas of improvement and then integrates lessons learned into our PSPS processes.

Beginning with the 2019 wildfire season, PG&E has expanded its PSPS program to include all electric lines, both distribution and transmission, that pass through High Fire Threat Districts (HFTDs) as designated by the California Public Utilities Commission (CPUC). Although a customer may not live or work in a HFTD, their power may be shut off if their community relies upon a line that passes through an area forecast to experience gusty winds and dry conditions combined with a heightened fire risk.

We know how much our customers rely on electric service and the impacts these events can have on them, their families, businesses, and communities – including the use of medical equipment and refrigeration. We understand and appreciate that turning off the power affects first responders and the operation of critical facilities, communications systems, and much more. We will only consider proactively turning off power when the benefits of de-energization outweigh potential public safety risks.

Reducing the Impact of PSPS

PG&E is working diligently to limit the number of customers potentially affected by a PSPS and to share the information we use in decision-making with our public safety partners and communities.

As of September 4, 2019, PG&E has installed more than 160 sectionalizing devices that allow PG&E to limit the geographical impact of de-energization as well as accelerate the restoration process. We are also working with the California Independent System Operator (CAISO) to determine how to best minimize impacts on the interconnected electric grid if we need to turn off high-voltage transmission lines for public safety. Additionally, as of September 4, 2019, PG&E has installed over 560 new weather stations in HFTDs to provide more detailed inputs into our weather models. More geographically granular weather data enables PG&E to more accurately pinpoint regions forecast to experience PSPS conditions, reducing the number of customers in-scope for de-energization.

PG&E is committed to working together with all stakeholders and communities to further reduce the risk of wildfires. Ultimately, the decision to proactively shut off power is made for one reason: to protect the safety of our customers and the communities we serve. As explained in our Wildfire Mitigation Plan, our PSPS program is just one way PG&E is carrying out that commitment and working to reduce the risk of wildfires.

2 Operational Updates

2.1 Thresholds for Strong Wind Events

No single factor or threshold governs the decision to de-energize. Over the last year, PG&E has continued to analyze and revise its decision-making criteria, with the goal of having data-informed, trusted, and repeatable criteria that will drive daily operations decisions. PG&E plans to continue to analyze and revise decision making criteria and models moving forward and apply lessons-learned from each PSPS event.

PG&E has a dedicated fire science and meteorology team that, in collaboration with key external partners, gathers, analyzes, and models weather and fire potential data. In 2019, this team constructed and analyzed 30 years of high-resolution spatial and temporal data consisting of approximately 80 billion data points to determine what factors influence the potential for wind-related outage activity and damage to infrastructure, as well as the potential for a catastrophic fire caused by PG&E equipment. This dataset includes weather data (e.g., temperature, relative humidity, wind, precipitation, and atmospheric pressure), dead and live fuel moisture levels, and outputs from the national fire danger rating system.

PG&E views the risk for a catastrophic fire caused by PG&E equipment as the probability of an outage leading to an ignition combined with the consequence or growth potential of a resulting fire. Thus, there are two key inputs of PG&E's analysis to determine PSPS criteria:

- PG&E's Outage Producing Winds (OPW) model; and
- PG&E's Utility Fire Potential Index (Utility FPI).

PG&E's fire science and meteorology team developed the OPW model, which is a location-specific model that is related to the historical frequency of outages at forecasted wind speeds. Due to the heterogeneity of the electric grid, vegetation surrounding the electric grid, and climatological weather exposure, wind speeds that generally result in outages, including through vegetation falling into lines, is not uniform across PG&E's territory.

PG&E's fire science and meteorology team developed and calibrated the Utility FPI using the robust dataset discussed above combined with a fire occurrence dataset for the PG&E territory. The Utility FPI combines a fire weather index (wind, temperature, and humidity) with fuel moisture data (10-hour dead fuel moisture and live fuel moisture), and landcover type (grass, shrub/brush, or forest). The Utility FPI is a logistic regression model and is related to the probability of a small fire becoming a large incident. The Utility FPI outputs ratings from R1 (lowest) to R5 (highest) in defined geographic areas that drive operational mitigating actions to reduce the risk of starting a fire. These include altering reclosing operations as well as work activities in the field.

The OPW and Utility FPI are forecast across PG&E's territory four times daily at 3KM spatial resolution using PG&E's Operational Mesoscale Model System (POMMS). The output of both models is evaluated by members of PG&E's fire science and meteorology team to determine if there is a concurrence of a heightened outage risk from a wind event and the potential for large fires to occur.

2.2 Protocol for De-Energization of Distribution Lines

PG&E's fire science and meteorology team will advise the Officer-in-Charge regarding the potential for a concurrence of a heightened outage risk from a wind event, potential for large fires to occur and the forecasted weather event's footprint, based on their subject matter expertise, interpretation of the OPW and Utility FPI model forecasts, and external forecasts. Based on this input, as well as other factors, the Officer-in-Charge will reach a risk-informed decision about whether to initiate a PSPS event and de-energize distribution lines. Some of these other factors and forecasts include but are not limited to:¹

- Red Flag Warnings or Fire Weather Watches declared by the National Oceanic and Atmospheric Administration (NOAA) National Weather Service;
- High Risk forecast triggers from the Northern and Southern California Geographic Area Coordination Centers Predictive Services;
- Elevated, Critical or Extreme designations from the NOAA Storm Prediction Center;
- Low humidity levels, generally 20 percent and below;
- Forecasted sustained winds² generally above 25 mph and wind gusts³ in excess of approximately 45 mph, depending on location and site-specific conditions such as temperature, terrain, vegetation and local climate;
- Condition of dry fuel on the ground and live vegetation (moisture content);
- On-the-ground, real-time observations from PG&E's Wildfire Safety Operations Center (WSOC) and field observations from PG&E crews; and
- Existing fires in the area that may be threatening a population being considered for PSPS.

On an event-by-event basis, PG&E will determine which, if any, distribution and transmission lines pass through a forecasted weather event's footprint. When the potential scope is identified, PG&E's Emergency Operation Center (EOC), the distribution control center, and the transmission Grid Control Center will coordinate to ensure customers are identified and to prepare for possible de-energization while complying with all electric grid regulations.

PG&E's meteorology team, WSOC, and field crews will continue to closely monitor changing forecasts and conditions, updating the Officer-in-Charge of any changes in the forecasts or conditions. In the meantime, PG&E will begin notifying public safety partners and customers in accordance with Section 4 below. Based upon the latest information provided by the meteorology team, the WSOC, and crews, the Officer-in-Charge will decide whether to proceed with de-energization of the distribution lines passing through the footprint after evaluating the benefits of de-energization compared to the public safety impact. To make this decision, the Officer-in-Charge will consider factors such as the availability of alternatives to de-energization and the ability to mitigate the risks of de-energization through notifications, community assistance locations, the implementation of sectionalization, and the staging of restoration crews in advance of the event.

Over the past year, PG&E has continued extensive outreach and education to share our PSPS criteria and thresholds. PG&E briefed the CPUC, California Department of Forestry and Fire Protection (CAL FIRE), California Governor's Office of Emergency Services (Cal OES), and other entities throughout the state on

¹ See PG&E Public Safety Power Shutoff (PSPS) Report to the CPUC for event dated June 7 to 9, 2019, for other factors that may be considered.

² Sustained wind is the average observed wind speed value over a two-minute period.

³ A wind gust is a rapid fluctuation of wind speed with variations of 10 knots or more between peaks and lulls, typically, determined by averaging observed values over a three-second period.

the company's PSPS approach and analysis, including its thresholds, criteria, and data sources for PSPS events. PG&E has also shared its general threshold information broadly with the public through a series of workshops, open houses, webinars, meetings and presentations beginning in 2018. The general thresholds and criteria are also posted on PG&E's external-facing website and included in PG&E's PSPS Policies and Procedures available at www.pge.com/psps.

To provide greater transparency for interested stakeholders, PG&E has provided detailed weather and PSPS forecasting information on PG&E's public-facing website at www.pge.com/weather. This includes information on what conditions may lead to a PSPS event, real-time information from PG&E's high-definition camera network and weather stations, as well as 7-day localized forecasts for a potential PSPS event.

PG&E is preparing more detailed public facing material on our PSPS analysis, approach and thresholds. This information will be made available on the company website and will be shared in future meetings, presentations, and other outreach with our public safety partners and communities beginning in late 2019.

2.3 Interim Protocol for De-Energization of Transmission Lines

PG&E has developed an interim protocol concerning the de-energization of transmission lines and the planned notification process for transmission customers and other transmission connected entities. PG&E has solicited feedback both generally on its PSPS program and specifically on its interim protocol for de-energization of transmission lines.

2.3.1 De-energization of Transmission Lines Protocol

As previously described, on an event-by-event basis, PG&E will determine which, if any, transmission and distribution lines pass through a forecasted PSPS weather event's footprint, as observed by PG&E's meteorology department. Once PG&E has identified the transmission lines passing through the footprint, PG&E will calculate an estimate of relative wildfire risk by transmission line, which considers the relative health of each transmission structure,⁴ the local area wind speed forecast and Utility FPI, and the expected consequences of a fire in that given location as defined by a wildfire spread model developed for PG&E.⁵ There is no single factor or threshold that will automatically trigger de-energization of any particular transmission line. Based on the relative wildfire risk calculated for each transmission line in the footprint, PG&E will exercise expert judgment to identify which lines, if any, should be considered for transmission line de-energization. The transmission lines identified during this evaluation process drive the initial transmission PSPS scope.

PG&E will then conduct power flow assessments and fault-duty (short circuit) studies in coordination with the California Independent System Operator (CAISO) to ensure that the initial transmission PSPS scope is feasible and will not compromise reliable bulk power system operations. This step is critical to support compliance with Federal Energy Regulatory Commission (FERC) and North American Electric Reliability Corporation (NERC) reliability standards and that de-energizations will not negatively impact bulk power system integrity. This assessment process will identify the total count of customers who are

⁴ PG&E contracted with Exponent, an external engineering firm, to develop a model which incorporates PG&E's latest asset health information captured via PG&E's 2019 Wildfire Safety Inspection Program results and produces a relative probability of failure at a given windspeed by transmission structure.

⁵ PG&E contracted with Reax Engineering, an external engineering firm, to develop a Monte Carlo model to quantify wildland fire hazard and risk across PG&E's territory.

likely to be impacted by a transmission PSPS event, including any publicly owned utilities/electric cooperatives, adjacent jurisdictions, and small/multi-jurisdictional utilities, as well as other facilities interconnected at the transmission level. This step may also result in the identification of additional downstream PG&E distribution customers that would be impacted by transmission de-energization. Because of the configuration of the networked transmission system, customers and entities impacted by a transmission PSPS event may not be directly located within the weather event footprint itself or in a HFTD location, as designated by the CPUC.

If a potential transmission PSPS scope is feasible from a grid operations standpoint while maintaining compliance with regulatory standards, then the benefits of de-energization of the potential transmission lines will be weighed against the public safety risks of de-energization. If it is determined that the benefits of de-energization outweigh the risks of de-energization of those transmission lines, PG&E will de-energize the identified transmission lines in coordination with the CAISO, after the decision has been approved by PG&E's Officer-in-Charge.

2.3.2 De-energization Notification Process for Transmission-Level Events

Weather event and forecast permitting, PG&E anticipates being able to notify impacted transmission customers or interconnected transmission entities (e.g., municipal utilities) before actual de-energization of transmission lines up to three times before de-energization, as well as during the restoration of power. However, the timing of the transmission-level notifications is dependent on the results of the multi-step evaluation process to identify the ultimate scope for transmission line de-energization. More detail is provided on the notifications process in Section 4.1, including the notifications to transmission customers or interconnected transmission entities.

2.3.3 FERC Standards of Conduct

Prior to notifying transmission customers during a live PSPS event, PG&E will engage public safety partners as required by the CPUC. In order to ensure compliance with FERC Standards of Conduct, concurrently with PG&E communicating the initial transmission PSPS scope (and subsequent modified transmission scopes) to public safety partners who may also be electric wholesale market participants, PG&E plans to post a notice regarding these communications, including specifying the transmission PSPS scope, to PG&E's FERC Standards of Conduct website: www.pge.com/en_US/about-pge/company-information/regulation/ferc-standards-of-conduct/ferc-standards-of-conduct.page. PG&E has sought FERC guidance regarding these procedures and may modify these procedures based upon additional input from FERC.

2.3.4 PG&E's Solicitation of Feedback

As described in Section 3 below, PG&E hosted hundreds of meetings with various stakeholders outlining its PSPS program in 2019. PG&E made changes and improvements to its PSPS program based on feedback it received during these stakeholder meetings. Consistently throughout the outreach process, PG&E received the feedback that more advanced notification, even if not binding, would be helpful for entities readying themselves for a potential PSPS event. In response to this feedback, PG&E created a publicly available website at www.pge.com/weather showing PG&E meteorology's seven-day outlook on the relative chance of a PSPS event.

PG&E also presented its interim transmission protocol and solicited feedback from transmission system stakeholders via various methods. Most notably, PG&E hosted public webinars on August 15, 2019 and August 16, 2019 to outline the interim transmission PSPS protocol. Each webinar covered the materials

presented in Appendix H – PG&E Transmission PSPS Informational Webinar. In total, approximately 80 attendees called in across the two sessions, representing different types of transmission system stakeholders, including transmission retail customers, transmission wholesale customers, and municipally owned utilities.

2.4 Requests to Delay De-energization and Re-energization

In accordance with the Decision (D.) 19-05-042, PG&E will consider requests from public safety partners to delay de-energization and re-energization. If a public safety partner requests a delay, the request will be presented to the EOC Commander, who will consider and consult with the Officer-in-Charge to decide upon these requests on a case-by-case basis. PG&E will continue to prioritize the safety of customers and communities when reviewing these requests.

2.5 PG&E Restoration Drills to Prepare for PSPS

To help prepare and respond quickly during a PSPS, PG&E crews have conducted 18 restoration drills in HFTDs across Northern and Central California through September 4, 2019. These efforts have focused on practicing the coordination of emergency response teams, inspection of lines for damage and quickly restoring power while maintaining public and employee safety. These full-scale drills are part of PG&E's enhanced and expanded Community Wildfire Safety Program and have helped PG&E personnel and contractors prepare for the challenges they face during actual PSPS events.

3 Outreach

3.1 Coordination with Public Safety Partners, Communities and Customers

PG&E considers the safety of our customers and communities as our greatest responsibility. We are committed to working together with our customers and communities to prepare for possible PSPS events and to help strengthen the resiliency and safety of our state's infrastructure and communities to help further reduce wildfire risk.

To help ensure preparedness for a PSPS event, PG&E has conducted extensive communications with customers and communities through several channels, including letters, emails, meetings, events, radio, TV and print ads, social media and news stories. Customers in the Medical Baseline program have received additional mailers and outreach. In addition to these efforts, California's large electric IOUs (PG&E, Southern California Edison and San Diego Gas & Electric Company, collectively the "joint IOUs") are working together on a state-wide PSPS education and awareness campaign.

PG&E has conducted more than 850 meetings with local civic and community leaders, first responder agencies, and other public safety authorities to make them aware of PSPS as an additional safety precaution. Additional details about these outreach efforts are included below.

3.1.1 Statewide Public Education and Outreach Campaign

Under the direction and review of the Cal OES, the CAL FIRE and the CPUC, the statewide *Power of Being Prepared* campaign launched on May 6, 2019. As of September 4, 2019, the campaign has been active for 11 weeks using a variety of media, including radio, digital display banners, digital video, social media and search engine advertising. Information has been developed in a variety of languages including: English, Spanish, Chinese (Written: Traditional; Audio: Cantonese and Mandarin), Tagalog, Vietnamese and Korean. Campaign materials and how to prepare for emergencies are provided at the website www.prepareforpowerdown.com, which is also compliant with the Americans with Disability Act (ADA).

PG&E has played an active role in the campaign, coordinating activities with the joint-IOUs, contributing content, standardizing messaging and promoting the campaign. PG&E continues to utilize campaign materials in its ongoing outreach and engagement efforts with communities, customers and Access and Functional Needs (AFN) organizations.

To measure the campaign's effectiveness, the joint-IOU team is tracking website metrics, campaign impressions,⁶ and digital engagement rates. To date, more than 36,000 radio ads have run and received more than 276 million impressions. The advertisements and related outreach have generated significant visits to the website, including more than 150,000 page views from more than 110,000 unique users.

3.1.2 Direct Customer Outreach

PG&E's 2019 outreach and engagement campaign included over 5 million PSPS-related direct mail pieces and more than 11 million emails to customers with electric service. These direct mail pieces and emails have included requests for updated contact information and/or provided general education and awareness information. More specifically, the 2019 outreach and engagement campaign included:

- In May, all of PG&E's electric customers received a letter and/or email with information about the PSPS program, emergency preparedness guidance and a request to update contact information. Master metered tenants who are in the Medical Baseline program received a tailored version of this letter;
- In June, emails were sent to more than 135,000 customers with incomplete contact information to ask them to provide phone numbers for potential PSPS notifications. 55 percent of recipients opened the email for this campaign;
- In June, over 2 million customers (all PG&E electric customers with an email address) received an additional emergency preparedness email. Additionally, over 1.5 million customers received a PSPS preparedness checklist brochure in the mail targeted to all Medical Baseline customers and a subset of customers more likely to be impacted by a PSPS event;
- In June, PG&E sent tenant education toolkits to master metered customers, providing information about PSPS and their responsibility to educate their tenants and notify them in the case of a PSPS event. Copies of a tenant education flyer were included, with translated versions posted on www.pge.com/pssp;
- Between May and August, nearly 3 million customers received invitations to join PG&E's PSPS webinars and Community Wildfire Safety Program open house events in their region. Additionally, three webinars and 23 open houses were held throughout PG&E's 70,000 square-mile service area, with more than 5,000 individuals attending;
- In July, PG&E conducted automated outbound calls to Medical Baseline customers, reminding them of the PSPS program and asking them to ensure their contact information on file is accurate;
- In July, over 2 million customers received an email about backup generation with information related to backup power safety and considerations to help determine if a backup generator may be needed;
- In August, over 100,000 customers with incomplete contact information received an email or postcard reminder to update their contact information;
- PG&E also utilized its monthly customer energy statement to communicate a variety of emergency preparedness and PSPS messages on the outside of the statement envelopes in May, June, July, August and via bill inserts in August.

⁶ Impressions track the number of people receiving marketing information.

Through these efforts, over 220,000 customers have updated their contact information this year and over 95 percent of all customers have a phone number on file, including 99.9 percent of Medical Baseline customers.

3.1.3 Outreach to Public Safety Partners

PG&E has been conducting outreach to public safety partners and first/emergency responders through in-person meetings, emails, and phone calls to provide an overview of its PSPS program. During these interactions, PG&E has requested an appropriate emergency/first responder point of contact to be used for each jurisdiction during PSPS events.

PG&E has also conducted agency workshops with public safety partners to develop preliminary plans for addressing emergency situations, such as a non-utility caused wildfire, that may arise during a PSPS event. To date, PG&E has hosted or participated in 17 planning workshops with emergency services providers with more than 940 attendees. In addition, in 2019 PG&E has hosted over 500 one-on-one meetings with public safety partners to provide additional information regarding the PSPS program, notification process and emergency preparedness.

PG&E completed its initial outreach and will continue to conduct outreach to public safety partners to confirm contact information on an annual basis. In mid-July 2019, a supplemental email communication was sent to all cities and counties within PG&E's service territory to request confirmation of the jurisdiction's contact information.

This year, PG&E has compiled and confirmed 24-hour primary and secondary points of contact for all cities, counties and tribes located within the PG&E service territory to be used during PSPS events. In most instances, a tertiary point of contact has also been identified, where possible. PG&E has also identified points of contact at the CPUC and Cal OES to be used during PSPS events.⁷ This up to date contact information will be leveraged for PSPS outreach and event notifications to public safety partners. As described in more detail in Section 4.1, these public safety partners will also receive an advanced, courtesy notification prior to all impacted customers receiving their first notification of the potential PSPS event.

In addition, during a PSPS event PG&E will provide affected local jurisdictions/first responders with 24-hour access to the liaison team in PG&E's EOC who will be available to answer questions and provide information in real-time.

3.1.4 Outreach to Critical Facilities and Critical Infrastructure

PG&E has identified customers of record that meet the CPUC's definition of critical facility and critical infrastructure. This identifier will be used for prioritizing notifications with critical facilities to receive PSPS notifications in advance of general customers. It is also used for prioritizing outreach to obtain up to date 24-hour contact information to be used during a PSPS event.

Since 2018, PG&E has initiated direct outreach to all large commercial industrial customers, including critical facilities served by lines that run through Tier 2 and Tier 3 HFTDs, on an annual basis to update their PSPS contact information. Ongoing outreach to critical facilities through webinars, open houses,

⁷ CAL FIRE and other state agencies will be notified directly by Cal OES, in alignment with Standardized Emergency Management System (SEMS) protocol.

workshops, and direct contacts continues to enable PSPS preparedness and confirm correct contact information and backup power capabilities.

In addition, in July 2019, PG&E initiated an outreach campaign to cities and counties to confirm and verify critical facilities and infrastructure within their jurisdiction. The campaign also requested each jurisdiction identify additional facilities and infrastructure they deem to be critical and believe ought to be included in PG&E's critical facilities and infrastructure list. To date, PG&E has received input from over 70 cities and counties and has reviewed and updated records with a critical facility identifier based on feedback received.

3.1.5 Backup Generation Support

PG&E is committed to working with customers to help them prepare for possible outages, including by helping spread awareness of and knowledge about backup generation options. PG&E's activities to date on this topic include:

- Engaging directly with critical facilities leveraging the large facility PSPS preparedness checklists (see Appendix A – Large Business Preparedness Fact Sheet) and backup generation fact sheet (see Appendix B – Backup Generation Fact Sheet). These are intended to ensure that businesses' employees, tenants and customers know what to do during an emergency, including plans for backup power and the safety protocols for operating backup power;
- Providing backup power education, including financing options, on the PG&E backup generation website at www.pge.com/backupgeneration;
- Engaging directly with backup generator vendors to understand demand and encouraging financing options for customers;
- Pointing customers to options for portable battery backup power at <https://marketplace.pge.com/portable-power-stations/>;
- Making education materials available at each of PG&E's 23 Community Open Houses, which have been attended by more than 3,000 customers (resources shared are included in "printable resources" at www.pge.com/pmps);
- Requesting modification to the existing Self Generation Incentive Plan (SGIP) to include a wildfire resiliency component, including increased incentives for batteries and other qualifying generation for critical customers that could be most affected by PSPS;
- Exploring a grant program with a non-profit organization to assist AFN customers obtain portable backup power solutions; and
- Providing customers with a list of suppliers and contractors that may be able to assist critical facilities with purchasing or renting backup power sources, when requested.

PG&E is continuing to explore additional options to support the backup generation needs of critical facilities and customers.

3.2 Support for Medical Baseline/Access and Functional Needs

PG&E recognizes that de-energization has a disproportionate impact on vulnerable populations, including Medical Baseline customers, as well as AFN populations. Unique approaches are required to ensure these customers are made aware of potential PSPS events and are prepared.

3.2.1 AFN/Medical Baseline Outreach and Awareness

PG&E has targeted outreach to increase preparedness, Medical Baseline enrollment, and obtain updated contact information for outage notifications, including the ability to add alternative contacts. To date, these outreach efforts have included:

- Completing the Medical Baseline enrollment campaign to promote Medical Baseline program participation in the Tier 2 and 3 HFTD areas, resulting in a media reach of approximately 4.5 million people through combined targeted email and digital media channels;
- Placing automated calls asking all Medical Baseline program participants to confirm and update their contact information;
- Sending direct mail to all Medical Baseline program participants informing them how to prepare for potential outages, including those due to a PSPS;
- Initiating proactive door knocks, in alignment with existing planned field work, to a subset of Medical Baseline program participants with missing or invalid contact information (about 12,000 customers);
- Sharing PSPS program information with PG&E's low-income Energy Savings Assistance (ESA) program contractors to disperse to customers;
- Exploring a grant program with a non-profit to help expand and enhance support to the AFN community to reduce the risks that result from loss of power. Resources offered through this grant program may include education about applicable PG&E programs, transportation, food and hotel vouchers, and backup portable batteries;
- Issuing a PSPS preparedness email to all of PG&E's electric customers that have an email address on file (about 2.2 million customers), including eligibility for PG&E's Medical Baseline program; and
- Launching a campaign to AFN community-based organizations, focused on PSPS education and awareness and Medical Baseline enrollment, including tools for sharing the information with clients and/or communities they serve.

Because of these efforts, over 9,600 Medical Baseline customers have updated their contact information in 2019, with more than 60 percent of these customers located in Tier 2 or Tier 3 HFTD areas. Additionally, PG&E has a phone number on file for 99.9 percent of Medical Baseline customers.

3.2.2 AFN Direct Community Engagement

PG&E has engaged directly with the AFN community in the following ways:

- Actively participating as a speaker at AFN organization events to share PSPS program information to help AFN population prepare;
- Partnering with AFN organizations to support Medical Baseline customers and the broader AFN community, including participating in a statewide PSPS AFN workshop on July 18, 2019 and a weekly statewide AFN working group to collaborate and gain input from key AFN organizations and Cal OES on how to support the AFN population during PSPS events; and
- Offering community resource centers during a PSPS event to provide safe, energized locations for customers, including Medical Baseline and AFN customers, to charge medical equipment during a PSPS event.

4 Event Coordination

4.1 Notifications

PG&E recognizes the importance of providing timely, accurate and consistent notifications regarding PSPS events. PG&E intends to provide distribution and transmission-level notifications consistent with the CPUC's recommended notification timeline⁸. PG&E recognizes, however, that the scope of potentially impacted customers and the timing, frequency and number of notifications may change depending on evolving weather conditions and other circumstances. PSPS impacts to transmission customers are especially dynamic and more complex as noted in Section 2.3. It is our expectation that some transmission customers may experience a shorter notification window than customers served off distribution due to the time needed to complete transmission-level impact analysis, including the power flow studies in conjunction with CAISO and system protection studies.

With an understanding of these dynamic considerations at hand, PG&E has planned for multiple notification scenarios to account for pre-PSPS timelines. The following Appendices demonstrate three timeline scenarios of the general notification sequencing and channel of notifications to varying types of stakeholders, including public safety partners, critical facilities, transmission customers, medical baseline customers and more:

- Appendix C - PSPS Event Notifications Timeline: 72 Hours
- Appendix D - PSPS Event Notifications Timeline: 48 Hours
- Appendix E - PSPS Event Notifications Timeline: 24 Hours

PG&E continues to work closely with CPUC, Cal OES, CAL FIRE, and public safety partners to share information and ensure they are familiar with the notification format and messaging and gain input on the notification strategies, including the Cal OES PSPS state notification form and approaches to support the AFN population.

4.1.1 PSPS Notification Process

The following describes PG&E's notification process for PSPS events when possible and depending upon conditions. When issuing initial agency notifications of a potential PSPS event, PG&E will complete the following notifications:

Initial Public Safety Partner / Agency Notification:

- Contact Cal OES with the Public Safety Power Shutoff State Notification Form;
- Contact CPUC Safety and Enforcement Division (SED) Director;
- Contact California Governor's Office;
- Contact County Office of Emergency Services (OES), County and Local Public Safety Answering Points (PSAPs) and CAISO;
- Contact U.S. Forest Service, National Parks and Bureau of Land Management, as needed.
- Contact transmission-level customers and other transmission connected entities (e.g., municipally owned utilities) after the *initial* transmission PSPS scope is identified;

⁸ D. 19-05-042, pg. A8-9

- Execute automated calls, emails and texts to public safety partners, including Community Choice Aggregators (CCAs) and tribes, which includes a link to PG&E's Secure Data PSPS Portal ("PSPS Portal"), as described in Section 4.2.3 below, and PG&E's website at www.pge.com and www.pge.com/pspsseventmaps⁹ where event-specific information and maps can be found. See Appendix F - PSPS Secure Data Transfer Portal Fact Sheet for more information about the information provided in the PSPS portal;
- Execute automated calls, emails and texts to both critical facilities and other Public Safety Partners that are PG&E's customers and a critical facility (referred to as a "Critical Service Provider"). Notifications to the critical service providers will include a link to www.pge.com and www.pge.com/pspsseventmaps, which will have downloadable PSPS-related outage maps, and other event-specific information. See Appendix G - PSPS Event Maps for Critical Service Providers for additional information that has been made available to critical service providers and critical facilities; and

Updated maps and PSPS information will be posted to the PSPS Portal and PG&E website, as new information becomes available.

First Customer Notification: Once the above notifications have been completed, PG&E will send the first notification to potentially impacted customers, including public safety partners, critical facilities and Medical Baseline customers.

PG&E will take additional steps to notify customers who are enrolled in our Medical Baseline program. Event notifications to these customers will be made through automated calls, texts and emails in advance of de-energization and PG&E will ask these customers confirm they have received the message. For Medical Baseline customers with whom PG&E is unable to make successful contact, PG&E representatives will also conduct door knocks to ensure they have received advanced notification to activate their emergency plan. PG&E will prioritize door knocks with those customers who rely on electricity for critical life-sustaining equipment.

PSPS Update Notification: As timing allows, PG&E will send update notifications via automated calls, emails and texts to public safety partners and potentially impacted customers. PG&E will also contact the customers potentially impacted by the transmission PSPS scope after the requisite power flow (in conjunction with CAISO) and system protection studies are complete.

Imminent PSPS Notification: PG&E will repeat these notification activities again when a PSPS event is imminent. For transmission customers and transmission interconnected entities, PG&E's Grid Control Center will notify their "functional equivalent" at the given transmission customer or entity, in alignment with the standard operating procedure during switching and de-energization.

Post De-Energization Notifications: When weather has passed and restoration begins, PG&E will send notifications to the same potentially impacted customers via the same channels listed above. PG&E will continue to send notifications regarding the estimated time of restoration to cities, counties, county OES, CCAs and tribes once a day. Similar notifications will be sent to telecom, emergency hospital

⁹ Currently these websites are publicly accessible (though not searchable on internet search engines), but PG&E will only notify customers of the potential for a PSPS event and that the websites contain event-specific information after PG&E notifies the Public Safety Partners. PG&E expects that customers generally will access this information after the Public Safety Partners.

service, water agencies and all other customers at least once a day. PG&E will notify transmission customers and transmission connected entities during the re-energization process via calls from PG&E's Grid Control Center to their "functional equivalent" at the given transmission customer or entity.

Power Restoration Complete Notification: Once power is fully restored, the final notifications indicating that power has been restored will be sent via the same channels and to the same stakeholders as listed above.

Customers are encouraged to visit www.pge.com/pspsupdates for the latest event-specific information and they can also call 1-800-743-5002 if they have questions. Transmission customers and entities will have access to PG&E's Grid Control Center for operational information, as needed, during the PSPS event.

Recognizing that communication channels may be restricted due to power loss during a PSPS event, PG&E has developed a multi-pronged communication strategy for notifying affected customers utilizing multiple channels. In addition to direct notifications from PG&E, information will also be shared through PG&E's website, social media channels, local radio, and other news outlets.

4.1.2 Alerts for Non-PG&E Account Holders

In supporting the CPUC's recommendation to provide a means to notify non-customers of record, PG&E has recently developed notifications based on zip code. PG&E's PSPS Zip Code Alerts can be leveraged by community-based organizations, tenants of a master meter, renters, visitors, caretakers, or anyone else who may need to receive PSPS notifications where they are not a direct customer of record to PG&E.

Currently, anyone is able to sign-up through a toll-free number (877-9000-PGE / 877-900-0743) for a PSPS notification. Enrollment will be promoted to community-based organizations, cities, counties, master metered customers of record, and all customers via direct outreach and at www.prepareforpowerdown.com.

Community members will be able to select one or more zip codes for which they would like to receive PSPS notifications or may select all zip codes in PG&E's service territory. Initially, community members will be able to sign up by phone. In early 2020, they will also be able to register through PG&E's website or via text.

4.1.3 Notification Templates

PG&E has developed customer notification templates and is in the process of sharing these templates on PG&E's PSPS Portal for cities and counties to potentially use for their own community notification purposes. The notifications include different scripts for three segments of customers: critical facilities, Medical Baseline, and PG&E's general customers.

4.1.4 In-Language Notifications

PG&E is in the process of expanding translated notifications. PG&E currently sends PSPS notifications in English and Spanish (where a customer has specified this language preference with PG&E). Customers also have the option to view or listen to a message in Spanish even if language preference has not been provided by the customer. Updates about a PSPS event are available in multiple languages on PG&E's website, and through PG&E's translation services that are available when contacting PG&E's call center at 1-800-743-5000. By late 2019, PG&E will also send PSPS customer notifications with the ability to view

or listen to notifications in the following additional languages: Chinese (Cantonese and Mandarin), Tagalog, Vietnamese, Korean, and Russian.

PG&E has translated key PSPS outreach and awareness materials and made them available on www.pge.com in English, Spanish, Chinese, Tagalog, Vietnamese, Korean, and Russian. During a PSPS event, data on the prevalent languages in affected areas will be used to determine the language used for outreach through social, broadcast, and print media.

4.1.5 Alignment of Notifications to the Standardized Emergency Management System (SEMS) Framework and Common Alerting Protocol (CAP)

PG&E and the joint-IOUs have been meeting regularly with Cal OES and CAL FIRE to develop definitions and a standardized nomenclature based on existing emergency frameworks, including the Standardized Emergency Management System (SEMS). On July 17, 2019, the Cal OES PSPS state notification form and instructions were finalized. During an event, PG&E will populate and submit the form utilizing the approved process.

As discussed in Section 4.1, a completed PSPS state notification form will be emailed to Cal OES, in addition to email updates to the CPUC, to inform that the following key milestones have been achieved:

- EOC activation;
- At decision to de-energize;
- When de-energization is imminent;
- When pre-re-energization patrols are initiated; and
- When restoration (re-energization) is complete.

Notifications to all stakeholders will be consistent with the California Alert and Warning Guidelines and will answer the questions required by the CPUC¹⁰: 1) Who is the source of the warning, 2) What is the threat, 3) Does this affect my location; 4) What should I do, and 5) What is the expected duration of the event? All notifications refer stakeholders to PG&E's websites for additional information related to PSPS education and outreach materials. The notifications will also state that PG&E will continue to provide additional notifications as more information becomes available.

PG&E is in the process of transitioning to a system that utilizes the Common Alerting Protocol (CAP)¹¹, as required by the CPUC. In order to avoid any transition-driven technical issues that may hamper PG&E's ability to effectively execute a PSPS event this calendar year, the transition to CAP will likely be fully implemented in early 2020.

4.1.6 Notification System Test

To test the notification system, PG&E is planning to work in coordination with a sample group of cities, counties, first responders and/or telecommunication providers in late 2019. PG&E is considering the appropriate means to test the system in accordance with the Telephone Consumer Protection Act.

¹⁰ D. 19-05-042, pg. A-17

¹¹ Common Alerting Protocol (CAP) is a digital format for exchanging emergency alerts that allows a consistent alert message to be disseminated simultaneously over many different communications systems.

4.2 Event Coordination with Local Agencies

4.2.1 Requests to Embed Representatives in Emergency Operations Centers

PG&E has an emergency management liaison representative embedded at the State Operations Center (SOC) within Cal OES. This liaison is onsite when the SOC is open (Monday through Friday from 8am to 5pm) and provides a daily report to the State Warning Center that includes the potential for a PSPS event. This liaison provides the 7-day outlook for all-hazard emergencies to the State Warning Center, regardless if the SOC / Utility Operations Center (UOC) activates. When the SOC/UOC activates, PG&E will staff an additional liaison to coordinate between the State and PG&E EOC.

When PG&E's EOC is activated for a potential PSPS event, PG&E will make a liaison representative available to provide in-person updates at each impacted local jurisdiction EOC, if one has activated and a PG&E liaison is requested by the local jurisdiction. This representative will have direct communication with PG&E's EOC. A PG&E representative will visit and be able to provide regular updates (also shared on the twice-daily operational briefings and 24-hour phone line), but in some cases may not be able to maintain a continuous presence at a jurisdiction's activated EOC due to resource limitations in many geographic areas.

PG&E is currently conducting outreach to cities, counties, telecom providers and water agencies to discuss the detailed PSPS communications plan and solicit input on whether the agency or jurisdiction would like a seat in PG&E's EOC, when the local jurisdiction does not activate its own EOC. Due to space restrictions, Public Safety Partners will be located in an information center that is on the same floor as PG&E's central operations room. A PG&E EOC liaison will be onsite to provide event-specific information, access around the facility, and coordination to partners.

4.2.2 Additional Coordination Opportunities

To ensure agencies have access to real-time information in advance of and during an event, PG&E will share information on twice daily briefings for impacted local jurisdictions (cities and counties), a 24-hour dedicated phone number, as well as posting information to PG&E's PSPS Portal and website, discussed further in Section 4.2.3.

4.2.3 Secure Information Sharing Portal

Earlier this year, PG&E enhanced its PSPS Portal to enable the sharing of relevant PSPS planning and event-specific information with public safety partners including cities, counties, first/emergency responders, Community Choice Aggregators (CCAs) and tribes.

In mid-July 2019, PG&E posted PSPS planning maps and information to allow public safety partners to access information necessary to prepare for de-energization. This includes Keyhole Markup language Zipped (KMZ) and Graphical Information System (GIS) shapefile formats, as well as county-specific Portable Document Format (PDF) maps and impact summary data (i.e., number of Medical Baseline customers and critical facilities by county). The planning maps show areas served by distribution and lower-voltage transmission level (70 kV and below) lines that pass through elevated (Tier 2) or extreme (Tier 3) HFTD as designated by the CPUC.

To ensure awareness of the PSPS Portal, an email was sent to all portal users notifying them of the new planning maps available for their reference. PG&E has also conducted outreach through an email campaign and agency workshops with local jurisdictions. This campaign provided an overview of the information available on the portal and access requirements. To date, more than 480 users across 53

jurisdictions, which include counties and state and federal agencies, have secured access to the PSPS Portal.

The PSPS portal is used for such entities that require confidential data to support community needs during an event, such as lists of medical baseline customers and lists of critical facilities in their jurisdiction.

To help other public safety partners, critical facilities and customers prepare, PG&E has also posted the same PSPS planning maps that show the areas that are more likely to be shut off on PG&E's website at www.pge.com/pspsseventmaps. During an active PSPS, PG&E will post maps on this website to show the boundaries of the impacted areas and will notify public safety partners and critical facilities when the maps are posted.

5 Post De-Energization

5.1 Post De-Energization Reporting Requirements

PG&E has and will continue to submit de-energization reports to the service lists of this proceeding and Rulemaking 18-10-007. In addition, PG&E will post all reports to www.pge.com/psps, and service will include a link to the report in addition to contact information to submit comments to the CPUC SED Director. The de-energization reports filed by PG&E will include the information requested in ESRB-8 and D.19-05-042.

PG&E will submit reports on de-energization lessons learned concurrent with our 2020 Wildfire Mitigation Plan and thereafter. The 2020 Wildfire Mitigation Plan will include an evaluation of PG&E's public safety partnerships and copies of educational campaigns and outreach made in advance of the wildfire season.



Preparing Your Facility For Potential Power Outages

June 2019

Power outages can occur because of extreme weather and high fire danger conditions, natural disasters, storms, earthquakes or other unforeseen events. Ensure that your employees, tenants and customers know what to do during an emergency and that you have plans for backup power, if needed for your business. **Make it a priority to create an emergency preparedness plan today.**

Energy Assessments and Efficiency

- ☐ **Contact your PG&E Account Manager or Customer Service Center to request an onsite energy audit.** Determine how much energy your facility needs during an extended outage (Agricultural Customer Service Line: 1-877-311-3276 or Business Customer Service Center: 1-800-468-4743).
- ☐ **Create an energy efficiency strategy plan.** Increase your facility's resiliency during power outages, reduce electric bills and maximize generator lifespan and fuel supply.
- ☐ **Contact a generator company before an outage occurs.** Installation times, pricing and your requirements may vary. Make sure you get an annual price quote and size recommendation.
- ☐ **Keep records of your energy assessments.** Update annually, or if your facility has expanded, and provide PG&E with your updated contact information.

Consider Temporary Power

- ☐ **Ensure backup generators are the correct size for your facility.** Keep the lights on, well pumps running, save perishable food, and power essential equipment.
- ☐ **Determine whether to buy or rent a generator.** Consider whether a portable or stationary generator is better for your business. Solar power systems will shut down automatically during a power outage.
- ☐ **Carefully review generator installation and connection requirements.** You should always comply with the manufacturer's safety instructions, including scheduled maintenance.
- ☐ **Review state and local air quality district requirements, restrictions and reporting.** Requirements may vary from location to location and depending on the type of generator you are using.
- ☐ **Consider local fuel availability during power outages and other emergencies.** Determine the number of hours needed to run generators without refueling.
- ☐ **Keep backup generators and fuel in a safe and secure location.**
- ☐ **Test fuel for degradation periodically.**

Onsite Power Considerations

- ☐ **Consider an onsite, distributed energy resource or self-generation.** Power generated at or near the point of use with renewable or fossil fuel solutions can reduce or eliminate electric bills and provide a redundant power source for critical infrastructure.
- ☐ **Review requirements for self-generation.** Learn about safety concerns, trainings, certifications, insurance liabilities, air quality requirements, restrictions, ordinances and necessary permits.
- ☐ **Assess your primary goals and drivers.** Gather information about historical electrical usage, utility rates, monthly and annual charges.
- ☐ **Research purchase and lease options.**
- ☐ **Determine if your facility could benefit from energy storage.** Depending on pairing with solar or other generation, size and loads, batteries may be able to support operations for multiple hours or days.
- ☐ **Safely install and maintain any onsite power sources.** Similar to temporary power, you should always comply with the manufacturer's safety instructions, including scheduled maintenance.

Visit pge.com/beprepared for more information and preparedness tips

Following the wildfires in 2017 and 2018, some of the changes included in this document are contemplated as additional precautionary measures intended to further reduce future wildfire risk. 06/21/2019

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What You Need to Know About Backup Generation

June 2019

Power outages can happen at any time

Backup electric generators can be a part of any preparedness plan. Backup electric generators can operate as a stand-alone power source and some require interconnection to PG&E's electric grid. Backup power is typically fueled by solar plus storage, batteries, natural gas, gasoline, propane or diesel fuel.

Determining if a generator is right for you

Electric backup generators can keep the lights on, help appliances stay running, save perishable food, and power essential equipment and electronics during a power outage. Generators can also be expensive, noisy, and can pose safety hazards. It's important to understand how to safely operate your generator before an emergency occurs. This means doing regular safety checks and being sure you have enough fuel to last a few days.

Consider these factors when deciding whether you need a generator:



ENERGY NEEDS | Do you own certain devices or equipment that need to keep functioning in the event of a loss of power? How crucial is it for you to have power during an extended outage? This is especially important for customers who are dependent on life-support equipment or require special heating or cooling needs for a medical condition.



NOISE | Are there community ordinances where you live or work that restrict or limit the decibel level allowance for outdoor equipment?



COST | Generators can cost thousands of dollars. Take any immediate needs into consideration as you examine which generator option may be the best choice for you.

Choosing the right generator

If you decide to purchase a generator, explore what kind of generator will work for you.

Factors to consider include:



YOUR ENERGY NEEDS

Generators can produce enough electricity to power your phone and laptop or your whole home. Consider what critical items, appliances and equipment you would need during an outage.



FUEL PREFERENCES

Your preference may be determined by environmental concerns, accessibility, affordability, and available space for secure generator storage. Some fuel types are: gasoline, propane, natural gas, diesel and renewable energy.



INSTALLATION REQUIREMENTS

No matter what type of generator you have, whether small-battery operated, portable or permanent standby, always consult the owner's manual for detailed instructions and safety guidelines prior to operation.

Visit pge.com/backupgeneration for more information

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CCR-0619-1342. 06/26/2019

Using your generator correctly and safely

If you don't understand how to use your generator, you risk damaging your property, endangering your life and endangering the lives of PG&E crews who may be working on power lines in your community.



FOR YOUR SAFETY: Understand and follow all safety instructions provided by the manufacturer. Never connect any generator to another power source, including PG&E power lines.

Portable generator safety

- Be sure that the power needs of the device (electric load) is supported by your generator and does not exceed the manufacturer's specifications.
- Position your generator where its exhaust can vent safely to prevent carbon monoxide poisoning, which can be fatal.
- Only use extension cords that are properly sized for an individual generator's electric to prevent overheating. The American Wire Gauge (AWG) chart can be utilized to determine which extension cord is right for you.
- Keep cords out of high-traffic areas so they don't present a tripping hazard.
- Never run cords under rugs or carpets where heat can be generated or where damage to a cord may go unnoticed.



Do

- Purchase the right generator
- Plan and test generator before use
- Put safety first!



Don't

- Run a portable generator in the garage or the rain
- Ignore instructions
- Store fuel inside the house

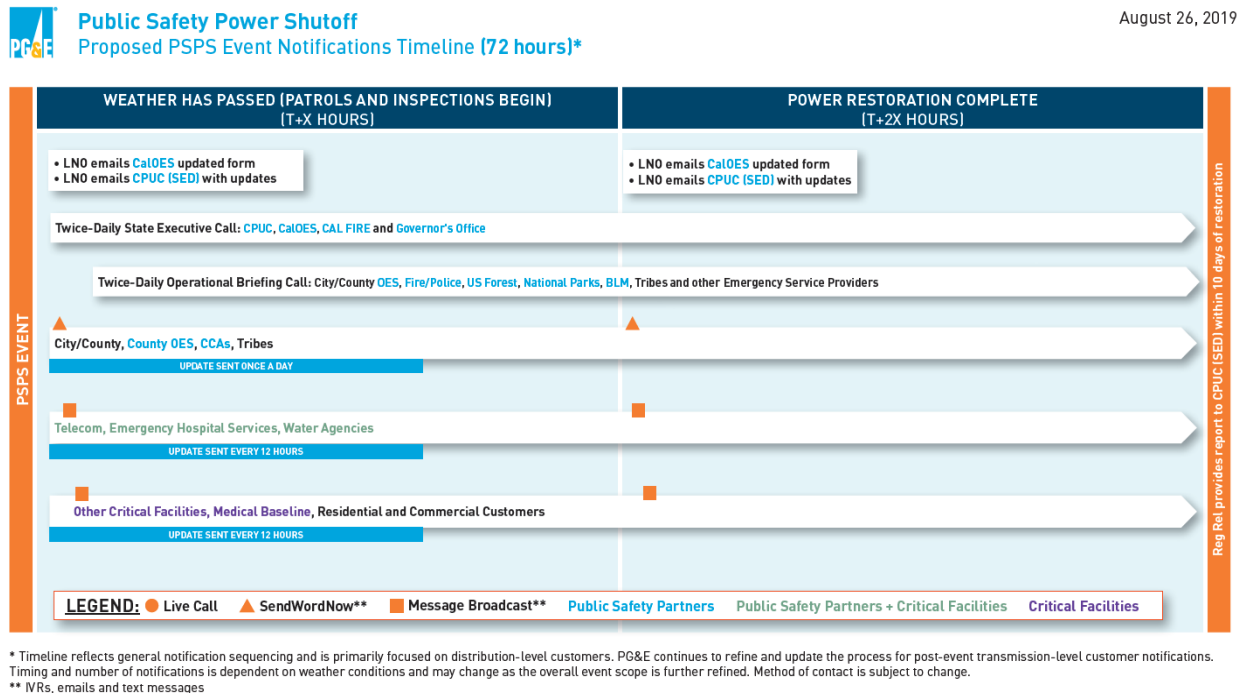
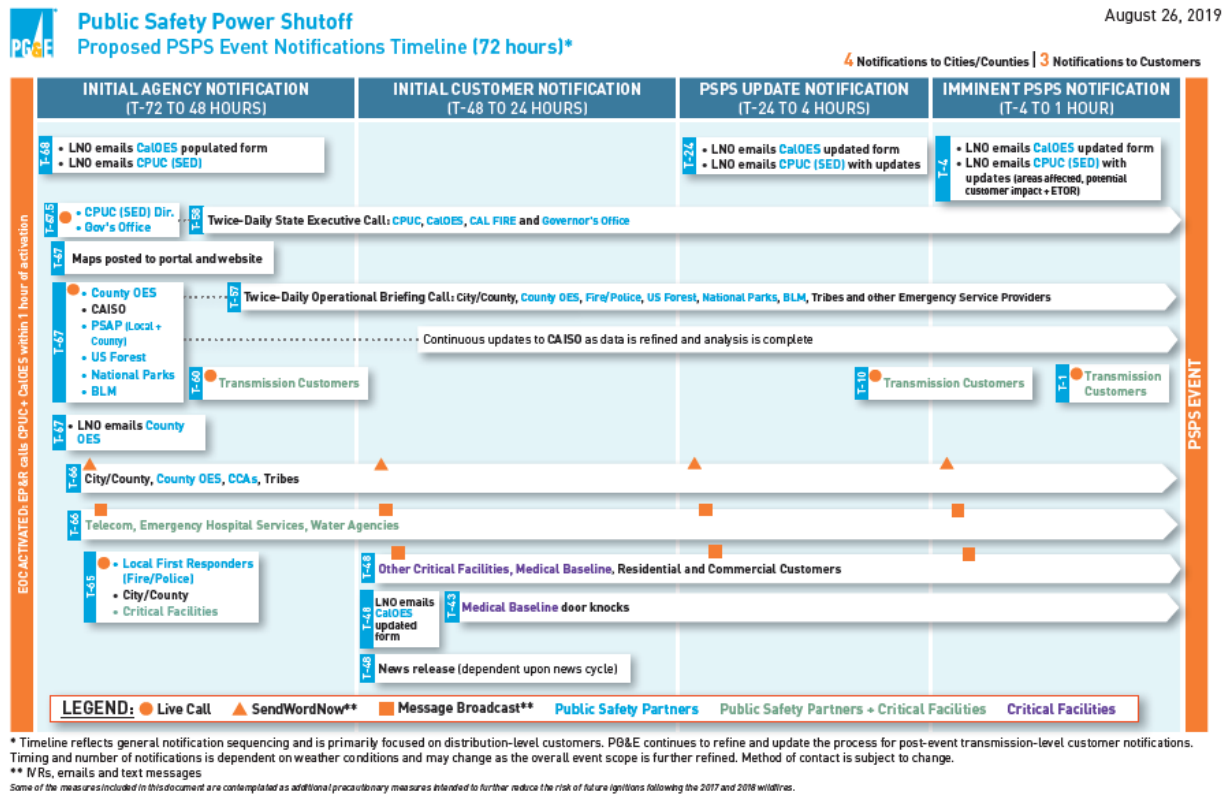
Permanent-standby generator safety

- Installation requires a licensed electric contractor or other qualified professional.
- Ensure electricity from your generator does not flow or "backfeed" into PG&E's power lines. The most common way to prevent backfeeding is to install a "double-pole, double-throw transfer switch" along with your permanent standby generator.
- Any additions or adjustments to your house wiring should be inspected by your city or county building department.
- Once installation is complete, call PG&E at **1-800-743-5000** to let us know about your back-up system. PG&E line workers will then be aware of your generator when working on an outage in your area.

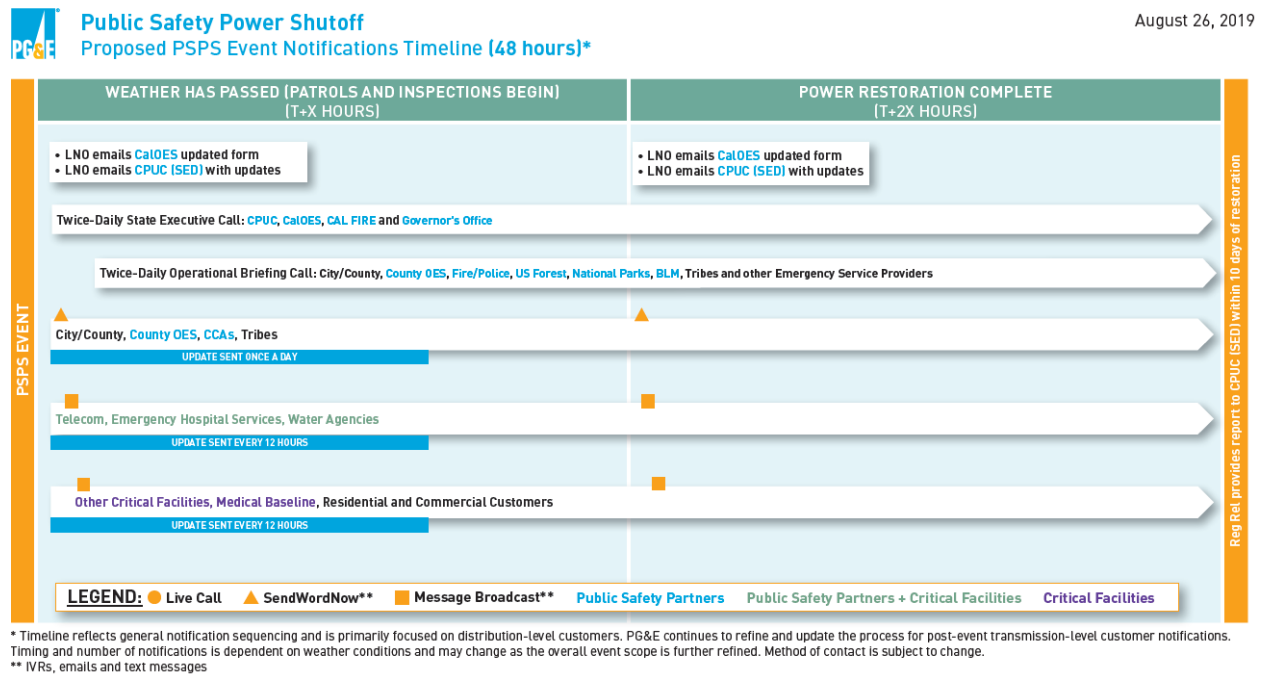
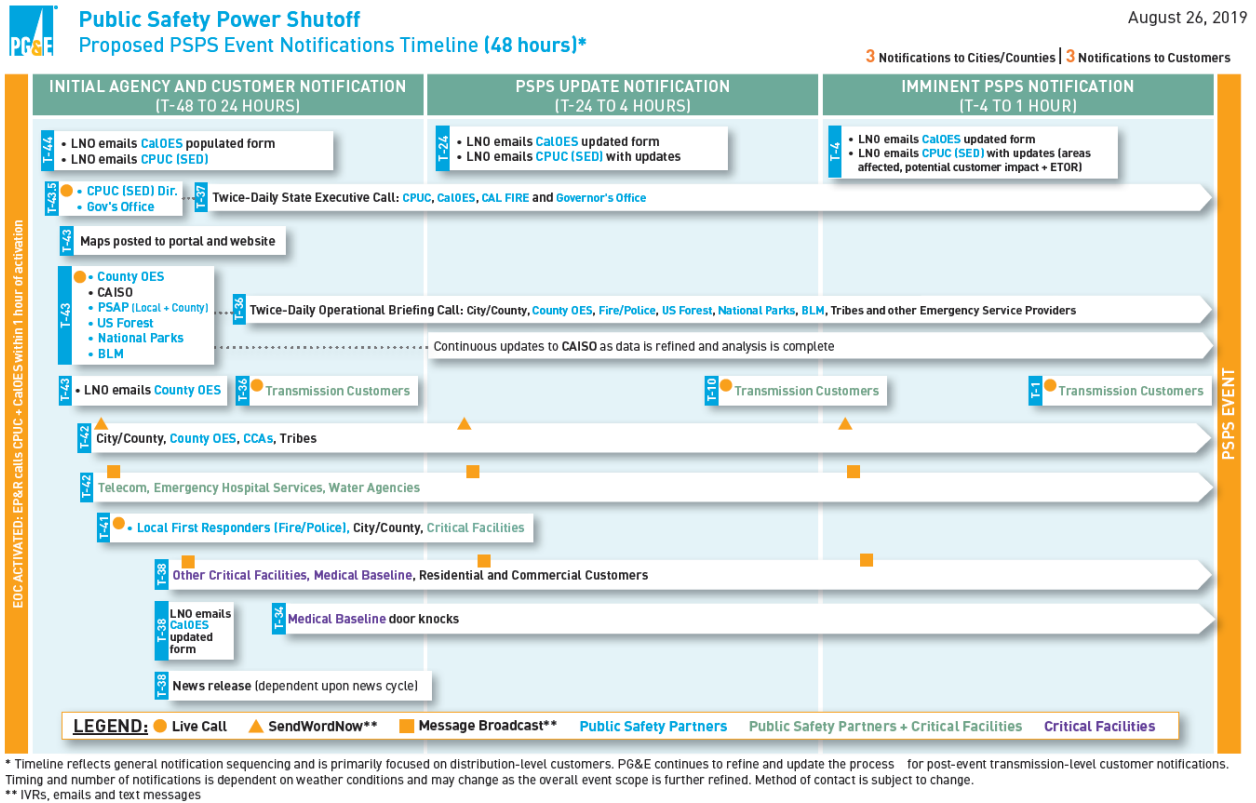
Always be prepared.

Power outages can occur because of extreme weather and high fire danger conditions, natural disasters, storms, earthquakes or other unforeseen events. Backup generation can be a helpful tool in any emergency preparedness kit. For solar customers, please note that during an electric power outage, your solar system will not function unless designed to work with a battery or standby generator. For more information, call your solar or battery provider. Additional tips on how to prepare for an emergency or extended outage can also be found at pge.com/beprepared.

Appendix C - PSPS Event Notifications Timeline: 72 Hours



Appendix D - PSPS Event Notifications Timeline: 48 Hours



Appendix E - PPS Event Notifications Timeline: 24 Hours

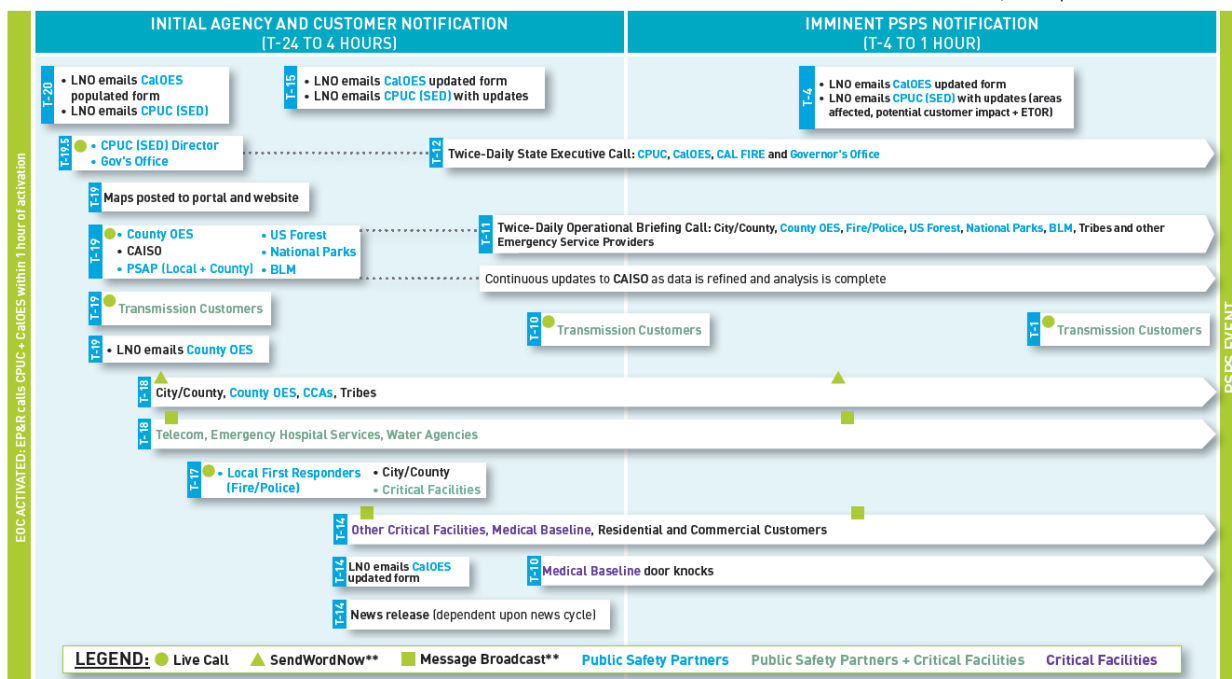


Public Safety Power Shutoff

Proposed PPS Event Notifications Timeline (24 hours)*

August 26, 2019

2 Notifications to Cities/Countries | 2 Notifications to Customers



* Timeline reflects general notification sequencing and is primarily focused on distribution-level customers. PG&E continues to refine and update the process for post-event transmission-level customer notifications. Timing and number of notifications is dependent on weather conditions and may change as the overall event scope is further refined. Method of contact is subject to change.

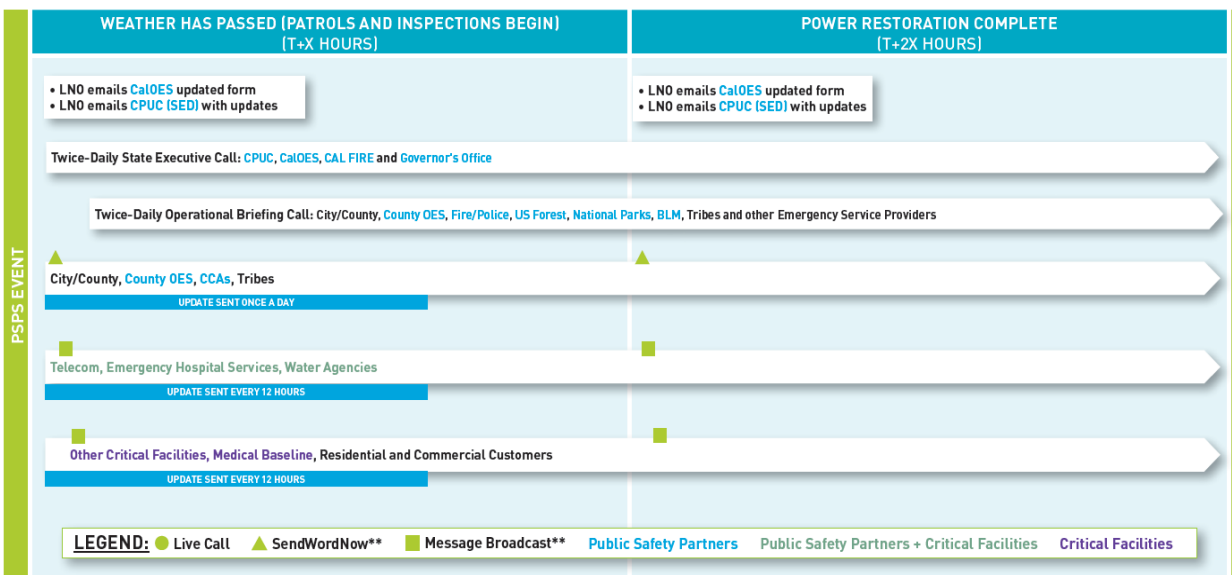
** IVRs, emails and text messages



Public Safety Power Shutoff

Proposed PPS Event Notifications Timeline (24 hours)*

August 26, 2019



* Timeline reflects general notification sequencing and is primarily focused on distribution-level customers. PG&E continues to refine and update the process for post-event transmission-level customer notifications. Timing and number of notifications is dependent on weather conditions and may change as the overall event scope is further refined. Method of contact is subject to change.

** IVRs, emails and text messages

Appendix F - PSPS Secure Data Transfer Portal Fact Sheet



Public Safety Power Shutoff Secure Data Transfer Portal

June 2019

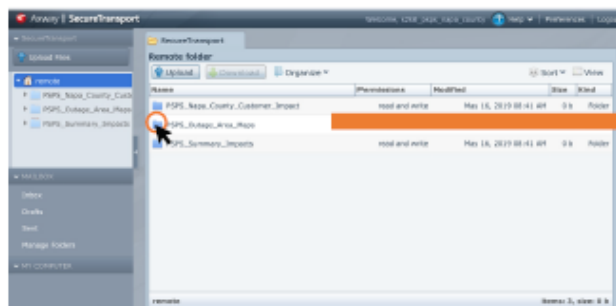
Public Safety Power Shutoff

If extreme weather and potential fire danger conditions threaten a portion of the electric system serving a community, it may be necessary for Pacific Gas and Electric Company (PG&E) to turn off electricity in the interest of public safety. This is known as a Public Safety Power Shutoff (PSPS).

Secure Data Transfer Portal

We understand and appreciate that turning off power affects first responders and the operation of critical facilities, communications systems and much more. To help cities, counties, tribes, agencies and emergency responders prepare, PG&E is establishing a secure data transfer portal to provide event-specific information in advance of and during an event. The information will include estimated start time of a potential PSPS event, forecasted weather duration, estimated time range to full restoration, number of customers, including medical baseline and critical facilities, in the potentially impacted area, and maps (shapefiles and KMZs) that include boundaries of the area subject to de-energization and affected circuits.

Additional event-specific data, including names and addresses of potentially impacted medical baseline customers and critical facilities within a jurisdiction, is available with a signed and fully-executed non-disclosure agreement.



For illustrative purposes only



For access to the portal or to request a non-disclosure agreement for additional event-specific information, please email PSPSPortal@pge.com.

What to Expect

During a potential PSPS event, outage maps and event-specific information will be available at pge.com/pspsportal. This information will be posted concurrently with the initial notification to cities, counties and agencies. Please note the information will be preliminary and subject to change. During a potential event, users are encouraged to check back every few hours as conditions can change and the information will be updated accordingly.

For users who have a signed and fully-executed non-disclosure agreement in place, the detailed medical baseline and critical facilities list (i.e. names and addresses) will be posted within two to three hours of posting the initial map and customer counts. PG&E will also be assessing whether there are any transmission level impacts and will provide additional information approximately 24 hours after the initial posting.

More Information

For the latest on PG&E's wildfire safety efforts and Public Safety Power Shutoffs, including tips to help your residents prepare for wildfire season, please visit pge.com/wildfiresafety.

Following the wildfires in 2017 and 2018, some of the changes included in this document are contemplated as additional precautionary measures intended to further reduce future wildfire risk. "PG&E" refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation. ©2019 Pacific Gas and Electric Company. All rights reserved. CCR-0519-1177. Printed on June 24, 2019.

Appendix G - PSPS Event Maps for Critical Service Providers



Public Safety Power Shutoff Event Maps for Critical Service Providers

July 2019

Working Together to Protect Our Communities from Wildfires

If elevated weather conditions, including a potential fire risk, threaten a portion of the electric system, power may be shut off for public safety in an effort to prevent a wildfire. This is called a Public Safety Power Shutoff (PSPS). We understand and appreciate that turning off power affects critical service providers like hospitals, water agencies and telecommunication providers, and have outlined our notifications process for these types of customers, as well as the resources available to them at pge.com/pspsseventmaps below.

What Critical Service Providers Can Expect

Extreme weather threats can change quickly. **We will make every attempt to advise public safety partners and critical service providers in advance of notifying customers of a Public Safety Power Shutoff.** Notifications to the critical service providers will include a link to pge.com/pspsseventmaps, which will have downloadable PSPS-related outage maps, and other event-specific information. Users are encouraged to check back every few hours as conditions can change and the information will be updated accordingly.

Notifications to both critical service providers and all impacted customers will also include a link to a webpage that identifies all potentially impacted site(s) for each customer. Notifications with updates will be provided until power is restored.

Timing of customer notifications (when possible)



PSPS Event Maps and Information – pge.com/pspsseventmaps

The information on pge.com/pspsseventmaps will include PSPS event maps available for download (PDF, KMZ and shapefile versions) that include the approximate boundaries of the area subject to deenergization. Additionally, the page will link to other relevant PSPS event information, such as estimated start time of a potential PSPS event, forecasted weather duration, estimated time range to full restoration and the number of customers in the potentially impacted area.



Step-by-Step Instructions and Frequently Asked Questions

The reverse side of this document includes step-by-step instructions for retrieving files from pge.com/pspsseventmaps during a PSPS event and Frequently Asked Questions. If you have any additional questions about how this process will work or have specific technical questions, please call 1-800-743-5002.



More Information

For the latest on PG&E's wildfire safety efforts and Public Safety Power Shutoffs, including tips to help customers prepare for wildfire season, please visit pge.com/wildfiresafety.

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&E, 

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Note: The information and maps displayed on and available through pge.com/pspseventmaps are intended only to provide a general estimate regarding potential locations that may be impacted by a PSPS event should one become necessary.

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Following the

Following the wildfires in 2017 and 2018, some of the changes included in this document are contemplated as additional precautionary measures intended to further reduce future wildfire risk. "PG&E" refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation. ©2019 Pacific Gas and Electric Company. All rights reserved. CCR-0619-1335, 07/03/2019

PG&E Transmission PPS Informational Webinar



Together, Building
a Better California



Agenda

- ✓ Safety
- ✓ Overview of PG&E's Community Wildfire Safety Program
- ✓ PPS event criteria - transmission
- ✓ PPS pre-event notifications for impacted transmission customers
- ✓ PG&E's GCC role during PPS events
- ✓ Power restoration process
- ✓ Q&A



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.



Community Wildfire Safety Program



REAL-TIME MONITORING AND INTELLIGENCE

- Coordinating prevention and response efforts by monitoring wildfire risks in real time from our **Wildfire Safety Operations Center**
- Expanding our network of PG&E weather stations to enhance weather forecasting and modeling
- Supporting the installation of new high-definition cameras in high fire-threat areas



NEW AND ENHANCED SAFETY MEASURES

- Further enhancing vegetation management efforts to **increase focus on vegetation that poses a higher potential for wildfire risk**
- Conducting **accelerated safety inspections** of electric infrastructure in high fire-threat areas
- **Disabling automatic reclosing of circuit breakers and reclosers** in high fire-risk areas during wildfire season
- **Proactively turning off electric power for safety (Public Safety Power Shutoff)** when gusty winds and dry conditions combine with a heightened fire risk



SYSTEM HARDENING AND RESILIENCY

- Installing **stronger and more resilient poles and covered power lines**, along with **targeted undergrounding**
- **Upgrading and replacing electric equipment and infrastructure** to further reduce wildfire risks
- **Working with communities to develop new resilience zones** to provide electricity to central community resources during a Public Safety Power Shutoff event

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Real-Time Monitoring and Intelligence

MONITORING wildfire risks in real time from our
24/7 Wildfire Safety Operations Center
 and coordinating **prevention and response efforts**

INSTALLING
~1,300 new weather stations by **2022**

Data available at mesowest.utah.edu

SUPPORTING the installation of
~600 high-definition cameras by **2022**

Images available at alertwildfire.org



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Wildfire Safety Inspections



As part of our enhanced wildfire safety efforts, implemented following the 2017 and 2018 wildfires as additional precautionary measures intended to further reduce wildfire risks, **we conducted accelerated safety inspections of electric infrastructure in areas of higher wildfire risk (Tier 2 and Tier 3).**

- We conducted **comprehensive inspections of electric towers and poles** through visual and aerial inspections.
- This work was done as part of our Community Wildfire Safety Program, and is **in addition to our routine inspections and maintenance** programs.
- We inspected **substations and transmission and distribution lines** in high fire-threat areas.

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Inspections Overview



Accelerated inspections of transmission and distribution poles and towers as well as substations in high fire-threat areas



Visual inspections (ground and/or climbing) performed by crews of up to four people



Aerial inspections by drones to complement and further enhance inspections



Helicopters for inspections and to deliver crews to remote locations

We are taking action right away to address any immediate risk to public safety found during the accelerated inspections

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Electric System Maintenance and Repairs

We will **evaluate inspection results to determine repair needs and associated timing**. If any issues are found during the accelerated inspections that pose an immediate risk to public safety, **we are taking action right away to address the issue**.



- When inspections determine that repairs are needed, but **there is not an immediate safety risk, we will follow our preventative maintenance procedures, consistent with state guidelines** for high fire-threat areas.
- Repairs will depend on **what we observe in the field but could range** from installing new signs or electrical components to replacing poles or towers.
- Where possible, **we will bundle work to minimize customer impact**, particularly if we need to de-energize the line to safely complete the repairs.

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Public Safety Power Shutoff (PSPS)

As the threat of wildfires continues to grow, it is **overwhelmingly clear that more must be done to further reduce wildfire risks and help keep our customers and the communities we serve safe**.



- Beginning with the 2019 wildfire season, we are expanding our Public Safety Power Shutoff program to include **all electric lines that pass through high fire-threat areas – both distribution and transmission**.
- **This is not a decision PG&E takes lightly**. Our customers rely on energy, especially those with energy needs for medical conditions.
- That is why **we continue to analyze and revise our decision-making criteria**.

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.



How PG&E's Models Guide Operational Decisions

- The Utility Fire Potential Index and Outage Producing Winds Model are evaluated multiple times a day by PG&E's meteorology and fire science team
- Utility Fire Potential Index designations are rated from **R1 (lowest) to R5 (highest)**, and drive a wide range of operational decisions (e.g. the type of work PG&E conducts, what equipment crews carry)
- When the Utility Fire Potential Index reaches R5, the Outage Producing Winds model is considered when determining if the rating should be escalated to R5-Plus.
- **R5-Plus is the level where a PSPS could be called.**
- Note that **in some cases a PSPS could be initiated at a R4 designation** if severe winds are present.



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PSPS Criteria - Distribution

The **Utility Fire Potential Index** and **Outage Producing Winds** models led to the creation of the following PSPS criteria, that are typically observed when the rating reaches R5-Plus. **Note that no single factor drives a Public Safety Power Shutoff.**

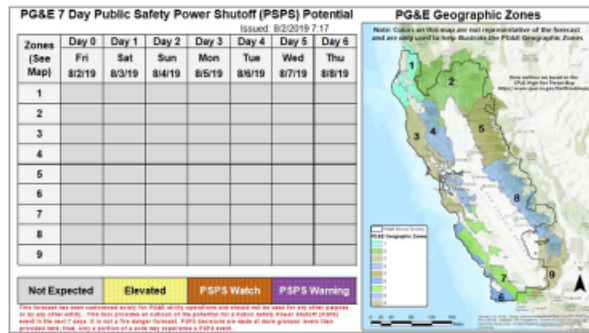
 A RED FLAG WARNING declared by the National Weather Service	 LOW HUMIDITY LEVELS generally 20% and below
 FORECASTED SUSTAINED WINDS GENERALLY ABOVE 25 MPH AND WIND GUSTS IN EXCESS OF APPROXIMATELY 45 MPH , depending on location and site-specific conditions such as temperature, terrain and local climate	 ON-THE-GROUND, REAL-TIME OBSERVATIONS from PG&E's Wildfire Safety Operations Center and field observations from PG&E crews
 CONDITION OF DRY FUEL on the ground and live vegetation (moisture content)	

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Helping You Prepare - Weather Forecasting Website

PG&E is launching a dedicated webpage with weather forecasting information and a daily 7-day lookahead. The site will show when and where PG&E is forecasting the type of conditions that may lead to a PSPS event.



Not Expected	Conditions that generally warrant a PSPS event are not expected at this time.
Elevated	An upcoming event is being monitored for an increased potential of a PSPS event.
PSPS Watch	PG&E's Emergency Operations Center (EOC) is activated for a reasonable chance of executing PSPS due to a combination of adverse weather and dry fuel conditions. This level is typically issued within 72 hours before the anticipated start of an event.
PSPS Warning	PG&E's EOC is activated and customers in areas being considered for PSPS have been or are being notified. PSPS is probable given the latest forecast of weather and fuels and/or observed conditions. PSPS is typically executed in smaller and more targeted areas than the PG&E Geographic Zones. This level does not guarantee a PSPS execution as conditions and forecasts may change.

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PSPS Criteria – Transmission

- As part of our wildfire risk monitoring, we will **review any transmission lines in the potentially impacted area** (i.e. R5-Plus rating).
- While no single factor will drive a Public Safety Power Shutoff, **some factors for a transmission-level impact 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 (CAISO) to assess the system impacts.**



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PSPS Notifications - Transmission

PG&E will make every effort to notify transmission-level customers and entities three times prior to shutting off power, when possible.

NOTIFICATIONS OVERVIEW:

- 1 **INITIAL OUTREACH** | PG&E's Emergency Operations Center (EOC) notifies transmission customers/entities included in the initial scope
- 2 **FINAL SCOPE** | PG&E's EOC notifies transmission customers/entities after PG&E Grid Control Center (GCC) completes the operational studies in conjunction with CAISO
- 3 **JUST BEFORE POWER IS TURNED OFF** | GCC operators notify functional equivalents at impacted transmission customers/entities
- 4 **PUBLIC SAFETY POWER SHUTOFF**
- 4 **ONCE POWER IS RESTORED** | GCC operators notify impacted transmission customers/entities

PG&E encourages transmission customers to connect with local city leadership (City Manager, Public Works director, etc.) regarding outreach related to Public Safety Power Shutoff and additional communications during an event.

Note: The cadence and frequency of notifications will depend on the forecasted weather conditions and how quickly those threats change, among other factors.

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PSPS Notifications

- PG&E will **notify transmission customers and entities via phone calls**
- To ensure PG&E has the most up to date contact information, please **send the following to TransmissionPSPSQuestions@pge.com**:

Name, phone number and email of:

- ☒ **Primary contact** that is available 24/7
- ☒ **Secondary contact**



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Power Restoration – After Weather Conditions Pass

We will only restore power when we are certain it is safe to do so. We expect to be able to visually inspect the lines triggering the PSPS decision for damage and restore power to most of our customers **within 24 to 48 hours after weather has passed**



WEATHER ALL CLEAR

After the weather has passed and it's safe to do so, our crews begin patrols and inspections.



PATROL & INSPECT

Crews visually inspect our electric system to look for potential weather-related damage to the lines, poles and towers. This is done by vehicle, foot and air during daylight hours.



ISOLATE & REPAIR DAMAGE

Where damage is found, crews work to isolate the area so other parts of the system can be restored. Crews work safely and as quickly as possible to make repairs.



RESTORE POWER

Once it is safe to energize, a call is made to the PG&E Control Center to complete the energization process. Power is then restored.



NOTIFY CUSTOMERS

Cities, counties, agencies, municipal utilities and customers are notified that power has been restored.

Because weather events can last several hours or days, for planning purposes, we suggest **customers prepare for outages that could last longer than 48 hours.**

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Learn More

We welcome your feedback and input

For questions regarding PG&E's Community Wildfire Safety Program, please direct customers with questions to TransmissionPSPSQuestions@pge.com



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