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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Examine
Electric Utility De-Energization of Power
Lines in Dangerous Conditions

Rulemaking 18-12-005
(Filed December 19, 2018)

(Not Consolidated)

Order Instituting Investigation on the
Commission's Own Motion on the Late
2019 Public Safety Power Shutoff Events

I. 19-11-013
(Filed November 13, 2019)

(Not Consolidated)

**BI-WEEKLY REPORT OF
PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)
IN COMPLIANCE WITH JANUARY 30, 2020
ASSIGNED COMMISSIONER'S RULING**

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Dated: July 13, 2020

Attorneys for
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In compliance with the Assigned Commissioner's Ruling (ACR) issued January 30, 2020, in R.18-12-005, Pacific Gas and Electric Company (PG&E) hereby submits its bi-weekly report updating its corrective actions related to the Public Safety Power Shutoff program (Attachment 1 hereto). At the request of the Safety and Enforcement Division, the attached report is in a blackline format. Per the ACR's directives, PG&E is concurrently filing this report in I.19-11-013.

Respectfully Submitted,

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ASSIGNED COMMISSIONER'S RULING**

July 13 ~~February 24~~, 2020

**BIWEEKLY REPORT OF
PACIFIC GAS AND ELECTRIC COMPANY
IN COMPLIANCE WITH JANUARY 30, 2020
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COVID-19

PG&E takes seriously the threat of the novel coronavirus (COVID-19) pandemic and is taking measures to protect the health and safety of our customers and our workforce while continuing to provide safe and reliable service. PG&E is continuing to evaluate the essential work across all of our lines of business that must continue for our customers and communities. While work associated with our Wildfire Mitigation Plan and our preparedness for Public Safety Power Shutoff (PSPS) will continue, the COVID-19 pandemic and statewide stay-at-home order will impact PG&E's ability to meet some of the deadlines identified in this report's Milestone Charts. PG&E has modified the status of certain action items to reflect the impact of COVID-19 and is continuing to reassess its action plans and milestones to prepare for the 2020 wildfire season taking into account the impacts of COVID-19. As conditions change related to COVID-19, we will continue to update our protocols and actions and this report accordingly.

Introduction

Pacific Gas and Electric Company's (PG&E or Company) most important responsibility is the safety of its customers and the communities that it serves – including the delivery of safe, reliable electricity. At times when severe weather and wildfire risk require it, PG&E's actions can include proactively turning off power for safety. This is known as a Public Safety Power Shutoff (PSPS).

A PSPS event has a single purpose: to prevent catastrophic wildfires and potential loss of life or injury caused by utility equipment. When circumstances dictate, a decision to de-energize can protect against devastating consequences. PG&E is keenly aware that any de-energization event also disrupts lives and presents its own public safety risks.

We also understand that in the case of the October 9, 2019 PSPS in particular, the hardship was widespread, and it was made worse by shortcomings in our website, communications, and other areas. Millions of people needed information, and in important ways – including, most notably, our website – we were under-equipped to meet that challenge. We acknowledge these critical errors. They were not acceptable and cannot happen again. PG&E is actively working to update its forecasting and fire risk modeling; strengthen community engagement with our Public Safety Partners and others; update technology and tools to identify the scope and potential impact of PSPS events; improve the accuracy and availability of maps for state, local, and tribal partners, improve notification to customers through the use of targeted outreach and capturing more contact information; improve the integrity of our website; and increase the capacity of our customer contact centers to handle increased call volume during these events.

A critical part of PG&E wildfire safety preparedness efforts are actions that result in safer de-energization events that are less burdensome on affected communities. This year, a key focus is to make PSPS events smaller, shorter, and smarter. In 2020, PG&E is making substantial

investments and upgrades in our electric system and operations to help keep the lights on for our customers and communities. By taking both immediate and long-term actions to further strengthen and enhance our infrastructure, we are working to ensure the length of outages and number of people impacted are reduced every year.

PG&E is committed to learning from each PSPS event, to sharing the lessons learned, and to implementing best practices for similar events in the future. PG&E is listening to its customers about how the company can do better by taking feedback and acting on the feedback received. The company is also working closely with local, state and tribal officials to increase coordination for PSPS events, utilizing listening sessions, exercises and planning meetings to better understand and address concerns at the local level. By working together, PG&E can adapt its electric system to the ever-growing threat of wildfires, while also helping our customers prepare for public safety outages.

The following report outlines the Corrective Actions that have been identified for improving future PSPS events and our progress against each. This will be an iterative document that is updated regularly to provide a report on the steps PG&E taking to improve PSPS events for our customers and communities in 2020. ~~This June 15, 2020 report is in blackline format. Blackline updates to Milestone Charts are shown since the February 24, 2020 biweekly report. Updates to the narrative discussion are relative to the May 18, 2020 report. All updates since the last June 1, 2020 report are highlighted in yellow.~~ ~~This June 29, 2020 report is in blackline format. Blackline updates to Milestone Charts are shown since the February 24, 2020 biweekly report. Updates to the narrative discussion are relative to the June 1, 2020 report. All updates since the last June 15, 2020 report are highlighted in yellow.~~ This July 13, 2020 report is in blackline format. Blackline updates to Milestone Charts are shown since the February 24, 2020 biweekly report. Updates to the narrative discussion are relative to the June 15, 2020 report. All updates since the last June 29, 2020 report are highlighted in yellow.

The Milestone Charts list the status of key action items, deliverables and ongoing work PG&E is undertaking to enhance its preparedness for the 2020 fire season. For the most part, the major workstreams for these action items are independent of one another and being worked on in parallel, while the subtasks listed under each numbered action item are highly inter-related. Some interdependencies, or lack thereof, between numbered action items in the Milestone Charts are noted in this report. We will continue to clarify such interdependencies in future reports in response to questions raised by CPUC staff about our 2020 PSPS preparations.

The contents of PG&E's Past Weekly Updates in Compliance with the October 14, 2019 Letter of Commission President Batjer, organized by Corrective Action, are available in Appendix A of PG&E's February 10 Biweekly Report.

Corrective Action 1: Scaling of Business Operations

- 1.a **Identify the maximum customer outage that could occur during a PSPS, and the commensurate bandwidth requirements for both web and call services that must be available at all times.**

Website

A PSPS event that impacts PG&E's entire service territory could theoretically affect all of its 5.4 million electric customers. However, given that only 50 percent of PG&E's service territory is located within high-risk fire areas, PG&E does not anticipate a PSPS event of this scope ever occurring. Moreover, the web traffic during an event does not necessarily correlate with the number of impacted customers. There are a number of factors that can affect web traffic during a PSPS event, including, but not limited to, the scope of the PSPS event, when customers are attempting to access the website, whether non-customers are trying to access the website, and whether third-party websites such as news organizations are linking to PGE.com and/or using "bots," which are automatic software applications programmed to repeatedly scrape a source website like PGE.com.

The October 2019 PSPS events, however, provide a good proxy for the potential web traffic associated with a maximum PSPS event because those events were the largest PSPS events experienced in the history of California. For example, during the October 9-12 event, PG&E experienced a substantial increase in traffic on its static content servers, with server calls per hour increasing to around 900,000 per hour. PG&E also experienced a substantial increase on its transaction-based servers (which housed the "Your Account" features, such as bill pay and the Address Look-Up tool), which increased to almost 1.7 million server calls per hour.

As a result, PG&E made several enhancements that enable the website to scale-up as needed to accommodate an even larger PSPS outage in the future:

- *Memory / CPU Capacity.* Increased memory and central processing units (CPUs) on PG&E servers, including increasing virtual memory from 4 to 8 cores and JVM Heap memory from 4 GB to 8 GB on PG&E's 10 frontline web servers.
- *Server Configuration.* Reconfigured PG&E servers to increase capacity, including web servers that were fine-tuned by updating MaxClient from 1024 to 4000 and Server Limit to 180.
- *Cloud-Based Environment.* Moved the most-heavily used PSPS functions, including the Address Look-Up Tool, Partner File Download, and Outage Maps, to a cloud-based environment provided by Amazon Web Services (AWS). This allows these functions to scale up and down as needed.
- *CDN Network.* Leveraged a content delivery network (CDN), which is a large network of servers that accelerates the delivery of website content by leveraging a geographically distributed network of specialized servers. For example, according to PG&E data, during the

October 23-25 PSPS event, more than 90% of the traffic to PG&E's static content servers and more than 50% of the traffic to the "Your Account" servers were offloaded to the CDN network.

- *Back-Up Servers.* PG&E also developed back-up servers / platforms for certain critical PPS-related functions. These additional servers / platforms are designed to create redundancies in PG&E's systems so that if one set of servers were to become unavailable, the PPS-related functions would still be available on another set of servers / platform.

In order to ensure that these enhancements result in sufficient capacity for future PPS events, PG&E has undertaken extensive testing since the October 9-12 PPS event. For example, in 2019, PG&E tested its static content servers, which were the servers that failed during the October 9-12 event, to 2.6 million server calls per hour, which represents almost triple the maximum server calls per hour during the October 9-12 event. The static content servers easily withstood that level of traffic. PG&E has tested its back-up cloud-based server to a higher level of traffic, of 10.1 million server calls per hour.

Thus, while it is difficult to predict the maximum number of server calls per hour that PG&E may experience in a future PPS event, PG&E believes that it has tested its website to the maximum service outage that PG&E could experience and the website has easily withstood that level of traffic. Further, just to be completely sure that the website is equipped to handle the traffic associated with a maximum service outage, PG&E's IT department plans to engage an outside vendor to review PG&E's current IT infrastructure and confirm that the infrastructure is sufficient to withstand a maximum service outage. PG&E also plans to invite the California Department of Technology to participate in this review.

Call Services

The capacity of PG&E's contact center – and PG&E's efforts to increase such capacity – are discussed in more detail in connection with Corrective Action 1.g. PG&E's efforts to increase its capacity include, among other things, forecasting staffing needs and leveraging technological resources to identify, prioritize, and serve PPS customers during the PPS events.

Process Owners: Rajesh Arora, Senior Director of Information Technology Applications (Website), Chris Zenner, Senior Director of Contact Center Operations and Customer Service Offices (Call Services)

1.b Develop protocols to immediately enlist surge capacity and/or supplemental resources to address shortfalls in real time. Establish specific response-time goals/metrics and triggers to ensure resource availability to meet these goals.

As described in Corrective Action 1.a, PG&E has completed substantial enhancements to the website, including increasing memory and CPU capacity, reconfiguring servers, moving the most heavily used PSPS functions to a cloud-based environment, leveraging a content delivery network, and developing back-up servers. These protocols are designed to ensure that the website can handle the additional traffic associated with a maximum customer outage. PG&E has tested the website to levels that significantly exceed the maximum traffic that PG&E experienced during the October 2019 PSPS events and the website has withstood those tests. For these reasons, PG&E does not anticipate capacity constraints on its website in the future, but as noted above, PG&E is in the process of engaging an outside vendor to validate the capacity of the website to withstand a maximum customer service outage.

Further, PG&E has developed additional internal protocols to monitor website traffic and triage and address any potential issues. For example, PG&E increased monitoring thresholds of PGE.com so that PG&E's Enterprise Network Operation Center (ENOC) is alerted anytime CPU utilization reaches 60%, a lower threshold than the 80% that PG&E previously applied. Once alerted, ENOC will engage the required resources to triage and address the problem.

PG&E's current response-time goals / metrics for all transaction services on the website are 10 seconds or less. PG&E recognizes, however, that PSPS functions are critical and therefore has developed the following Target Response Time for PSPS functions (assuming 4G or higher broadband): Customer Main Landing Page – 4 seconds; Address Look-up Tool – 4 seconds, Maps (outage maps and shape maps) – 7 seconds; Event Pages – 4 seconds; and Partner File Download – 8 seconds. PG&E's recent testing confirms that PG&E response times are within these limits. For example, PG&E tested the Address Look-Up Tool to a level of 2.6 million transactions per hour and the average response time during that testing was less than 1 second.¹

Process Owner: Rajesh Arora, Senior Director of Information Technology Applications (Website)

¹ PG&E's October 25 weekly update stated that "all PSPS features are averaging under one second even during the peak load." The October 25 update should have stated that the Address Look-Up Tool (rather than all PSPS features) was averaging less than one second during peak load. Testing on other PSPS features has demonstrated that PG&E is meeting the PSPS-specific average response time goals identified above.

- 1.c **Perform a risk assessment of business operations and document the utility's capabilities and gaps for handling high traffic to websites, increased call center volume, and potential impacts on utility communications from associated interruption of telecommunications networks.**

Website

As described in Corrective Action 1.a, PG&E has undertaken extensive efforts to make enhancements to the website to ensure that it will scale for future PSPS events. Since October 2019, PG&E has performed numerous tests on the website to validate these efforts, including, for example, eight separate load tests on the customer landing page on PGE.com's static content servers, which are the servers that failed during the October 2019 PSPS events. PG&E has tested the website and the critical PSPS features to levels that significantly exceed the maximum amount of traffic experienced during the October 2019 PSPS events and the website has withstood all of those load tests. All of the primary PSPS features have been moved to cloud-based servers so they can be scaled to meet demands during future PSPS events. While PG&E has not conducted a formal risk assessment and documented the capabilities and gaps for handling website traffic, PG&E has test records reflecting the website testing that PG&E has performed and validating those results.

Call Center

PG&E's contact centers are geographically dispersed, with locations in Sacramento, San Jose, and Fresno. The contact centers are staffed with a total of 900 agents, all of whom are PG&E employees. In a de-energization event, call volumes will vary in accordance with the staggered times of de-energization and notifications. In addition, planned PSPS events prompt fewer calls than unplanned events. PG&E's Contact Center platform is designed for call bursts of up to 142 calls per second and to hold and process 3,900 concurrent calls. In the October 2019 PSPS events, PG&E experienced manageable call volume within those platform capacities, with an average call per second rate of 10.6 and a concurrent call volume well below the 3,900-call capacity.

Cybersecurity

PG&E also has formal processes and procedures relating to managing potential implications of a cyber-attack. Those processes and procedures are included in an Annex to the Company Emergency Response Plan. The procedures describe the roles and responsibilities of various members of PG&E's Enterprise-Level Cybersecurity Response Organization. PG&E's cybersecurity team annually reviews and updates this procedure in response to, among other things, lessons learned from exercises and actual incidents; feedback generated by PG&E subject matter experts, planning team, internal and external key stakeholders, and cyber security team; and changes to laws or regulations pertaining to cybersecurity. PG&E has reviewed its processes and procedures with the CPUC's Safety Enforcement Division (SED) and has included SED in the Company's Cybersecurity emergency exercises.

Process Owners: Rajesh Arora, Senior Director of Information Technology Applications (Website), Chris Zenner, Senior Director of Contact Center Operations and Customer Service Centers (Call Center), Martin Strasburger, Senior Director of Cybersecurity (Cybersecurity)

1.d Ensure website capabilities that are critical for PSPS information dissemination function in a cloud environment and are thoroughly tested in accordance with industry best practices.

As described in Corrective Action 1.a, PG&E has moved the website's most-heavily used PSPS functions, including the Address Look-Up Tool, Partner File Download, and Outage Maps to a cloud-based environment provided by Amazon Web Services (AWS). This allows these functions to scale up and down as needed.

As described in Corrective Actions 1.a and 1.c, PG&E has conducted extensive testing of its website since the October 9-12 PSPS event, including testing on the customer landing page, the PSPS Address Look-Up Tool, the PG&E outage maps, the partner file download, and the PSPS event page. Some of these features have been tested multiple times in the past three months. In performing these tests, PG&E has used multiple testing and monitoring tools and platforms, including Storm Runner, JMeter, LoadRunner, App Dynamics, AWS CloudWatch, AWS Dashboard, and Akamai dashboard.

Process Owner: Rajesh Arora, Senior Director of Information Technology Applications (Website)

- 1.e **Perform performance and stress testing of websites, customer portals and underlying infrastructure, develop procedures to identify and manage cyber-attacks (e.g. Denial of Service) that are launched concurrently with a PSPS event, and develop back-up sites as a contingency in case main website goes down.**

Website

As described in Corrective Action 1.d, PG&E has conducted extensive stress testing on the PG&E website, including the critical PSPS features. In addition, as discussed in Corrective Action 1.a, PG&E has developed various back-up systems and redundancies to ensure the availability of the website during future PSPS events. This is a modification from the process of monthly stress, load, endurance, and breakpoint testing that PG&E previously described. Specifically, PG&E conducted several tests in October and November 2019 to validate the new website enhancements. In addition, PG&E conducted stress tests before each of the subsequent PSPS events in 2019 to ensure the enhancements were working properly.

PG&E has not conducted monthly tests since November 2019 because the 2019 wildfire season is over. In addition, PG&E does not believe that certain testing, such as breakpoint testing, would be of value because, as discussed above, many of the key PSPS features have been moved to cloud-based servers and therefore should be able to continually scale, such that there should be no true breakpoint. PG&E plans to continue stress testing the website and PSPS features as PG&E approaches the 2020 wildfire season, including conducting tests before each PSPS event in 2020.

Cybersecurity

As discussed in Corrective Action 1.c, PG&E has developed formal processes and procedures in the event of a cyber-attack. Those processes and procedures are included in an Annex to the Company Emergency Response Plan.

Process Owners: Rajesh Arora, Senior Director of Information Technology Applications (Website), Martin Strasburger, Senior Director of Cybersecurity (Cybersecurity)

1.f Establish a partnership with the California State Threat Assessment Center and the California Cyber Security Integration Center to receive threat information to PG&E networks and to receive State technical assistance when necessary during high profile PSPS events.

PG&E has an existing relationship with both the California State Threat Assessment Center (Cal-STAC) and the California Cyber Security Integration Center (Cal-CSIC) and considers itself a partner of both organizations in the area of cybersecurity.

- *Cal-CSIC*
 - The relationship between PG&E and Cal-CSIC goes back many years. In 2018, PG&E and the Governor's Office of Emergency Services (Cal OES) formalized the relationship between PG&E and Cal-CSIC through the execution of a formal Memorandum of Understanding (MOU) in order to facilitate ongoing information-sharing activities.
 - From an operational standpoint, Cal-CSIC sends PG&E daily intelligence reports and provides emergency briefings when major security issues arise. PG&E has also participated in Cal-CSIC working groups. PG&E is in regular communication with Cal-CSIC and understands that it can contact Cal-CSIC for technical assistance in the event of a major cyber-security issue during a PSPS event.
- *Cal-STAC*
 - PG&E also has a long-standing relationship with Cal-STAC. PG&E works with Cal-STAC through the Northern California Regional Intelligence Center (NCRIC).
 - From an operational perspective, PG&E's collaboration with Cal-STAC includes bi-directional intelligence sharing, participating in briefings in the event of major security issues, and cyber-incident investigation support. PG&E also has an open line of communication with Cal-STAC through NCRIC.

Process Owner: Martin Strasburger, Senior Director of Cybersecurity

- 1.g **Establish solutions for handling increased volumes of calls to the call centers, including setting specific response-time goals and ensuring resource availability to meet those goals. To accomplish this, PG&E and the other state IOUs shall increase the workforce in this area so that there are adequate resources to manage this highly critical function.**

PG&E's contact centers are an integral part of the Company's broader PSPS plan. PG&E has operated contact centers for many years, and they have an important function in providing services and information to PG&E customers. PG&E currently operates four contact centers, geographically dispersed with two in Sacramento, one in San Jose, and one in Fresno. They are staffed with a total of 900 agents, all of whom are PG&E employees. PG&E has undertaken extensive efforts to prepare for PSPS events in 2019, and continues to enhance the capacity of its contact centers in advance of the 2020 season. Key solutions are described below.

- *Staffing Solutions.* PG&E can forecast staffing needs for each PSPS event, train customer service representatives, and conduct exercises to test its systems' ability to handle a large volume of customer communications. PG&E also has the ability to keep one or more of its contact centers operational for 24 hours a day.
 - *Overtime.* Among other measures, PG&E can increase contact center staffing, as needed, by maximizing voluntary overtime or imposing mandatory overtime for customer service representatives.
 - *Additional Staffing.* PG&E has trained an additional 150 Credit and Billing customer service representatives, who typically handle those more specialized calls, to support larger events and handle PSPS call overflows.
 - *Training.* PG&E has planned refresher training for its customer service representatives, including the 150 Credit and Billing agents, before the wildfire season commences. PG&E will also provide specialized "refresher" training before activation of the first event, and for subsequent events where appropriate.
- *Technology Solutions.* PG&E also has developed strategies to leverage its technological resources to identify, prioritize, and serve PSPS customers during PSPS events.
 - *Prioritization of PSPS Customers.* PG&E can implement an option in its interactive voice response ("IVR") menu to give priority to PSPS calls over non-emergency, non-PSPS calls.
 - *IVR Messaging.* Depending on call volumes, PG&E can use IVR messaging to advise customers of wait times and encourage customers with non-emergency, non-PSPS business to call back later.
 - *PSPS Call Strategy.* PG&E has developed an additional strategy for implementation when PSPS events scale to over 100,000 potentially impacted customers, as needed.

Under the PSPS Call Strategy, contact centers only accept emergency calls and calls relating to PSPS. PG&E leveraged this strategy at times during the late 2019 PSPS events, and will continue to use it in 2020.

- *Website.* Separately, the website team also reinforced the PGE.com website, which allowed more customers to self-serve and obtain information online without dialing the contact centers. This reduces call volume and waiting times.
- *Integrated Address Look-Up Tool.* PG&E has implemented a technological solution that will allow customers to access the Address Look-Up Tool in the IVR when they call into PG&E's contact centers. It will have the same functionality as the web version of the Address Look-Up Tool, including providing estimated times of restoration. Integrating it into PG&E's IVR system will reduce call volume and waiting times by providing another opportunity for customers to self-serve without requiring interaction with a live agent.

PG&E's goal for response times during PSPS events aligns with the CPUC's requirements for response times outside of PSPS events: answering at least 76 percent of calls within 60 seconds. PG&E exceeded that goal across the 2019 PSPS events and believes that with the enhancements described here it will continue to do so.

Process Owner: Chris Zenner, Senior Director of Contact Center Operations and Customer Service Offices

Corrective Action 1: Milestone Chart

Chapter 1: Scaling of Business Operations			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
1. Develop a new website in advance of the 2020 wildfire season to host PSPS features that will scale to meet demand.	1.a-f	June 30, 2020	<u>Complete</u> <u>On target</u>
a. Work with vendor (Nexient) to develop new website		June 30, 2020	<u>Complete</u> <u>On target</u>
b. Conduct beta tests on new website		May 15, 2020	<u>Complete</u> <u>On target</u>
c. Review website with third-party consultant, SED, and DOT, and incorporate any feedback		May 15, 2020	<u>Complete</u> <u>On target</u>
<u>d. PG&E implements solutions to strengthen its website's infrastructure in advance of the 2020 wildfire season based on results of Action Item 2 below.²</u>	-	<u>June 30, 2020</u>	<u>Complete</u> <u>On target</u>
d. Launch new website in advance of 2020 wildfire season		June 30, 2020	<u>Complete</u> <u>On target</u>
2. Engage independent consultant to review IT infrastructure and perform a formal risk assessment and document capabilities and gaps for handling web traffic in advance of 2020 wildfire season.	1.a-e	May 15, 2020	<u>Complete</u> <u>On target</u>

² Moved from Action Item 2.d

Chapter 1: Scaling of Business Operations			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
a. Identify and engage a vendor; develop a work plan, including objectives; and invite DOT to participate in development of protocol		March 31, 2020	<u>Complete</u> On target
b. Consultant performs assessment of the website infrastructure, interviews key IT representatives, and reviews the records of previous performance tests and other documents.		May 1, 2020	<u>Complete</u> On target
c. Consultant issues a report evaluating current IT infrastructure and recommends enhancements, if necessary		May 15, 2020	<u>Complete</u> On target
d. PG&E implements solutions to strengthen its website's infrastructure in advance of the 2020 wildfire season based on results of Action Item 2 below.		June 30, 2020	On target
3. Develop and document PSPS-specific website process document to include minimum performance requirements for PSPS features (e.g., average response time), process and procedures relating to scaling during PSPS event, and formal plan for stress testing prior to each PSPS event	1.e	June 15, 2020 ³	<u>Complete</u> On target

³ This deadline has been modified to June 15, 2020 to align with the timeline for incorporating feedback from SED, DOT and consultant.

Chapter 1: Scaling of Business Operations

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
a. Complete first draft of protocol outlining minimum performance requirements, and plan for stress testing website prior to each PSPS event, including which specific tests will be performed, what level of traffic PG&E will test to, and when those tests will be performed		April 1, 2020	<u>Complete</u> On target
b. Share draft protocol with SED, DOT, and consultant retained in response to Corrective Actions 1.a-f above		May 15, 2020	<u>Complete</u> On target
c. Incorporate feedback from SED, DOT, and consultant and formally adopt and implement protocol		June 15, 2020	<u>Complete</u> On target
4. Release the IVR-integrated version of the Address Look-Up Tool for customers who call the contact centers.	1.g	June 15, 2020	<u>Complete</u> On target
a. Beta testing		April 30, 2020	<u>Complete</u> On target
b. Release		June 1, 2020	<u>Complete</u> On target

Corrective Action 2: Coordination with Counties and Tribal Governments

Some of the activities described in this section are being impacted by the COVID-19 pandemic and the stay at home orders. For example, the current prohibition against meeting in large groups impacts activities such as community Open Houses and working sessions with counties and tribal governments. Local communities are also appropriately focused on COVID-19 response and their availability varies. PG&E is working on alternative methods for local engagement and will continue to provide updates.

2.a Collecting feedback from local governments (cities and counties) impacted by PSPS events that took place the week of October 7, 2019 and identifying specific actions to be taken to address such feedback.

PG&E has completed the process of collecting feedback from local governments and tribes impacted by the October and November 2019 PSPS events, and identifying specific actions to address that feedback. The Company has undertaken efforts to solicit and implement feedback during each PSPS event, after the October 9-12 PSPS event, and in the weeks and months following the conclusion of the 2019 wildfire season.

On Wednesday, October 16, shortly after the conclusion of the October 9-12 PSPS event, PG&E leadership held two 90-minute conference calls with impacted counties and received input about how the Company could better coordinate and communicate with local governments. More than 30 counties participated in these calls. Based on feedback received during these calls, PG&E immediately implemented certain process improvements prior to the October 23-25 and 26-November 1 PSPS events, and identified longer-term enhancements to be addressed in the weeks and months to come.

Below is some of the feedback received and actions the Company implemented in real-time during and between the late 2019 PSPS events.

- *Community Resource Centers.* During the October 9-12 event, PG&E initially provided 28 Community Resource Centers (CRCs) throughout the impacted area, with the goal of having at least one CRC in each affected county. A day after the event started, PG&E opened five additional CRCs based on real-time feedback from Public Safety Partners. Based on feedback from local governments, following the October 9-12 event, PG&E learned that more Community Resource Centers (CRCs) would be helpful. For the October 26-November 1 event, PG&E doubled the number of sites and worked closely with counties and tribes to identify locations that were tailored to their community. PG&E also increased the resources available at each location and took steps to accommodate additional requests from counties and tribes (e.g., ice and blankets), when feasible. PG&E also responded to feedback by extending the CRCs' hours of operation, working to ensure reliable cellular service at

CRC sites, and bolstering efforts to ensure ADA-compliance and accessible paths of travel.

- *Operational Briefing Calls.* PG&E moved from twice-daily to thrice-daily operational briefings to provide more frequent updates to local governments, and significantly scaled up call capacity by using a conference line with a live operator that also allowed for the ability to view documents. PG&E will continue to refine this process for this upcoming wildfire season based upon input provided by county and tribal offices of emergency services (OES) during recent listening sessions.
- *County and Tribal Liaisons (single points of contact).* PG&E implemented dedicated liaisons for each county and tribe potentially impacted by the event to resolve unique, local issues, including providing additional information regarding briefing calls, offers to embed a liaison or GIS mapping expert in local EOCs, access to PG&E's EOC, and coordination on CRC locations. A dedicated email inbox was also utilized and monitored 24/7 to address any questions or comments in real-time.
- *Local EOC staffing.* In response to county and tribal interest, PG&E offered a liaison representative and GIS mapping specialist who could be embedded in a county or tribes' local EOC and provide additional real-time information and technical support. The Company continued to make these resources available during the subsequent PSPS events.
- *Medical Baseline and Critical Facilities Lists.* PG&E began sharing Medical Baseline and critical facilities customer information with local governments and tribes upon request, without requiring a non-disclosure agreement, as directed by the CPUC, to assist with their planning and emergency response efforts.

Since the end of the 2019 wildfire season, PG&E has also engaged in an extensive process to meet with and solicit feedback from local governments and tribes affected by the PSPS events in October and November 2019.

- *Schedule of listening sessions.* PG&E sent invitations to meet in-person with the emergency management team of every county and tribe impacted by the October and November 2019 PSPS events for the express purpose of "listening" and gathering feedback from these jurisdictions. PG&E has completed 36 listening sessions with counties, cities and tribal governments; 11 counties that were invited declined to participate and six counties (Lassen, Sacramento, San Francisco, San Luis Obispo, Santa Barbara and Tulare) were not impacted by a 2019 PSPS event.
- *Attendees and participants.* The local governments and tribes were free to bring any representatives of their choosing to their listening session and the number of attendees from the local governments and tribes have varied from meeting to meeting. PG&E's local public affairs representative, local public safety specialist, a meeting scribe, as well as a member of the Company's senior leadership team

attend the listening sessions. This includes PG&E's most senior leadership, including PG&E Corporation President and CEO Bill Johnson, Pacific Gas and Electric Company CEO and President Andy Vesey, Senior Vice President of Electric Operations Michael Lewis, and Senior Vice President of Customer Care Laurie Giammona, as well as PG&E five vice presidents. NorthStar Consulting also attended some of the listening sessions.

- *Collection of feedback.* While PG&E prepared a customized presentation for each listening session, the meetings are designed to be open-ended to allow the county or tribe to guide the conversation and focus on specific issues of interest to them. When a county or tribe verbalized feedback during a session, PG&E captured that feedback in an intake form. The intake forms cover many topics related to PSPS, including but not limited to, the notification process, event execution, information sharing, restoration timing, and information needed to better support the community's response needs.
- *Report summarizing feedback and corrective action plan.* PG&E has consolidated and summarized the feedback from each of the meetings, and has shared it with both the meeting participants, as well as the CPUC after the completion of the sessions. PG&E is coordinating with local and tribal governments to confirm we have accurately captured the key takeaways for their session in the intake form. During this coordination, some counties and tribes have noted that they are currently conducting COVID-19 response efforts and will review the intake form at a later time. When all local and tribal governments have confirmed their review of the intake form, we will resubmit the feedback summary. PG&E intends to use the feedback from the listening tour to develop a corrective action plan and will work to implement any corrective actions identified in the plan before the 2020 wildfire season.

With the listening sessions completed, PG&E will take additional steps to engage with and provide information to counties and tribes on an ongoing basis.

- *Localized discussions.* Between March and June 2020, PG&E will engage in one-on-one working sessions with counties and tribes across its service territory, prioritizing those communities that were most impacted by the 2019 PSPS events, to share localized plans for wildfire mitigation and system resiliency and share a summary of the listening sessions and action plans. Dedicated liaisons will partner with the county OES to host and invite regional key stakeholders including cities, tribes, community choice aggregators (CCAs), telecommunications and water service providers, and Community Based Organizations (CBOs), as well as representatives from local CAL FIRE and CalOES. Key topics will include:
 - Coordinating and continuing to gather input on Community Resource Centers;

- Communicating how local energy is supplied including circuit maps;
 - Partnering to share communications strategies and resources for information sharing during a PSPS event;
 - Laying out the short-term and long-term vision for PG&E's electric system to reduce future PSPS impacts (i.e. sectionalizing, microgrids etc.);
 - Communicating about progress on critical vegetation safety and system hardening work;
 - Listening to community concerns and incorporating feedback into planning and communications;
 - Conveying immediate improvements to the PSPS program;
 - Sharing approach and confirming process for identifying critical facilities; and
 - Sharing improvements and coordinating approaches to support access and functional needs customers.
- *Regional working groups.* Following the localized discussions, and on an ongoing basis, PG&E's dedicated liaisons will establish regularly scheduled regional working sessions across PG&E's service territory to obtain input, solicit recommendations, and gather feedback regarding PSPS improvement efforts (i.e., community preparedness, regional coordination, and enhanced technologies). The liaison, accompanied by a customer representative and local public affairs representative, will be responsible for facilitating the meeting with participants who may include some or all of the following stakeholders: local and tribal government OES, CCAs, CBOs, and telecommunications providers, as well as representatives from local CAL FIRE and CalOES. There will be year-round coordination between local communities and the dedicated liaisons.
 - *PSPS Advisory Committee.* In addition to the localized discussions and regional working groups, PG&E developed an ad hoc advisory committee comprised of a targeted group of county and tribal agencies impacted by the recent PSPS events in PG&E's service territory to obtain focused input, solicit recommendations, and gather feedback regarding PSPS improvement efforts. Participants include Butte, Kern, Marin, Placer, Santa Cruz, and Sonoma counties, Hopland Tribe (Mendocino), Robinson Rancheria (Lake) and representatives from the California League of Cities and California State Association of Counties.

Process Owner: Aaron Johnson, Vice President of Wildfire Safety & Public Engagement

2.b Identify resources (Emergency Operations Center liaisons) that can be embedded 24/7 in County Emergency Operations Centers (EOCs) during events. The EOC liaisons shall be trained in emergency response, in accordance with Standardized Emergency Management System (SEMS) and have working knowledge of utility operations and business processes.

As described in Corrective Action 2.a, PG&E has established and assigned dedicated county and tribal liaisons (single points of contact) to the emergency management function for all potentially impacted counties and tribes. These contacts are responsible for coordinating between local governments and PG&E on notifications, briefing calls, changes to scope, restoration, and any other issues of concern to the counties or tribes.

During the October and November 2019 PSPS events, PG&E offered to embed liaison representatives and GIS mapping specialists on-site within the EOC of the county or tribe so that each local government would have a dedicated on-site representative with direct access to PG&E's EOC. These representatives were specifically assigned to support the emergency management function during the late October and November 2019 PSPS events. PG&E will continue to offer this support in future events.

- *Public safety specialists as liaisons.* PG&E received positive feedback regarding the single point of contact information sharing process, and the Company plans to continue to utilize this process during the 2020 wildfire season. PG&E is in the process of making various organizational and staffing changes to further enhance the overall effectiveness of the liaisons. For the 2020 wildfire season, the liaisons will be PG&E public safety specialists. Public safety specialists are full-time PG&E employees and often have prior experience working as emergency responders, such as police or fire personnel. Outside of the PSPS event, the public safety specialists will be assigned as the emergency management liaisons for the counties and will work on addressing various emergency preparedness issues, in addition to PSPS preparation. PG&E anticipates completing the reorganization of public safety specialists in February 2020 and hiring additional public safety specialists by the end of the second quarter of 2020. Based on feedback from counties that found their Local Public Affairs representative a valuable resource, PG&E will continue to provide those resources, and provide them with additional training, as a supplement to the public safety specialists.
- During a PSPS event, the liaison will be the local government's dedicated liaison to PG&E.
 - *Reporting structure for public safety specialists during a PSPS activation.* PG&E's current plan is for this new, larger group of dedicated specialists to report to a team of regional leads for the North, South, and Bay regions to coordinate the process of transmitting information between county liaisons and PG&E's EOC. The regional leads will be overseen by and have direct access to a supervisor based in PG&E's EOC.

- *SEMS training.* PG&E has updated this plan, as described in Corrective Action 4.a and in future reports will refer to that Corrective Action for the update on SEMS training. The language above is therefore being removed and will be replaced with a cross-reference to Corrective Action 4.a in future reports.
- *GIS specialists.* Finally, in addition to the dedicated public safety specialists, PG&E also offered, in late 2019, to make GIS mapping specialists available to local EOCs to assist with mapping questions and related technical issues. For example, during the October 26-November 1 PSPS event, 17 GIS experts were embedded in local EOCs. The GIS specialists are full-time PG&E employees who work in the mapping group. PG&E has received favorable feedback regarding the GIS experts and intends to make those available to the counties and tribes in connection with the 2020 wildfire season as well.

Process Owner: Mark Quinlan, Senior Director of Emergency Preparation and Response

2.c Develop and implement processes that will ensure that County EOC liaisons will have the latest PSPS event information during PSPS events and are enabled and empowered to resolve local issues as they arise.

As described in Corrective Action 2.a and 2.b, during the 2019 wildfire season, PG&E established and deployed a dedicated liaison (single point of contact) for each county and tribe to address issues that arose before and during PSPS events. The Company plans to further develop and utilize this resource in 2020. Outside the context of a specific PSPS event, and generally throughout the year, a designated public safety specialist will work with each county to discuss and explain upcoming PSPS events and lead trainings and exercises. During a PSPS event, that public safety specialist will become a liaison and available to embed in a county or tribal EOC if desired. As described in Corrective Action 2.b, PG&E is in the process of expanding its staffing and training of public safety specialists, who will serve as county EOC liaisons in 2020.

- *Access to information and resources.* PG&E has developed and implemented processes to ensure that county liaisons have access to necessary information through multiple channels during PSPS events.
 - *Liaison coordination briefings.* In addition to the operational briefings conducted by PG&E's EOC with counties and tribes, single points of contact participated in twice-daily briefings with PG&E's EOC to receive information to share with their jurisdiction, as well as raise any local concerns.
 - *24/7 Email Inbox.* In 2019, PG&E also established a liaison email inbox, which was monitored 24/7 by EOC personnel, to respond to issues raised by local governments.
 - *Access to regional leads.* In addition, PG&E appointed a team of regional leads for the North, South, and Bay regions to coordinate the process of transmitting information between PG&E liaison and PG&E's EOC. During the October and November 2019 PSPS events, the regional leads fielded questions and requests in their regions regarding unique, local issues, and assigned staff to run down responses to these inquiries. The regional leads were overseen by and had direct access to a supervisor based in PG&E's EOC.
- *Feedback from listening sessions.* Finally, as described in Corrective Action 2.a, PG&E met with counties and tribes regarding the single point of contact information sharing process and have identified areas for improvement based on feedback received. As noted above, the specific corrective actions resulting from those meetings will be addressed in advance of the 2020 wildfire season.

Process Owner: Aaron Johnson, Vice President of Wildfire Safety & Public Engagement

2.d Establish a more effective communication structure with county and tribal government emergency management personnel. This communications structure shall be separate and unique from general updates to local governments and other stakeholders to allow for emergency personnel to receive the support and information required to properly respond.

As described in Corrective Actions 2.b and 2.c, PG&E is continually improving upon its communication structure with county and tribal emergency management personnel. Key steps are described below.

- *Liaisons (single points of contact).* During the October and November 2019 PSPS events, PG&E had assigned a liaison to each county and tribe, who served as a regular source of information from the time PG&E entered readiness posture through restoration. PG&E will continue to make these contacts available in 2020, and is currently enhancing its staffing and training of the public safety specialists who serve as liaisons to counties and tribes.
- *Other communication channels.* In addition to the liaisons, or single points of contacts, PG&E also provides the following communications channels for local governments and tribes during an event:
 - Live calls to Public Safety Answering Points (PSAPs), County OES and tribes before customers are notified;
 - Operational briefing calls to provide situational awareness updates directly from the PG&E Emergency Operations Center (EOC);
 - A dedicated 24-hour email monitored by the PG&E EOC;
 - Automated call, text and e-mail updates throughout the PSPS event; and
 - Information uploaded to the secure data transfer portal before being posted to the publicly available website.
- *Feedback from listening sessions.* Finally, as described in Corrective Action 2.a, PG&E met with counties and tribes regarding the single point of contacts information sharing process and identified areas for improvement based on feedback. As noted above, the corrective actions resulting from those meetings will be addressed in advance of the 2020 wildfire season.

Process Owner: Aaron Johnson, Vice President of Wildfire Safety & Public Engagement

2.e Phone calls must be manageable and allow for two-way dialogue with each county and tribal government emergency personnel. The CPUC recommends holding calls individually with counties when possible, or at a minimum considering grouping counties in accordance with PG&E identified geographic regions (1-9) or developing some other format. For example, attempting to take questions with hundreds of people on a conference phone call is not feasible.

In the course of its listening sessions with counties and tribes, the Company has solicited input on whether operational briefings, regional calls, or liaisons (single points of contact) are preferred. While the listening sessions are still in progress that the majority of counties and tribes prefer a more concise, once daily operational briefing without a question and answer portion, but supplemented with live calls from their liaisons. The Company is working to investigate and implement changes for the 2020 wildfire season. Any changes will build upon the steps PG&E took in October and November 2019 to make conference calls more manageable, and create options for two-way dialogue with local government and tribal emergency personnel, including those described below.

- *Conference call technology.* During the October 9-12 PSPS event, PG&E moved from twice-daily to thrice-daily operational briefings with local agencies and tribes, and began using a more robust conference line with a live operator. This new tool expanded the number of participants that were able to join, ensured participants were able to clearly hear the PG&E situational awareness update, and provided a systematic approach for the question and answer portion of the call.
- *Liaisons (single points of contact).* As discussed in Corrective Action 2.d, PG&E has identified and will continue to use liaisons for each county, which will allow for two-way dialogue. This approach is in accordance with guidance from CAL FIRE during the October 2019 events, recommending that information be pushed through PG&E's single points of contact assigned to each county and tribe. In addition, PG&E plans to hold internal calls with the single points of contact, who will be armed with up-to-date information to share directly with their assigned counties.

Based on discussions with CAL FIRE and an expert in the Liaison function who attended a number of the events, PG&E evolved the model used for these calls in the November event and plans to approach it similarly going forward. Internal Liaisons were briefed twice daily and given updated Situation Reports. They then provided these to the counties and attended county sponsored calls twice daily. Similarly, PG&E held twice daily tribal calls to attend to their unique set of issues and questions. Global event information was brought to the counties and tribes through these mechanisms, and local issues could be addressed without taking questions on a call with hundreds of participants. Counties that used this model in November have provided positive feedback. PG&E plans to continue this model going forward.

Some Counties have indicated that they would like some version of the large group calls to continue, but in a shorter, operational briefing format and without a question and answer

session. Based on this feedback and input from CAL FIRE, in 2020 PG&E will supplement its local outreach approach described above with a once daily “cooperators call”, similar to CAL FIRE’s approach at incidents, that would be a situational briefing for public safety partners within PG&E’s electrical service territory. We will provide updates as we evolve this briefing process.

Process Owner: Aaron Johnson, Vice President of Wildfire Safety & Public Engagement

- 2.f Develop processes and procedures for sharing information of medical baseline customers that can be impacted by a specific PSPS event. Per CPUC Executive Director directive issued on October 8, 2019, the utilities are expected to share medical baseline information with counties and tribal governments, if requested, without a memorandum of understanding or non-disclosure agreement during PSPS events. Also, utilities must ensure that the information can be shared with-county and tribal government emergency response personnel in a confidential manner that limits access to include only intended recipients of the information.**

PG&E recognizes the need for local first responders to assist the vulnerable population when PG&E's EOC is activated for a PSPS event. Following the October 8, 2019 letter from the CPUC on this issue, PG&E implemented a process to securely share the names and addresses of Medical Baseline customers within an impacted jurisdiction through its secure data transfer portal, even in the absence of a non-disclosure agreement.

Upon request, beginning with the October 23-25 PSPS event, PG&E also began sharing with counties and tribes lists of Medical Baseline customers within their jurisdictions who had not confirmed receipt of their notifications. PG&E made these customer lists available on a regular schedule through its secure data transfer portal. These lists were snapshots in time, and PG&E continued to make attempts to contact these customers and confirm receipt of their notifications, at which point PG&E would update its lists.

PG&E is continuing to enhance its efforts to protect its customers' privacy and data for the 2020 wildfire season. In the course of its listening sessions with counties, PG&E has learned that local jurisdictions and tribes also want access to a comprehensive list of Medical Baseline customers within their jurisdiction for general emergency preparedness purposes, without a non-disclosure agreement and outside the context of specific PSPS events. PG&E has raised this issue with the CPUC and will need authorization similar to the resolution that was issued for release of information during a PSPS event.

Process Owner: Aaron Johnson, Vice President of Wildfire Safety & Public Engagement

2.g Develop and validate the list of critical facilities by coordinating with counties, tribal governments and Cal OES ahead of the events.

PG&E has developed and validated its list of critical facilities through coordination with counties, tribal governments, and Cal OES ahead of PSPS events, but that effort is a continual, ongoing process. Key milestones and deliverables are described below.

- *2019 Initiatives.* PG&E took a number of steps throughout 2019 that provide the base for its 2020 efforts:
 - *Summer 2019.* PG&E initiated an outreach campaign to 267 cities and counties to confirm and verify critical facilities and infrastructure within their jurisdiction. PG&E requested that each jurisdiction identify additional facilities and infrastructure they deemed critical and wanted to include in PG&E's critical facilities and infrastructure list.
 - *Mid-October 2019.* PG&E received responses from over 85 cities and counties. PG&E then reviewed and updated its records based on the feedback, and added over 500 critical facilities to PG&E critical facility designation (where an address match was found), and confirmed over 800 critical facilities that PG&E had already designated as critical.
 - *Late October 2019.* In connection with the October 26-November 1 PSPS event, dedicated PG&E liaisons (single points of contact) coordinated with potentially impacted counties and tribes to review the proposed scope of the event and provided the critical facilities lists through the secure data transfer portal. Additionally, PG&E customer representatives made direct contact with assigned critical facilities customers to supplement the automated notifications that were sent to these critical facilities. Where critical facilities were identified through this coordination, the facilities were added to PG&E's list.
- *Ongoing Initiatives.* PG&E is continuing work to develop and validate its list of critical facilities before the start of the 2020 wildfire season, which builds on its efforts in 2019 and consists of the following:
 - *Internal Validation.* The first step in this process involves an internal validation process to identify facilities that should be added to the list. There are multiple components to this internal PG&E validation:
 - One component involves an automated approach to identifying and maintaining their list of critical facilities in alignment with the definition of critical facilities as provided by the CPUC. The automated approach uses SQL to pull key fields related to the customer account, including NAICS2, customer descriptor, business activity, service descriptor, size, and rates. Using SQL allows the searches to be thorough, documentable, editable, and

repeatable. The end product helps verify the list of customer Service Point IDs (SPIDs) that are currently critical for each facility category and determines if the designation should be updated.

- A second component of this internal validation process involves identification, by PG&E customer relationship managers, of facilities that may merit consideration. PG&E personnel apply the Company's newly-updated Critical Customer Definitions Job Aid, a set of guidelines that help determine Critical Customer-type designations and restoration priorities. On a monthly basis, PG&E's business operations team consolidates and sends the requests to the Critical Customer Governance Committee for review and approval.
- PG&E expects that these initial internal processes will be complete by the end of February 2020. PG&E has updated this timeline, to reflect completion by the first week of March 2020.
 - *Internal Review and Governance Process.* The second step in developing and validating PG&E's list of critical facilities involves an internal review and governance process to validate the results of that initial phase. PG&E completed this internal review and governance process by the end of March, excluding the review of the telecommunications sites which will be completed by May 1, 2020.
 - *Meetings with cities, counties, and tribal governments.* Finally, in the third step, PG&E will engage with local governments and tribes to share the results of these initial processes, while complying with customer privacy laws and regulations, and gain the input of those entities on PG&E's critical facilities list. PG&E expects that this engagement will begin in April.

As described in Corrective Action 2.j, PG&E is also assessing the handling of critical facility information that is considered commercially-sensitive, trade-secret, or security sensitive by customers who operate those facilities. In light of these confidentiality considerations, PG&E is implementing a corrective action in its comments on PSPS guidelines that requests Commission clarification of the requirements for sharing sensitive critical facility customer information with and without an enforceable non-disclosure agreement before, during and after PSPS events. In particular, PG&E requested clarification that IOUs shall share non-competitively sensitive critical facility customer information with and without an enforceable non-disclosure or other confidentiality agreement.

Process Owner: Jake Zigelman, Senior Director of Local Customer Experience

2.h Identify impacts on major transportation systems, including tunnels and railroad systems. PG&E shall coordinate with the California Department of Transportation (Cal TRANS) and the appropriate railroad and rail transit entities ahead of events to identify major transportation infrastructure that needs to be monitored during PSPS events.

PG&E implemented this corrective action in connection with the PSPS events of late October 2019 and continues its work with relevant stakeholders. Key milestones and deliverables are described below.

- *2019 Initiatives.* In late 2019, PG&E coordinated at both the regional and local level to identify relevant systems and to address and limit potential transportation disruptions based on the anticipated customer impacts. These discussions included CalTrans, BART, and other critical service providers, and were designed to further understand and more effectively plan for the various PSPS outage scenarios. These discussions identified, among other things, facilities that required backup power.
- *Ongoing Initiatives.* With respect to the 2020 wildfire season, PG&E has met, or is continuing to meet, with major transportation providers. In January 2020, PG&E met with BART to gain their feedback on past events and is directly engaging with BART to respond to operational recommendations. PG&E is also continuing to work with CalTrans, at the local and state level, including to identify critical locations and service points and to assist CalTrans with resiliency and redundant power solutions. In March, PG&E also had intended to hold a meeting with rail companies, as well, to gain further input, and share improvements made or planned for 2020. This meeting was delayed due to the COVID-19 impact and the revised schedule is reflected in the milestone chart for completion of the action item to gain feedback from key critical facilities impacted by the 2019 PSPS events.

Because these issues affect all utilities, PG&E proposed in its previous Weekly Reports that the California Governor's Office of Emergency Services (Cal OES) lead a comprehensive review of potential impacts of extended outages (e.g., PSPS, earthquakes) on all major transit providers, with support from those customers, as well as PG&E and the other California investor-owned utilities.

PG&E notes that transportation resilience is one of the topics expressly included in the Proposed Additional and Modified De-Energization Guidelines (Phase 2 Guidelines) in R. 18-12-005 and addressed in the Final Decision (D.) 20-05-051 issued on June 5, 2020.

Process Owner: Dave Canny, Director of Large Enterprise Accounts

2.i Identify critical fuel supply needs and develop advance plans for coordination with fuel suppliers and refineries to ensure continuity of fuel supplies.

PG&E is implementing Corrective Action 2.i, which addresses the identification of fuel supply needs, in conjunction with its implementation of Corrective Action 2.h, which addresses the identification of major transportation systems.

- *2019 Initiatives.* In late 2019, PG&E contacted fuel suppliers and refineries to further understand and more effectively plan for the various PSPS outage scenarios. In particular, PG&E remained in close coordination with Kinder Morgan to ensure its safe operations during PSPS events.
- *Ongoing Initiatives:*
 - With respect to the 2020 wildfire season, PG&E will continue to coordinate with fuel suppliers and refineries to further understand, and more effectively plan, for the downstream impacts of a PSPS event on the ability to safely operate refineries. PG&E has continued discussions with Kinder Morgan and has met again, along with other similar facilities, in March 2020 in connection with regular meetings with industrial customers.
 - PG&E has also identified additional major fuel suppliers and refineries within its service area to ensure that they are fully informed about the potential impact and the need for advance preparation.
 - PG&E has incorporated the resulting understanding of the nature and the scope of these customers' needs into the Company's decision-making processes both before and during future PSPS events. PG&E intends for discussions with these facilities to remain ongoing.

Because these issues affect all utilities, PG&E proposed in its previous Weekly Reports that the California Governor's Office of Emergency Services ("Cal OES") lead a comprehensive review of potential impacts of extended outages (e.g., PSPS, earthquakes) on all major transit providers, including fuel suppliers and refineries, with support from those customers, as well as PG&E and the other California investor-owned utilities.

Process Owner: Dave Canny, Director of Large Enterprise Accounts

2.j Develop processes and procedures for sharing information on critical facilities with counties and local governments during events. This must include a solution for sharing information with counties and local governments even if there is no existing memorandum of understanding of non-disclosure agreement.

PG&E has developed a process to share information on critical facilities with local jurisdictions and tribes during PSPS events that meets local needs while complying with customer privacy laws and regulations. Upon request from an impacted jurisdiction, PG&E provides the names and addresses of the critical facilities located in that jurisdiction through its secure data transfer portal. The information is accompanied by an email from PG&E to the interested jurisdiction with additional guidance regarding confidentiality and privacy regulations.

As described in Corrective Action 2.g, for advanced planning purposes, outside the context of a specific PSPS event, PG&E is providing critical facilities information to local jurisdictions and tribes for review. This information will be delivered through PG&E's secure data transfer portal. PG&E will continue to work with local governments and tribes to execute non-disclosure agreements for this information.

PG&E is also assessing the handling of critical facility information that is considered commercially-sensitive, trade-secret, or security sensitive by customers who operate those facilities. In light of these confidentiality considerations, PG&E is implementing a corrective action in its comments on PSPS guidelines that requests Commission clarification of the requirements for sharing sensitive critical facility customer information with and without an enforceable non-disclosure agreement before, during and after PSPS events. In particular, PG&E requested clarification that IOUs shall share non-competitively sensitive critical facility customer information with and without an enforceable non-disclosure or other confidentiality agreement.

Process Owner: Aaron Johnson, Vice President of Wildfire Safety & Public Engagement

- 2.k Coordinate advance planning with county and tribal governments to identify locations for PSPS-specific community resource centers. These locations should be identified in a collaborative manner with local emergency response personnel and include agreement that the locations are appropriate to meet local requirements and needs. The list of possible locations for community resource centers should be known to local governments ahead of events and, during events, the coordination should be focused on which specific location to open. PG&E shall also work with counties and local governments to reach understanding on standards for operation (e.g., services available, operational hours).**

PG&E's 2020 process for coordinating with county and tribal governments regarding the locations of PSPS-specific Community Resource Centers (CRCs) will build upon processes developed in 2019.

- *October 2019 Coordination.* In October 2019, PG&E coordinated closely with the potentially impacted counties and tribes to review the proposed scope of the PSPS events and received input on possible locations for the CRCs based on the anticipated areas of de-energization. Based on post-event feedback, PG&E extended the hours of operation for CRCs, required that CRCs have cellular service availability, and ensured that all CRC sites were ADA compliant.
- *Ongoing Initiatives.* While PG&E initially planned to use predominantly hard-sided buildings, not tents, for 2020 events, these plans have changed to address impacts associated with the COVID-19 pandemic. PG&E is now planning to supplement the indoor sites with outdoor tents, micro sites and vans and intends to have execution details and logistics resolved through a coordination process with local governments and tribes. The number of CRC sites to be activated for each county or tribe will depend on the scale of an individual PSPS event.
 - *CRC Playbook.* PG&E is updating its CRC “playbook” to provide a consistent set of processes and requirements for, among other things, coordinating with local governments and tribes in the site selection process. PG&E is currently engaging with local governments and tribes to understand their interests in this process. PG&E currently expects the playbook to be completed prior to June 1, 2020.
 - *Updating List of CRCs.* Identifying sites for CRCs in coordination with the relevant governments involves four primary steps:
 - *Planning and preparation.* In December 2019, PG&E developed a list of sites that had been previously identified or requested, and prepared for outreach.
 - *Outreach.* In January 2020, PG&E contacted all 47 counties within its service area, as well as tribes, inviting the governments to propose sites. PG&E has

asked counties and tribes to identify at least five sites for readiness. At the time of this submission, PG&E has received responses from many, but not all, governments and tribes. Some counties have identified more than five sites; other counties have indicated that they do not anticipate needing that number. PG&E is implementing a similar process with tribes.

- *Identification and vetting of sites.* Determining whether a site is suitable requires, among other things, assessing accessibility and ADA compliance, transportation options, and generation capabilities. PG&E must negotiate the rights to the site. PG&E also confirms the logistics necessary for the locations. For those governments and tribes that have responded to PG&E's outreach, PG&E is currently in this phase. PG&E intends to complete this phase for as many locations as possible by the end of February 2020.
- *Sites finalized.* Once sites have been identified and vetted, PG&E provides the governments and tribes with additional information about the final locations. PG&E also addresses any outstanding issues, including, in appropriate circumstances, arranging for reasonable upgrades in order to meet CRC requirements. PG&E will also develop and finalize its staffing plan for each location.

The number of hardened CRC sites that will be ready to use for 2020 PSPS events is dependent on the pace at which local economies are able to recover and address public health safety risks from the COVID-19 pandemic.

The timeline for individual sites will vary, as it necessarily depends on the timing of the governments and tribes' responses, the suitability of the sites proposed and any new guidelines under the CPUC Phase 2 OIR. PG&E is willing to extend the finalization of sites past March 31, 2020, where necessary, in order to coordinate appropriately with the relevant governments and tribes. Appendix A provides additional details regarding the status of identifying, vetting and finalizing CRC sites.

Process Owner: Aaron Johnson, Vice President of Wildfire Safety & Public Engagement; Chris Bober, Director of Customer Care

2.1 Plan town hall style meetings or in-person public information dissemination gatherings to report back to the impacted communities following the PSPS event.

PG&E's 2020 outreach initiative will build on 2019's engagement outreach strategy.

- *2019 Initiatives.* Prior to the 2019 peak wildfire season, PG&E designed and executed a comprehensive PSPS community outreach strategy, serving to increase awareness of PSPS and readiness for extended power outages. PG&E also worked with first responders and local communities in advance to enhance customer notifications and ensure a coordinated response when PSPS events are forecasted and/or called. In 2019, these efforts included, among other things, a statewide PSPS awareness and preparedness campaign in coordination with other California utilities; over 1,080 meetings with cities, counties, agencies, tribes, first responders, community groups, and other stakeholders; 17 workshops with more than 930 local emergency services agencies; and 23 community open houses with approximately 3,200 attendees and three customer-specific webinars.
- *2020 Initiatives.* PG&E has developed the following plan for receiving feedback from customers and/or providing information to impacted communities:
 - *Open houses and Webinars.* PG&E had planned over 40 open houses, beginning April 1, 2020, and lasting through August 20, 2020. These open houses were intended to be held throughout PG&E's service territory and cover identified areas of improvement based on after-action reviews by PG&E, as well as city, county, customer, and other stakeholder feedback, and subsequent related progress. For customers that may not have been able to attend an in-person open house, webinars were planned to supplement the open houses. Due to COVID-19 impacts, PG&E has developed a pivot plan to conduct all open houses in a localized webinar format.
 - *Engagement with critical facilities.* In addition to the listening sessions with counties and tribes, PG&E is also meeting one-on-one and in group listening-session formats with key critical facilities to gather their feedback on the 2019 PSPS events and recommendations on how PG&E can do a better job for its customers and communities. This includes supporting EPA-led water agency workshops, meeting with telecommunications providers, hospital associations, BART, Department of Energy National Labs, the University of California Berkeley, transportation agencies, national retailers and large grocery providers. These meetings will conclude in April 2020.
 - *Focus groups.* In November and December 2019, PG&E hosted four focus groups in Chico/Redding, Napa/Sonoma, San Jose and Walnut Creek to discuss customer concerns regarding PSPS events and gather input on how the company can better communicate. PG&E will utilize this information to help inform communications and execution improvements.

- *Wildfire Preparedness and PSPS Awareness Studies:* In May and August 2019, PG&E surveyed over 2,000 customers to understand their awareness and recall of wildfire safety-related communications. Many customers recalled wildfire safety communications, were aware of PSPS, and had taken some action to prepare for wildfire season. PG&E just completed its third awareness survey at the end of March 2020.
- *Medical Baseline Customer / Health Practitioner Interviews and Surveys.* In October 2019, PG&E interviewed current and former medical baseline customers to identify recommendations for increasing awareness of the Medical Baseline Program and to improve PSPS communications and outreach to Medical Baseline customers. These interviews were used to inform the broader survey conducted with existing and prospective medical baseline customers. In October and November 2019, PG&E conducted online surveys and interviews with Health Care Practitioners (HCPs), including physicians, nurses, surgical technologist, rehab counselor, and contract specialist to assess how best to make medical professionals and qualified medical baseline certifying individuals aware of the program, understand the motivations for participating in the program, and gain feedback on the enrollment and notification processes. In December 2019 and January 2020, PG&E conducted surveys with medical baseline customers to measure their PSPS experience, identify how customers learned about the shutoff, how frequently they were notified, how they prepared, and how they would prefer PG&E to communicate during PSPS events.
- *Evaluation of Customer Feedback from Digital Channels.* In December 2019, PG&E aggregated customer input collected through digital channels, including online surveys that were submitted by customers when visiting PGE.com, social media content shared by customers, as well as conducting an analysis of web traffic and key pages and content that customers visited. PG&E identified opportunities related to improved content of the customer notifications, as well as web content and navigation.
- *PSPS Co-creation sessions with Customers, Partners & PG&E Employees.* In January 2020, PG&E gathered customers, cross-functional employees and partners from CAL FIRE and Alameda County in its first customer co-creation workshop. The results of this workshop will be used to inform communications, operations and customer experience decisions for implementation before May 2020.
- *PSPS Experience Survey.* In January 2020, PG&E conducted an online survey with customers to get feedback on PSPS events, including how customers became aware of an event, how they prepared, and if they visited a CRC.

- *Notification Message Testing.* In March 2020, PG&E completed notification message testing to test messages used in notifications sent to customers to update verbiage, as needed.

Process Owner: Aaron Johnson, Vice President of Wildfire Safety & Public Engagement

Corrective Action 2: Milestone Chart

Chapter 2: Coordination with Counties and Tribal Governments			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
1. Collecting, consolidating, and implementing feedback from county and tribal listening sessions.	2.a	June 1, 2020	<u>Complete</u> On target
a. PG&E completes remaining county listening sessions.		February 28, 2020	<u>Complete</u> On target
b. PG&E develops summary of feedback and key areas for improvement; PG&E shares with counties, tribes, and the CPUC.		April 1, 2020	<u>Complete</u> On target
c. PG&E tracks feedback and adjusts PSPS program, as appropriate.		June 1, 2020	<u>Complete</u> On target
2. PG&E will complete organizational and staffing changes to increase the number of public safety specialists available as county liaisons during the 2020 wildfire season.	2.b-e	June 30, 2020	<u>Complete</u> On target
a. Reorganize public safety specialist positions to increase availability for PSPS.		March 31, 2020	On target <u>Complete</u>
b. Hire additional public safety specialists.		June 30, 2020	<u>Complete</u> On target
3. Complete SEMS training for liaisons embedded in county EOC.⁴	2.b	July 31, 2020	On target
4. Consider information sharing process.	2.e	June 30 1 , 2020 ⁵	<u>Complete</u> On target

⁴ This milestone is being removed from this section as going forward the information will be reported in Corrective Action 4.a.

⁵ This deadline has been modified to June 1, 2020 to align with the timeline for making a determination regarding the timing of daily briefings.

Chapter 2: Coordination with Counties and Tribal Governments

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
a. Make determination regarding PG&E EOC hosting once daily briefing call and Liaison Representatives (single points of contact) hosting twice-daily briefings with counties/tribes.		June 1, 2020	On target <u>Complete</u>
5. Develop process for providing critical facilities and medical baseline customer lists to counties and tribes outside of an event for general emergency preparedness purposes	2.f, 2.j	June 1, 2020	<u>Complete</u> On target
6. Develop and validate list of critical facilities⁶	2.g-i	July 17-June 22 , 2020	On target
a. Internal Validation		March 6-February 28 , 2020 ⁷	On target <u>Complete</u>
(i) complete the automated approach to identifying list of critical facilities		February 24, 2020	Complete
(ii) PG&E customer relationship managers identify additional facilities that may merit consideration as critical and send these, as well as any requests received from other customers, to the Governance Committee		March 6, 2020	On target <u>Complete</u>

⁶ Action Item 6 is closely interrelated to Action Item 5. PG&E's goal is to develop and validate the list of critical facilities prior to June 1 so that it can be made available to counties and tribes as soon as possible.

⁷ This deadline has been modified to March 6, 2020 to align with the timeline for Action Item 6.a.(ii).

Chapter 2: Coordination with Counties and Tribal Governments

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
b. Internal review and governance process to finalize the initial list of critical facilities, and update system of record with revised designations		June 30, 2020 <u>May 1, 2020</u> ⁸	Complete <u>On target</u>
c. Obtain feedback from local and tribal governments on the list of critical facilities (<u>excluding telecommunication sites</u>) developed through the initial processes		June 26 <u>May 15, 2020</u> ⁹	Complete <u>On target</u>
d. Update the list of critical facilities based on government <u>and</u> <u>tribe</u> feedback		July 17 <u>June 22</u> ¹⁰	On target

⁸ ~~As of June 1, 2020, this process is substantially complete, including the development of the SQL script to identify sites based on customers account information, account manager review and governance committee review and approval. PG&E is updating the system of record the week of March 30 in advance of critical facility list sharing with agencies. Telecommunication-related critical facility site identification updates will be complete in the system of record by approximately May 1, 2020. Telecommunication-related critical facility site identification updates were complete by May 1, 2020, and the system of record will be updated by June 1, 2020. The delay was due to waiting for input from some telecommunications providers, which has now been received.~~

⁹ ~~Critical facility lists are to be provided via a new PSPS Portal. Outreach is slightly delayed due to new portal development delays. Outreach to agencies will be initiated~~ began the week of May 18 with requested input within two weeks from the time outreach was initiated. As of July 1, 2020, PG&E completed outreach to 100% of the 327 cities, counties and tribes. PG&E has received input on critical facilities lists from 25 ~~41-42~~ out of 327 (138%) agencies and is currently reviewing responses to designate the newly identified critical facilities in its system of record where a match can be found. PG&E continues to follow up with agencies to receive their feedback and anticipates more responses to come in from jurisdictions in the next few weeks. PG&E will consider this initiative complete with agencies by June 26 and make updates to its system of record within three weeks of obtaining input from agencies (July 17). PG&E, however, will continue to accept feedback as it is provided after this timeframe.

¹⁰ ~~This deadline has been pushed back to allow time to incorporate into system of record based on agency and tribe feedback.~~

Chapter 2: Coordination with Counties and Tribal Governments

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
7. Coordinate with major transportation providers to help identify critical locations, service points, and resiliency and redundant power solutions	2.h	August 1, 2020 ¹¹ <u>March 15, 2020</u>	<u>Complete</u> On <u>Off</u> target ¹²
a. Conclude meetings with BART to get feedback on past events and respond to operational recommendations.		March 15, 2020	Complete
b. Conclude <u>2019 PSPS feedback</u> meetings with local and state CalTrans to identify critical locations and service points and assist CalTrans with resiliency and redundant power solutions.		March 15, 2020	<u>Complete</u> On <u>Off</u> target ¹³
8. Coordinate with fuel suppliers and refineries	2.i	May 1, 2020	<u>Complete</u> On target
a. Conclude meetings with refineries and fuel suppliers to further understand and more effectively plan for the downstream impacts of a PSPS event on their ability to safely operate		April 3, 2020	<u>Complete</u> On target

¹¹ This deadline has been modified to March 15, 2020 to align with the timeline for concluding meetings with BART and CalTrans.

¹² ~~Delayed due to COVID-19~~

¹³ ~~Delayed due to COVID-19~~ Major critical facility sites and thoroughfares have been identified with CalTrans. While that work is complete, discussions with CalTrans are continuing.

Chapter 2: Coordination with Counties and Tribal Governments			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
b. Incorporate the resulting understanding from meetings with refineries and fuel suppliers into the decision-making processes before and during PSPS events		May 1 April 3, 2020 ¹⁴	Complete On target
9. Coordinate CRCs with cities, counties, and tribal governments	2.k	September June 1, 2020 ¹⁵	On target
a. Complete conducting outreach to cities, counties, and tribal governments and receive recommendations for potential CRC sites.		February 28, 2020	Complete Off On target ¹⁶
b. Identify additional potential CRC sites		February 28, 2020	Complete Off On target ¹⁷
c. Vet the sites on the list and create a finalized list of sites that meet CRC requirements; obtain a calendar of events to enable PG&E to quickly assess availability in preparation for an event		May 1 April 3, 2020 ¹⁸	On target

¹⁴ Schedule revised to provide sufficient time to incorporate feedback and lessons learned, as needed.

¹⁵ PG&E's CRC engagement with cities, counties and tribal governments has been significantly impacted by the COVID-19 pandemic. This biweekly report has been updated to reflect PG&E's pivot strategy. The pace at which PG&E will be able to develop hardened CRC sites is uncertain and impacted by the pace at which local economies recover from the COVID-19 pandemic and statewide stay-at-home order.

¹⁶ PG&E's outreach to cities, counties and tribal governments is complete. ~~However, PG&E received input recommendations for potential CRC sites from 47 counties. 44 counties and is still following up with the three remaining counties on potential CRC site locations.~~

¹⁷ PG&E ~~is substantially~~ has completed this item, but is continuing its engagement with cities, counties and tribal governments as it finalizes the CRC sites and may make changes to the site locations over time as a result of this ongoing engagement process. ~~and is in the process of identifying additional potential CRC sites for six remaining counties.~~

¹⁸ ~~Updated to account for time needed to address recommendations after meetings concluded.~~

Chapter 2: Coordination with Counties and Tribal Governments

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
c. 0-30% hardened sites ready Enter into agreements with property owners of the sites on the finalized CRC list and complete CRC playbook.		June 1, 2020	Complete On target ¹⁹
d. 30-60% hardened sites ready		August 1 July 15, 2020	On target
e. 60-100% hardened sites ready		September 1, 2020	On target
10. Gain input from and report back to communities	2.1	August 20, 2020	On target
a. Finalize Open House and Webinar schedule and plan		February 28, 2020	Complete On target
b. Complete notification message testing		March 13, 2020	Complete On target
c. Conclude all PSPS-focused listening session meetings planned with key critical facilities		April 14 March 30, 2020 ²⁰	Complete On Off target
d. Complete third customer emergency preparedness/PSPS awareness study		March 30, 2020	Complete On target
e. Begin community open houses		April 29 15, 2020	Complete On Off On target ²¹
f. Begin community webinars		April 29 May 1, 2020 ²²	Complete On target

¹⁹ PG&E is continuing to monitor how COVID-19 realities will impact plans and execution of CRCs including securing micro (tent) and mobile (van) CRCs as an additional contingency; where hardened CRCs are not event ready due to COVID-19 realities, tent CRCs will be used.

²⁰ Delayed due to COVID-19. The last listening session planned for key critical facilities is with rail providers and was completed on is scheduled for April 14, 2020.

²¹ The Open Houses have been delayed due to COVID-19 social distancing guidelines. PG&E is executing a pivot strategy to begin a localized webinar series in place of the Open Houses starting in late April 2020.

²² Plans for webinars have been updated to include new local information to help supplement plans for local open houses, which are being impacted by COVID-19 social distancing guidelines.

Chapter 2: Coordination with Counties and Tribal Governments

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
g. Conclude open houses and webinars		August 20, 2020	On target
11. Localized County and Tribal Government Engagement	2.a	July June 30, 2020	On target
a. Begin initial outreach to schedule working sessions with counties and tribal governments to review county-level information with PG&E subject matter experts and facilitate ongoing information exchange.		March 2, 2020	Complete On target
<u>b. Schedule first ten working sessions with counties and tribal governments, prioritizing those with the most line miles in the highest fire-threat areas as well as those most impacted by the 2019 PSPS events.</u>		April 30 15, 2020 (schedule dependent upon county availability)	Complete On Off On target ²³
<u>c. Schedule next twenty working sessions with counties and tribal governments, prioritizing those with the most line miles in the highest fire-threat areas as well as those most impacted by the 2019 PSPS events.</u>		May 15, 2020 (schedule dependent upon county availability)	Complete Off On Off On target ^{24,25}

²³ ~~The working sessions were delayed due to COVID-19. Initial outreach is complete. PG&E is executing a pivot plan to transition from in-person to web-based meetings. As of April 14 March 31, three web-based meetings have been completed scheduled.~~

²⁴ ~~The working sessions are delayed due to COVID-19. PG&E is executing a pivot plan to transition from in-person to web-based meetings.~~

²⁵ ~~Working session schedule is dependent upon county availability to meet; 26 counties have either completed a working session or have a meeting date confirmed, three counties requested to postpone due to COVID-19 activities, one county declined to have a working session.~~

Chapter 2: Coordination with Counties and Tribal Governments

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
<u>d. Schedule final seventeen nineteen working sessions with counties and tribal governments, prioritizing those with the most line miles in the highest fire-threat areas as well as those most impacted by the 2019 PSPS events.</u> ²⁶		<u>June 1, 2020 (schedule dependent upon county availability)</u>	<u>Complete Off On Off On target</u> ²⁷
<u>b.e. Host working sessions with counties and tribal governments. Participants may include City governments, CCAs, telecom providers, CBOs, local CAL FIRE and Cal OES representatives, as available.</u>		<u>July June 15, 2020 – ongoing upon request</u>	On target
<u>3.f. Share summary report of feedback and action items received during working sessions.</u>		<u>July June 30, 2020</u>	On target
12. Ad Hoc County and Tribal Government PSPS Advisory Committee	2.a	March 30, 2020 - ongoing	On target

²⁶ PG&E has scheduled separate working sessions with one city and one tribe, bringing the total to 49.

²⁷ PG&E has reached out to all the counties/tribes and provided materials for the working sessions prior to June 1. As of July 10, PG&E has completed 33 working sessions with local agencies, public safety partners and other local key stakeholders in 31 counties (including one city and one tribal focused working sessions). One additional working session is scheduled, three counties requested to postpone due to COVID-19 activities and four counties declined to have a working session. PG&E has followed up with the remaining eight counties on multiple occasions and therefore considers this milestone complete. PG&E will continue to meet with the remaining counties upon request. However, the working session schedule is dependent upon county availability to meet. PG&E has completed working sessions with 286 counties and 1 city, 54 additional have been scheduled, 3 counties requested to postpone due to COVID-19 activities, 32 counties declined to have a working session, and 912 counties have not yet responded. The working sessions are delayed due to COVID-19. PG&E is executing a pivot plan to transition from in-person to web-based meetings.

Chapter 2: Coordination with Counties and Tribal Governments			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
a. Establish ad hoc advisory committee comprising a targeted group of county and tribal governments impacted by the recent PSPS events to obtain focused input, solicit recommendations and gather feedback regarding PSPS improvement efforts.		February 29, 2020	Complete On target
b. Host ad hoc county and tribal government PSPS advisory committee meetings.		March 30, 2020 - ongoing	On target ²⁸
13. Regional Working Groups	2.a	July 31 June 30, 2020 - TBD	On target ²⁹
a. Establish regional working groups with local and tribal government OES representatives, incl. invitations to CCAs, CBOs, telecom providers as well as local representatives from CALFIRE and Cal OES. These working groups will allow PG&E to collaborate and obtain focused input, solicit recommendations and gather feedback regarding PSPS improvement efforts.		July 15 6 May 31, 2020	On Off On target ²⁹

²⁸ To date, the first advisory committee meetings have occurred on March 5, and April 1, and April 8, and May 27, and July 2, 2020. The next PSPS advisory committee meeting is scheduled for May 27.

²⁹ PG&E has reviewed and confirmed the proposed regions with the PSPS Advisory Committee during its May 27 meeting. PG&E is still in the process of identifying and formally inviting the appropriate stakeholders within each region.

Chapter 2: Coordination with Counties and Tribal Governments

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
b. Host regional working groups. <i>Note schedule will be dependent upon availability of key participants, ongoing trainings for PG&E staff and potential EOC activations.</i>		July 31 20 June 30, 2020 - TBD (schedule dependent upon availability of key participants, upcoming trainings and potential activations)	On target

Corrective Action 3: Accuracy and Availability of Maps

- 3.a Work with Cal OES to develop better processes for sharing maps, including working on following a model that includes direct integration between respective GIS systems. Cal OES has worked with utilities, including PG&E, to ensure maps with planned and actual PSPS impacts are provided in a timely manner. During the most recent PSPS event, PG&E was consistently falling behind on providing maps that matched its latest estimates of PSPS impacts.**

In advance of the 2019 wildfire season, there were two primary types of event-specific maps that PG&E developed: the “Buffered Circuit” map, which shows the specific PG&E circuits that may be de-energized, and the “Generalized Polygon” map, which reflects the general areas that may be impacted by a PSPS event. The “Generalized Polygon” maps were developed based on specifications requested by Cal OES.

These maps are provided to Cal OES in a variety of file formats through two primary mechanisms: PG&E’s Secure Web Portal and the ARC GIS cloud platform. PG&E is now automating a key process that had contributed to delays in the delivery of these maps.

- *2019 Manual Process.* In order to minimize the impact of PSPS events, the process for developing the de-energization footprint area during the 2019 wildfire season required manual input and review, which in turn required PG&E to manually upload the resulting outage maps to its “PSPS Portal” and the ARC GIS cloud platform.³⁰ The manual process that was utilized to minimize the total customer impact of the PSPS events involved a lag between the time the maps were finalized and their availability for use by Cal OES.
- *2020 Automation Process.* In advance of the 2020 wildfire season, PG&E is automating the de-energization footprint and outage map creation process so that the maps become available on the Portal and the ARC GIS cloud more concurrently with their internal finalization within PG&E. The streamlining of this process will also involve moving to a platform that is not file based, which will enable automation of uploading maps. PG&E has met with Cal OES, Cal FIRE, and others to discuss planned improvements to PG&E’s PSPS mapping processes and to solicit feedback and input from these key stakeholders.

Process Owner: Tracy Maratukulam, Director, Public Safety Power Shut Off; Mark Quinlan, Senior Director of Emergency Preparation and Response

³⁰ PG&E first began sharing PSPS mapping materials with Cal OES through the ARC GIS cloud platform on or about October 21, 2019.

3.b Establish processes and systems for distributing maps with boundaries to impacted counties and tribal governments that correspond to the latest PSPS impact information being provided.

For the 2020 wildfire season, PG&E will provide maps to impacted counties and tribal governments through four primary mechanisms:

- *Secure Web Portal.* This is a mechanism that PG&E utilized during the fall 2019 PSPS events to provide PSPS outage maps to impacted tribal governments and counties.
- *ARC GIS Cloud Platform.* PG&E will also make PSPS outage map information available to impacted tribal governments and counties through an ARC GIS cloud platform. Yolo, Sonoma, Santa Clara, Calaveras, Santa Cruz, Stanislaus, Placer, Napa, El Dorado, Contra Costa, Amador, Tuolumne, Butte, Mariposa, San Mateo, Monterey, and Kern Counties have arranged ARC GIS cloud sharing with PG&E. PG&E will update this list with additional counties. The maps made available through the ARC GIS cloud platform include confidential customer and PG&E asset information that is not available to the general public.
- *PGE.com.* Like the general public, counties and tribal governments will continue to be able to access PSPS maps through PGE.com that do not contain confidential customer and/or PG&E asset information.
- *Alternate Internet URL for Public Safety Partners Priority Notice.* PG&E also maintains an alternative internet URL with certain mapping information that does not contain confidential customer and/or PG&E asset information. This URL is provided primarily to Public Safety Partners at the time of first advanced event notification, including counties and tribal governments, and other Public Safety Partners such as telecommunications providers, water agencies, and hospitals.³¹

The secure, non-public mechanisms also provide sensitive information that is not available to the general public.

In addition to these online resources, as it began to do in 2019, PG&E will also offer impacted tribal governments and counties in-person and/or telephonic GIS specialist support to facilitate expedited sharing of maps. These GIS specialists will provide real-time information and technical support accessing and interpreting maps.

Process Owner: Aaron Johnson, Vice President of Wildfire Safety & Public Engagement

³¹ Currently, PG&E is reevaluating access criteria and functionality for the secure web portal, which may eliminate the alternate internet URL option. Access strategy for the secure web portal will be finalized by April 2020.

3.c Develop dynamic maps that can be used for customers and members of the public to look up their specific address and obtain information about the PSPS event (potential for de-energization, status of de-energization, restoration estimation). These mapping solutions also need to be performance and stress tested to ensure they will be available during the most critical times (i.e., high volume web traffic).

In 2018 and during the June 2019 PSPS events, PG&E published only static maps (in PDF format) for customers showing impacted areas. Customer feedback indicated that customers wanted to zoom in on their particular location and see closer views. Accordingly, to provide a more interactive tool, PG&E made available on its public website the Generalized Polygon maps that had been created at the request of Cal OES. The website stated that the maps provided “a general outline,” were “not address specific,” and did “not include the complete and exact area(s) impacted by a PSPS.” The website also stated, in boldface, that the website’s Address Look-Up Tool, which PG&E had provided for customers to determine if a specific address was identified at the time for inclusion in the scope of an event, was “**the most accurate information**” available. (Emphasis in original.)

In preparation for the 2020 wildfire season, PG&E will integrate the Address Look-Up Tool, the map of the physical footprint of the PSPS event, and the status of PSPS into a single online viewer.

Additionally, PG&E has launched a Customer Location Parcel Project that will allow PG&E to display more precise PSPS Polygon maps that reflect the scope of the PSPS event down to the individual property parcel. This improved PSPS outage impact map will allow customers to more precisely understand the impact of a PSPS event. Identification of customer parcels has begun with a PG&E North Bay Division prototype and will transition to a system-wide analysis in the Second Quarter of 2020.

Process Owner: Tracy Maratukulam, Director, Public Safety Power Shut Off; Mark Quinlan, Senior Director of Emergency Preparation and Response

3.d Develop processes and procedures for back-up mapping solutions in case of GIS failure (e.g., partnering with additional industry providers of maps and having the ability to promptly create maps with PSPS boundaries and make publicly available).

PG&E uses GIS technology to perform two mapping functions for PSPS events: creation of maps and sharing of maps. For map creation, PG&E utilizes enterprise GIS technology that is built to PG&E's Mission Critical Tier 1 standard. For map sharing, PG&E primarily shares maps through four mechanisms: PG&E's Secure Web Portal, the ARC GIS cloud platform, an alternate internet URL (primarily for Public Safety Partners), and PG&E's public-facing website.

PG&E is evaluating options to provide back-up mapping capability and additional distribution options. With respect to back-up mapping capability, PG&E is considering the creation of a secondary offline system. With respect to additional distribution options, PG&E is exploring the distribution of encrypted map files via email to Public Safety Partners.

PG&E currently expects that by June 2020, it will put in place procedures and any required technology to facilitate a secondary solution in the event of a GIS failure.

Process Owner: Tracy Maratukulam, Director, Public Safety Power Shut Off; Mark Quinlan, Senior Director of Emergency Preparation and Response

3.e Develop capabilities to make maps available beyond the PG&E website, such as providing maps to media outlets and on social media and alternative platforms.

PG&E is taking a multi-faceted approach to ensure the delivery of maps in light of potential website failures.

- *Strengthening the Website.* The first component is strengthening the website so that this core delivery mechanism is able to make maps available. Since the October 9-12 PSPS event, PG&E has completed significant steps to improve the stability of its website and to supplement its back-up systems. These efforts are discussed in more detail in Corrective Actions 1.a through 1.e and include, among other things, moving the load related to the website's core information sources to a web-based cloud, and using a content delivery network to reduce the load from its system and offer a faster, higher-quality experience to users.
- *Social Media.* PG&E will augment the website with additional event-specific information made available through social media channels, including providing links to maps located on PGE.com. PG&E can also share static, image based county maps via social media channels should PGE.com experience any issues.
- *Traditional Media.* PG&E can also provide maps to traditional media outlets, for display on their own websites, or other distribution channels.

PG&E is also exploring additional alternative platforms to share maps with media and other external parties if the website were to experience any issues.

Process Owner: Lori Geoffroy, Director of Digital Strategy, Customer Care

Corrective Action 3: Milestone Chart

Chapter 3: Accuracy and Availability of Maps			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
1. Develop parcel level PSPS maps and publish to the website, Public Safety Partners, Cal OES, Tribes, Counties, cities, etc. in real time during the lead up to and during PSPS events.	3.a, 3.c	<u>September 1-June 15, 2020</u>	<u>On Off On</u> target
b. Develop initial North Bay Division pilot area electric customer to parcel match data set		February 28, 2020	<u>Complete On</u> target
c. Develop remaining PG&E system wide electric customer to parcel match data set		<u>April 30 March 31, 2020</u> ³²	<u>Complete On</u> target
d. Develop data maintenance processes for incremental and annual updates.		March 31, 2020	<u>Complete On</u> target
e. Enhance existing software to implement data maintenance process.		<u>June 15 April 30, 2020</u> ³³	<u>Complete On</u> target
f. Load system side electric customer parcel data set into permanent storage location.		<u>May 31, April 30, 2020</u> ³⁴	<u>Complete On</u> target

³² Schedule adjusted to allow for data quality improvements and quality control. Additional data quality improvements are being made pursuant to Action Item 1.i below.

³³ PG&E has completed implementation of a semi-automated data maintenance process. This means that incremental updates to the source of record will be generated by an analyst, and automatically consumed into the system of record. Fully automating the process so that incremental customer to parcel matches are generated by the system has been de-prioritized and delayed due to IT resource constraints. Such full automation may not be completed this fire season. ~~Fully automated process delayed due to IT resource constraints. A manual update process will be utilized until the automated process is complete.~~

³⁴ ~~While the data will be loaded into the test system by May 1 April 30, 2020, p~~ Production system readiness testing and completion will ~~not occur until~~ occur by May 31, 2020.

Chapter 3: Accuracy and Availability of Maps			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
g. Incorporate into PSPS Viewer.		June 1, 2020	Complete On target
h. Implement automation strategy for uploading maps		September 1 June 1, 2020 ³⁵	On target
i. Electric customer parcel confidence level improvement		September June 1, 2020 ³⁶	On target
2. Provide counties and tribes GIS support during PSPS events.	3.b	September 1, 2020	On target
a. Identify tribes and counties requiring GIS support during PSPS event.		June May 1, 2020	Complete On target Off On target ³⁷
b. Determine resource strategy based on anticipated requests.		June 1, 2020	Complete On target
c. <u>Host webinar with County OES and IT to review the tools and mapping available during an event</u>		<u>June 1, 2020</u>	Complete On target
ed. Implement steps necessary based on resource strategy.		September 1, 2020	On target

³⁵ Implementation of the automation strategy is delayed because the project is taking more time than anticipated and IT resources are constrained. A manual process will be used to upload maps from the viewer into the portal until the process is automated.

³⁶ PG&E will continue to improve the quality of its electric customer to parcel match data over time. For the 2020 fire season, PG&E plans to review and update by September 1 all parcel match data where we have low confidence in its accuracy for areas most likely to be impacted by PSPS events.

³⁷ PG&E's engagement with counties and tribal governments on this matter has been significantly impacted by the COVID-19 pandemic. PG&E is utilizing last year's list of agencies that requested support as a baseline to develop its 2020 staffing plan. Training sessions with agencies on the new PSPS tools are anticipated to reduce requests for support during events. Outreach regarding event support will be conducted during the training sessions.

Chapter 3: Accuracy and Availability of Maps			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
3. Develop back-up mapping strategy in case of GIS failure.	3.d	July June 1, 2020	<u>Complete</u> On target
a. Assess creation of and requirements for potential secondary offline system and/or third-party partnerships.		April 1, 2020	<u>Complete</u> On target
b. Implement secondary offline system and/or third-party partnerships based on initial assessments.		<u>July 1</u> June 1 , 2020 ³⁸	<u>Complete</u> On target
4. Assess additional platforms for distribution of maps.	3.e	September 1, 2020	On target
a. Identify additional social media channels available during Summer 2020 and technical suitability for distribution of maps.		August 1, 2020	On target
b. Implement appropriate steps based on requirements for additional channels identified.		September 1, 2020	On target

³⁸ The offline system and process to generate maps has been identified; documentation is still required to memorialize specific EOC role and process to upload offline maps during a PPS event.

Corrective Action 4: Mobilizing, Organizing, and Decision-Making for Widespread Emergency Events

- 4.a PG&E must follow Standardized Emergency Management System (SEMS) in emergencies and PSPS events to ensure consistency among emergency management and public safety agencies. PG&E must ensure that its personnel involved in PSPS response in Emergency Operations Centers and its liaisons to counties and tribal government emergency personnel are trained in SEMS. If PG&E requires assistance in SEMS training, PG&E shall communicate training requirement needs to Cal OES and the CPUC.**

PG&E has taken a number of external steps, among others, to implement appropriate emergency response training. Key events from 2019 are summarized here.

- Following a request from the CPUC that PG&E create a plan to train certain PG&E employees involved with PSPS events in Incident Command System (ICS) concepts, PG&E developed an ICS training plan that conformed to the nationally recognized FEMA/NIMS certification standards.
- PG&E shared its ICS training plan with Cal OES.
- Cal OES requested that PG&E instead institute a Standardized Emergency Management System (SEMS) based training program. Cal OES further requested that PG&E use the California Specialized Training Institute (CSTI) for the SEMS training.
- PG&E attended a September 30, 2019 executive PSPS meeting with state agencies discussing SEMS training. At that meeting, an offer to provide SEMS training to IOUs was proposed by Cal OES.

PG&E is continuing this process in 2020.

- PG&E's Emergency Preparedness & Response (EP&R) unit is also collaborating with Cal OES on the development and execution of SEMS/ICS training for PG&E incident management teams across the enterprise. PG&E met with Cal OES Superintendent Alex Cabassa of CSTI to discuss SEMS training on January 21, 2020, and has a joint meeting between PG&E and CSTI to align on training scope and effective delivery (CSTI, vendor, etc.).
- Once PG&E and CSTI align on training scope and delivery, PG&E can develop a training plan and begin rolling out web based training to employees by emergency role and activation frequency using both the FEMA Independent Study training and Cal OES on line SEMS training. These become the foundation for instructor-led training for Intermediate and Advance ICS and ICS training by position. PG&E has established course codes to capture the external training in PG&E's Learning Academy training record system and will also review opportunities to for a third-party solution to capture documentation efficiency. On

February 21, PG&E and CSTI aligned on training scope and delivery, and PG&E will now develop a training plan and establish appropriate course codes.

- All PG&E incident management team members will have the SEMS/ICS courses added to their training profile to support establishing standards for position qualification and training documentation. This effort will begin with a communication from senior leadership on the importance of the use of these emergency frameworks in our alignment with our public partners and safe restoration of impact to our customers. PG&E is now reviewing the applicability of this training to identify appropriate recipients. PG&E will focus its training for this season on the officers and section chiefs of the EOC's Command and General Staff, and the County and Tribal Liaisons.
- PG&E intends to complete SEMS training for all members of the EOC's Command & General staff prior to the 2020 wildfire season. PG&E is now reviewing the applicability of this training to identify appropriate recipients among EOC staff. PG&E will focus its training for this season on the officers and section chiefs of the EOC's Command & General Staff and the County and Tribal Liaisons. The schedule is described in the Corrective Action Milestone Chart.

Process Owner: Mark Quinlan, Senior Director of Emergency Preparation and Response

4.b Develop a process for providing enhanced transparency and visibility of PSPS decision-making process during events, including the factors that PG&E is taking into account as it considers de-energizing lines.

In addition to its 2019 efforts to educate the public, cities, counties, tribes, and state level agencies in the lead up to the 2019 PSPS events, PG&E is taking a number of steps to enhance the transparency of the PSPS decision-making process. Three key approaches are described here.

- *Involvement of Stakeholders during PSPS Events.* PG&E has invited members of key Public Safety Partners, including Cal FIRE, Cal OES, and the Commission to participate in the Emergency Operations Center (EOC) meetings, including the meetings in which the de-energization decisions were made. For example:
 - In developing the event footprint and scope for the current October 23-25 PSPS event, PG&E explained the company's scoping methodology with Cal FIRE senior leadership, Cal OES's senior leadership team, and SED at 10:00 am on October 22, 2019. The meeting included a review of PG&E's meteorological analysis of the event, the expected system impact across transmission and distribution systems, the expected event timeline, and the expected county and customer impact as currently scoped. At the suggestion of meeting attendees, the same information was shared later that same day with counties during PG&E's 12:30 pm local agency briefing.
 - PG&E met with state agencies again on October 25, 2019 to provide an overview of the footprint and scope of the October 26-November 1 PSPS event. PG&E and the participating state agencies discussed PG&E's meteorological analysis of the event, expected system impacts across transmission and distribution, the expected event timeline, and expected county and customer impacts as scoped at that time.
- As described in Corrective Action 2.b, PG&E also provides cities, counties, and tribal governments liaisons (single points of contact) who can be available telephonically or on-site with direct access to PG&E's EOC.
 - *Documentation of Decisions during Events and Submission of Post-Event Reports.* PG&E documents its decision-making processes for PSPS events and compiles them in PG&E's post-event ESRB-8 reports and subsequent amendments to those reports. Those post-event ESRB-8 reports are available publicly through the Commission's website.
 - *Outreach Efforts.* Since the conclusion of the fall 2019 PSPS events, PG&E conducted "listening tour" campaigns to solicit feedback from the public, cities, counties, tribes, and state level agencies regarding ways to improve PG&E's PSPS processes for 2020, and is conducting open houses throughout its service territory to provide

information to the public. PG&E's implementation of those programs is described in Corrective Actions 2.a and 2.l.

Process Owner: Mark Quinlan, Senior Director of Emergency Preparation and Response

4.c Document the utility's decision-making process for PSPS events, including identifying and documenting the authorities of the Senior Officer in Charge, or equivalent position, and how all elements of the utility emergency operation are clearly aligned under the command of this position.

PG&E is developing a detailed Public Safety Power Shutoff Annex to the Company's Company Emergency Response Plan (the "PSPS Annex") to prospectively document the processes and procedures that it plans to utilize to execute future PSPS events, including identifying the roles of the Office in Charge (OIC) and the EOC Commander. The most recent version is the draft of December 31, 2019.

PG&E intends to continue to work to update the PSPS Annex to incorporate additional lessons learned and input from further review. PG&E updated the PSPS Annex in March 2020.

PG&E's decision-making processes for the fall 2019 events were documented in real time and compiled in PG&E's post-event ESRB-8 reports and subsequent amendments to those reports. Those post-event ESRB-8 reports are available publicly through the Commission's website.

Process Owner: Mark Quinlan, Senior Director of Emergency Preparation and Response

4.d Identify and document all executives with the title of Vice President or equivalent, and above, with responsibilities in PSPS decision-making

The following Vice Presidents had PSPS decision-making responsibilities during the 2019 PPS events:

- Michael Lewis (Senior Vice President of Electric Operations)
- Sumeet Singh (Vice President of Asset & Risk Management, Community Wildfire Safety Program)³⁹
- Ahmad Ababneh (Vice President of Electric Operations Major Projects and Programs)

Currently, the following Vice Presidents have PPS decision-making responsibilities:

- Michael Lewis (Senior Vice President of Electric Operations)
- Ahmad Ababneh (Vice President of Electric Operations Major Projects and Programs)
- Tom French (Vice President of Electric Transmission Operations)
- Ken Wells (Vice President of Electric Distribution Operations)
- Debbie Powell (Vice President of Asset & Risk Management and Community Wildfire Safety Program)

As described in Corrective Action 4.c, PG&E's decision-making processes for PPS events are described in the PPS Annex to PG&E's Company Emergency Response Plan.

Process Owner: Mark Quinlan, Senior Director of Emergency Preparation and Response

³⁹ Sumeet Singh has since left PG&E and no longer has PPS decision-making responsibilities.

4.e Identify and document all board members, and board committees, with oversight of PSPS decision-making.

PG&E's Board of Directors (Board) does not have direct oversight of PSPS decision-making, but has oversight of the Community Wildfire Safety Plan that includes PG&E's PSPS program. The Board also receives reports on safety-related issues, including those related to PSPS events. In addition, under PG&E's Enterprise and Operational Risk Management program, once a risk mitigation approach is selected, it is monitored by risk owners, by senior management, and in some cases directly by the Board to determine if the risk mitigation activities are achieving measurable risk reduction.

Process Owner: Brian Wong, Vice President, Deputy General Counsel, and Corporate Secretary

4.f Describe all ways in which the utility has used monetary and other incentives to ensure that executives make PSPS decisions that protect life and safety.

The current annual incentive plans at PG&E are the Corporate CEO Plan and Short-Term Incentive Plan (applicable to officer-level and below employees). While these plans do not have a specific PSPS measure, they do include a focus on wildfire risk reduction and overall public safety, and incentives under both plans can be reduced to zero by the Board of Directors should a catastrophic event occur. PG&E does not currently have an approved incentive plan for senior officers.⁴⁰

Process Owner: John Lowe, Senior Director of Total Rewards

⁴⁰ In the CPUC's pending Plan of Reorganization Order Instituting Investigation, I.19-09-016, PG&E has submitted testimony describing an executive compensation program to comply with Assembly Bill 1054. See PG&E Plan of Reorganization OII 2019, Prepared Testimony, Chapter 7 (Executive Compensation).

Corrective Action 4: Milestone Chart

Chapter 4: Mobilizing, Organizing, and Decision-Making for Widespread Emergency Events			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
1. Provide SEMS training to PSPS personnel.	4.a	September 1 December 31, 2020 ⁴¹	On target
a. Meet with CalOES and CSTI to align on training scope and delivery.		March 1, 2020	Complete On target
b. Develop training plan.		April 1, 2020	Complete On target
c. Roll out web-based training.		April 15, 2020	Complete On target
d. Complete training of <u>50% of officers and section chiefs of EOC Command and General staff, and County and Tribal Liaisons</u>		July 31 <u>June 1, 2020</u> ⁴²	Complete On target
e. <u>Complete training of officers and section chiefs of EOC Command and General staff and County and Tribal Liaisons</u>		<u>September 1, 2020</u>	Complete On target
2. Provide enhanced transparency on decision-making process	4.b	April 20 June 30, 2020 ⁴³	Complete On target
a. Prepare draft white paper on existing meteorology de-energization criteria		March 20, 2020	On target <u>Complete</u>

⁴¹ The change to this date is to reflect PG&E's plan to focus its training for the 2020 wildfire season on the officers and section chiefs of the EOC's Command and General Staff, and County and Tribal Liaisons. Training will continue after this wildfire season.

⁴² This milestone is being modified to provide more information on the positions that will be trained by June 1 and then September 1.

⁴³ This date is being modified to reflect change to Action Item 2.b.

Chapter 4: Mobilizing, Organizing, and Decision-Making for Widespread Emergency Events

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
b. Finalize white paper		April 20 May 1, 2020 ⁴⁴	Complete On target
3. Further update PSPS Annex.	4.c	September 1, 2020	On target
a. Complete March 31 update.		March 31, 2020	On target Complete
b. Complete further revision.		September 1, 2020	On target
4. Update the list of executives with responsibilities in PSPS decision-making as required.	4.d.	Complete Ongoing	Complete ⁴⁵ On target

⁴⁴ This date is being modified to move up when the white paper will be finalized.

⁴⁵ This milestone is being updated to reflect completed as the officers have been designated. PG&E will make updates as necessary going forward.

Corrective Action 5: Restoration and Mutual Assistance

- 5.a PG&E must take all possible measures to accelerate restoration from de-energization during PSPS events. Per Commission Decision 00-05-002, after major storms, utilities must restore service in less than 12 hours on average. At a minimum, this should be the goal for utility-caused outages such as a PSPS event. PG&E shall also request resources through-mutual assistance processes early in an event. In instances PG&E believes it can perform restoration with internal resources, it shall evaluate if it can perform the work faster with the support from mutual assistance and request mutual assistance resources if it can accelerate restoration time. PG&E must also take into account the possibility of outages and fires unrelated to PSPS and the need to perform restoration work in response to those events as well.**

Measures to Accelerate Restoration Generally

PG&E is working hard to speed restoration through a variety of near-term and longer term efforts, as well as to narrow the scope and frequency of PSPS event themselves. PG&E developed a PSPS restoration process and plan in 2019 that was applicable to both the transmission and distribution systems and that included steps to speed the restoration process after PSPS events. PG&E is taking additional measures to accelerate the restoration process resulting from PSPS events in 2020. Those measures include acquiring and readying additional restoration resources, implementing additional restoration process improvements, and where practical making changes to the distribution system configuration and topology. These actions are designed to speed up restoration, enable more efficient deployment and use of resources during restorations, and support the determination and dissemination of ETORs. PG&E also continues to conduct After Action Reviews to identify gaps and create corrective actions to strengthen existing processes. That process is ongoing and will be continued.

Coordination of Internal Resources and Requests for Mutual Assistance

With respect to the resources available for restoration, PG&E's PSPS restoration plan calls for the following:

- PG&E evaluates the scope of a PSPS event and makes a determination as to what resources are needed to restore service safely after a PSPS event. Potential resources include PG&E personnel, contractors, and crews from other utilities requested under existing mutual assistance protocols. Each has their own capabilities, advantages, and limitations.
- In assessing whether to seek mutual assistance and to what extent, PG&E considers: (i) whether an augmented field workforce will reduce overall restoration times if it believes it can perform restoration solely with internal resources, including onsite contractors; (ii) the number of crews that can be committed by foreign utilities and municipalities, as well as the anticipated time it will take for these crews to arrive on the PG&E system, receive

onboarding training per process and be deployed into the field resource pool; and (iii) the potential need for mutual assistance crews to perform repair activities associated with damage found following PSPS events, non-PSPS-related power outages, and active fires.

- Air resources are critical to safe and rapid restoration because they permit rapid inspection of utility facilities. The 2019 PSPS restoration plan includes air resources in the form of thirty-five (35) Exclusive Use Helicopter contracts and a full complement of supporting ground resources (and at times PG&E deployed more). In advance of the 2020 peak fire season, PG&E is securing contracts that will make a total of sixty-five (65) rotary wing aircraft available, an 85% increase, along with the necessary ground support. The first additional rotary wing aircraft are expected to be available by June 1, 2020, and all additional aircraft available by September 1, 2020. PG&E is also acquiring an additional fixed-wing aircraft and the infrared camera systems required to operate two fixed-wing aircraft for night-time patrol of transmission infrastructure in suitable conditions. Assignment of air resources will continue to be executed from within the Operations Section at the EOC, to maximize flexibility.

PG&E also continues to focus on command, control, training, and coordination.

- PG&E's resource plan includes an ICS-based command structure, designed to increase safety margin for PG&E employees performing patrol and restoration activities, while reducing overall restoration time.
 - Prior to 2019, PG&E had established an Electric Transmission Emergency Center ("ETEC"), which was activated in emergency situations. The ETEC is housed in the transmission control center, and is staffed with members of the operations engineering group and members of control center leadership. The ETEC is responsible for studying the impact on the remaining system that results from removal of transmission lines from service, interfacing with CAISO, and prioritizing the re-energization of transmission lines to preserve the integrity of the system.
 - In 2019, PG&E established an equivalent centralized organization responsible for distribution infrastructure, known as the Electric Distribution Emergency Center ("EDEC"). Like the ETEC, the EDEC is staffed with operations engineers and control center leadership, and is responsible for de-energizing and re-energizing distribution lines in a manner that preserves the integrity of the system.
 - Also in 2019, PG&E established a process for coordinated action between the ETEC and the EDEC. PG&E can now more rapidly prioritize restoration tasks and coordinate the steps necessary to safely restore transmission facilities with the most effective series of steps to facilitate distribution restoration. The EDEC and ETEC teams coordinate the de-energization and re-energization operating sequences based on a number of factors, including but not limited to transmission system stability (in coordination with CAISO), customer load restoration, and restoration of critical and essential customers.

- PG&E is conducting expanded field exercises to enhance readiness, training, and coordination across the restoration process. In 2019, PG&E conducted at the divisional level eighteen (18) tabletop exercises each followed by two-day full simulation exercises (*i.e.*, exercising in real time all steps except actually de-energizing and re-energizing equipment) that included all field forces and command and communications functions. In 2020, that training program will be expanded to include regional levels.
- As discussed in more detail in Corrective Action 5.b, PG&E has developed new tools to better enable resource management, including the FORCE tool, which allows for more rapid assessment of the resources required for restoration and the time restoration tasks will take.

System Improvements for Enhanced Speed of Restoration

PG&E is continuing its efforts to segment distributions lines through the use of custom circuit segmentation plans designed to place the distribution system in a favorable posture to support safe and rapid restoration. These circuit segmentation plans are implemented immediately following de-energization and in advance of the “All Clear” being declared by the OIC. By segmenting lines, PG&E crews are able to restore customers in groups as portions of circuits are cleared and ready for restoration and can also limit the impact on restoration if post-PSPS inspections discover conditions requiring intervention.

Additional segmentation is being accomplished primarily through the use of devices that are capable of remote electronic monitoring and activation through PG&E’s SCADA (supervisory control and data acquisition) systems. Further, PG&E is working to better operationalize restoration plans in guides and maps used for restoration. For example, PG&E is deploying “pre-written” switch logs and expanding use of consolidated data libraries to allow field crews to more rapidly execute patrol and restoration tasks.

PG&E acknowledges that Decision 00-05-002 requires, after major storms, utilities to restore service in less than 12 hours on average. This decision predates the establishment of PSPS plans by any California IOU, however, and PG&E’s understanding is that the 12-hour requirement was intended to apply to traditional weather and storm-related events as opposed to PSPS-related power outages. As we noted in our October 19, 2019, update, PG&E believes PSPS restoration performance in 2019 across events that occurred in June, September and on October 5 of 2019 are within expectations as defined in Decision 00-05-022. PG&E welcomes discussion regarding whether to Decision 00-05-022 should reasonably apply to PSPS-related outages and what the appropriate restoration metrics for PSPS events should be. In 2020, PG&E remains committed to the goal of safely restoring power to 98% of all customers affected by a PSPS within 12 daylight hours of the “all clear.”

Process Owner: Mark Quinlan, Senior Director of Emergency Preparation and Response

5.b PG&E must take all possible measures to provide accurate restoration estimates to emergency personnel and the public at large. PG&E must also develop processes and procedures to share real time restoration numbers with counties and tribal governments.

PG&E is taking all possible measures to provide accurate restoration estimates to emergency personnel and the public at large.

In addition to the improvements in patrol efficiency described above, PG&E has developed an internal tool to assist in the development of accurate estimated times of restoration (“ETORs”). In early 2019 and before, the process of developing and calculating an ETOR was a desktop exercise – but the many variables involved meant that calculation was time-consuming, and the output was prone to variation across divisions of the Company. The Field Operations Restoration and Customer ETOR (“FORCE”) tool streamlines the process and promotes standardization. The FORCE tool uses data about the geographic scope of the PSPS area to determine the number of line-miles to be patrolled, and applies an average patrol rate to calculate an ETOR.

The FORCE tool can also be used to perform other related calculations. For example, an operator can input a particular ETOR and obtain the estimated number of patrol resources necessary to achieve that ETOR. In addition, the FORCE tool automatically interacts with PG&E’s public-facing outage communications systems, enabling streamlined real-time public access to accurate ETOR information.

As more data becomes available through increased experience with PSPS events, PG&E will continue to supplement the dataset the FORCE tool uses and refine its methodology and the assumptions that inform its calculations.

In 2020 and beyond, PG&E plans to improve the granularity of ETOR information. In 2019, ETOR information was calculated for relatively large geographic regions – PG&E will work towards calculating, and providing to customers, ETOR information on a more geographically granular level.

Processes to Share Real-Time Restoration Numbers with Counties and Tribal Governments

PG&E communicates ETOR information to state and local agencies via conference calls throughout the PSPS event. PG&E has developed restoration status reports that are communicated to County Agencies periodically throughout a PSPS event. The reports include information about (i) the number of customers impacted, (ii) the number of customers restored, (iii) the number of medical baseline customers impacted, (iv) the number of medical baseline customers restored, (v) the number of critical facility customers impacted, and (vi) the number of critical facility customers restored.

PG&E also communicates ETORs to customers and the broader public via media press releases, social media channels, the PGE.com webpage, and direct notifications via automated phone calls, text messages, emails, etc. In addition, customers can call PG&E and speak to a Customer Service Representative to obtain an ETOR.

In 2019, PG&E generated status reports on a county-by-county basis. In response to feedback received during 2019 PSPS events, PG&E has developed status reports applicable to tribal governments (the boundaries of which differ from county boundaries). PG&E will generate status reports on a tribal government basis going forward.

Process Owner: Mark Quinlan, Senior Director of Emergency Preparation and Response

Corrective Action 5: Milestone Chart

Chapter 5: Restoration and Mutual Assistance			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
1. Secure and deploy expanded rotary wing air resources	5.a	September 1, 2020	On target
a. Issue RFP for 65 exclusive use helicopters.		March 1, 2020	Complete
b. Evaluate RFP responses for new helicopter contracts.		March 15, 2020	<u>Complete</u> ⁴⁶ On target
c. Select successful bidders for new helicopter contracts.		April 1, 2020	<u>Complete</u> On target
d. Begin staging of helicopter resources. <u>(15 helicopters)</u>		June 1, 2020	<u>Complete</u> On target
e. Increase staging of helicopter resources. <u>(additional 15 helicopters)</u>		July 15, 2020	On target
f. Complete staging of expanded helicopter resources <u>(additional 35 helicopters)</u>		September 1, 2020	On target
2. Secure and deploy expanded fixed wing air resources		September 1, 2020 July 15, 2020 ⁴⁷	On target
a. Identify additional mission applicable aircraft for purchase.		March 7, 2020	Complete
b. Commence procurement process for infra-red camera systems		March 7, 2020	<u>Complete</u> On target
c. Purchase additional mission applicable aircraft		March 21, 2020	<u>Complete</u> On target

⁴⁶ This Action Item was completed on March 19, 2020, not March 15, 2020.

⁴⁷ This deadline has been modified to September 1, 2020 to align with the timeline to complete staging of camera-equipped fixed wing aircraft.

Chapter 5: Restoration and Mutual Assistance			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
d. Complete camera installation and configuration of two (2) fixed wing aircraft		September 1, 2020	On target
e. Train personnel on the use of new camera systems.		September 1, 2020	On target
f. Complete staging of camera-equipped fixed wing aircraft		September 1, 2020	On target
3. Expand training exercise program to regional level	5.a	August 15, 2020	On target
a. Develop real-time ⁴⁸ exercises to be executed at the regional level		June 1, 2020	Complete On target ⁴⁹
b. Complete all regional-level real-time exercises		August 15, 2020	On target
4. Increased availability to crews and command personnel of localized restoration information	5.a	September 1, 2020	On target
a. Consolidated data libraries scheduled for 2020 available for use		September 1, 2020	On target
5. Enhance the granularity of ETOR information	5.b	September 1 December 31, 2020 ⁵⁰	On target

⁴⁸ Real-time in this context is defined as the engagement and participation of our Distribution Control Centers (DCCs) to reflect in our Outage Management Tool (OMT) training environment actual circuit configurations and restoration progressions of the PSPS scenario being simulated in the exercise.

⁴⁹ While the design of the exercises is complete, PG&E will continue to develop and refine the implementation details of the three scheduled exercises until they occur.

⁵⁰ This deadline has been modified to September 1, 2020 to align with the timeline for the installation of the sectionalization devices.

Chapter 5: Restoration and Mutual Assistance

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
a. Iterative updates to FORCE tool as sectionalization devices are installed. <u>The timeline for the sectionalization devices is described in Corrective Action 7</u>		September 1 31, 2020 December 31, 2020	On target
6. Increased reporting to tribal governments	5.b	June 1 April 1 , 2020	Complete On target
a. Complete processes required to provide tribal governments with status reports based on tribal government boundaries during PSPS events Phase 1 to enhance tribal government data in CC&B that is <u>needed to produce status reports during PSPS events</u>		April 30 April 1 , 2020 ⁵¹	Complete On target
<u>b. Complete Phase 2 to implement PSPS viewer and interface changes which will enable production of status reports based on tribal government boundaries during PSPS events</u>		<u>June 1, 2020</u>	Complete On target

⁵¹ Timeline revised to address IT resource constraints

Corrective Action 6: Consultants and Resources on Call

- 6.a PG&E must prepare for situations where unexpected issues or events (e.g., wildfire, earthquake, cyber-attack etc.) occur concurrently with a PSPS event. It is not possible to anticipate every possible scenario and/or issue that can arise which could compound a PSPS event. Nevertheless, PG&E must take steps to have resources of various capabilities available in order to scale a response and assist with problem solving. This could, for example, involve standing contracts with a range of technical experts and general consultants who are available to step-in and manage issue resolution. PG&E shall develop a list of existing and possible future agreements for on-call resources that can be called upon in case of an emergency.**

PG&E has a number of agreements enabling access to emergency resources expeditiously if it were to encounter an unexpected incident.

- PG&E continues to maintain existing contracts with PriceWaterhouse Cooper and Cadmus contract agencies. PG&E also maintains contracts with web and cloud service providers to support its web content in the event that traffic to PGE.com unexpectedly increases.
- PG&E has standing agreements with three categories of cybersecurity partners.
 - It has retained two cybersecurity consultants who can provide immediate assistance if necessary.
 - It is member of Cyber Mutual Assistance Program, which consists of several utility companies with an agreement to provide peer-to-peer assistance in case one of them faces a cyber emergency.
 - PG&E also has agreements with several governmental partners, including the Federal Bureau of Investigations, the Department of Homeland Security, the California State Threat Assessment Center (Cal-STAC) and the California Cyber Security Integration Center (Cal-CSIC). The Company can call upon these partners for immediate help during an emergency.

At this time, PG&E has determined that it will not hire another consulting agency and will rely on its existing partnerships for outside resources. PG&E will also raise with CalOES, SCE and SDG&E a statewide effort for PSPS scenario planning at a future time. While PG&E continues to believe that this planning should occur at the state level in coordination with all of the utilities with PSPS programs, the response to COVID-19 is impacting the ability to move forward with this effort at this time.

Process Owner: Mark Quinlan, Senior Director of Emergency Preparation and Response

Corrective Action 6: Milestone Chart

Chapter 6: Consultants and Resources on Call			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
1. Assess need for additional resources	6.a	March 31, 2020	<u>Complete</u> On target
a. Identify gaps in current contractors		March 10, 2020	<u>Complete</u> On target
b. Assess potential contractors in light of identified gaps (if necessary)		March 20, 2020	<u>Not Applicable</u> On target
c. Enter contract (if necessary)		March 31, 2020	<u>Not Applicable</u> On target

Corrective Action 7: Steps to Minimize Scope of Future PSPS

7.a Overview of risk-based models PG&E has employed for prioritizing the hardening of infrastructure. As part of this description, identify factors that comprise that model and the weight ascribed to it, and also describe any other feature of this model.

This section has been rewritten to better describe the FMEA approach.

PG&E uses a comprehensive system of risk-based modeling to prioritize infrastructure hardening work. That system has evolved and grown more detailed and effective as PG&E has gathered more data, employed more advanced systems, and expanded the criteria and information it considers. While we believe it to be state-of-the art, we are committed to continual improvement. We consider risk of failure, as well as the potential risk of ignition, and the likely impact, and are in the process of expanding the measures of risks considered to include other measures of potential customer impact.

2019 Distribution Risk Modeling

In response to the wildfires that occurred in 2018, PG&E implemented a Wildfire Safety Inspection Program (“WSIP”) under which it completed enhanced inspections of nearly 700,000 distribution structures, 50,000 transmission structures, and 200 substations in High Fire Threat District (“HFTD”) areas between February and July 2019. In addition to typical reliability-related factors, PG&E’s enhanced inspections identified non-conformances with the potential for both failure and ignition to facilitate a proactive approach to repairing or replacing components that are at-risk of initiating fires. To develop the WSIP, PG&E used a risk-informed approach including conducting a Failure Modes and Effects Analysis or “FMEA.” The focus of the FMEA was to identify single points of failure of electric system components that could lead to fire ignition and then aid in the development of inspection methods that can most appropriately identify the condition of these respective components. The Electric Operations team (e.g. distribution, transmission, and substation) performed the FMEA using the following methodology:

1. Establish a cross-functional team of external professionals and PG&E subject matter experts (SMEs) with experience in field operations, engineering, and asset management
2. Review a list of asset components to identify potential single point failure ignition risks and categorize in asset groups
3. Where available, use published reports, internal reports and SME interviews to develop an independent list of failure modes and
4. Map components to the final list of failure modes and relevant inspection methods.

5. In some cases, the failure mode does not have a readily observable issue that can be identified via a visual inspection. In those cases, non-destructive and destructive examination methods may be considered

After PG&E identified FMEA focus areas for its WSIP, field inspectors performed inspections of PG&E's facilities across PG&E's Tier 3, Tier 2 and Zone 1 HFTD areas. When an inspector identified a maintenance condition, the inspector either immediately corrected the condition and recorded the correction or recorded the uncorrected condition. The inspector filled out the initial EC/LC notification tag, and the centralized review team reviewed, approved and prioritized the corrective notification tag in PG&E's SAP Work Management system. These tags were prioritized based on the risk posed by the condition and urgency of repairs. The review team process is designed to facilitate consistent application of the priority classification.

Wildfire Risk Ranking for PG&E's Distribution and Transmission Lines

PG&E has developed a circuit (e.g. distribution or transmission line) prioritization model for both distribution and transmission facilities to determine a wildfire risk score for each electric line based upon different components of risk. This prioritization model is used to inform PG&E's wildfire hardening infrastructure priority. Wildfire Risk is calculated using three components: likelihood of failure, likelihood of spread and consequence, and egress. These three factors are defined as follows:

1. Likelihood of failure: Relative risk of a circuit causing an outage and ensuing ignition
2. Likelihood of wildfire spread and consequence score: Relative ability ignition spread and quantity of homes or timber affected if ignition occurs
3. Egress score: Ease of access to a community exit and extent of exit, for a mass evacuation

For transmission assets, additional factors were also considered when developing a transmission circuit (e.g. line) risk scoring. This includes the consideration of the operational priority list of transmission lines from PG&E's Grid Operations, the list of the Top 20 Fire Index Areas (FIAs), and transmission system modeling, which considers the age, design, historical operational performance to determine the likelihood of a specific transmission asset failure under certain wind loading conditions. Because of these other factors to consider, transmission assets were prioritized in the following order:

1. Transmission Lines that met three critical conditions: a) High Operational Priority (as defined by PG&E's Grid Operations), b) High Wildfire Risk area, and c) Within the top 20 FIAs based on weather conditions.
2. Transmission Lines with both a) High Operational Priority and b) High Wildfire Risk.
3. Transmission Lines that are within the top 20 FIAs and High Wildfire Risk areas. Ranking follows the results of transmission system modeling by asset and wind speed percent de-rate.

Remaining Transmission Lines in High Wildfire Risk areas ranked by wildfire risk score.

Changes and Updates in Risk Modeling

PG&E has not altered the basic risk modeling methodology described above since October 2019. However, PG&E is currently engaged in efforts to incorporate, as a fifth metric in its risk ranking methodology, a factor that considers the number of customers served. Incorporation of this metric will increase the awareness of the risk of customer impact, and alter the weight currently assigned to the four factors in use today. Additionally, PG&E is looking into enhancing the transmission risk model to analyze risk at individual structure level, not just at the line circuit level. This would allow a more in-depth awareness of the level of risks.

In 2020 – and in future years – PG&E plans to reassess any tagged items that have not yet been hardened. Tagged items that are likely to deteriorate within 12 months will be escalated in the prioritization structure. For other tags, the reassessment will confirm the priority and update tracking data. PG&E will also continue to evaluate distribution feeders in risk-ranked order.

Other Initiatives Affecting Risk Modeling

PG&E is also currently engaged in efforts to install additional sectionalization devices on its distribution system, particularly in HFTD areas. Sectionalizing devices are a risk mitigation measured and can be used to separate the distribution grid into smaller sections for greater operational flexibility and to reduce the size and impact of a PSPS. Sectionalization can be used to isolate parts of the grid, to keep a section at high failure risk from taking down other sections, or to create a zone for stand-alone microgrid operation. PG&E will use sectionalization to create smaller zones for PSPS outages, and to take smaller sections out of service for inspection, repairs, and shutdowns. PG&E installed 298 sectionalization switches in 2019 and plans to install another 592 devices in 2020. As more sectionalization devices are installed across the system, the hardening prioritization of certain system components may change.

Process Owner: Mark Esguerra, Senior Director of Asset Strategy

7.b Summary of hardening priority levels ascribed to infrastructure that was shut off in PSPS and how prior hardening efforts could have been adjusted to minimize the scope of this PSPS event.

How Prior Hardening Efforts could have been Adjusted

PG&E is engaged in several retrospective analyses of 2019 PSPS events to identify investments that would reduce the scope of future PSPS events under similar conditions.

First, PG&E is currently developing a case-study analysis of all 2019 PSPS events to identify risk-reduction measures for implementation in the immediate term. This analysis begins with identification of hardening investments and activities that can feasibly be accomplished before the 2020 fire season begins. For each identified hardening investment, PG&E will compare the number of customers that were impacted by the 2019 PSPS events against the number of customers that would be impacted if the same conditions that led to each 2019 PSPS event recurred, with the hardening investment in place. PG&E will prioritize the hardening investments that would have reduced the scope of the PSPS events.

Second, for each transmission line that was impacted by a PSPS event in 2019, PG&E is analyzing whether there are any repairs that could be feasibly implemented before the start of the 2020 fire season and would have eliminated the need to de-energize that line. PG&E will prioritize the repairs that would have eliminated the need to de-energize the lines.

Third, for each transmission and distribution line that was impacted by a PSPS event in 2019, PG&E is analyzing whether there are any sectionalizing devices that could have reduced the scope of the outage. PG&E will prioritize installation of devices that would have reduced the scope of outages.

Fourth, PG&E is analyzing its system for locations where a microgrid powered by DER would have continued to provide power to a pocket of load that was impacted by a PSPS event in 2019.

Finally, PG&E will continue to collect additional operational performance information on hardened portions of its system, and plans to calibrate its PSPS thresholds with actual asset performance information on a continuous basis as more data is collected. Going forward, PG&E expects to adjust the scope of future PSPS events to account for data supported system hardened performance.

Summary of Hardening Priority for Infrastructure Subject to PSPS Shut-Off

PG&E expects the retrospective analyses discussed above to be complete in February 2020. Those analyses will inform the hardening priority levels ascribed to infrastructure that was shut off in PSPS events that occurred during 2019. This timeline has been revised to reflect completion in April 2020.

A summary of the hardening priority – developed in November 2019, before the retrospective analyses described above were complete and was provided to the Commission in PG&E’s December 6, 2019 status report. The highest-priority items are identified as “Tier 3,” while medium priority items are “Tier 2,” and lower priority items are “Tier 1.” The tier designations were developed in cooperation with the California Department of Forestry and Fire Protection, and reflect the risk of wildfire in the geographic areas where each circuit is located.

Process Owner: Mark Esguerra, Senior Director of Asset Strategy

7.c In the immediate term, PG&E should consider alternative mechanisms of reducing scope of PSPS events, particularly by prioritizing risk-deduction measures for distribution and transmission lines that serve larger populations and critical infrastructure.

PG&E is evaluating various mechanisms for impacting fewer customers and reducing PSPS outage duration. These efforts will only be considered if they do not create additional catastrophic wildfire risk. Below is a summary of currently planned initiatives.

- *Distribution Segmentation and System Hardening.* PG&E plans to enhance its distribution segmentation strategies including: (a) adding sectionalizing devices; (b) circuit reconfiguration / pre-PSPS event switching; and (c) additional system hardening to support PSPS switching. PG&E has identified various distribution lines where additional switching devices coupled with targeted system hardening can be utilized to further sectionalize distribution feeders to minimize the number of customers being impacted by PSPS outages.
- *Transmission Line Sectionalizing.* PG&E plans to enhance transmission segmentation strategies including installation of additional SCADA-controlled switches. PG&E has identified various transmission lines where additional switching devices will be utilized to further sectionalize transmission lines to be able to minimize the number of customers impacted by PSPS outages.
- *Transmission Line Exclusions.* Prior to the 2020 fire season, PG&E is evaluating all 552 transmission lines in the HFTDs to determine which lines can be removed from future PSPS event scope via supplemental inspections (ultrasonic), below-grade inspections and repairs, increased VM (expand ROW), and accelerated repairs to or replacement of assets.
- *Establishing PSPS Criteria for Hardened Distribution Facilities.* PG&E plans to assess and develop decision-making criteria for the potential exclusion of “safe-to-operate” hardened distribution facilities from PSPS de-energization during high fire threat weather conditions. Similar to PG&E’s current risk-based transmission line assessment used during the event scoping process, distribution line criteria would be based on the wildfire risk reduction associated with the hardened assets. The distribution line exclusion criteria for facilities that have been hardened or undergone Enhanced Vegetation Management are not expected to result in significant PSPS Risk Mitigation benefits in 2020. These hardening projects are intended to achieve longer term Wildfire Risk Reduction benefits.
- *Microgrids for PSPS Mitigation.* PG&E is proposing to pursue resiliency and reliability improvements to mitigate the customer impacts of PSPS through temporary front-of-the-meter microgrid solutions. Microgrids can reduce the number of customers de-energized during PSPS events, as well as provide additional impact mitigation by

energizing shared community resources that support the surrounding population. PG&E's efforts include a Make-Ready Program to invest in the infrastructure needed to allow high-priority substations and associated downstream infrastructure to operate as microgrids through the use of temporary generation; a Temporary Generation Program in which PG&E will secure more than 300 MW of generators to energize temporary microgrids at substations and other key locations, Community Resource Centers (CRCs), and for use as backup power support for critical facilities; and a Community Microgrid Enablement Program in which PG&E will partner with local communities to identify and build multi-customer microgrids serving critical facilities and/or vulnerable customers not already served by other microgrid solutions offered by PG&E. The Community Microgrid Enablement Program will provide participating local governments with enhanced utility technical support, microgrid information, project tools and one-time matching funds. PG&E is committed to working with our customers, local communities and all stakeholders on the best solutions for the temporary and permanent generation that it needs to use in 2020 and beyond.

- *Increased Model Granularity.* PG&E weather modeling used for PSPS execution will increase weather and fuel model granularity from 3 km to 2 km. On-demand simulations will also be available at 0.67 km.
- *PSPS Guidance Review.* PSPS decision-making guidance will continue to be assessed, including the evaluation of systematic incorporation of outputs from fire spread and consequence modeling and calibrating outage and FPI models with new data as it becomes available.
- *Restoration Time.* In 2019, PG&E's target was to restore service after a PSPS within 24 hours after the weather conditions clear. For 2020, PG&E is aiming for a 50% improvement in daylight restoration time, restoring power for 98% of customers within 12 daylight hours from the time the weather conditions clear. PG&E plans to increase aerial and ground resources and evaluate night patrol capabilities to reduce PSPS restoration time.

Process Owner: Mark Esguerra, Senior Director of Asset Strategy

Corrective Action 7: Milestone Chart

Chapter 7: Steps to Minimize Scope of Future PSPS			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
1. Proactive removal/permanent de-energization of facilities	7.a	September 1, 2020	On target
a. Identify underutilized (e.g. idle) distribution and transmission facilities		May 1, 2020	Complete On target
b. Identify facilities that are candidates for replacement with DER or microgrids		May 1, 2020	Complete On target ⁵²
c. Complete work to de-energize facilities scheduled for future removal		September 1, 2020	On target
2. Incorporate into Risk Ranking methodology a risk factor for number of customers served by facility	7.a	August 1, 2020	On target
3. Installation of transmission and distribution sectionalization devices	5.a, 7.a and 7.c	September 1, 2020 ⁵³	On target
a. Install 244 449 ⁵² distribution sectionalization devices		June 1 September 1, 2020	Complete On target ⁵⁴

⁵² PG&E has identified the potential facilities and is currently conducting feasibility studies on sites which are candidates for replacement with DER or microgrids.

⁵³ Sectionalization devices are only reported as installed and completed once a device is fully commissioned and ready for use in a PSPS event. There are no interdependencies between this action item and other PSPS action items.

⁵⁴ PG&E is working on a recovery plan to get back on target. As of June 1 ~~May 11~~, PG&E has installed and completed ~~244 157~~ devices.

Chapter 7: Steps to Minimize Scope of Future PSPS

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
<u>b. Install an additional 348 143 distribution sectionalization devices</u>		<u>September 1, 2020</u>	<u>On target</u> ⁵⁵
<u>c. Install 23 transmission line switches</u>		June 1, 2020	<u>Complete</u> On target
<u>d. Update hardening prioritization as sectionalizing devices are installed</u>		September 1, 2020	On target
4. Case-study analyses of 2019 PSPS events to identify risk-reduction measures for near-term implementation.	7.b	May <u>April 1, 2020</u> ⁵⁶	<u>Complete</u> On target
a. Identify near-term (e.g. prior to 2020 fire season) hardening measures that would have reduced the scope of 2019 PSPS events		February 28, 2020	<u>Complete</u> On target
b. Prioritize near-term (e.g. prior to 2020 fire season) implementation of hardening projects using data including customer impact		April 1, 2020	<u>Complete</u> On target
c. Identify near-term (e.g. prior to 2020 fire season) repairs that would have eliminated need to de-energize transmission lines during 2019 PSPS events		February 28, 2020	<u>Complete</u> On target

⁵⁵ As of June 23, PG&E has installed and completed 327 out of 592 total devices.

⁵⁶ This deadline has been modified to April 1, 2020 to align with the timeline for prioritizing near-term implementation of hardening projects.

Chapter 7: Steps to Minimize Scope of Future PSPS

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
d. Determine additional transmission and distribution sectionalizing devices that would have reduced the scope of 2019 PSPS events (modeled after 10/26/2019 PSPS event)		February 28, 2020	<u>Complete</u> On target
e. Identify locations where a DER-powered microgrid would have been a practical and effective mitigation tool (when compared against the 10/26/2019 PSPS event)		April 1, 2020 February 28, 2020 ⁵⁷	<u>Complete</u> On target
5. Implement Transmission Switches and Distribution Segmentation	7.c	July 15, 2020	On target
a. Prepare plan to reconfigure circuits and conduct pre-PSPS event switching		July 15, 2020	On target
6. Prepare for use of temporary generation and/or substation-sited permanent generation to serve safe-to-energize load during PSPS events, and enable local generation assets to allow for PSPS islanding	7.c	September 1, 2020	On target

⁵⁷ Additional analysis is being conducted on DER powered microgrid locations.

Chapter 7: Steps to Minimize Scope of Future PSPS

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
a. Subject to CPUC approval, Complete Make-Ready work to prepare selected substations to receive temporary generation and to enable PSPS islanding capabilities at Tyler and Rawson via existing generation assets and/or permanent generation ⁵⁸		September 1, 2020	On target
b. Conduct solicitations, obtain bids and select vendors for temporary and permanent generation options to minimize the PSPS impacts at selected sites; Submit for CPUC approval for temporary generation		May 1, 2020	Complete On target
c. Execute contract with existing generation assets in Red Bluff to enable PSPS islanding capabilities of Tyler and Rawson substations Submit permanent generation contracts to the CPUC for approval		May 1, 2020 ⁵⁹	Complete On target
d. <u>Retrofit Humboldt Bay Power Plant control systems to allow islanding</u>		<u>May 15, 2020</u>	<u>Complete</u> On target
7. Determination of transmission lines excludable from future PSPS events ⁶⁰	7.c	September 1, 2020	On target

⁵⁸ Updates to PG&E's microgrid proposal submitted in R.19-09-009 on April 1, 2020

⁵⁹ This Action Item was completed on May 7, 2020 and not by May 1, 2020.

⁶⁰ Excludable means that PG&E would be able to keep the transmission lines energized as long as conditions were no worse than those experienced during the 2019 PSPS events. This action item will only be reported as complete

Chapter 7: Steps to Minimize Scope of Future PSPS

Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
a. Complete enhanced inspections of candidate transmission lines in HFTDs		September 1, 2020	On target
b. Complete required accelerated repairs and ROW work		September 1, 2020	On target
8. Implement weather modeling with greater local granularity	7.c	September 1, 2020	On target
9. Establish PSPS Criteria for Hardened Distribution Facilities	7.c	September 1, 2020 ⁶¹	On target

once the candidate transmission line work is completed and an operational assessment is made to specify the circumstances under which the lines may be excluded from future PSPS events. There are no interdependencies between this action item and other PSPS action items.

⁶¹ These criteria would be applied to all hardened distribution facilities and would be reviewed and updated as appropriate to reflect new facilities that are hardened on a going forward basis. This task is interconnected with the hardening work underway throughout PG&E's service territory.

Corrective Action 8: Additional Assistance

8.a If PG&E requires additional assistance from the State in order to execute this critical mission, PG&E needs to communicate what resources it needs and the CPUC will work with State agency partners to take appropriate steps.

At this time, PG&E identifies the following areas on which additional state coordination and support would be beneficial:

- Identifying and maintaining an up-to-date list of critical state services that can be shared in advance of and during PSPS events.
- A review led by the California Governor's Office of Emergency Services of potential impacts of extended outages, including but not limited to PSPS events, on major transit providers, refineries, and businesses dependent on fuels for operations.
- Support from the California Governor's Office of Emergency Services with respect to additional SEMS training.
- Guidance with respect to requests by local jurisdictions and tribes for a comprehensive list of Medical Baseline customers within their jurisdiction for general emergency preparedness purposes, without a non-disclosure agreement and outside the context of specific PSPS events.
- Guidance with respect to requests by local jurisdictions and tribes for critical facility information that is considered commercially, trade-secret, or security sensitive by the customers who operate those facilities, without a non-disclosure agreement.

PG&E will continue to identify areas on which assistance from the Commission and other State and local agencies will be beneficial.

Process Owner: Mark Quinlan, Senior Director of Emergency Preparation and Response

Corrective Action 8: Milestone Chart

Chapter 8: Additional Assistance			
Deliverable and Action Items	Corrective Action #	Deadline	7/6 Status
1. Work with CPUC and agencies as appropriate on identified issues requiring resolution.		Ongoing	<u>On target</u>
a. PG&E will await guidance from CPUC.		Ongoing	On target

Appendix A

Community Resource Centers Project Status

Community Resource Centers

Project Status Update

July 6, 2020





CRC Status Summary – as of July 6

This workstream includes a dedicated team working to streamline and enhance the CRC process for 2020. **Our goal is to secure CRC locations throughout our service area (targeting 112 Hardened CRCs + 30 Mobile*).** Given the current COVID-19 environment, we are continuing to perform against this goal and, in parallel, implementing contingencies including Tent, Micro and Mobile CRCs.

Weekly Summary Points

- Ordered **84** transfer switches; Expected to arrive by 6/30
- Secured retainers with **2** Emergency Service Providers
- Continuing **weekly PSS/LPA CRC meetings** to escalate license negotiations

Weekly Site Advancement

- 6** sites into License Negotiations (*vs. 4 prior week*)
- 5** sites into Construction (*vs. 1 prior week*)
- 6** site into Event Ready (*vs. 1 prior week*)

PRIORITY GROUP	HARD SITE TARGET	SITES IDENTIFIED	SITES UNSUITABLE	BACKUP***	SITES IN PROGRESS	IN REVIEW		IN CONTRACT		IN CONSTRUCTION		EVENT READY	SOFT SIDE SITES	
						LAND	ADA/ELECTRIC	LICENSING	EXECUTED AGREEMENT	PERMITTING	CONSTRUCTION	HARDSIDE SITES READY	PENDING SITES	ACTIVE SITES
1	64	190	85	31	74	-	15	33	26	6	7	13	3	82
2	48	171	66	48	57	11	9	19	18	11	3	4	13	67
3**	0	81	23	56	2	-	1	-	1	-	1	-	15	18
TOTALS	112	442	174	135	133	11	25	52	45	17	11	17	31	167
All Sites Identified = Unsuitable + Backup + Sites In Progress						All Sites In Progress = In Review + In Contract				In Construction = Subset of Executed Agreements				

*30 vans secured for contingency as well as Group 3, as needed **Group 3 hardening work on pause; prioritizing work in higher risk areas due to COVID-19 ***Identified but not in progress

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



CRC Priority Group 1 – as of July 6

13 SITES
EVENT READY

COUNTY*	ADJUSTED HARD SITE TARGET**	SITES IDENTIFIED	SITES UNSUITABLE	BACKUP***	SITES IN PROGRESS	IN REVIEW		IN CONTRACT		IN CONSTRUCTION		EVENT READY	SOFT SIDE SITES	
						LAND	ADA/ ELECTRIC	LICENSING	EXECUTED AGREEMENT	PERMITTING	CONSTRUCTION	HARDSIDE SITES READY	PENDING SITES	ACTIVE SITES
AMADOR	3	13	10	-	3	-	-	2	1	-	1	-	1	3
BUTTE	5	18	12	1	5	-	-	4	1	-	1	-	-	6
CALAVERAS	4	8	1	-	7	-	3	4	-	-	-	-	-	5
EL DORADO	5	11	-	6	5	-	-	1	4	2	-	2	-	8
LAKE	5	12	5	1	6	-	2	2	2	-	-	2	-	4
MARIN	4	11	7	-	4	-	2	2	-	-	-	-	-	5
MENDOCINO	4	14	3	7	4	-	-	1	3	-	2	1	-	7
NAPA	4	12	7	1	4	-	-	1	3	-	1	2	-	6
NEVADA	5	14	5	3	6	-	2	-	4	1	1	2	-	4
PLACER	4	9	1	3	5	-	-	3	2	-	-	2	-	4
SAN MATEO	5	8	3	-	5	-	-	4	1	1	-	-	-	6
SANTA CRUZ	4	24	18	2	4	-	3	1	-	-	-	-	2	2
SOLANO	4	9	5	-	4	-	2	-	2	1	1	-	-	5
SONOMA	5	16	5	5	6	-	-	5	1	-	-	1	-	7
TUOLUMNE	2	6	2	2	2	-	-	1	1	1	-	-	-	6
YUBA	3	5	1	-	4	-	1	2	1	-	-	1	-	4
TOTAL	66	190	85	31	74	-	15	33	26	6	7	13	3	82

*Target = 4 sites/county ** Adjustments based on County/PSS feedback in CRC Deep Dives

*** Identified but not in progress

 Outdoor sites complete

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



CRC Priority Group 2 – as of July 6

4 SITE EVENT READY

COUNTY*	ADJUSTED HARD SITE TARGET**	SITES IDENTIFIED	SITES UNSUITABLE	BACKUP***	SITES IN PROGRESS	IN REVIEW		IN CONTRACT		IN CONSTRUCTION		EVENT READY	SOFT SIDE SITES	
						LAND	ADA/ELECTRIC	LICENSING	EXECUTED AGREEMENT	PERMITTING	CONSTRUCTION	HARDSIDE SITES READY	PENDING SITES	ACTIVE SITES
ALAMEDA	3	12	6	2	4	2	-	2	-	-	-	-	-	5
COLUSA	3	9	4	2	3	-	1	1	1	-	-	1	-	4
CONTRA COSTA	4	26	9	7	10	6	3	1	-	-	-	-	-	5
FRESNO	3	6	-	3	3	-	2	-	1	1	-	-	4	2
GLENN	0	2	2	-	-	-	-	-	-	-	-	-	-	4
HUMBOLDT	3	17	6	7	4	-	-	1	3	-	1	2	-	6
KERN	3	11	7	-	4	-	1	2	1	1	-	-	-	4
MADERA	4	7	-	3	4	-	-	-	4	4	-	-	1	3
MARIPOSA	3	7	2	1	4	3	-	1	-	-	-	-	-	3
MONTEREY	3	10	8	-	2	-	1	1	-	-	-	-	-	4
PLUMAS	2	5	3	-	2	-	-	2	-	-	-	-	2	2
SANTA CLARA	5	15	4	6	5	-	-	5	-	-	-	-	-	9
SHASTA	4	14	4	5	5	-	1	2	2	2	-	-	-	7
SIERRA	2	6	3	1	2	-	-	-	2	2	-	-	1	2
TEHAMA	2	9	5	2	2	-	-	-	2	-	2	-	2	2
YOLO	3	15	3	9	3	-	-	1	2	1	-	1	3	5
TOTAL	47	171	66	48	57	11	9	19	18	11	3	4	13	67

*Target = 3 sites/county **Adjustments based on County/PSS feedback in CRC Deep Dives

*** Identified but not in progress

 Outdoor sites complete

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



CRC Priority Group 3 – as of July 6

0 SITE EVENT
READY

COUNTY*	ADJUSTED HARD SITE TARGET**	SITES IDENTIFIED	SITES UNSUITABLE	BACKUP**	SITES IN PROGRESS	IN REVIEW		IN CONTRACT		IN CONSTRUCTION		EVENT READY	SOFT SIDE SITES	
						LAND	ADA/ ELECTRIC	LICENSING	EXECUTED AGREEMENT	PERMITTING	CONSTRUCTION	HARDSIDE SITES READY	PENDING SITES	ACTIVE SITES
ALPINE	-	-	-	-	-	-	-	-	-	-	-	-	-	1
KINGS	-	3	-	3	-	-	-	-	-	-	-	-	-	2
LASSEN	-	8	1	7	-	-	-	-	-	-	-	-	2	2
MERCED	-	9	-	9	-	-	-	-	-	-	-	-	-	3
SACRAMENTO	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SAN BENITO	-	9	6	3	-	-	-	-	-	-	-	-	2	-
SAN FRANCISCO	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SAN JOAQUIN	-	6	1	5	-	-	-	-	-	-	-	-	1	3
SAN LUIS OBISPO	-	16	1	15	-	-	-	-	-	-	-	-	3	4
SANTA BARBARA	-	10	3	7	-	-	-	-	-	-	-	-	3	-
SISKIYOU	-	5	5	-	-	-	-	-	-	-	-	-	-	-
STANISLAUS	1	1	-	-	1	-	1	-	-	-	-	-	3	2
SUTTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRINITY	1	6	3	2	1	-	-	-	1	-	1	-	-	1
TULARE	-	8	3	5	-	-	-	-	-	-	-	-	1	-
TOTAL	2	81	23	56	2	-	1	-	1	-	1	-	15	18

*Target = 0 sites/county **Adjustments based on County/PSS feedback in CRC Deep Dives

** Identified but not in progress

 Outdoor sites complete

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