

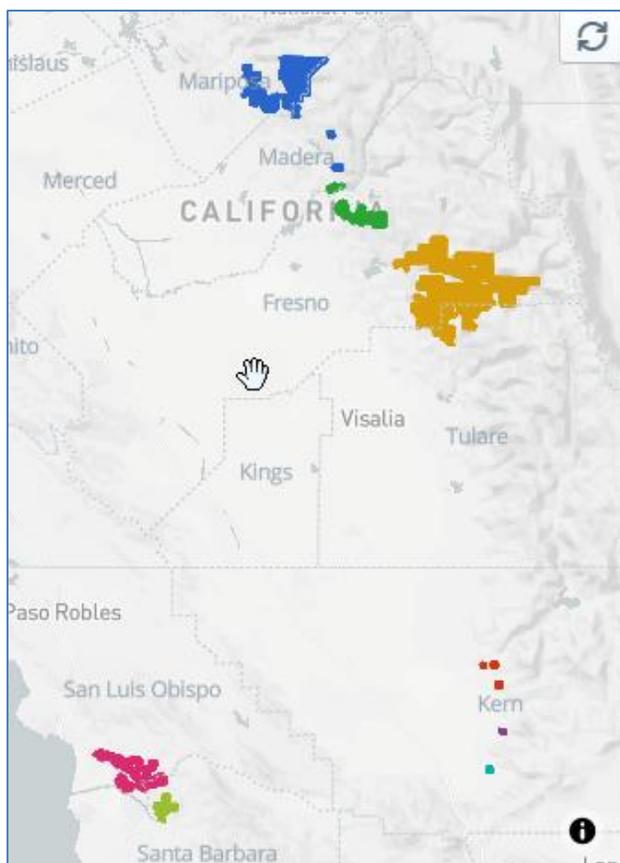


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Pacific Gas and Electric Company

PSPS Event 01-18-2021

January 16 – 22, 2021



AFTER ACTION REPORT

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ADMINISTRATIVE HANDLING INSTRUCTIONS

1. The title of this document is the *PSPS Event 01-18-2021 After-Action Report*.
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EXECUTIVE SUMMARY

On January 19, 2021, Pacific Gas and Electric Company (PG&E) initiated a Public Safety Power Shutoff (PSPS) to mitigate catastrophic wildfire risk presented by significant wind events combined with low humidity levels and critically dry fuels. During this PSPS event, PG&E ultimately de-energized 5,099 customers^[1] in eight different Time-Places (TPs)^[2] throughout seven California counties.^[3]

During this event, PG&E weather stations recorded wind gust speeds of up to 83 mph in the counties impacted. To provide a sense of magnitude of the weather event, the observed Redding to Bakersfield mean sea-level pressure differential, or gradient, reached 17.6 millibars. The more prevalent this pressure difference, generally the stronger the wind speeds are as air flows from high to low pressure. The value of 17.6 millibars was the highest value observed since 1995. PG&E Meteorology calculated the return interval of such an event as a 1-in-30-year event, based on a generalized extreme value distribution method.

Once the weather event had passed, and it was safe to do so, PG&E ground and aerial crews patrolled impacted assets and identified 423 incidents of damages or hazards resulting from high winds experienced in the de-energized areas, which further indicated the unprecedented strength of this wind event. Due to the extent and severity of the damages experienced across the system during the windstorm, PG&E was unable to restore five of the PSPS impacted circuits, which accounted for approximately 2,400 customers, within 24 hours of the Weather All Clear. As it became evident that our customers could experience prolonged outages because of the extent of the damage to our assets, PG&E provided additional support^[4] which included:

- Mobilizing more crews to the impacted areas
- Sending customer and agency notifications and restoration updates
- Deploying mobile power generation to specific areas
- Keeping our Community Resource Centers (CRCs) open past the end of the PSPS Event

In accordance with PG&E's *EOC Activation and After-Action Review Process Standard* (EMER-2003S) and in an effort to identify and address issues as they surface during an Emergency

^[1] Customers refers to active service points (meters).

^[2] A Time-Place is a portion of the PG&E grid that is electrically and geographically coherent and is forecast to experience consistent timing for severe fire weather. Time-Places are identified for each PSPS event and receive consistent treatment for notifications and de-energization. Once actual weather conditions occur, Weather All Clear and service restoration times may vary due to actual weather conditions within a TP.

^[3] The information, times, and figures referenced in this report are based on the best available information available at the time of this report's submission. The information, times, and figures herein are subject to revision based on further analysis and validation.

^[4] For additional details about PG&E's additional support to customers impacted by this PSPS event and those who experienced a substantial number of outages due to the wider wind event, refer to the PSPS Report to CPUC for Jan 19-21, 2021 De-energization Event.

After-Action Report

Operations Center (EOC) activation, the After-Action Review Team solicited technical feedback starting on Sunday, January 17, 2021, through Friday, January 22, 2021. The team observed and subsequently reported feedback data and trend analysis to the Command Staff as data collection took place.

This report captures analysis from member responses *via* electronic hotwash forms, incident details from the *PSPS Report to the California Public Utilities Commission (CPUC) for the January 19-21, 2021 De-energization Event*, the Incident Action Plans, and Electric Reliability reported outage data, to identify the key strengths to be maintained and areas for improvement for further development. Some of the major Strengths and Areas for Improvement suggested by members of the EOC are as follows:

Major Strengths

Major strengths identified during this response are:

- Coordination between team members, specifically Communication Unit Leads and Emergency Preparedness and Response Strategy and Execution (EP&R SE) members to develop a workflow spanning day and night shifts that allowed a large number of external stakeholders to be manually entered into Everbridge in a very short amount of time due to the unexpected onset of this PSPS event.
- TAHS (Transmission Asset Health Specialist) members received on-the-job training (including PSPS historical, contextual knowledge) which instilled confidence in new members which helped prepared the team for future events.
- Finance and Administration Day and Night Shift transition, coordination/communication was smooth. A Microsoft® TEAMS® Chat was set up for constant communication for all Finance and Administration (F&A) Day/Night Shift members on duty.
- Allowing Regional Emergency Centers (RECs) to manage their local operations more autonomously, in accordance with Incident Command System (ICS) principles.
- Weather, Situation Awareness, PSPS report outs during the floor briefings and planning meetings were thorough and an appropriate level of detail was provided.
- Planning leadership supported fatigue management, speak up culture, and psychological safety by creating a work environment where personnel were encouraged to identifies strengths, weakness and opportunities for improvement, as part of the EOC activation.

Primary Areas for Improvement

Throughout the response, PG&E identified several opportunities for improvement in its ability to respond to the incident. The primary areas for improvement, including recommendations, are as follows:

- EOC trainings should include the use of MS Teams chatrooms, management of channels, and other common features used in the virtual EOC.

- Lack of Intranet access and inability to access EOC SharePoint impeded operations. Given the inherent nature of unplanned or unanticipated emergency situations, it is important to cultivate awareness and agility in emergency situations (*e.g.*, alternate access points for the EOC SharePoint when inaccessible due to network maintenance or modification). Specifically, EOC members should be encouraged to execute temporary workarounds and alternative ways to access needed information when the SharePoint is off-line, or the internet is temporarily unavailable. This may call for the ability to re-create reports to the last data backup or an important review of where all relevant documentation is stored before, during, and after EOC activations.
- In addition to providing EOC job aids and instructions for performing standard tasks (such as the EOC sign-in form, submitting the ICS-214, finding position specific job aids, pulling the ICS-230 meeting schedules, etc.) on Microsoft TEAMS, access to required information should be made uniformly available to all possible EOC users.
- EOC members should follow up training with specific task lists that equip them with the resources needed to fulfill their role in the virtual EOC environment. This may include positioning the documentation in multiple locations, learning how to use the alternate access point for the EOC SharePoint, converting necessary documents into useable formats, saving documents in formats that capture versioning history, going through the steps of accessing the EOC on-call list and schedule, keeping a comprehensive chart of the location of needed standard and section forms, and other readiness tips.
- EOC training should include a viable scheme for how the individual will coordinate their non-emergency responsibilities if in case the EOC activation continues for a prolonged period of time and/or if the role will serve during the night shift period. In both cases, the EOC member will need to communicate their EOC duties and time constraints to their manager.
- Facilitation of Safety Officer briefings should be conducted on an Operational Period basis, with Operational Emergency Centers (OECs) helping to communicate safety requirements at all levels (Field, OEC, REC, EOC) of the event response.
- There appears to be a lack of pre-event analysis in relation to windspeed potentials and the presence of old growth trees in Fire Index Areas resulted in lack of awareness on the need for 'industrial' tree removal equipment including the use of specialized (large) buzz saws, forklifts, and hauling equipment.
- At 55 minutes, Playbook synchronization using Palantir Foundry is taking too long. The Medical Baseline (MBL) no contact report function in Palantir Foundry is not working. The refresh button on the PLAN page does not change colors from brown to green.
- There is a knowledge gap regarding where to obtain the most current/updated polygons for vegetation management operations. Field operations needs to access Maps+ and the PSPS Portal to obtain the most current information.

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SECTION 1: INCIDENT OVERVIEW

Incident Details

Incident Name

Public Safety Power Shutoff Event 01-18-21

Type of Incident

Public Safety Power Shutoff (PSPS)

Level of Incident

Level 4

EOC Activation Date(s)

Seven days; beginning 0600 hrs. Saturday, January 16, 2021 through 1500 hrs. Friday, January 22, 2021.

PSPS Duration

Two days; approximately 0100 hrs. January 19, 2021 to approximately 2000 hrs. January 20, 2021.

See PSPS Report to CPUC for January 19-21, 2021 De-energization Event.

Locations

Fresno, Kern, Madera, Mariposa, San Luis Obispo, Santa Barbara and Tulare counties

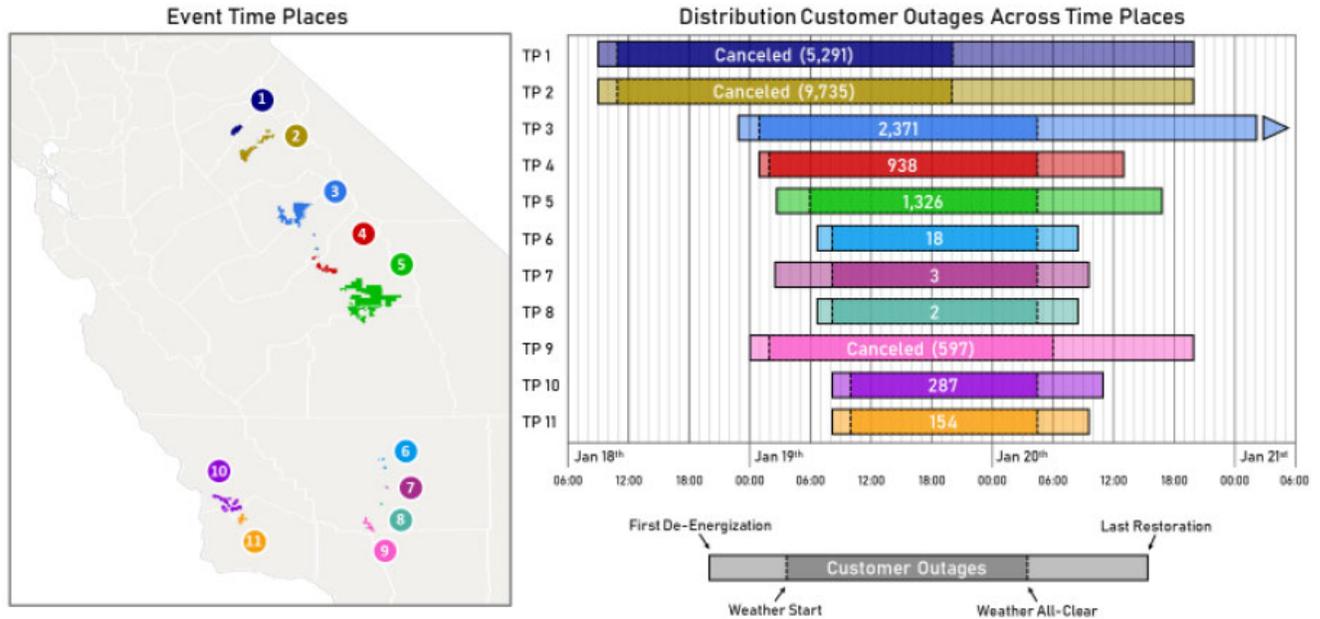
Activated Emergency Centers and Support Centers

- Company EOC, Wildfire Safety Operations Center (WSOC), Electric Transmission Emergency Center (ETEC), Information Technology Coordination Center (ITCC), and Customer Contact Emergency Coordination Center (CCECC)
- Bay Area/Central Regional Emergency Center (Planning and Logistics)
 - Diablo, East Bay, Mission, Stockton, Yosemite, Peninsula and San Francisco Operations Emergency Centers
- South Regional Emergency Center (Planning and Logistics)
 - Central Coast (Santa Cruz), San Jose, De Anza, Los Padres, Fresno, and Kern Operations Emergency Centers
- North Regional Emergency Center (Planning and Logistics)
 - Humboldt, North Valley, Sacramento, Sierra, Sonoma, and North Bay Operations Emergency Centers

Customer Impact

A total of 5,099 customers were impacted across 11 Time/Places (Figure 1) during the PSPS event. This included 4,515¹ residential, 274 Medical Baseline, 518 commercial/industrial, and 66 customers in the “Other”² category. No transmission-level entities were impacted.

Figure 1: Customer Impact by Time/Place



Community Resource Centers

During the extended power outage through January 23, 2021, PG&E established 14 Community Resource Centers (CRCs) in nine counties. Seven of the 14 CRCs were opened (Figure 2) to support the PSPS Event, and PG&E kept three of those PSPS CRCs open past the end of the PSPS event to support customers with extended outages.

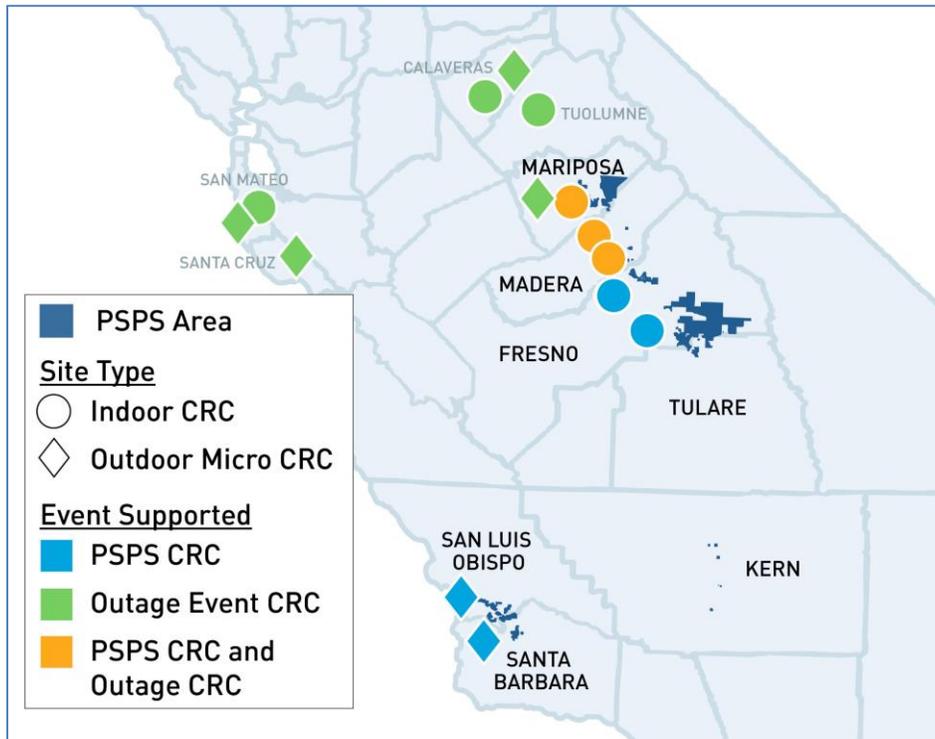
After the widespread damage was realized across the service area, PG&E deployed seven additional CRCs to provide affected customers and residents with safe, energized, and air-conditioned or heated (as applicable) space with the slightly modified standard operating hours of 08:00 PST to 21:30 PST. Visitors were provided with PSPS event information by dedicated staff, ADA-compliant restrooms and/or hand-washing stations, physically distanced tables and

¹ Medical Baseline Customers are included within the count of residential customers affected

² ‘Other’ includes customers that do not fall under the residential or commercial / industrial categories such as governmental agencies, traffic lights, agricultural facilities, and prisons.

chairs, power strips to meet basic charging needs for small medical devices, and Wi-Fi and cellular service access.

Figure 2: CRC Locations



Supplies were available at each CRC location in the form of “grab and go” bags containing water, non-perishable snacks, mobile battery charger, and blankets. Bagged ice was also available at indoor locations. CRC locations were published on our website, shared on social media, shared with state and county officials and news media, and shared with AFN customers through our CFILC and media partners.

Community Based Organization Engagement

PG&E partnered with the California Foundation for Independent Living Centers (CFLIC) and other Community Based Organization (CBO) resource partners that offered various services to customers identified to be potentially impacted by this event. These partners included four local Independent Living Centers (ILCs) and one CBO that provided translation support.

PG&E continued coordination with 36 multicultural media organizations and one language CBO to supplement PG&E’s translated communications to customers in over 15 languages and also shared event update information with over 250 CBOs, including press releases, fact sheets, and other relevant information that they could share with their constituents to expand our reach of communications.

PSPS Mitigations

- This event affected 96% fewer customers than similar weather conditions would have impacted in 2019, thanks to improvements in PG&E's weather modeling and transmission line scoping, and PG&E's use of distribution switching mitigations.
- PG&E used approximately 160 pre-positioned patrol personnel and 11 helicopters conducting aerial patrols to expedite inspection, repairs, and restoration.
- By using PG&E's network of fire monitoring cameras, weather stations and field observers to determine local weather conditions, PG&E was able to analyze Weather All Clear decisions on a geographically granular basis, allowing more customers to be restored quicker as the weather event passed through these smaller sections of the grid.
- Customer and partner communications were more effective during this event due to extensive improvements in our website, customer notifications processes, use of social media and outreach, press releases, CRCs, and other efforts to support customers and communities.

After the PSPS event, PG&E deployed approximately three megawatts of temporary generation to 11 locations supporting critical and general customers in specific areas impacted by the wind event.

Financial Summary

As of February 9th, 2021, the preliminary estimate is \$3 to 5 million for expenses. It takes some time after each event for the majority of the costs to settle (*e.g.*, timing of timecard submissions, adjustment for accrual versus invoice difference). The PSPS event costs include:

- Field operations and patrols
- Air support
- Customer notifications
- Community resource centers
- Temporary generation
- Other event activities

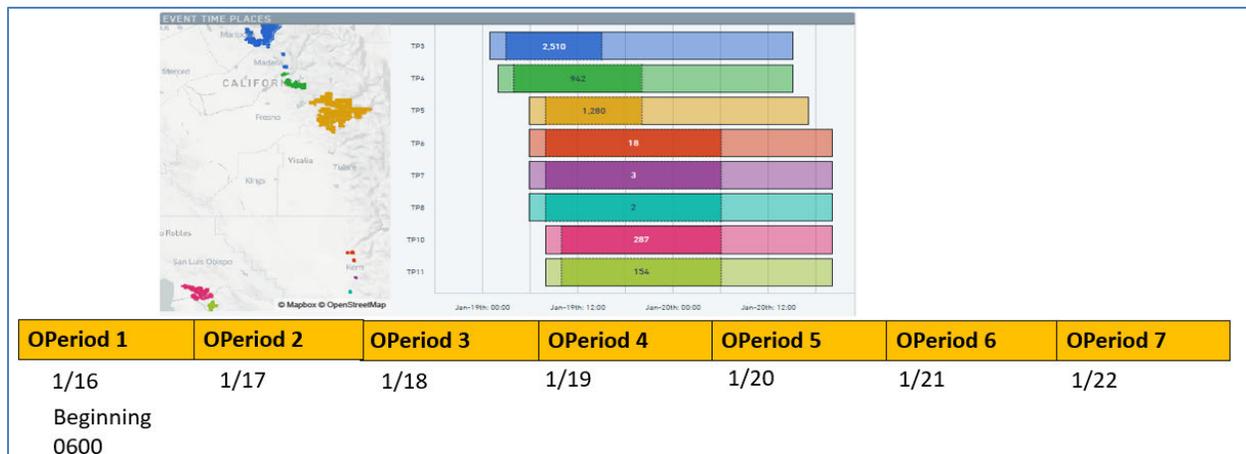
PSPS estimates differ for each event due to differences in size and scope of each PSPS activation.

SECTION 2: ANALYSIS OF RESPONSE

The AAR Report synthesizes data, reconstructs observations, and analyzes trends. Section 2 presents the incident, control, and section objectives organized by PG&E Core Capabilities (referenced in the *PG&E Multi-Year Training and Exercise Plan [MYTEP 2021-2023]*). Although the MYTEP identifies six PG&E Core Capabilities, the Homeland Security Exercise and Evaluation Program (HSEEP) framework allows for training and exercise plans to reflect evolving priorities and to consider all capabilities (see Appendix E) when performing an evaluation of an emergency response. Trend analysis identifies patterns in strengths, areas for improvement, and major changes in operations over time. For example, a trend analysis on reoccurring hazards and capability topics will guide future planning, training, and exercise design and development.

PSPS Event 01-18-21 incident action planning occurred in advance of the event (Figure 3) that commenced Saturday, January 16, 2021, and running through to conclusion of the PSPS event on Thursday, January 21, 2021. The EOC remained activated until 1500, Friday, January 22, to provide field restoration operations support for the extreme weather event.

Figure 3: Time/Places and Operational Periods



Core Capability: Operational Coordination

Capability Summary: Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and lines of business that supports the execution of core capabilities.

Incident, Control, and Section Objectives

- Successful execution of the PSPS
- Establish and conduct restoration based on an enterprise-wide strategy – Grid Integrity, Generation, Transmission, Substation and Distribution

- Implement PSPS mitigation tactics related to scope reduction through risk analysis, sectionalization, and installation of backup generation
- Reduce restoration time by allocation and strategic placement of air and ground resources in support of both the broader wind event and the PSPS
- Actively engage, as appropriate, with local law enforcement on incidents that occur in and around PG&E facilities
- By 01/17 1200, Distribution finalizes helicopter resources needed for distribution
- By 01/17 1300, Transmission/Substation pre-patrols impacted transmission lines
- By 01/17 1800, Logistics coordinates with EP&R on activities required to transition the physical security unit to the command staff
- By 01/18 2000, Transmission/Substation identifies and mitigates High Fire Threat District (HFTD) T2 and T3 Vegetation Priority 1 existing locations in the 1/18 PSPS Scope
- By 01/20, Plans prepares and submits California Office of Emergency Services (Cal OES) Stage 5 report when restoration is complete
- By 01/20 0600, Aviation supports all wind event air assessment patrols as requested
- By 01/20 0630, Aviation is ready to support all clear restoration air patrols with assigned A/C
- By 01/20 0700, Transmission/Substation identifies additional resource needs for T-Line patrols and repairs for following day
- By 01/20 0700, Transmission/Substation releases remaining T-Line contract crews to support distribution
- By 01/20 0800, Distribution confirms field restoration resources are available to patrol in case the All Clear is communicated sooner than forecast
- By 01/20 0800, communicate any additional helicopter needs for Wind Event
- By 01/20 0800, Temporary Generation confirms additional security actions at PG&E facilities have been addressed to account for civil unrest events
- By 01/20 1000, Temporary Generation provides updates on deployments and inventory of available generators
- By 01/20 1200, complete all device level assessments on Cat 4 and below divisions
- By 01/20 1800, Logistics fulfills all requests to Material Transportation Coordination Center (MTCC) for restoration materials and expedite with suppliers as needed to close inventory gaps Logistics and Supply Chain
- By 01/20 2000, complete all PSPS patrols and achievable restoration
- By 01/21 0600, complete repairs from outages on 1/19

- By 01/21 0600, provide customer, Public Information Officer (PIO), and Liaison with restoration status a minimum of three times throughout the operational period

Strengths

- Coordination between team members, specifically Communication Unit Leads and EP&R SE members to develop a workflow spanning day and night shifts that allowed a large number of external stakeholders to be manually entered into Everbridge in a very short amount of time due to the unexpected onset of this PSPS event.
- TAHS members received on-the-job training (including PSPS historical, contextual knowledge) which instilled confidence which helped prepare the team for future events.
- The EP&R SE Team members jumped right in to support the hotwash process during this event even though there was no one "assigned" to the roster or on an EOC Team for this function. This speaks volumes to the commitment for the new and seasoned AAR team members. However, we are fortunate that no one had left town or was otherwise unavailable. The AAR team and its function are critical.
- Finance and Administration Day and Night Shift transition, coordination/communication (was) smooth. We set up a Teams Chat for constant communication for all F&A Day/Night Shift members on duty.
- Allowing REC to manage their local operations more autonomously in accordance to ICS principles.
- Staffing a night shift allows the time to do the complex quality control (QC) work where dayshift does not have the time.

Areas for Improvement

- There was confusion as to incident versus event command and control responsibilities, including PSPS demobilization, required microsite information and damage repair operations hand off transitions, in the aftermath of the significant windstorm damage within and external to PSPS activation Time/Places.
- The EOC Finance and Administration Section is not receiving a copy of the resource plan (internal + contract) needed to develop the Resource Driven Financial Forecast model and for post-event Cost Tracking
- There was a lack of clarity between the EOC, Regional Emergency Center and Operations Emergency Centers on who updates Estimated Time of Restoration (ETORs) in the Outage Management Tool (OMT) upon receipt of weather all-clear notification.
- Due to change in approach from prior practice, EOC General staff member did not receive request for Operational Period objectives from Planning Section Document Unit Leader.

Core Capability: Operational Communication

Capability Summary: Ensure timely communications in support of security, situational awareness, and operations.

Incident, Control, and Section Objectives

- Keep customers, government agencies and representatives, the news media, and other key constituents informed in a timely manner
- Communicate effectively with State, County Agencies, and Tribes via the PG&E County Agency Rep process
- By 01/17 0800, Customer launches one day watch notifications to TP1 and TP2 customers
- By 01/17 0800, Customer launches advanced notifications to incremental public safety partners added to TP3-9 scope overnight
- By 01/17 0800, Customer continues MBL hourly callouts
- By 01/17 1500, Customer launches one day watch notification to TP3-9
- By 01/17 1600, Information Technology (IT) sends out full stand down communications regarding IT planned clearances through 1/21
- By 01/17 1800, Customer follows up with any critical customer who has not yet confirmed receipt of watch notification
- By 01/17 1800, Distribution completes door knocks (Dispatch)
- By 01/17 1900, Customer launches Warning notification to TP1 and TP2 customer
- By 01/17 2000, PIO issues one-day PSPS advance news release
- By 01/17 2000, PIO issues updated weather/PSPS talking points
- By 01/17 2300, Customer initiates creation of MBL door knock tags for all incremental customers
- By 01/20, Liaison sends Inspecting and Restoration notifications to impacted counties
- By 01/20, Liaison sends Essential Elements of Information to Cal OES at 0700 and 1500
- By 01/20, Liaison hosts State Executive calls at 1100 and 1600, and Systemwide Cooperators call at 1200
- By 01/20, Liaison provides updates on work with PSS and LPA Teams to communicate the needs of counties where we anticipate extended outages and sharing with Operations, PIO, and Customer
- By 01/20 0800, the PIO issues @Work/Daily Digest story updating employees on weather event
- By 01/20 1000, the PIO issues updated weather/PSPS TPs

- By 01/20 1800, PIO issues essentially all PSPS customers restored, if applicable
- By 01/20 1800, Logistics communicates any CRC demobilizations to emergency service providers, security, traffic, environmental, land, Information Technology (IT), MTCC, and Safety
- By 01/20 2200, Operational Emergency Center Customer Strategy Officers reach out to PR1 sites to confirm mitigation and/or support needs
- By 01/20 2200, if fully restored, Customer turns off PSPS notification automation

Strengths

- Great information and seamless timing with all conference calls.
- Communication between EP&R Strategy and Execution and Customer Relations ensured an understanding of differences between stakeholder/agency and customer-related notifications. This helped personnel new to the mass notification system workflow.
- Command and General Staff meeting objectives stayed on track and were on target.
- The ability to listen in on the floor briefings makes the PG&E response stronger because when staff have more information and understanding, they can all do their jobs that much better.
- The PSPS process overview during the EOC floor briefings is incredibly helpful. This is a best practice.
- Meteorology is good in explaining technical information in a way that is easily understood.
- Working virtually was a benefit and easier to contact others by using Chat in TEAMS, making communication easier and clearer.

Areas for Improvement

- EOC staffer received multiple EOC activation notifications after confirmation of receipt. In addition, EOC staffer was left off invitations for required meetings.
- Not all EOC Team members use the video function when participating in TEAMS meetings. Use of the video function make EOC Team members feel more connected.
- There is a lack of clarity on the Situation Report cadence. Photos shared within the EOC environment were blurry.
- EOC staff have been using different EOC activation event names and activation dates than what the EOC Commander designated. Consequently, erroneous information was provided to the California Governor's Office of Emergency Services and the CPUC.
- There was lack of clarity on the appropriate order number for use when filing Concur system travel authorizations and/or claims for lodging expenses charged to P-Cards.

- Excessive use of acronyms impedes effective EOC communications. In addition to brevity so as to enable quick decision making and action, EOC team members should also be encouraged to practice "two way" communication to ensure that information conveyed by the active communicator is received and understood as intended by the recipient and vice versa.
- Facilitate Safety Officer briefings by Operational Period with OECs which would help the communication of safety requirements at all levels (Field, OEC, REC, EOC) of the event response organization..
- Requests originating from multiple sources for the acquisition of sites for use as laydown yards and Microsites creates confusion.
- Lack of cellular communication repeaters in high fire potential Fire Index Areas is impeding mobile app damage assessment submittals.
- The development of ad hoc EOC email distribution lists during EOC activations has resulted in inconsistencies in recipients between EOC teams and across activated EOC shifts.
- Late communication on the use of the new Everbridge notification system replacement for Send Word Now prompted significant last-minute work to populate the Everbridge system with EOC rostered personnel.

Core Capability: Situational Awareness

Capability Summary: Provide all decision makers with decision-relevant information regarding the nature and extent of the hazard, any cascading effects, and the status of the response.

Incident, Control, and Section Objectives

- Perform enhanced weather monitoring and scoping of the event to account for risk of the PSPS event on the communities we serve
- Corporate Security maintains situational awareness (SA), in coordination with external law enforcement partners, of the current threat landscape and potential impacts to PG&E operations
- Corporate Security relays appropriate SA to PG&E personnel for duration of the current EOC activation, in order to enhance employee SA
- By 01/17 1600, WSOC revises Field Observation locations for all TPs and coordinate with Safety and Infrastructure Protection Team (SIPT) leadership to assign engines accordingly
- By 01/17 1800, Transmission/Substation identifies updated resource availability for T-Line patrols and repairs
- By 01/17 1800, Aviation confirms available air assets (fixed wing and helicopter)

- By 01/17 1800, Logistics confirms mobilization of all resources and overall build status of CRC locations and communicate to Customer
- By 01/17 1800, Logistics provides list of available facilities with back-up generation to Operations for employees supporting emergency response that are impacted by the PSPS event
- By 01/17 1800, Intelligence and Investigation (I&I) confirms availability of Operations resources to perform Operation Review on Damage/Hazard
- By 01/17 1800, I&I confirms impacted divisions and perform refresher training as needed
- By 01/19, WSOC collects and disseminates Field Observations from assigned SIPT crews
- By 01/19 0900, Vegetation confirms personnel onsite at the Baseline location and remain there throughout the duration of the event
- By 01/20, Corporate Security gathers situational awareness (SA), in coordination with external law enforcement partners, of the current threat landscape and potential impacts to PG&E operations
- By 01/20, Corporate Security relays appropriate SA to PG&E personnel for duration of the current EOC activation, to enhance employee SA
- By 01/20, IT ensures status of the Application, SharePoint and Network Health are on target every six hours while continuing 24x7 Monitoring
- By 01/20 0700, Vegetation confirms resources on standby to respond to vegetation issues and implement redeployment plans as necessary
- By 01/20 1800, Human Resources provides daily impacted employees data in PSPS affected areas

Strengths

- Weather, Situation Awareness, PSPS report outs (were) thorough and appropriate level of detail (was provided) for briefings

Areas for Improvement

- A lack of pre-event analysis in relation to windspeed potentials and the presence of old growth trees in Fire Index Areas resulted in lack of awareness on the need for 'industrial' tree removal including the use of specialized (large) buzz saws, forklifts and hauling equipment.
- Incident related information sent to the Situation Unit was not included in situation snapshot updates.

Core Capability: Planning

Capability Summary: Conduct a systematic process engaging the whole enterprise, as appropriate, in the development of executable strategic, operational, and/or organization-based approaches to meet defined objectives.

Incident, Control, and Section Objectives

- Perform enhanced weather monitoring and scoping of the event to account for risk of the PSPS event on the communities we serve
- Develop and support a field staffing plan that prioritizes the PSPS event and the ability to achieve ETORs; maintains coverage to respond to weather related outages in entire service territory that are not in PSPS scope, through strategic movement of internal resources
- By 01/17, Human Resources provides impacted employees data in PSPS affected areas
- By 01/17 0800, Vegetation reviews updated Playbook and run report for Priority trees in impacted PSPS zones and extended area within the county lines
- By 01/17 0800, Temporary Generation ensures staffing available to continuously receive, analyze and respond to any Ad-hoc requests for temporary generation
- By 01/17 0900, Vegetation identifies updated tree crew resource numbers to support priority tree response
- By 01/17 1000, Plans prepares for Officer in Charge (OIC) decision Playbooks B/C
- By 01/17 1200, Transmission/Substation identifies updated helicopter resources needed for Transmission patrols
- By 01/17 1800, Distribution finalizes resource needs for Playbook-C and integrate with wind event response
- By 01/17 1800, Distribution provides Fire Index Areas (FIAs) to mapping to produce segment maps for effected circuit
- By 01/17 1800, Distribution ensures RECs and OECs have plans in place to monitor and respond to outages associated with PR1 vaccination sites
- By 01/17 1800, Transmission/Substation evaluates need for air patrols on transmission lines in polygon that will not be de-energized
- By 01/17 1800, Transmission/Substation identifies updated resource needs for switching at affected substations
- By 01/17 1800, Aviation evaluates helicopter requests from RECs and confirm which helicopter vendors will be primary for the patrols and which vendors are available as alternates

- By 01/17 1800, Gas Ops coordinates with gas control to identify updated list of Supervisory Control and Data Acquisition (SCADA) devices impacted and ensure contingency plans in place
- By 01/17 1800, Power Generation identifies an updated list of power generation facilities impacted and ensure contingency plans in place
- By 01/17 1800, IT verifies contingency plans and resources are in place for critical facilities and technology assets impacted by potential de-energization
- By 01/17 1800, IT verifies PSPS Mission Critical Application readiness (PGE.com Care Room)
- By 01/17 1800, Temporary Generation reviews playbooks to determine in-scope, pre-planned TPG sites (Subs, Temp MGs, Hospitals)
- By 01/17 1800, Logistics confirms that Facilities is topping off PG&E emergency generator fuel tanks within impacted areas
- By 01/17 1800, Logistics confirms that Transportation Services has topped off PG&E fuel islands at service centers and other locations within the impacted area
- By 01/17 1800, Finance begins gathering data for preliminary financial forecast for event
- By 01/18 1000, Plans prepares for OIC decision Playbooks D/E
- By 01/20 0700, Transmission/Substation identifies updated resource needs for switching at affected substations
- By 1/20 0800, Aviation validates staffing levels for scheduling
- By 1/20 1000, Information Technology verifies PSPS Mission Critical Application readiness (PGE.com Care Room)
- By 1/20 1200, Customer mobilizes any additional customer support need for extended outages
- By 01/20 1800, Temporary Generation ensures staffing is available to continuously receive, analyze, and respond to any *ad hoc* requests for temporary generation
- By 01/20 1800, Finance and Administration gathers and develops preliminary financial forecast for the event
- By 01/20 1800, Safety reviews RSIGuard report and provide follow-up coaching discussions with EOC Staff on Ergonomic resources and breaks
- By 01/20 1800, Investigation and Intelligence obtains and quality controls all available damage documentation forms
- By 01/20 1900, Corporate Security provides intelligence report to Plans

After-Action Report

Strengths

- More consistent meeting cadence and meeting quality.
- Consistency with how to perform job function between team members.
- Planning Chief ran effective calls.

Areas for Improvement

- There were insufficient resource tracking staff support during PSPS Event 01-18-21 Operational Period 4.
- Playbook synchronization using Palantir Foundry is taking too long at 55 minutes. The MBL no contact report function in Palantir Foundry is not working. The refresh button on the PLAN page doesn't change colors from brown to green.
- EOC Team members are using different naming conventions for ICS-214 Unit Log submittals.
- As currently configured, the EOC after action data collection and AAR review team is not part of the EOC team roster, thus limiting Command and General staff leadership access to emergent plus/delta issue trends for use in future planning during the course of an activation.
- EOC participants were unaware of the Virtual EOC TEAMS platform capability and procedures, to include sign-in and sign-out processes, ICS form locations and use guidance.
- Limited, four team EOC rotations is prompting a need for late staffing augmentation, including Planning Section personnel. EOC staff are not receiving information on shift times and on-call periods.
- Insufficient EOC Logistics Section personnel available for EOC activations.
- The year-long reliance on the Line of Business (LOB) staff for EOC activations negatively impacts steady-state mission requirements.
- Finance and Administration Section event roster not updated for Operational Period 1 and 3, resulting in the lack of inclusion of F&A staff in required EOC Team communication.
- ICS-230 meeting schedule (was) not available to EOC staffer upon activation of the EOC.
- EOC activation lessons learned feedback submittal guidance was not available until the 3rd or 4th Operational Period.
- EOC team member seeks guidance on time keeping reporting during a Company holiday.
- Acquisition of 30-acre parcels at 75-mile intervals along the Sierra Nevada Mountain foothills and along portions of the southern San Francisco Peninsula may obviate the need for time consuming external party land use and permitting approvals to establish PSPS field facilities in future events and incidents.

- Prior use of a site for a laydown yard, Base Camp or Microsite should not serve as a basis to assume current availability of the site for use as a laydown yard, Base Camp or Microsite.
- Lack of Intranet access and inability to access EOC SharePoint impeding operations. It is important to cultivate awareness and agility for access in challenging circumstances (*e.g.*, alternate access points for the EOC SharePoint).
- EOC Continuity of Operations Plan unavailable in the event of power failure for EOC staffers working from home or other locations, to include LiveSafe App reporting requirements and reconstitution of in-person EOC operations in whole or part at a company facility.
- The EOC SharePoint does not contain versioning history when using Microsoft Excel. The inability to use the function prevents users from comparing old to new information.
- Need to create a process to address ad hoc requests and avoid manual solutions. Ensure to identify the problem in the process.
- There is a knowledge gap regarding where to obtain the most current/updated polygons for vegetation management operations. Field Operations need to access Maps+ and the PSPS Portal to obtain the most current information.

Core Capability: Environmental Health and Safety

Capability Summary: Ensure the availability of guidance and resources to address all hazards including hazardous materials, acts of terrorism, and natural disasters in support of the responder operations and the affected communities.

Incident, Control, and Section Objectives

- Protect the health and welfare of the public and PG&E responders
- Protect the property of the public, PG&E, and others (*e.g.*, no environmental incidents)
- Ensure Community Resources Centers (CRCs) provide essential services, given the weather conditions
- By 01/17, Safety develops ICS-206 Medical forms for CRCs
- By 01/17, Liaison confirms through local OES Reps and PG&E Tribal Liaison that no vaccination sites are in scope, including tribes, and whether any critical hospitals are impacted
- By 01/17 1200, Transmission/Substation Identifies any Ops facilities requiring additional security measures to address the recent unrest events
- By 01/17 1200, Logistics confirms resource assignments for approved CRC locations including emergency service providers, security, traffic, environmental, land, IT, MTCC, and Safety

- By 01/17 1800, Customer assesses scope adjustments and continue CRC mobilizations in preparation for Monday openings
- By 01/17 1800, Distribution determines if staging temporary generation units is required to support vaccination sites and other wind-related outage situations
- By 01/18, Safety develops Field Safety CRC Inspection plan
- By 01/20, Liaison provides updates on vaccination and storage sites, and critical care facilities for PR1 data validation
- By 01/20 0800, Customer opens all CRCs
- By 01/20 1800, Logistics monitors all active CRCs to resolve emergency service providers, security, traffic, environmental, land, IT, Materials, and Safety issues
- By 01/20 2200, Customer identifies Service Point Identification Numbers (SPID) for newly confirmed Vaccination sites and push to Distribution Management System (DMS)

Strengths

- The focus on Human Performance was thoughtful and humanized our virtual work culture.
- Outstanding communication around safety and security, with every call. Corporate Security Department partnered well in providing updates on protests.
- Leadership of the Plans team supported fatigue management, speak up and psychological safety
- EOC staff delegated control to attend to other business demands.

SECTION 3: CONCLUSION

Initially, the impact to the 1/18 PSPS event was limited to 5,099 customers, the comparatively small number of de-energizations for this event were quickly overtaken by the large number of customers who lost power due to associated windstorm conditions. In a demonstration of teamwork, flexibility and resiliency, PG&E team members had reduced the number of customer outages from 394,000 at the peak of the windstorm to approximately 21,000 as of the morning of Friday, January 21, 2021.

Despite the successful event resolution, EOC participants reported a significant number of issues associated with EOC position-specific trainings. These issues are listed in Appendix B Improvement Plan and include training and socializing job aids to increase the EOC trainee flexibility and resiliency in emergency operating environments. At a minimum, it is recommended that EOC position training include practice working in the virtual EOC environment, including:

- Use of job aids and instructions for performing standard tasks, such as the EOC sign-in form, submitting the ICS-214, finding position specific job aids, pulling the ICS-230 meeting schedules.
- Use of MS TEAMS chatrooms, management of channels, and other common features used in the virtual EOC.
- Strategies for temporary workarounds and alternative ways to access needed information.

Additionally, PG&E responders remain flexible and able to scale up and down as the event dictated. PSPS response operations have matured greatly over the last several years since the first inception of PG&E's PSPS event response in 2017. As with any relatively new program, there are areas that have been identified within this report as needing improvement or strengthening. This includes, but is not limited to:

- Better distribution of the resource plan to benefit others, such as Finance.
- Development of a policy around CRC use inside and outside of PSPS events.
- Awareness of Temp Gen capability and limitations.
- Creation of notifications process when IT will be running outages and triggers that will prevent IT system outages from moving forward during EOC activations unless precisely warranted.
- Continued work around granularity of the grid, which has shown great success in expediting customer restoration.

In conclusion, the fact that a PSPS and wind event of historical proportions could affect the Service Territory in January took some EOC staff by surprise. However, an overall high-level view of recent EOC activations and incident statistics show that we are experiencing what could be identified as the "new normal" of climate change.

After-Action Report

Many recent EOC activations are compounded by extreme weather factors, be it wind, heat, low elevation snow, etc.; we are seeing an unrivaled consistency of weather anomalies before, during, and after as the basis of Emergency Incidents. There is an opportunity for responders to gain additional expertise and flexibility to exercise dual events, incident within an incident, or scenario with compounding factors.

APPENDIX A: ACRONYMS

Acronym	Meaning
AAR	After-Action Report
ARCOS	Automation of Reports and Consolidated Order System
Cal OES	California Office of Emergency Services
CCECC	Customer Contact Emergency Coordination Center
CERP	Company Emergency Response Plan
CPUC	California Public Utilities Commission
CRC	Community Resource Center
DMS	Distribution Management System
EOC	Emergency Operations Center
EP&R SE	Emergency Preparedness and Response Strategy and Execution
ETEC	Electric Transmission Emergency Center (reports to the EOC)
ETOR	Estimated Time of Restoration
F&A	Finance and Administration
FIA	Fire Index Area
GIS	Geographic Information System
HFTD	High Fire Threat District
HSEEP	Homeland Security Exercise and Evaluation Program
I&I	Intelligence and Investigation
ICS	Incident Command System
IT	Information Technology, a Department at PG&E
ITCC	Information Technology Coordination Center (reports to the EOC)
LOB	Line of Business
MBL	Medical Baseline
mph	Miles Per Hour
MTCC	Material Transportation Coordination Center
MYTEP	Multi-Year Training and Exercise Plan
OEC	Operational Emergency Center (OEC's report to a REC)
OIC	Officer in Charge
OMT	Outage Management Tool (also OIS-OMT)
PG&E	Pacific Gas and Electric Company
PIO	Public Information Officer
PSPS	Public Safety Power Shutoff
QC	Quality Control
REC	Regional Emergency Center (REC's report to the EOC, and contain OEC's)
SA	Situational Awareness
SCADA	Supervisory Control and Data Acquisition
SIPT	Safety and Infrastructure Protection Team
SPID	Service Point Identification Number

Acronym	Meaning
TAHS	Transmission Asset Health Specialist
TP	Time-Place
WSOC	Wildfire Safety Operations Center

APPENDIX B: IMPROVEMENT PLAN

The following corrective actions are either completed/closed, part of a workstream, or identified as not a corrective action. Items indicating “follow-up” are being addressed to confirm the status as complete. Items indicating “CAP” are being entered into the CAP system.

Command Staff						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Communication	Rostered EOC personnel were unaware of the change from Send Word Now to Everbridge notification system for EOC activation notifications.					WS-5G
Coordination	Late communication on the use of the new Everbridge notification system replacement for Send Word Now prompted significant last minute work to populate the Everbridge system with EOC rostered personnel.					WS-5G
Communication	EOC staff have been using different EOC activation event names and activation dates and/or times than the EOC Commander designated event name and times provided to the California Governor's Office of Emergency Services and the CPUC.					WS-5A
Communication	Conduct of iterative Operational Period by Operational Period Safety Officer meetings with OECs may help facilitate the communication of safety requirements at all levels (Field, OEC, REC, EOC) of the event response organization.					WS-6A

After-Action Report

Finance and Admin						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Communication	The EOC Finance and Administration Section is not receiving a copy of the resource plan (internal + contract) needed to develop the Resource Driven Financial Forecast model and for post-event Cost Tracking		EP&R SE Plans Resource Unit	[REDACTED] EOC Process for those positions	Mid	WS-6B
Coordination	Finance and Administration (F&A) Section event roster not updated for Operational Period 1 and 3, resulting in the lack of inclusion of F&A staff in required EOC Team communication.		EP&R SE	[REDACTED]	Short	WS-6F
Coordination	Incident Command System forms are not available on EOC Virtual Team site.		EP&R SE	[REDACTED]		WS-6A
Planning	Required EOC team members not listed in Incident Action Plan.		EP&R SE	[REDACTED]		WS-6A/F

I&I						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Communication	New EOC check-in/check-out procedure introduced during event without sufficient guidance or instruction.					WS-6A
Communication	Due to change in approach from prior practice, EOC General staff member did not receive request for Operational Period objectives from Planning Section Document Unit Leader.					WS-6A/F

After-Action Report

I&I						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Logistics and Supply	Insufficient EOC Logistics Section personnel available for EOC activations.					WS-6F

Land Acquisition						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Communication	Requests originating from multiple sources for the acquisition of sites for use as laydown yards and Micosites creates confusion.	CAP --	Land Acquisition	██████████ ██████████		

Logistics						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Communication	Lack of Intranet access and inability to access EOC SharePoint impeded operations.	CAP --	EP&R SE	██████████		
Communication	EOC staffer received multiple EOC activation notifications after confirmation of receipt. In addition, EOC staffer was left off invitations for required meetings.					WS-6F
Communication	There is a lack of clarity on the Situation Report cadence. Photos shared within the EOC environment were blurry.					WS-5A WS-6G

Logistics						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Coordination (EOC Tools and Resources)	There is lack of clarity on ICS-214 Unit Log protocols for activated EOC team members, including completed ICS-214 form naming convention and document target recipient and/or file location for the placement of electronic form submittals.					WS-6A/B
Communication	EOC activation lessons learned feedback submittal guidance was not available until the 3rd of 4th Operational Period.					WS-6B
Planning	As currently configured, the EOC after action data collection and review team is not part of the EOC team roster, thus limiting Command and General staff leadership access to emergent plus/delta issue trends for use in future planning during the course of an activation.	Closed				WS-6B
Communication	EOC team member is seeking guidance on time keeping reporting when activated to support EOC operations during a Company holiday.	CAP -	EP&R			
Communication	There was confusion as to incident versus event command and control responsibilities, including PSPS demobilization, required microsite information and damage repair operations hand off transitions, in the aftermath of the significant windstorm damage within and external to PSPS activation Time/Places.		IT/TECH	Comms Manager to develop or recommend alternative Follow up		

Logistics						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Communication	There was lack of clarity on the appropriate order number for use when filing Concur system travel authorizations and/or claims for lodging expenses charged to P-Cards	Not a corrective action				
Coordination	The year long reliance on line of business staff for EOC activations negatively impacts steady-state mission requirements.					WS-6F
Communication	Excessive use of acronyms impedes effective EOC communications.	Not a corrective action				
Coordination (Regulatory Enforcement)	Prior use of a site for a laydown yard, Base Camp or Microsite should not serve as a basis to assume current availability of the site for use as a laydown yard, Base Camp or Microsite.	CAP --	Land Acquisition			
Communication	Excessive use of acronyms impedes effective EOC communications. In addition to brevity so as to enable quick decision making and action, EOC team members should also be encouraged to practice "two way" communication to ensure that information conveyed by the active communicator is received and understood as intended by the recipient and vice versa.	Not a corrective action				

Logistics						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Planning	Acquisition of 30 acre parcels at 75 mile intervals along the Sierra Nevada Mountain foothills and along portions of the southern San Francisco peninsula may obviate the need for time consuming external party land use and permitting approvals to establish PSPS field facilities in future events and incidents.	Not a corrective action				

Operations						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Planning	Lack of cellular communication repeaters in high fire potential Fire Index Areas is impeding mobile app damage assessment submittals.		IT/TECH	██████████ Comms Manager to develop or recommend alternative		WS-6G
Situational Awareness	A lack of pre-event analysis in relation to windspeed potentials and the presence of growth trees in Fire Index Areas resulted in lack of awareness on the need for 'industrial' tree removal including the use of specialized (large) buzz saws, forklifts and hauling equipment.		Veg Management	██████████ Veg Lead Review with him and get feedback on possible solutions		WS-5D

Operations						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Communication	There was a lack of clarity between the company EOC, Regional Emergency Center and Operations Emergency Center echelons on who updates estimate restoration times in the OMT upon receipt of weather all-clear notification. Note: Bullet seven under the first paragraph of Section 5.5.2. of the September 1, 2020 PSPS Annex to CERP, The Re-energization Process states, "OECs update ETOR for any changes in OMT and notifications are sent to customers via messaging service."		PSPS Team Electric Distribution Emergency Management Responsible for ETORs			WS-6G WS-1E WS-5G

Planning						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Planning	Playbook synchronization using Palantir Foundry is taking too long at 55 minutes. The Medical Baseline (MBL) no contact report function in Palantir Foundry is not working. The refresh button on the PLAN page doesn't change colors from brown to green.		PSPS			WS-5G
Coordination (General)	Personnel did not expect a PSPS activation in January.	Not a corrective action	EP&R			
Coordination	ICS-230 meeting schedule not available to EOC staffer upon activation of the EOC.					WS-6A/F
Communication	EOC participants were unaware of the Virtual EOC TEAMS platform capability and procedures, to include sign-in and sign-out processes.					WS-6A/C

Planning						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Communication	EOC participants were unaware of the Virtual EOC TEAMS platform capability and procedures, to include required participation based on assigned positions in meetings in accordance with the ICS-230 meeting schedule and Operational Period ICS-214 Unit Log reporting.		EP&R	██████████ to develop talking points ██████████		WS-6A/C
Communication	Not all EOC Team members use the video function when participating in TEAMS meetings. Use of the video function will EOC Team members feel more connected.	Not a corrective action				
Planning	EOC Team members are using different naming conventions for ICS-214 Unit Log submittals.		EP&R SE	██████████		WS-6A/C
Planning	Siloed communications are impeding team collaboration and effectiveness.		Plans and PSPS Program	██████████		WS-6A
Coordination	Incident related information sent to the Situation Unit was not included situation snapshot updates.		Planning / Situation Unit	██████████ Follow up		
Coordination	EOC Continuity of Operations Plan unavailable in the event of power failure for EOC staffers working from home or other locations, to include LiveSafe App reporting requirements and reconstitution of in-person EOC operations in whole or part at a company facility.	CAP --	PSPS	██████████ ██████████		
Communication (Record Keeping)	The EOC SharePoint does not contain versioning history when using Microsoft Excel. The inability to use the function prevents users from comparing old to new information.	Not a corrective action	EP&R SE	██████████		

Planning						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Situational Awareness	The delivery of detailed data under PSPS events is likely conditioning external agency partner expectations for non PSPS events, which may in turn create an increased burden when pulling information from the Outage Management Tool (OMT) and, potentially, other electronic systems. Palantir Foundry's system may help with inputs on the technological back end to improve data collection and sharing with external agency partners.	Not a corrective action	EP&R SE	[REDACTED]		
Planning	The development of ad hoc EOC email distribution lists during EOC activations has resulted in inconsistencies in recipients between EOC teams and across activated EOC shifts.		EP&R SE	[REDACTED]		WS-6F
Planning	Limited, four team EOC rotations is prompting a need for late staffing augmentation, including Planning Section personnel. EOC staff are not receiving information on shift times and on-call periods.		EP&R SE	[REDACTED]		WS-6F
Situational Awareness	While perceived as mutually supportive, ad hoc requests for manual process outside of the scope of EOC Commander objectives may detract from organizational effectiveness when it subsumes priority EOC job functions.					WS-6C

Planning						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Coordination	Maintaining a consistent schedule of EOC team meetings and tasks for both night and day shifts enables repeatable work product deliverables.		EP&R SE	[REDACTED]		WS-6B
	Staffing (people not showing up for their shift) -Challenges with conflicting priorities that significantly impacted staffing team dynamics -Plans heavily weighted with Asset Mgmt , need to diversity		EP&R Staffing	[REDACTED]	Mid	WS-6F
	Process for onboarding adhoc requests		EP&R	[REDACTED]	Mid	WS-5A
	Include Plans positions in the All Clear meetings (PSPS Dep Chief, Plans Chief and PSPs tech lead)		PSPS Program	[REDACTED]	Mid	WS-5A
Communication	1. On-call roster document not easily navigable or easily searchable on the roster; 2. Roster document needs to be more user friendly;		EP&R SE	[REDACTED]		WS-6F

Vegetation Management						
Core Capability	Area for Improvement	Corrective Action	Dept Issue Owner	Issue Owner	Start Date	End Date
Coordination	Transmission Line Supervisor lacked Operations Emergency Center (OEC) contact information, resulting in a need to contact the Regional Emergency Center (REC) instead.	Not a corrective action				