

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE



February 15, 2022

Advice Letter 6301-E/6301-E-A

Erik Jacobson
Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

**SUBJECT: Information Only: After-Meeting Reports for Semi-Annual Resiliency
Workshops Pursuant to Decision 20-06-017.**

Dear Mr. Jacobson:

Advice Letter 6301-E/6301-E-A is effective as of October 13, 2021.

Sincerely,

A handwritten signature in black ink, appearing to read "SB".

Simon Baker
Interim Deputy Executive Director for Energy and Climate Policy/
Interim Director, Energy Division, CPUC

October 1, 2021

Advice 6301-E-A

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

Subject: Supplemental: Information Only: After-Meeting Reports for Semi-Annual Resiliency Workshops Pursuant to Decision 20-06-017

I. Purpose

Pacific Gas and Electric Company (PG&E) hereby submits this information-only Tier 1 Advice Letter (“AL”) in compliance with the California Public Utilities Commission (“CPUC” or “Commission”) Decision (“D.”) 20-06-017 (“Decision”) Ordering Paragraph (“OP”) 8. The AL demonstrates PG&E’s compliance with Section 4.3.2.1 which requires (1) the investor-owned utilities (“IOUs”) to conduct semi-annual workshops designed to, among other things, help empower local and tribal jurisdictions with a better understanding of grid operations, utility infrastructure, and the nature of weather events alongside public safety power shutoff (“PSPS”) mitigation initiatives and (2) submit on the first day of each calendar quarter an advice letter that compiles all after-meeting reports from the prior quarter, if applicable. In addition, this AL demonstrates compliance with D.21-06-034 OP 5, (Section K.5 of the Appendix) which requires each electric investor-owned utility to file and serve its quarterly regional working group reports in R.18-12-005 or its successor proceeding.

On September 15, 2021 PG&E held its fifth quarterly workshop in the North Valley/Sierra Region, which was postponed from August 2021 due to the ongoing Dixie Fire response efforts in that Region. This Supplemental Advice Letter replaces AL 6301-E in its entirety.

II. Background

The Commission initiated Rulemaking (“R.”) 19-09-009 to develop a policy framework surrounding the commercialization of microgrids and related resiliency strategies and to implement Senate Bill (“SB”) 1339 (Stern, 2018).

On December 20, 2019 the assigned Commissioner’s Scoping Memo and Ruling was issued, adopting a scope and schedule for Track 1 of the proceeding. Track 1 addressed deploying resiliency planning in areas that are prone to outage events and wildfires, with the goal of establishing key microgrid and resiliency strategies as soon as possible.

Subsequently, on January 21, 2020, Administrative Law Judge Rizzo issued a Ruling with Energy Division staff's ("Staff's") proposal on short-term actions related to microgrids and other resiliency strategies that could be initiated in early 2020 to reduce the impact of PSPS outages or other catastrophic events.

On June 11, 2020, the Commission adopted D.20-06-017, which, among other actions, approved certain Staff proposals for information sharing with local and tribal governments. This AL addresses the requirements included in Ordering Paragraph 8 of D.20-06-017, which requires:

Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) shall each submit informational filings in this proceeding, no later than five business days after the local and tribal government semi-annual meetings are held. These after-meeting reports shall demonstrate compliance with Section 4.3.2.1 of this decision by showing:

- a) Commission staff were notified at least one (1) month prior to the meeting date;*
- b) Presentations and other materials were distributed to attendees at least twenty four (24) hours in advance;*
- c) Contact information for meeting attendees, with a copies of a sign-in sheet;*
- d) Workshop agenda;*
- e) Workshop minutes or transcript;*
- f) Any presentations shown at the workshop; and*
- g) Any data formally provided to stakeholders at the workshop*

PG&E, SCE, and SDG&E shall each file a Tier 1 Advice Letter on the first day of each yearly quarter, that compiles all after-meeting reports. This requirement will have an end date after 3 years. In this Advice Letter submittal, PG&E, SCE, and SDG&E shall reference compliance with this decision pursuant to Ordering Paragraph 8.

PG&E submits this information-only Tier 1 Advice Letter in compliance with Ordering Paragraph 8 of D.20-06-017.

III. Discussion

Pursuant to OP 8 of D.20-06-017, PG&E is attaching to this Advice Letter a compiled set of after-meeting reports for semi-annual resiliency workshops held between August 11, 2021 and August 13, 2021. This includes the following attachments:

- Attachment 1 – Meeting Summaries of Third Quarter 2021, Regional Working Groups (including Resiliency Workshop)
- Attachment 2 – Agenda and Presentations for the Third Quarter 2021, Regional Working Groups (including Resiliency Workshop)
- Attachment 3 – E-mail to Commission Staff Notifying of the Dates for the Third Quarter 2021, Regional Working Groups (including Resiliency Workshop)
- Attachment 4 –North Valley/Sierra Third Quarter 2021 Regional Working Group Report

Please note that the fifth workshop planned for the North Valley/Sierra Region was postponed to September 15, 2021 due to the ongoing Dixie Fire response efforts in that Region.

Protests

Pursuant to CPUC General Order 96-B, Section 7.5.1, PG&E hereby requests the protest period be waived.

IV. Effective Date

Pursuant to General Order (GO) 96-B, Industry Rule 5.1 and General Rule 7.3.3, and OP 8 of D. 20-06-017, this advice letter is submitted with a Tier 1 designation. PG&E requests that this Tier 1 advice submittal become effective concurrent with the original Advice Letter 6301-E which is August 18, 2021.

V. Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service list R.19-09-009 and R.18-12-005. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Send all electronic approvals to PGETariffs@pge.com. Advice letter submittals can also be accessed electronically at: <http://www.pge.com/tariffs/>.

/S/

Sidney Bob Dietz II
Director, Regulatory Relations

cc: Service List R.19-09-009, R.18-12-005

Attachments



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Pacific Gas and Electric Company (ID U39E)

Utility type:

☒ ELC ☐ GAS ☐ WATER
☐ PLC ☐ HEAT

Contact Person: Kimberly Loo

Phone #: (415)973-4587

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: KELM@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 6301-E-A

Tier Designation: 1

Subject of AL: Supplemental: Information Only: After-Meeting Reports for Semi-Annual Resiliency Workshops Pursuant to Decision 20-06-017

Keywords (choose from CPUC listing): Compliance

AL Type: ☐ Monthly ☒ Quarterly ☐ Annual ☐ One-Time ☐ Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.20-06-017

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL:

Confidential treatment requested? ☐ Yes ☒ No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? ☐ Yes ☒ No

Requested effective date: 8/18/21

No. of tariff sheets: 0

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Sidney Bob Dietz II, c/o Megan Lawson
Title: Director, Regulatory Relations
Utility Name: Pacific Gas and Electric Company
Address: 77 Beale Street, Mail Code B13U
City: San Francisco, CA 94177
State: California Zip: 94177
Telephone (xxx) xxx-xxxx: (415)973-2093
Facsimile (xxx) xxx-xxxx: (415)973-3582
Email: PGETariffs@pge.com

Name:
Title:
Utility Name:
Address:
City:
State: District of Columbia Zip:
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

Clear Form

Attachment 1

**Meeting Summaries of Third Quarter 2021, Regional
Working Groups (including Resiliency Workshop)**

**Pacific Gas and Electric Company
Community Wildfire Safety Program – Regional Working Groups
(Third Quarter, 2021)
Meeting Summary**

Background

On August 11-13, Pacific Gas and Electric Company (PG&E) hosted the third quarterly Regional Working Group meetings of 2021 with key stakeholders from communities impacted by prior Public Safety Power Shutoff (PSPS) events in four of the five regions of PG&E's service area: Central Valley, North Coast, South Bay/Central Coast and Bay Area. These meetings provided participants and PG&E a forum to provide updates and receive feedback regarding PG&E's new PSPS weather model, regionalization, resiliency efforts, local reliability statistics, PSPS Program updates and concurrent emergencies. The North Valley/Sierra Regional Working Group was delayed until September 15, 2021, due to current wildfires impacting that area (where stakeholders are focused on wildfire and emergency priorities), and a separate meeting summary report will be submitted after that meeting.

The 2021 third quarter Regional Working Group meetings addressed the topics required under the California Public Utilities Commission's (CPUC) PSPS Phase II Decision¹: lessons learned and feedback from prior PSPS events, communication strategies and information sharing and strategies for supporting people/communities with Access and Functional Needs (AFN). The meetings also addressed new requirements from the CPUC PSPS Phase III Decision²: to address the possibility of concurrent emergencies, including fires, arising during a proactive de-energization.

As we have done in past meetings, we included topics from the Microgrids and Resiliency Strategies Rulemaking (Microgrid OIR)³ directing utilities to conduct semi-annual workshops to share valuable information and take a collaborative approach to planning grid resiliency measures responsive to local needs. The Microgrid OIR also expanded the meeting scope to include grid resiliency and hardening efforts, data on resilience progress in each region and an adjusted invitee list. PG&E subject matter experts (SMEs) and local representatives participated in the meetings to answer questions and engage with meeting participants. Working group invitees included representatives from tribal and local government entities, small multi-jurisdictional electric utilities, publicly owned electric utilities, communications and water service providers, public safety partners, the disabled, aging and AFN communities (e.g., directors of local Independent Living Centers) and CPUC staff. Meetings were structured to provide attendees with key information and metrics on the above topics and participants were encouraged to provide feedback, engage and collaborate with each other.

Timing and Facilitation

The Regional Working Group meetings were held August 11-13 and moderated by PG&E's Senior Manager Local Customer Experience and Division Lead, with support from Local Public Affairs

¹ D.20-05-051

² D.21-06-034

³ D.20-06-017

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representatives, Tribal Liaisons and Public Safety Specialists from each respective region along with a SME in PG&E's Meteorology Department. Members of PG&E's Regional Leadership Teams (Regional Vice President and/or Regional Safety Director) participated in each meeting as well. Additionally, an invitation to co-moderate the Grid Resilience Planning portion of the meeting was extended to five County Office of Emergency Services (OES) partners. Two of the five regional co-moderators accepted this invitation and co-moderated a portion of the meeting.

Attendance and Key Areas of Feedback

The Regional Working Group meetings were attended by an average of 29 participants per session. Some examples of the feedback we received included:

- *Communities could benefit from further understanding of PSPS Portal eligibility.*
- *Continue to improve the Microgrid Portal with the latest facilities for as up-to-date information as possible.*
- *Glad to hear about the undergrounding initiative. Very ambitious, but welcome. Good Luck!*
- *Thank you for this group and the partnership/information sharing as always.*

Sample Comments Received

COVID-19 physical distancing guidance mandates necessitated that the third-quarter 2021 meetings be held virtually via a web-based video conference platform. The virtual platform provided attendees the ability to participate verbally, as well as through the chat feature. In addition, the ability to turn on live captions was available to aid any participants who were deaf or experience hearing loss. All questions and comments were addressed in real-time and below are some participant comments captured during the four working groups.

- *"I can't express how thankful we are to PG&E for how quickly they responded during the Mono Wind Event." – Mariposa County Office of Emergency Services*
- *"The coordination makes a difference in making sure there is continuity of services for consumers especially when a PSPS then turns into a Wind Event. Thanks for the feedback." – Resources for Independence Central Valley*
- *"[The Office of Emergency Services is] very, very happy with this team's response and this working group and the folks who are on the ground with PG&E. It doesn't matter what the emergency is, but we know we can reach out to PG&E, and you are great partners." – Calaveras County Office of Emergency Services*
- *"When will the vulnerable customer application be available online?" – Independent Living Resources of Solano & Contra Costa Counties*
- *"From a water agency perspective, our biggest issue is the California drought. How is the drought impacting your operations if at all?" – Bay Area Water Supply and Conservation Agency*
- *"Re the under-grounding: Is there a sense of which Bay Area communities are likely to have their lines undergrounded? And what the timeframe will be for implementation? Thanks" – East Bay Community Energy*
- *"More of a general question for the end--how has the drought impacted hydroelectric resources?" – California Public Utilities Commission*

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Continued Engagement

The feedback gathered during each Regional Working Group and subsequent participant survey (survey results to be shared with the CPUC as a follow-up) helps to further inform our future plans and local solutions to reduce PSPS impacts and wildfire risks. Additionally, we are continuing to engage with key stakeholders from each region through ongoing outreach efforts and upcoming Regional Working Groups. These continued engagements are typically conducted through assigned PG&E representatives (Account Representatives, Public Safety Specialists, Local Public Affairs Representatives, Tribal Representatives, etc.). For reference, detailed follow-up items captured during each meeting, along with meeting participant lists, are in the meeting summary forms located in the Appendix.

Appendix



Community Wildfire Safety Program Regional Working Group Summary Sheet

MEETING INFORMATION		
Region: Central Valley	Quarter: Q3	Meeting Date: 08/11/2021

INFORMATION REQUESTS / FOLLOW-UP ITEMS			
Description	Owner	Recipient	Status
Follow-up regarding if induction assessment (lines that could create a risk of induction) for distribution lines are taken under consideration in PSPS criteria.	S. Holder	A. Avery	In Progress
Follow-up regarding whether CAISO rotating outages are included in system reliability metrics.	P. Mullen, J. Simes	D. Johnson	In Progress
Follow-up regarding PSPS Portal eligibility and/or additional resources available to AFN partners during PSPS events.	A. Ace	S. Gomez, L. Austin	In Progress
Provide presentation to meeting participants.	A. Ace	D. Johnson, A. Avery, S. Gamez, L. Austin	Complete

FEEDBACK / LESSONS LEARNED	
Topic	Summary
Regional Leadership Team Introductions	N/A
County OES Co-Moderated Session	Discussion occurred regarding cell tower de-energization and temp gen usage during the 2021 Mono Wind event in Mariposa County. Co-moderator noted Verizon was quick to respond to needs as they arose during that event.
New Weather Model	- Question was raised regarding fire modeling as it relates to recently burned areas, it was noted that the modelling recalibrates based on likely vegetation in the area and that Technosylva does account for these types of changes. - Discussed distribution-level vs. transmission-level PSPS events in regards to tree overstrike criteria. - Inquired about outlook for 2021 weather model.

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Local Electric Reliability Statistics	Discussed if PSPS events and other large-scale outages like CAISO rotating outages are considered included in “Major Event Day,” classification.
Systemwide Resiliency Efforts	N/A
PSPS Events and Other Emergencies	Discussed the Mono Wind event that occurred immediately after PSPS event in early 2021.
Other/General Comments	N/A

MEETING PARTICIPANTS (28)			
Name	Title	Agency	Email Address
Aaron McDonald	Marketing and Resource Development Coordinator	Disability Resources Agency for Independent Living (DRAIL)	amcdonald@drail.org
Aaron Wilson	Emergency Services Coordinator	Stanislaus County Office of Emergency Services	awilson@stanoes.com
Anthony Noll		California Public Utilities Commission	anthony.noll@energysafety.ca.gov
Austin Avery	Regulatory Analyst	Turlock Irrigation District	
Christopher Miller	Senior Emergency Planner	San Joaquin County Office of Emergency Services	crmiller@sjgov.org
Cindy Chen		California Public Utilities Commission	Xuan.Chen@cpuc.ca.gov
Dana Ferreira	Regulatory Analyst	Modesto Irrigation District	Dana.Ferreira@mid.org
Darrell D. Johnson	Regional Learning & Development Manager	Comcast Cable	darrell_johnson@cable.comcast.com
Drucilla Dunton	Administration & Budget Unit	California Public Utilities Commission	dd4@cpuc.ca.gov
Frank Leschinsky	Public Sector Manager	Volcano Telephone Company	frankl@volcanotel.com
Gregory Padilla	Fire Engineer	Merced County Office of Emergency Services	gregory.padilla@fire.ca.gov
Hai Norman	Emergency Preparedness Coordinator	Resources for Independence Central Valley (RICV)	hnormen@ricv.org

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

MEETING PARTICIPANTS (28)			
Name	Title	Agency	Email Address
Jeffrey Bellotti	OES	Amador County Sheriff	jbellotti@amadorgov.org
Jan Lemucchi	Long Term Services and Support Manager	Independent Living Center of Kern County	jan@ilcofkerncounty.org
John Osbourn	Director	Calaveras Office of Emergency Services	josbourn@co.calaveras.ca.us
Julian Enis	Utilities Engineer	California Public Utilities Commission	Julian.Enis@cpuc.ca.gov
Kenneth Austin	Emergency Manager	Fresno County	kaustin@fresnocountyca.gov
Kenneth Bennett			
Kevin McCusker	Manager of Community Affairs	California Water Service	kmccusker@calwater.com
Lisa Austin	Disability Disaster Director	California Foundation for Independent Living Centers (CFILC)	Lisa@cfilc.org
Mabel Wu	Senior Accountant	California Public Utilities Commission	mabel.wu@cpuc.ca.gov
Megan Cowdell	Deputy Director	California Foundation for Independent Living Centers	Megan@cfilc.org
Rosanne Ratkiewich	Senior Regulatory Analyst	California Public Utilities Commission	Rosanne.Ratkiewich@cpuc.ca.gov
Steven Klaiber	Analyst	California Public Utilities Commission	Steven.Klaiber@cpuc.ca.gov
Sukhdeep Gill	Senior Electrical Engineer	Turlock Irrigation District	ssgill@tid.org
Suzanna Gamez	Executive Director	Resources for Independence Central Valley (RICV)	sgamez@ricv.org
Sydney Pickern	Disability Disaster Access and Resources Program Manager	California Foundation for Independent Living Centers (CFILC)	sydney@cfilc.org
Wes Smith		Mariposa County Offices of Emergency Services	wsmith@mariposacounty.org

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Community Wildfire Safety Program Regional Working Group Summary Sheet

MEETING INFORMATION

Region: North Coast	Quarter: Q3	Meeting Date: 08/12/2021
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INFORMATION REQUESTS / FOLLOW-UP ITEMS

Description	Owner	Recipient	Status
Follow-up regarding the statuses of installed substation generation in Microgrid Portal.	J. Bright, K. Benson	D. Carnathan, D. Johnson	In Progress
Provide presentation to meeting participants.	A. Ace	D. Johnson, J. Enis	Complete

FEEDBACK / LESSONS LEARNED

Topic	Summary
Regional Leadership Team Introductions	Question was raised regarding undergrounding plan mileage per year, team discussed that we are early in the planning process and are not able to provide at this time.
New Weather Model	Discussed fire weather extended forecast for 2021 and provided link to Northern Operations Branch of Predictive Services.
Local Electric Reliability Statistics	N/A
Systemwide Resiliency Efforts	N/A
PSPS Events and Other Emergencies	N/A

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Open Discussion/Q&A	• N/A
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MEETING PARTICIPANTS (32)			
Name	Title	Agency	Email Address
Anthony Noll		California Public Utilities Commission	anthony.noll@cpuc.ca.gov
Brian Bottari	Government Affairs Director, North Bay	Comcast	brian_bottari@comcast.net
Buffy McQuillen	Tribal Heritage Preservation Officer/Repatriation	Federated Indians of Graton Rancheria	
Carolyn Nava	South Counties PSPS Emergency Lead	Disability Action Center	carolyn@actionctr.org
Darrell D. Johnson	Regional Learning & Development Manager	Comcast Cable	darrell_johnson@cable.comcast.com
Dale Carnathan	Emergency Services Manager	Lake County Office of Emergency Services	dale.carnathan@lakecountyca.gov
Daniel Tutt	Infrastructure Planning and Permitting	California Public Utilities Commission	daniel.tutt@cpuc.ca.gov
Derek Hall		Disability Action Center (DAC)	derekh@actionctr.org
Drucilla Dunton	Administration & Budget Unit	California Public Utilities Commission	dd4@cpuc.ca.gov
Eddie A Morgan	Commission Chair	County of Humboldt	
Evan Coleman			
Fred			
Garrett James	Emergency Services Specialist	Mendocino County Office of Emergency Services	jamesg@mendocinocounty.org
Jordan Rico	Disability Disaster Access & Resource Center Coordinator	Disability Services & Legal Center (DSLCL)	ricoj@mydslc.org
Julian Enis	Utilities Engineer	California Public Utilities Commission	julian.enis@cpuc.ca.gov
Leanne Hoadley	Manager of Community and Customer Engagement	Marin Clean Energy	LHoadley@mcecleanenergy.org
Lisa Austin	Disability Disaster Director	California Foundation for Independent Living Centers (CFILC)	Lisa@cfilc.org
Margaret DiGenova	Operations Superintendent	California-American Water	margaret.digenova@amwater.com
Megan Cowdell	Deputy Director	California Foundation for Independent Living Centers	Megan@cfilc.org
Mel Grandi	Electric Utility Director	City of Ukiah	mgrandi@cityofukiah.com

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

MEETING PARTICIPANTS (32)			
Name	Title	Agency	Email Address
Nathan Kinsey	Commercial Accounts Manager	Sonoma Clean Power	nkinsey@sonomacleanpower.org
Neal Reardon	Director of Regulatory Affairs	Sonoma Clean Power	nreardon@sonomacleanpower.org
Patrick Saxton	Senior Utilities Engineer	California Public Utilities Commission	patrick.saxton@cpuc.ca.gov
Richard A. Saldivar	Project Manager, PSPS Response Lead	California American Water	richard.saldivar@amwater.com
Sarah Ryan	Environmental Director	Big Valley Rancheria	
Scott Harter	Administrator	Lake County Special Districts	scott.harter@lakecountycal.gov
Scott Lawrence	Commercial Accounts Specialist	Sonoma Clean Power	slawrence@sonomacleanpower.org
Shawn Swatosh	Senior Area Director	Mediacom	sswatosh@mediacomcc.com
Steven Lederer	Director	Napa County Department of Public Works	PublicWorks@countyofnapa.org
Tami Bartolomei	Office of Emergency Management Coordinator	City of Ukiah Emergency Management	tamibartolomei@cityofukiah.com
Tim Campbell	Grants Administrator	Graton Rancheria	
Vickey Macias	Tribal Treasurer	Cloverdale Rancheria	
Wendy Longwell	Programs Manager	Disability Action Center (DAC)	wendyl@actionctr.org

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



Community Wildfire Safety Program Regional Working Group Summary Sheet

MEETING INFORMATION

Region: South Bay/Central Coast	Quarter: Q3	Meeting Date: 08/12/2021
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INFORMATION REQUESTS / FOLLOW-UP ITEMS

Description	Owner	Recipient	Status
Follow up regarding if PG&E has targets for resiliency metrics for 2021 and beyond (number and duration).	M. Camara	Z. Struyk	In Progress
Follow up regarding election coordination efforts, noted this has already happened for their SCE served areas.	R. Dye, E. Daniels	K. Hubbard	Complete

FEEDBACK / LESSONS LEARNED

Topic	Summary
Regional Leadership Team Introductions	Discussed if new regions align with Cal OES regions and that the new regions align with county borders.
County OES Co-Moderated Session	N/A
New Weather Model	Reviewed weather lookback and what that means 2021 criteria would have meant for a particular county.
Local Electric Reliability Statistics	- Discussed if PG&E has system reliability targets for 2021. - Outlined how reliability metrics include all types of outages, not just PSPS.
Systemwide Resiliency Efforts	N/A
PSPS Events and Other Emergencies	Highlighted election coordination with risk of having a PSPS event during upcoming recall.

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

Open Discussion/Q&A	N/A
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MEETING PARTICIPANTS (25)			
Name	Title	Agency	Email Address
Lisa Samaro		Silicon Valley Independent Living Center	LisaS@svilc.org
Steven Klaiber	Analyst	California Public Utilities Commission	Steven.Klaiber@cpuc.ca.gov
Thomas Chin		City of Cupertino	ThomasC@cupertino.org
Darrell D. Johnson	Regional Learning & Development Manager	Comcast Cable	DJohns015@cable.comcast.com
Robert Cascone		City of Cupertino Office of Emergency Management	RobertC@cupertino.org
Victoria Bebee		Los Altos Hills County Fire District	vbebee@lahcfd.org
Drucilla Dunton	Administration & Budget Unit	California Public Utilities Commission	drucilla.dunton@cpuc.ca.gov
Julian Enis	Utilities Engineer	California Public Utilities Commission	Julian.Enis@cpuc.ca.gov
Scotty Jalbert		San Luis Obispo County Office of Emergency Services	SJalbert@co.slo.ca.us
Robert Maitland		City of Mountain View Office of Emergency Services	Robert.Maitland@mountainview.gov
Arn Andrews		City of Los Gatos	AAndrews@losgatosca.gov
Shelby Chase		California Public Utilities Commission	Shelby.Chase@cpuc.ca.gov
Denise Gluhan		Los Altos Hills County Fire District	dgluhan@lahcfd.org
Dana Reed		Santa Clara County Office of Emergency Management	Dana.Reed@oem.SCCGOV.ORG
Richard A Saldivar	Project Manager, PSPS Response Lead	California American Water	richard.saldivar@amwater.com
Jennifer Ponce		City of Morgan Hill Office of Emergency Services	jennifer.ponce@morganhill.ca.gov
Tom Francis	Water Resources Manager	Bay Area Water Supply and Conservation Agency	tfrancis@bawsca.org
Nate Gillespie			
Zachary Struyk		City of San Jose/San Jose Clean Energy	Zachary.Struyk@sanjoseca.gov

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

MEETING PARTICIPANTS (25)			
Name	Title	Agency	Email Address
Beena Morar		Southern California Edison	beena.morar@sce.com
Jorge		Central Coast Center for Independent Living	
Kelly Hubbard		Santa Barbara County Office of Emergency Management	
Marysol		Central Coast Center for Independent Living	
Moore, Christopher		California Public Utilities Commission	Christopher.Moore@cpuc.ca.gov
Sydney Pickern	Disability Disaster Access and Resources Program Manager	California Foundation for Independent Living Centers (CFILC)	sydney@cfilc.org

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



Community Wildfire Safety Program Regional Working Group Summary Sheet

MEETING INFORMATION

Region: Bay Area	Quarter: Q3	Meeting Date: 08/13/2021
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INFORMATION REQUESTS / FOLLOW-UP ITEMS

Description	Owner	Recipient	Status
Follow up to confirm when/if the Vulnerable Customer Status application will be available entirely online (not as a PDF download).	D. Walke	R. Halog	In Progress

FEEDBACK / LESSONS LEARNED

Topic	Summary
Regional Leadership Team Introductions	Responded to questions about timing of undergrounding plans and where that work is likely to occur in the Bay Area Region over the coming years.
New Weather Model	- Discussed why the catastrophic fire event metric is needed if PG&E already considers fire risk in the OPW model. - Outlined what weather-related tools are available to Public Safety Partners (fuel sampling database, MesoWest, etc.).
Local Electric Reliability Statistics	N/A
Systemwide Resiliency Efforts	Explained that undergrounding and microgrid projects can fulfill similar needs and are often intertwined with each other but that one does not necessarily replace the other.
PSPS Events and Other Emergencies	Addressed questions related to what kind of challenges the ongoing California drought is causing across the service territory (i.e., reduced generation, increased fire risk, etc.).
Open Discussion/Q&A	Gathered feedback regarding the potential of moving the Vulnerable Customer Status program to a fully online application process.

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

	Fielded questions about self-inspecting non-PG&E electric infrastructure after an outage/PSPS and other related issues.
--	---

MEETING PARTICIPANTS (30)			
Name	Title	Agency	Email Address
Alex DiGiorgio	Public Engagement Manager	East Bay Community Energy	ADiGiorgio@ebce.org
Alicia Masri		Alameda County Office of Education	
Amanda Pyle		Golden Gate Regional Center	apyle@ggrc.org
Anthony Noll		California Public Utilities Commission	Anthony.Noll@cpuc.ca.gov
Ari Delay	Fire Chief	City of San Bruno Fire Department	
Brett Kawakami		East Bay Municipal Utilities District	bkawakam@ebmud.com
Carrie Ricci		Contra Costa County Public Works	
Cindy Chen		California Public Utilities Commission	Xuan.Chen@cpuc.ca.gov
Darrell D. Johnson	Regional Learning & Development Manager	Comcast Cable	DJohns015@cable.comcast.com
Drucilla Dunton	Administration & Budget Unit	California Public Utilities Commission	drucilla.dunton@cpuc.ca.gov
Forest Kaser		California Public Utilities Commission	Forest.Kaser@cpuc.ca.gov
Ian Larkin		CAL FIRE	Ian.Larkin@fire.ca.gov
Jessica Tse			
Joseph Leto		Comcast Cable	JLeto001@cable.comcast.com
Julian Enis	Utilities Engineer	California Public Utilities Commission	Julian.Enis@cpuc.ca.gov
Julie Cavallero		Contra Costa County Office of Emergency Services	JBeac001@so.cccounty.us
Kristi Duenas		Alameda County Sheriff's Office of Emergency Services	kduenas@acgov.org
Leslie Brown	Director of Account Services	Peninsula Clean Energy	lbrown@peninsulacleanenergy.com
Mabel Wu	Senior Accountant	California Public Utilities Commission	Mabel.Wu@cpuc.ca.gov
Maryellen Carroll		City of San Francisco Department of	maryellen.carroll@sfgov.org

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

MEETING PARTICIPANTS (30)			
Name	Title	Agency	Email Address
		Emergency Management	
Nacho Mendoza		Diablo Water District	nmendoza@diablowater.org
Paul Cruz		Center for Independence of Individuals with Disabilities, San Mateo County	paulc@cidsanmateo.org
Ron Halog		Independent Living Resources in Solano and Contra Costa County	ronh@ilrsc.org
Rosanne Ratkewich	Senior Regulatory Analyst	California Public Utilities Commission	Rosanne.Ratkewich@cpuc.ca.gov
Shawn Swatosh	Senior Area Director	Mediacom	sswatosh@mediacomcc.com
Sydney Pickern	Disability Disaster Access and Resources Program Manager	California Foundation for Independent Living Centers (CFILC)	sydney@cflic.org
Theresa Langdon		Alameda County Sheriff's Office of Emergency Services	TLangdon@acgov.org
Tim Jensen		Contra Costa County Public Works Department	
Tim Wesig		Alameda County General Services Agency	Tim.Wesig@acgov.org
Tom Francis	Water Resources Manager	Bay Area Water Supply and Conservation Agency	tfrancis@bawsc.org

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

Attachment 2

**Agenda and Presentations for the Third Quarter 2021,
Regional Working Groups (including Resiliency
Workshop)**

Community Wildfire Safety Program

Q3 2021 REGIONAL WORKING GROUP

Central Valley Region

August 11, 2021



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

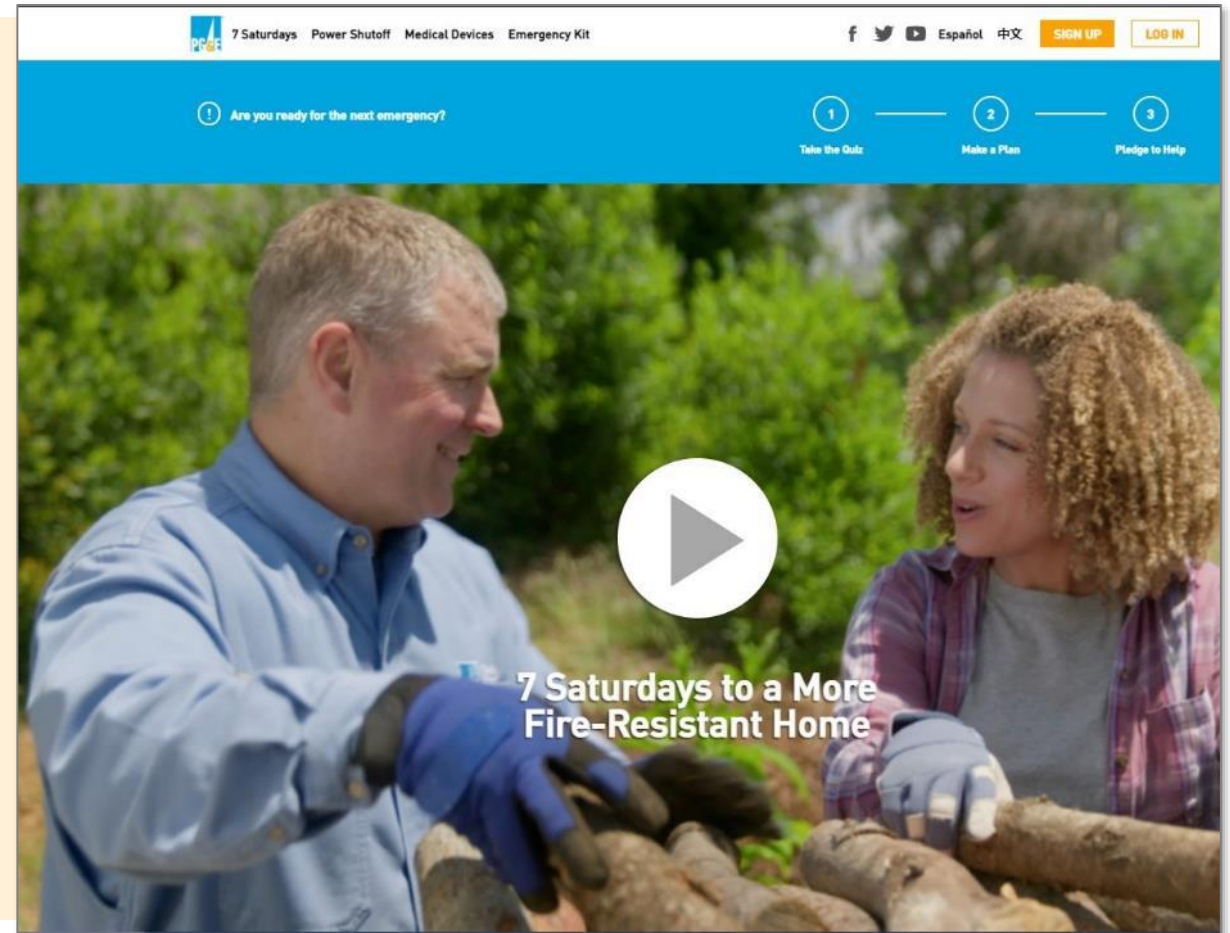


Californians are working together to make sure our families, homes and communities are ready to face wildfires and other emergencies.

From creating defensible space around your home to preparing your family for an evacuation, PG&E's new "7 Saturdays" digital video series outlines a number of actions everyone can take to prepare.

Watch now at:

safetyactioncenter.pge.com



DISCUSSION TOPICS:

- 1** Regional Leadership Team Introductions
- 2** County Office of Emergency Services
Co-Moderated Session
- 3** New Weather Model
- 4** Local Electric Reliability Statistics
- 5** Systemwide Resiliency Efforts
- 6** PSPS Events and Other Emergencies
- 7** Open Discussion/Q&A

LOCAL CO-PRESENTER:

Wes Smith | Mariposa County OES

PG&E PRESENTERS:

Joshua Simes | Regional Vice President

Jack Suehiro | Regional Safety Director

Patrick Mullen | Senior Manager Local
Customer Experience and Division Lead

Michael Gaffney | Local Public Affairs

Geoff Money | Public Safety Specialist

Reno Franklin | Tribal Liaison

Evan Duffey | Manager of Meteorology
Operations



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

WORKING GROUP PARTICIPANTS:

- ☐ Access and Functional Needs Representatives
- ☐ City/County Staff
- ☐ Community Based Organization Representatives
- ☐ Community Choice Aggregators
- ☐ County Office of Emergency Services Representatives
- ☐ First Responders
- ☐ Health and Human Services Representatives
- ☐ Publicly Owned Electric Utility Representatives
- ☐ Red Cross Staff
- ☐ Small, Multi-Jurisdictional Electric Utilities
- ☐ Telecommunications Providers
- ☐ Tribal Governments
- ☐ Water Agencies
- ☐ California Public Utilities Commission Staff
- ☐ Filsinger Energy Partners

Regional Leadership Team Introductions

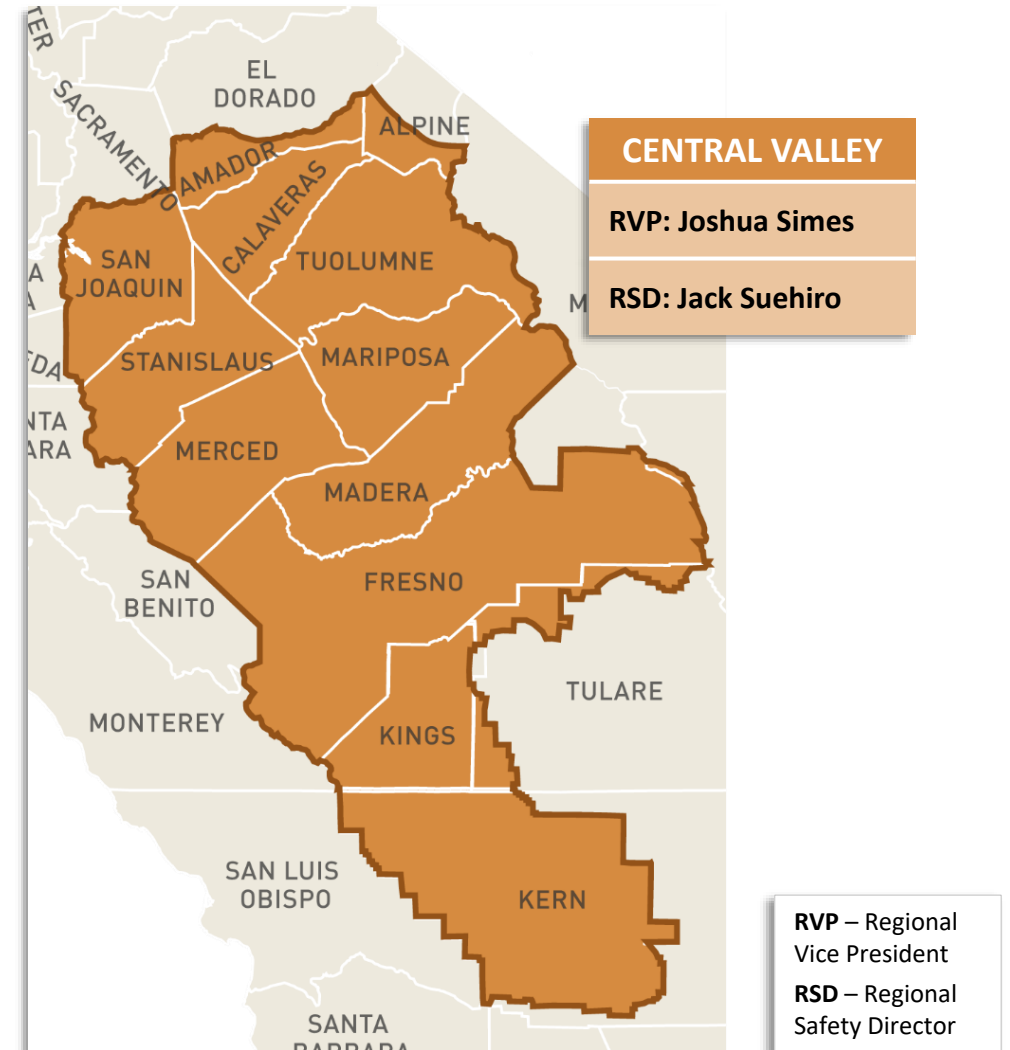


Central Valley Regional Service Model Key Objectives

We are moving to a Regional Service Model so that we can better serve our customers by being more nimble and quickly resolving issues at the local level.

The addition of regional leadership and their teams increases the local resources positioned to:

- ✓ **More effectively engage customers and community for feedback**
- ✓ **Increase the speed that problems can be solved with improved local coordination**
- ✓ **Better educate communities on the reasoning behind local initiatives**
- ✓ **Develop more customized solutions for local needs**



New Undergrounding Safety Initiative

On July 21, PG&E announced a major expansion of our efforts to underground electric distribution power lines in High Fire-Threat Districts. **This new infrastructure safety initiative is a multi-year effort to underground approximately 10,000 miles of power lines.**



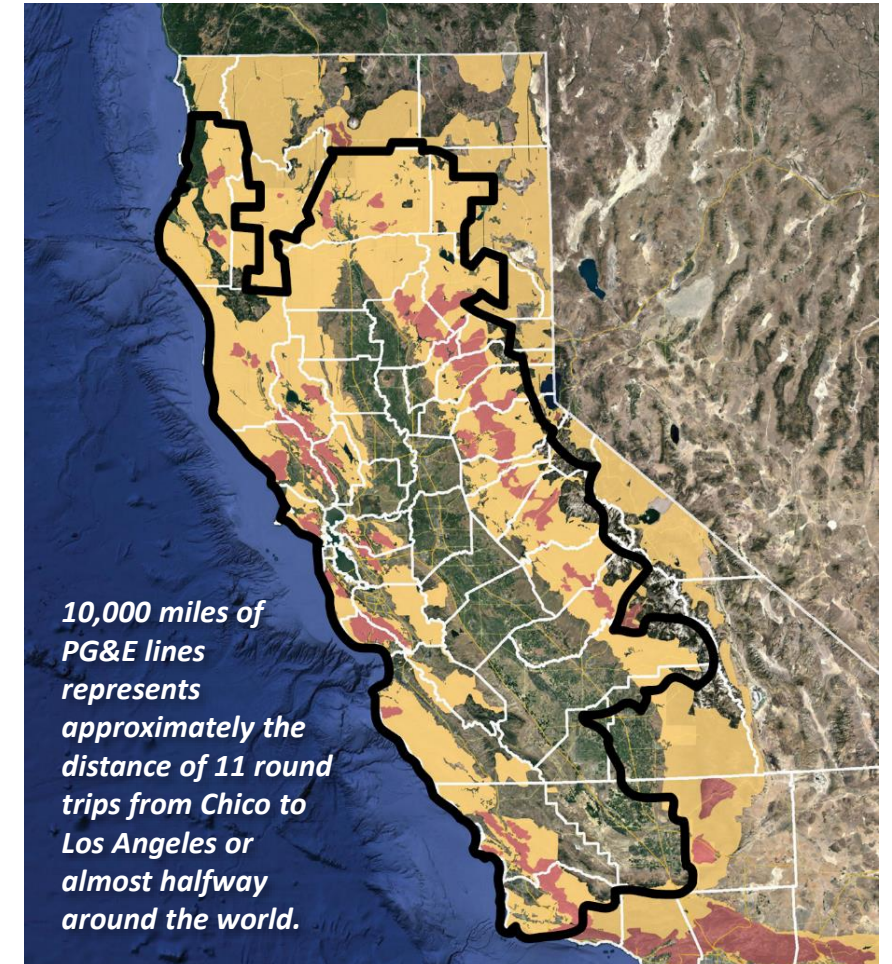
In the coming months and years **we will work to determine the exact number of projects or miles undergrounded each year.**

Potential undergrounding sites will be identified based on a variety of factors, including but not limited to:

- Local municipal planning and safety considerations.
- Project design considerations for water, natural gas, drainage and road systems.
- Location within a Tier 2 or Tier 3 High Fire-Threat District.
- Local, state, federal, tribal and regulatory requirements and feedback.

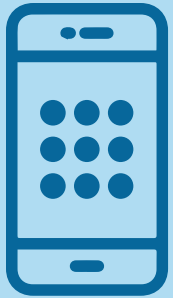


As more information becomes available about this new initiative we will be sure to share updates with you.





Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Related to PSPS, what is working well in your community?



What are challenges you have experienced with PG&E regarding PSPS?



How can we help support your community in preparing for and responding to PSPS?

Mariposa County OES Co-Moderated Session





PSPS Event Overview – Mariposa County

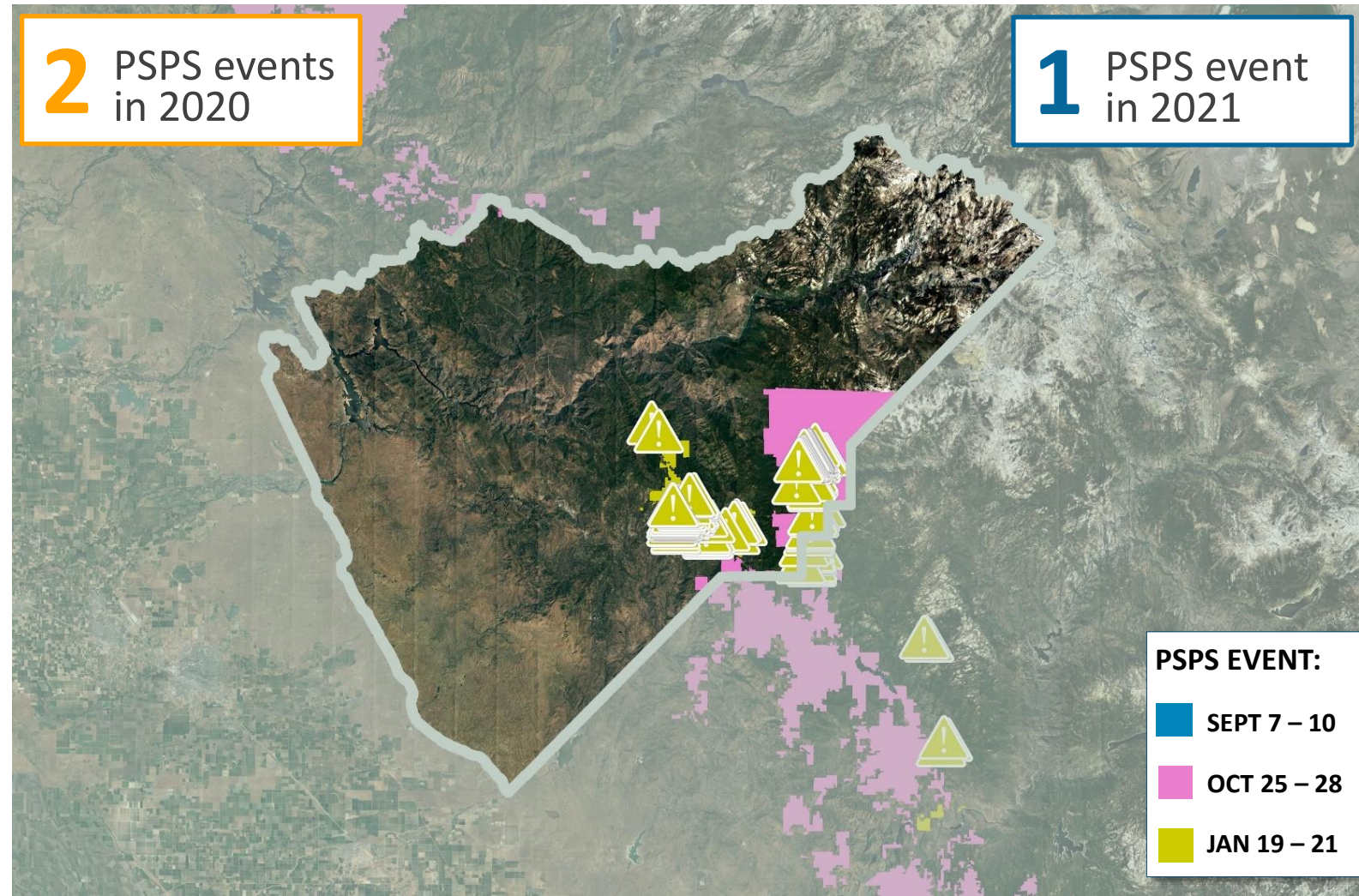
Event Details

2020 SEPT 7 – 10	2020 OCT 25 – 28	2021 JAN 19 – 21
------------------------	------------------------	------------------------

	CUSTOMERS IMPACTED	9	693	2,097
	COMMUNITY RESOURCE CENTERS OPENED	0	1	1
	PEAK WIND GUSTS	26 MPH	40 MPH	77 MPH
	DAMAGE /HAZARDS	0	0	373
	AVERAGE RESTORATION TIME	25 HRS	20 HRS	117 HRS
	TOTAL AVG. OUTAGE DURATION	41 HRS	36 HRS	133 HRS

2 PSPS events in 2020

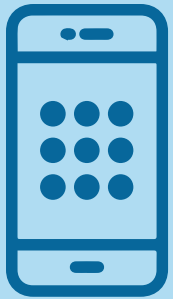
1 PSPS event in 2021



Note: PSPS impact areas are approximate and may overlap



Write your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



What past PSPS experiences have affected your planning efforts?



Do you have any practices or resources that have been helpful for you that you would like to share with participants?

New Weather Model



Building Our 2021 Machine Learning Models

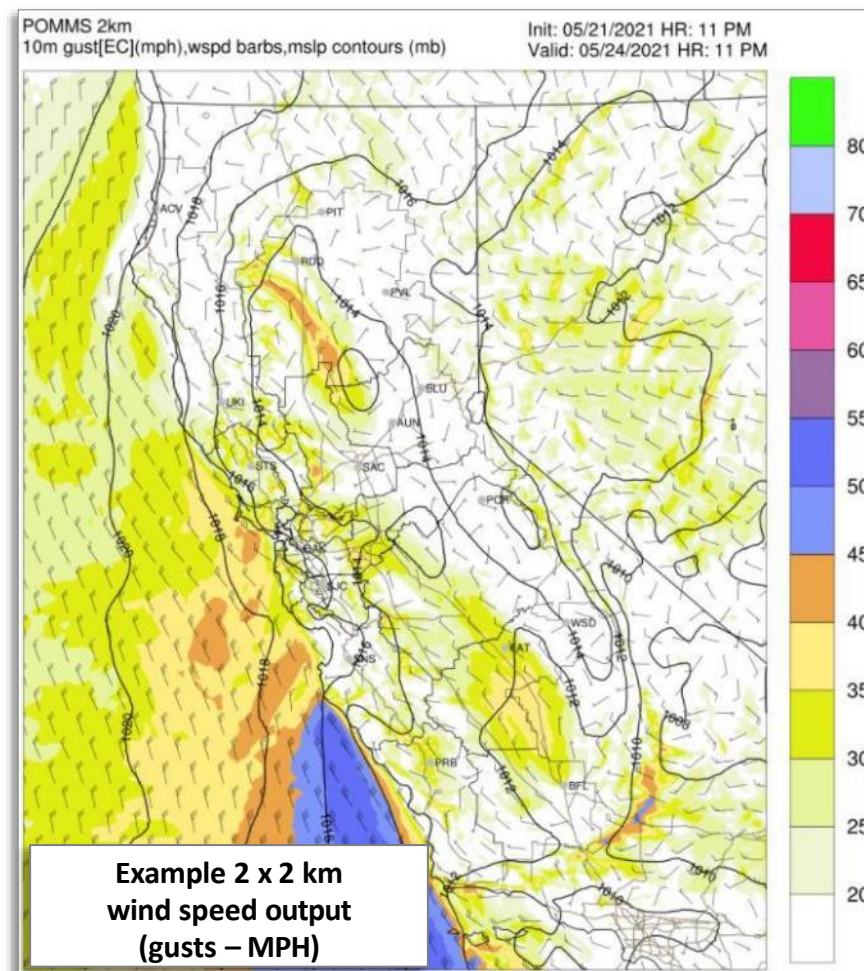
Through partnerships with external experts, we developed our 2021 machine learning models to give us a better understanding of historical weather events and to improve our weather forecasting.

This Model Uses:

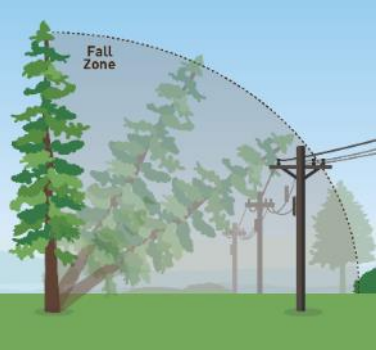
- ~190,000 2x2km cells with data per cell, per hour, looking back over 31-years of high-resolution weather and fuels climatology data
- Over **100 trillion overall data points** and 20 trillion in PG&E's service area
- **Hourly weather data** such as temperature, relative humidity, wind speed, precipitation, pressure and dead and live moisture
- Data storage and processing via the **PG&E-Amazon Web Services Cloud**

How it Helps PSPS Decision-Making and Scoping:

- Determines the **historical potential for ignitions** from each analyzed weather event (Ignition Probability Weather - IPW)
- Assists with fire model development and calibration (Fire Potential Index - FPI)
- Data inputs **improve fire spread modeling** (Technosylva)
- Provides **guidance for operation decision-making** (PSPS models)



New Machine Learning Models – Ignition Probability Weather

Ignition Probability Weather (IPW)		
Weather	Vegetation Exposure	Local Performance
		
▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Precipitation ▪ Vapor Pressure Deficit	▪ Aerial Lidar tree overstrike in each 2x2 km grid cell (vegetation ignition criteria)	▪ Outage trends specific to each location

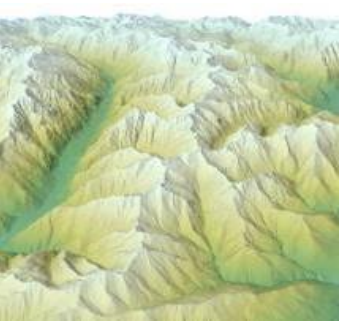
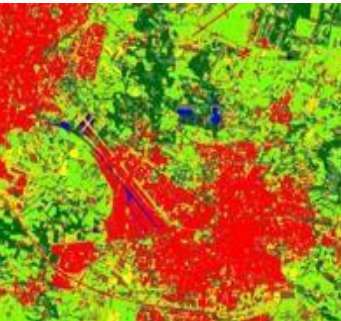
Key Model Components

- **Exponentially weighting recent years more heavily to learn and predict** system performance changes due to vegetation management and system hardening
- Data from PG&E's **31-year weather climatology study**
- Historical **sustained and momentary outage and PSPS damages data**
- Maximizing predictive skill with **state-of-the-art machine learning models**
- Predicting **five outage and ignition cause types**:
 - Vegetation
 - Equipment-structural
 - Equipment-electrical
 - Third party and animal
 - Unknown cause



New Machine Learning Models – Fire Potential Index

Fire Potential Index (FPI)

Weather	Fuel Moisture	Topography	Fuel Model Type
			
▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Vapor Pressure Deficit	▪ Dead fuel moisture ▪ Woody live fuel moisture ▪ Herbaceous live fuel moisture	▪ Ruggedness ▪ Slope ▪ Wind-terrain alignment	▪ Grass ▪ Shrub ▪ Timber ▪ Urban

Key Model Components

- **Historical satellite fire detection data set** from Sonoma Technology Inc. that includes fire growth in California from 2012 - 2020
- Data from PG&E's **31-year weather climatology study**
- **Technosylva** fuel moistures and granular fuel type maps
- **Forecasting hourly** probability of large and catastrophic fires
- Maximizing predictive skill **with state-of-the-art machine learning models**
- Greater predictive skill than previous model **confirmed by statistical evaluation and comparison of historical fires**

2020 vs. 2021 Improvements

2020 PSPS Models and Guidance

2021 PSPS Models and Guidance

Minimum Fire Potential Conditions

The minimum fire conditions (weather, fuels) required to consider a PSPS event.

Large Fire Probability

A risk-based assessment of the probability of outages due to weather combined with the probability of large fires. It is the 2020 Outage Producing Wind Model (OPW) combined with the 2020 Fire Potential Index (FPI).

Catastrophic Fire Probability

A risk-based assessment of the probability of fire ignitions due to weather combined with the probability of catastrophic fires by using the 2021 **Ignition Probability Weather Model (IPW)** combined with the 2021 **Fire Potential Index (FPI)**.

Black Swan Conditions

Even if the probability of an outage is unlikely, we may still turn off power if the weather and fuel conditions reach criteria where fast spreading, catastrophic fires are likely.

Catastrophic Fire Behavior

Even if the probability of an ignition is unlikely, we may still turn off power where **Technosylva** fire spread modeling indicates catastrophic fire behavior is possible.

Additional Vegetation Criteria

Locations where there is a high density of trees tall enough to strike power lines and where known high-priority trees are located.

Additional Vegetation Criteria

Electric Asset Criteria

Locations where known high-priority trees and electric compliance tags are located (vegetation ignition criteria is now part of IPW).

Event Criteria

PSPS criteria above met for at least 0.5% of PG&E's High Fire Risk Area (HFRA). Red Flag Warnings considered.

Event Criteria

PSPS criteria above met for at least 0.25% of PG&E's High Fire Risk Area (HFRA). Red Flag Warnings considered.

Catastrophic Fire: A fire that is not easily controlled, has a rapid rate of spread and threatens lives and property.

2021 Distribution-Level PSPS Decision-Making Process

1

If ALL the minimum fire conditions are met...

- ✓ High wind speeds
- ✓ Low relative humidity
- ✓ Low fuel moisture
- ✓ High fire potential

2

...we conduct an in-depth review of fire risk using three separate measures:

Catastrophic Fire Probability

Assesses the likelihood of a catastrophic wildfire by using a combination of the Ignition Producing Winds (IPW) model and the Fire Potential Index (FPI). This is an assessment of the probability that equipment will fail during the weather event, based on outage history.

Catastrophic Fire Behavior

Even if probability of failure is unlikely, we may still turn off power where catastrophic fires are possible. We evaluate fire behavior criteria across eight-hour forecast fire simulations using Technosylva technology that includes, flame length, rate of spread and area burned above 100 acres.

Vegetation and Electric Asset Criteria Considerations

We review locations where high priority trees or electric compliance tags are present that may increase the risk of ignition.

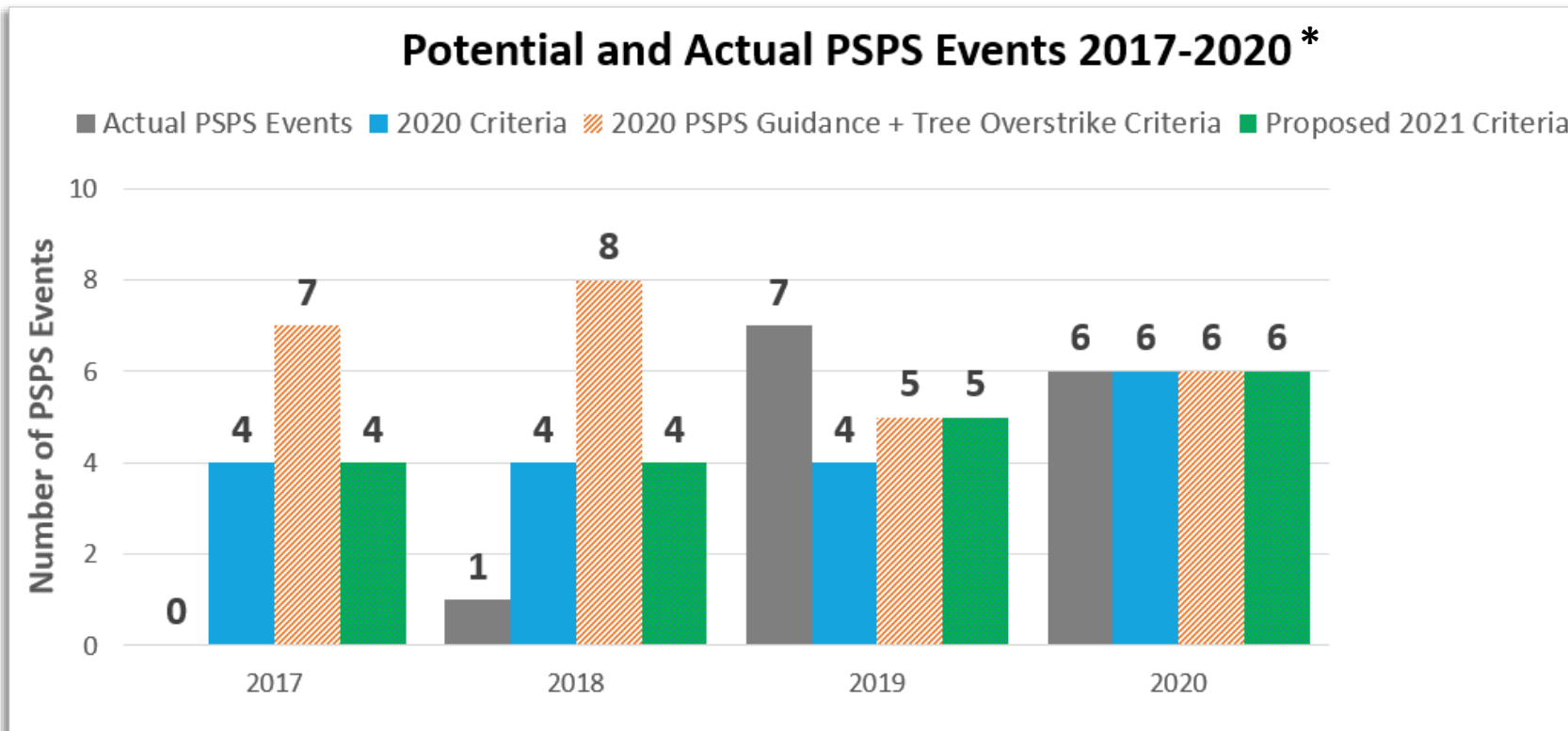
3

If ANY of these three measures are met, we turn off power for safety

Determining the Outage Area

Each of the three measures is evaluated within a small geographic area (4 square kilometers). If any of the measures are met, circuits within that area are de-energized. Because power lines travel across long distances, customers outside the affected area may also be impacted.

The chart below uses the last four years of hourly climatological weather data to show the number of potential PSPS against the 2021 proposed models and guidance.



**2020 Models and Guidance
+ Tree Overstrike Criteria:**
average of
6.5 events per year
(2017-2020)

**2021 Models
and Guidance:**
average of
4.75 events per year
(2017 – 2020)

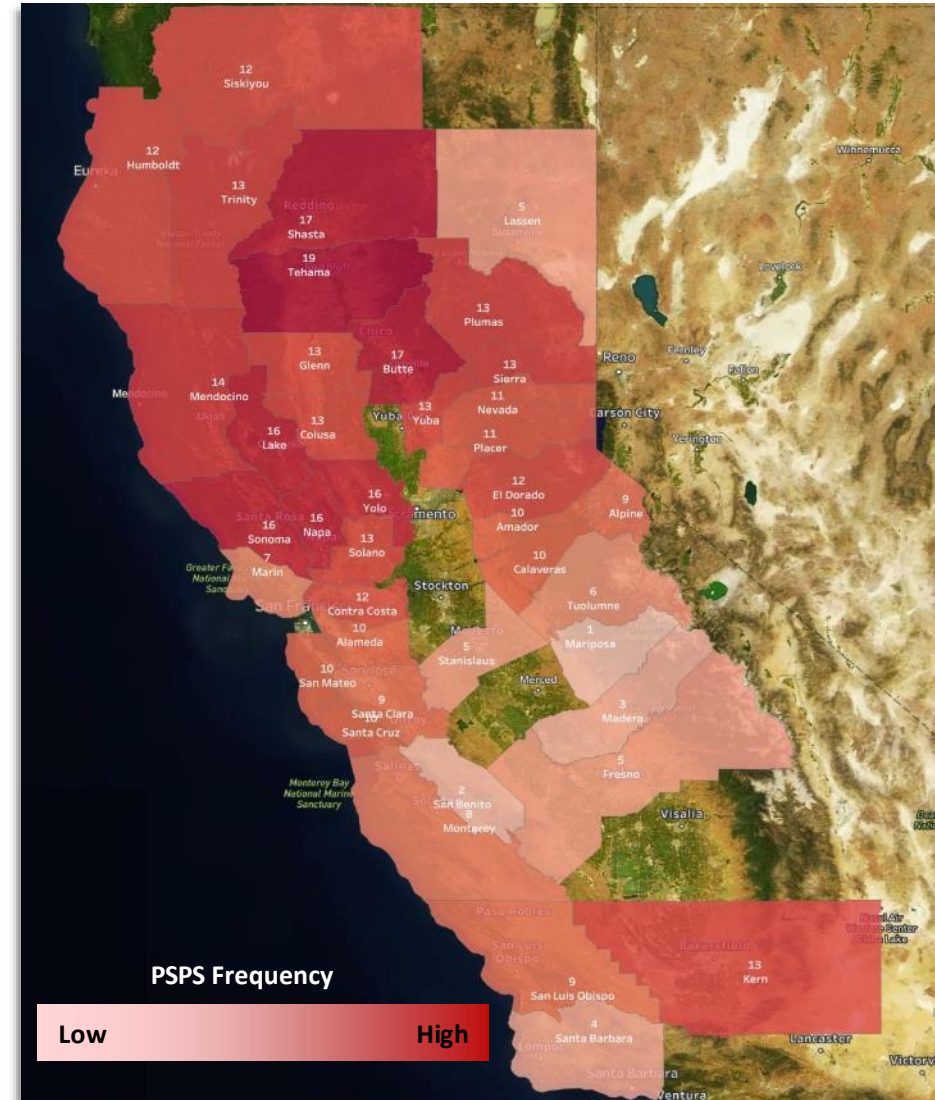
* Total PSPS per year, across the entire PG&E service territory.

2021 PSPS Models and Guidance Climatology Study

Using 2021 models and guidance, we can show the potential frequency of PSPS from 2017 – 2020.

Total PSPS from 2017-2020 Using 2021 Model

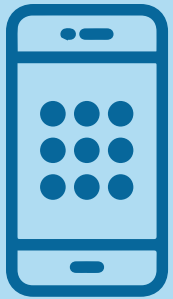
County	Event Count		County	Event Count	
Tehama	19		Placer	11	
Shasta	17		Nevada	11	
Butte	17		Santa Cruz	10	
Yolo	16		San Mateo	10	
Sonoma	16		Calaveras	10	
Napa	16		Amador	10	
Lake	16		Alameda	10	
Mendocino	14		Santa Clara	9	
Yuba	13		San Luis Obispo	9	
Trinity	13		Alpine	9	
Solano	13		Monterey	8	
Sierra	13		Marin	7	
Plumas	13		Tuolumne	6	
Kern	13		Stanislaus	5	
Glenn	13		Lassen	5	
Colusa	13		Fresno	5	
Siskiyou	12		Santa Barbara	4	
Humboldt	12		Madera	3	
El Dorado	12		San Benito	2	
Contra Costa	12		Mariposa	1	



New Weather Model – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



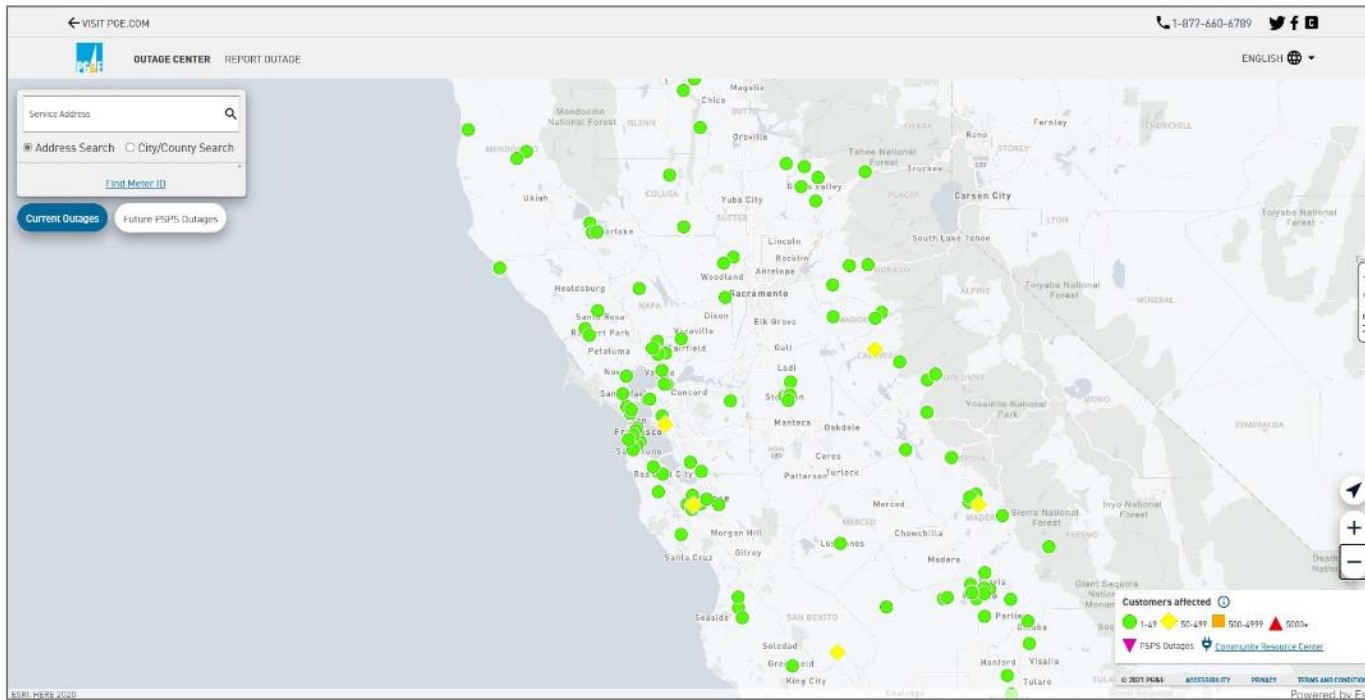
What else would you like to know about the new weather model?

Local Electric Reliability Statistics





PG&E's most important responsibility is providing safe and reliable energy to our customers and the communities we serve. To measure our reliability, we constantly track and monitor outages across our service area. Then, we calculate our reliability rates based on this data.



If you are impacted by a PSPS event or other type of outage, you can visit PG&E's electric outage map to view anticipated restoration times

Learn more about electric outages, including how to report one in your community, by visiting:

pge.com/outages





Systemwide Reliability Statistics

Each year, PG&E compiles a report that outlines our electric reliability statistics, with both a systemwide and division-level perspectives. The report is submitted to the California Public Utilities Commission (CPUC) and is available to the public. The report on 2020 electric reliability was submitted to the CPUC on July 9th, 2021.

- Including Major Event Days, the average PG&E customer experienced 1.443 outages in 2020 and those outages lasted for a combined average of 450.6 minutes.
- Excluding Major Event Days, the average PG&E customer experienced 1.068 outages in 2020 and those outages lasted for a combined average of 125.8 minutes.

Combined Transmission and Distribution System Indices (2017-2020)*

Year	Major Events <u>Included</u> **		Major Events <u>Excluded</u> **	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Total Outage Minutes Per Customer	Average Number of Outages
2017	357.8 minutes (~6.0 hours)	1.466 outages	97.3 minutes (~1.6 hours)	0.878 outages
2018	282.3 minutes (~4.7 hours)	1.053 outages	99.6 minutes (~1.7 hours)	0.960 outages
2019	1,363.3 minutes (~22.7 hours)	1.872 outages	117.7 minutes (~2.0 hours)	1.009 outages
2020	450.6 minutes (~7.5 hours)	1.443 outages	125.8 minutes (~2.1 hours)	1.068 outages

Additional reliability statistic details can be found on [pge.com](https://www.pge.com) by searching “reliability reports.”

*This table and all others in this presentation exclude planned and ISO related outages.

**Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.

Stockton Division Reliability Statistics

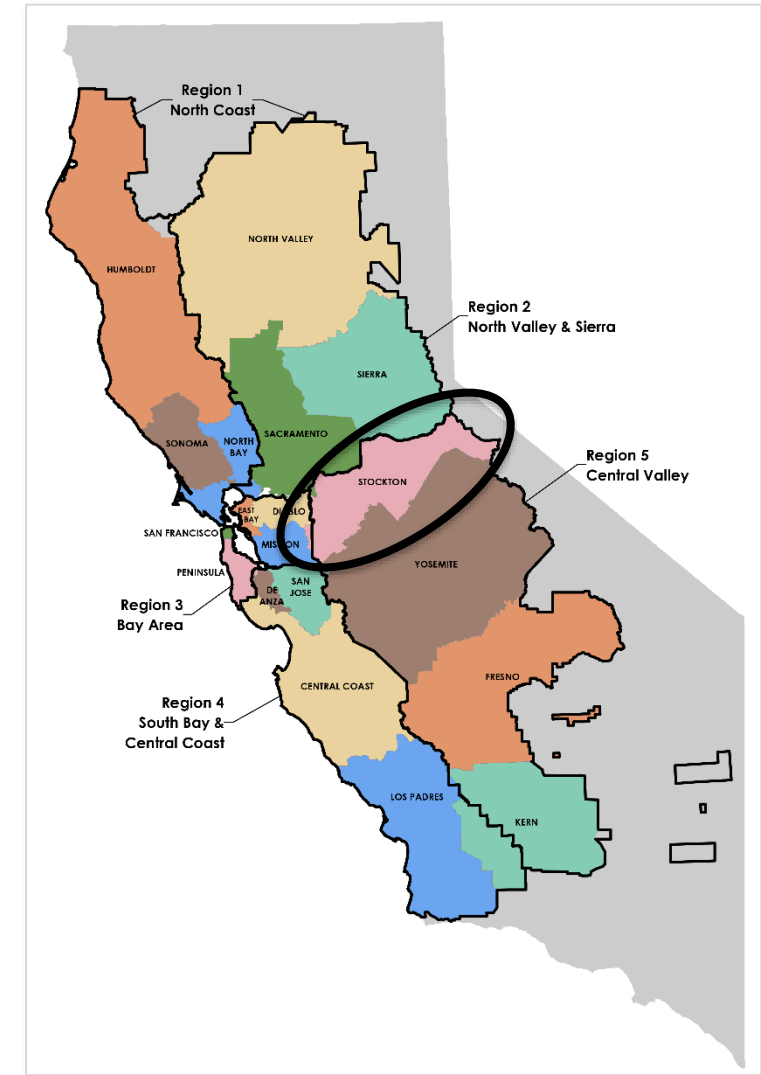
The Stockton Division is made up of portions of Amador, Alpine, Calaveras and San Joaquin Counties, along with surrounding areas.

- Including Major Event Days, the average PG&E customer in the Stockton Division experienced 1.595 outages in 2020 and those outages lasted for a combined average of 661.0 minutes.
- Excluding Major Event Days, the average PG&E customer in the Stockton Division experienced 1.187 outages in 2020 and those outages lasted for a combined average of 131.8 minutes.

Stockton Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Total Outage Minutes Per Customer	Average Number of Outages
2017	271.1 minutes (~4.51 hours)	1.627 outages	84.6 minutes (~1.41 hours)	0.946 outages
2018	224.8 minutes (~3.74 hours)	1.152 outages	107.7 minutes (~1.8 hours)	1.036 outages
2019	1,579.9 minutes (~26.33 hours)	2.366 outages	175.3 minutes (~2.92 hours)	1.276 outages
2020	661.0 minutes (~11.02 hours)	1.595 outages	131.8 minutes (~2.2 hours)	1.187 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Yosemite Division Reliability Statistics

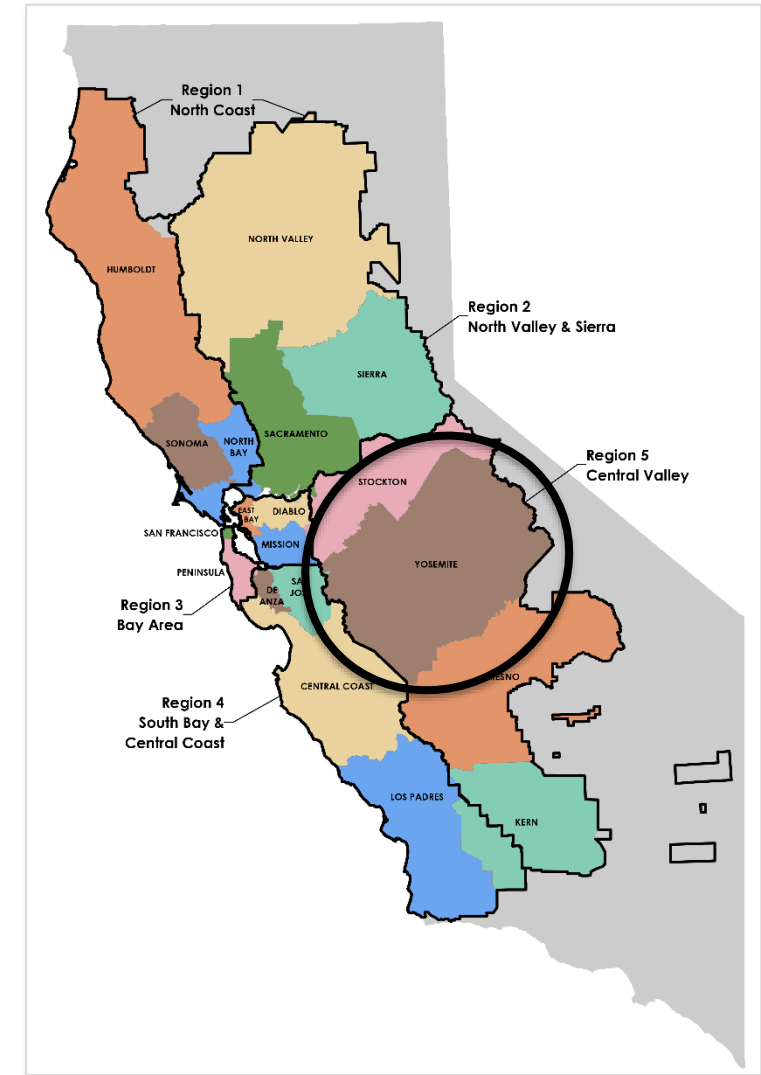
The Yosemite Division is made up of portions of Tuolumne, Stanislaus, Mariposa, Merced, Madera and Fresno Counties, along with surrounding areas.

- Including Major Event Days, the average PG&E customer in the Yosemite Division experienced 1.944 outages in 2020 and those outages lasted for a combined average of 783.7 minutes.
- Excluding Major Event Days, the average PG&E customer in the Yosemite Division experienced 1.411 outages in 2020 and those outages lasted for a combined average of 197.4 minutes.

Yosemite Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Total Outage Minutes Per Customer	Average Number of Outages
2017	310.8 minutes (~5.18 hours)	1.720 outages	143.0 minutes (~2.38 hours)	1.170 outages
2018	177.4 minutes (~3.0 hours)	1.465 outages	158.3 minutes (~2.64 hours)	1.355 outages
2019	1,399.3 minutes (~23.31 hours)	2.625 outages	160.4 minutes (~2.97 hours)	1.470 outages
2020	783.7 minutes (~13.06 hours)	1.944 outages	197.4 minutes (~3.29 hours)	1.411 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Fresno Division Reliability Statistics

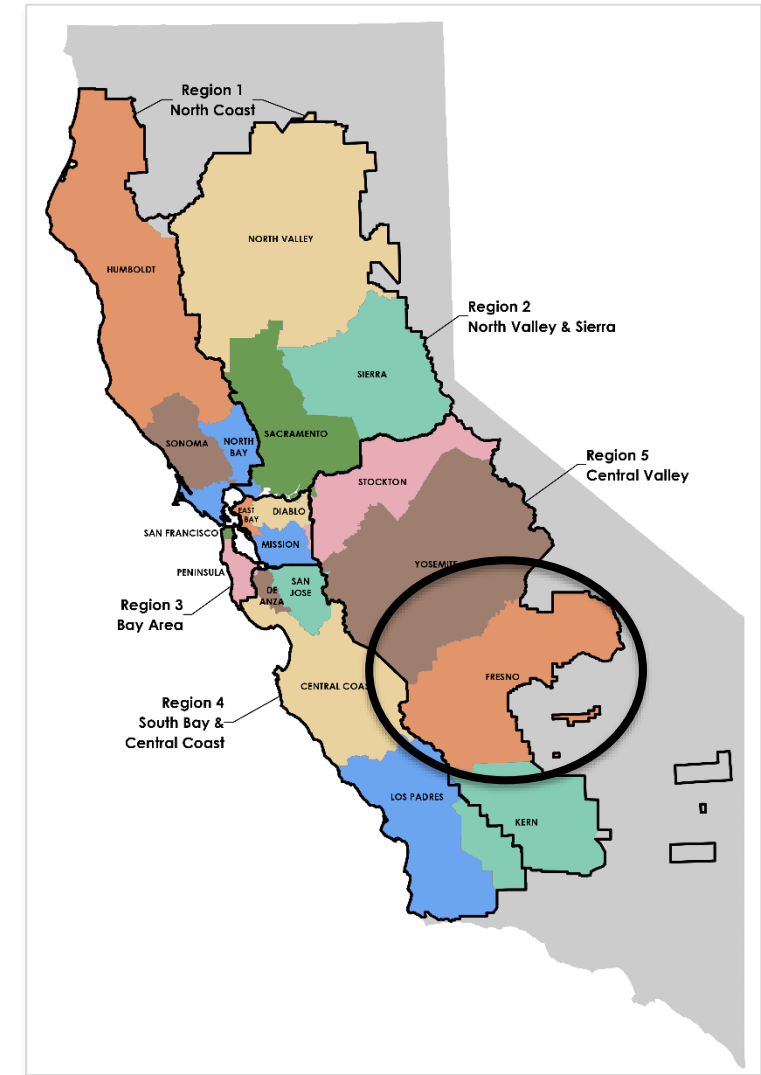
The Fresno Division is made up of portions of San Benito, Monterey, Madera, Fresno, Kings and Tulare Counties.

- Including Major Event Days, the average PG&E customer in the Fresno Division experienced 1.136 outages in 2020 and those outages lasted for a combined average of 116.9 minutes.
- Excluding Major Event Days, the average PG&E customer in the Fresno Division experienced 0.865 outages in 2020 and those outages lasted for a combined average of 5.26 minutes.

Fresno Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Total Outage Minutes Per Customer	Average Number of Outages
2017	102.5 minutes (~1.71 hours)	0.986 outages	72.3 minutes (~1.21 hours)	0.799 outages
2018	113.9 minutes (~1.9 hours)	1.046 outages	73.5 minutes (~1.23 hours)	0.861 outages
2019	120.7 minutes (~2.01 hours)	0.994 outages	78.8 minutes (~1.31 hours)	0.828 outages
2020	116.9 minutes (~1.94 hours)	1.136 outages	86.5 minutes (~1.44 hours)	0.865 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Kern Division Reliability Statistics

The Kern Division is made up of portions of Kern, Kings, Tulare, San Luis Obispo and Santa Barbara Counties.

- Including Major Event Days, the average PG&E customer in the Kern Division experienced 1.157 outages in 2020 and those outages lasted for a combined average of 129.7 minutes.
- Excluding Major Event Days, the average PG&E customer in the Kern Division experienced 1.060 outages in 2020 and those outages lasted for a combined average of 114.6 minutes.

Kern Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Total Outage Minutes Per Customer	Average Number of Outages
2017	138.9 minutes (~2.32 hours)	1.072 outages	78.1 minutes (~1.3 hours)	0.733 outages
2018	72.4 minutes (~1.21 hours)	0.789 outages	71.6 minutes (~1.19 hours)	0.783 outages
2019	162.0 minutes (~2.7 hours)	1.325 outages	106.6 minutes (~1.78 hours)	1.101 outages
2020	129.7 minutes (~2.16 hours)	1.157 outages	114.6 minutes (~1.91 hours)	1.060 outages

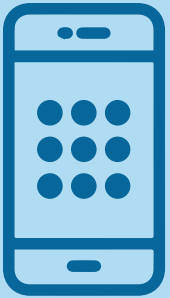
*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Local Reliability Statistics – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Do you have any additional questions about this subject?

Systemwide Resiliency Efforts



New for 2021 – Microgrid Portal

PG&E has worked to develop a new Microgrid Portal to share information with local agencies and tribes to assist in their own resiliency efforts. This new tool:



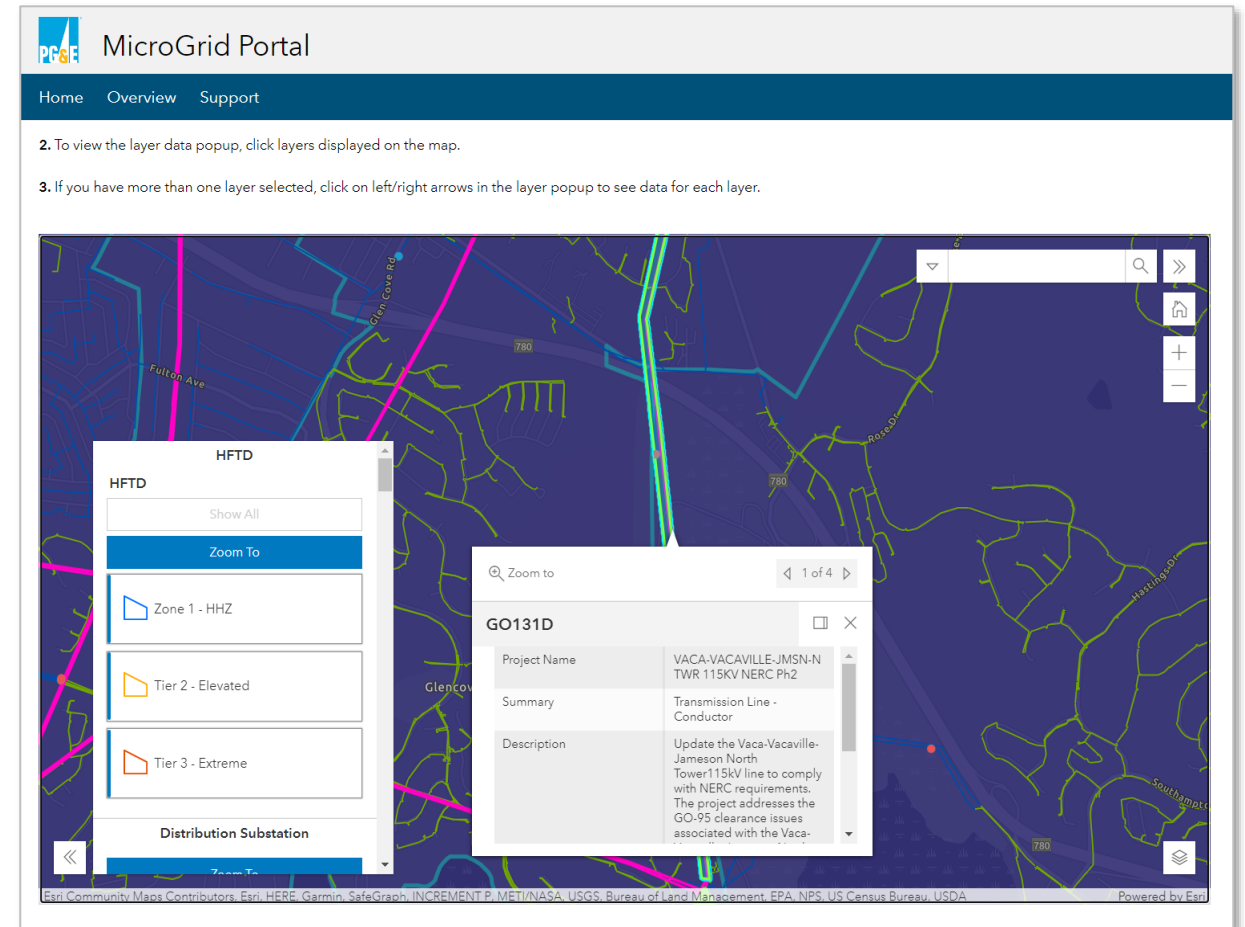
Is available to County OES representatives, tribal governments and other “organizations created by political subdivisions to carry out the provisions of the State Emergency Plan.”



Includes the following data:

- Utility planned work/grid investments (including locations, project descriptions, project timelines and completion dates)
- High Fire-Threat District Map layers
- Electric infrastructure map layers (including substations, distribution circuits and transmission lines)
- Weather polygon map layers

The Microgrid Portal launched on 7/16/21 and additional improvements will be made to the portal in the future.



How to Get Access to the Microgrid Portal



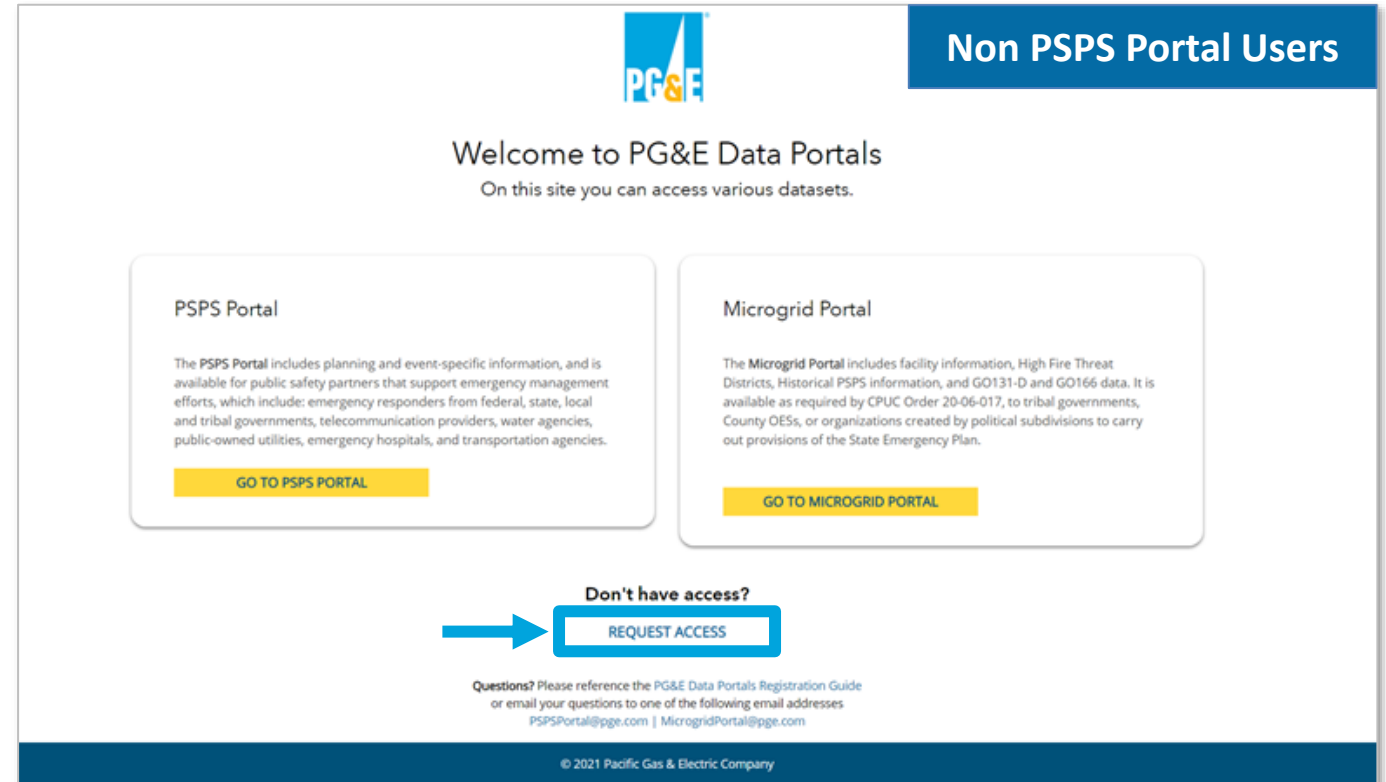
Existing PSPS Portal Users

- Log in to the **PSPS portal** and click on the banner: **Join our Microgrid Community**
- Once you have clicked on the banner, **simply follow instructions to complete.**



Non PSPS Portal Users

- Visit pge.com/pspsportal and **click on the request access button**
- Once you have clicked on the request access button, **simply follow instructions to complete.**



The screenshot shows the PG&E Data Portals landing page. At the top right, a blue banner reads "Non PSPS Portal Users". The main heading is "Welcome to PG&E Data Portals" with the subtext "On this site you can access various datasets." Below this are two white boxes. The left box is titled "PSPS Portal" and contains text about planning and event-specific information, with a yellow button labeled "GO TO PSPS PORTAL". The right box is titled "Microgrid Portal" and contains text about facility information, High Fire Threat Districts, and GO131-D and GO166 data, with a yellow button labeled "GO TO MICROGRID PORTAL". At the bottom, a blue button labeled "REQUEST ACCESS" is highlighted with a blue arrow and the text "Don't have access?". Below the button, there is a "Questions?" section with contact information for the Registration Guide and email addresses: PSPSPortal@pge.com and MicrogridPortal@pge.com. The footer of the page reads "© 2021 Pacific Gas & Electric Company".

Microgrid Incentive Program (MIP) Objectives

PG&E, along with San Diego Gas and Electric and Southern California Edison are in the process of developing a new Microgrid Incentive Program to fund clean community microgrids that support the critical needs of vulnerable populations most likely to be impacted by outages.

The goals of this program are to:



Increase reliability and resiliency for critical public facilities in communities that are at higher risk of electrical outages



Prioritize communities with higher portions of low-income, access and functional needs, and electricity dependent residents



Enable communities with lower ability to fund development of backup generation to maintain critical loads during outages



Provide opportunity for testing new technologies or regulatory approaches to inform future action to the benefit of all ratepayers

Foundational Microgrid Incentive Program (MIP) Elements

Key Items For Consideration	
Locations	▪ Priority for low-income, Disadvantaged, Access & Functional Needs and/or critical facility customers ▪ Priority for those impacted by grid outages (PSPS or otherwise)
Duration	▪ Microgrids should ideally be capable of maintaining identified customers' loads for up to 96-hours
Eligibility	▪ Multi-customer microgrid solutions will be eligible for this incentive ▪ Single-customer solutions do not qualify
Emissions	▪ Technologies must result in equal to or better than the current grid power emissions

Funding Allocation	
Statewide Budget	▪ \$200M
Incentive Cap	▪ \$15M/per project
Eligible Costs	▪ Front of the meter generation and/or storage resources ▪ Microgrid controller(s) ▪ Customer outreach ▪ Community costs ▪ Reconfiguration of equipment (e.g., to isolate and serve certain loads)
Matching Funds	▪ PG&E, SDG&E or SCE to provide one-time matching funds to offset a portion of the utility infrastructure upgrades associated with implanting islanding function

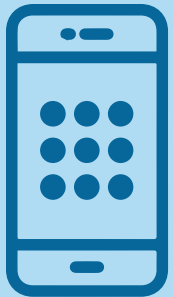
The utilities are developing the MIP with input from stakeholders and will submit a program implementation Advice Letter to the California Public Utilities Commission on October 1, 2021.

For more information visit pge.com/MIPworkshops.

Systemwide Resiliency Efforts – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Which Microgrid Portal features do you see being most useful?



Do you foresee using this resource?

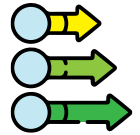


What else would you like to know about the new Microgrid Incentive Program?

PSPS and Other Emergencies



Concurrent Events Impacting Electric Service



What are concurrent events?

During wildfire season, we may experience multiple events that impact the electric system at the same time as a Public Safety Power Shutoff (PSPS) event.

Other events can include:

- ① An active wildfire
- ② A capacity event (e.g., rotating outage)
- ③ Damage to our electrical system (e.g., weather damage, car accident, construction incident, natural disaster)



What are the potential impacts?

- **Customers may lose power** even if they are not experiencing severe weather
- **PSPS restoration timelines** may be extended
- Customers may have their power turned off **without the typical notification or with limited notice**
- **Customer resource partnerships** are specific to PSPS events and wildfires*



How do we manage and communicate these events?

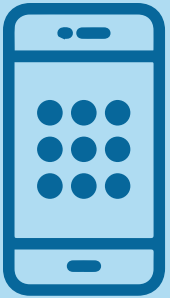
- **Managed through the Incident Command System (ICS)** using our Emergency Operations Center (EOC)
 - This system is designed to be **flexible and able to address emerging issues**
- **Open and ongoing dialogue** with external stakeholders
- **Robust internal communication** channels keep teams aligned and ensure local teams/decision-makers have integrated information

*Some customer resources (i.e., Community Resource Centers) may be made available during non-PSPS event scenarios if certain conditions are met.

PSPS and Other Emergencies – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



How do you plan to prepare for a concurrent event?



Are there additional tools/resources your agency needs?

- ✓ **Meeting survey** shared with participants to gather feedback on approach and content of regional working group
- ✓ **Follow-up on items** identified by local agencies/stakeholders
- ✓ **Upcoming meetings**
 - Q4 Regional Working Group Meetings
 - Meteorology Deep Dive

2021 REGIONAL WORKING GROUP CALENDAR

TIMING	TOPICS
Q4 2021	PSPS and Wildfire Safety

A summary of the feedback gathered here today and results from a post-meeting survey will be shared with the CPUC.



Thank You

PG&E Report It – Safety Mobile App

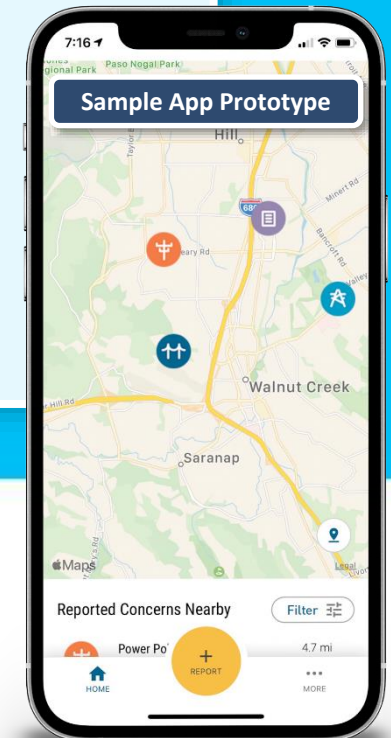
PG&E recently launched the pilot of our new “PG&E Report It” safety app that allows customers to submit photos of non-emergency potential safety concerns with our electric system.

Customers can use Report It to:

- ✓ Learn about the types of issues to report
- ✓ Submit photos directly to our safety team

Other Safety App features include:

- ✓ Finding safety concerns submitted by other users
- ✓ Reviewing PG&E’s safety findings
- ✓ Notifications when your concern is reviewed or resolved



To learn more about **PG&E Report It**, visit

pge.com/reportit

Appendix



2021 Follow Up and Action Items

Below is a list of the follow up and action items identified during the Q1 & Q2 Regional Working Groups in March and June as well as corresponding statuses.

Action Item	Agency	Status
Requested follow up to confirm transmission line accounts (i.e., Healdsburg) are able to use Address Alerts.	NCPA	In Progress
Requested follow up to confirm how/if gas service could be impacted by a PSPS event.	NCPA	In Progress
Requested follow up regarding what PSPS related resources are available for deaf customers.	Kern County Office of Emergency Services	In Progress
Requested follow up regarding the Regional Working Group invitee list.	Kern County Office of Emergency Services	In Progress

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Substation Microgrids	Humboldt	Hoopa	Ready to Operate	N/A
	Humboldt	Willow Creek	Ready to Operate	N/A
	Lake	Clear Lake	Ready to Operate	N/A
	Lake	Hartley	Ready to Operate	N/A
	Lake	Konocti	Ready to Operate	N/A
	Nevada	Brunswick	Ready to Operate	N/A
	Placer	Weimar	In-Event Ready	N/A
	Santa Cruz	Big Basin	In-Event Ready	N/A
	Santa Cruz	Point Moretti	Ready to Operate	N/A
	Sonoma	Cloverdale	Ready to Operate	N/A
	Trinity	Low Gap	Ready to Operate	N/A
	Yolo	Plainfield	Near Complete	August 26, 2021
	Yuba	Dobbins	In-Event Ready	N/A
Distribution Microgrids	Butte	Magalia	Ready to Operate	N/A
	Calaveras	Arnold	Planning	Q4 2021
	El Dorado	Georgetown	Ready to Operate	N/A
	El Dorado	Placerville	Ready to Operate	N/A
	El Dorado	Pollock Pines	Ready to Operate	N/A
	Lake	Clearlake North	Planning	Q4 2021
	Lake	Clearlake South	Planning	Q3 2021

Local work plans are subject to change and data is based on the best available information at this time.

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Distribution Microgrids (cont.)	Lake	Lucerne	Planning	Q3 2021
	Lake	Middletown	Ready to Operate	N/A
	Napa	Angwin	Ready to Operate	N/A
	Napa	Calistoga	Near Complete	Q3 2021
	Placer	Colfax	Planning	Q4 2021
	Placer	Foresthill	Planning	Q3 2021
	Shasta	Shingletown	Ready to Operate	N/A
	Tuolumne	Groveland	Planning	Q4 2021
Remote Grids	El Dorado	El Dorado	Planning	Q4 2021
	Mariposa	Mariposa 1	Operational	N/A
	Mariposa	Mariposa 2	Planning	Q4 2021
	Mariposa	Mariposa 3	Planning	Q4 2021
	San Luis Obispo	San Luis Obispo 1	Planning	Q3 2022
	San Luis Obispo	San Luis Obispo 2	Planning	Q3 2022
	Tulare	Tulare	Planning	Q3 2022
	Tehama	Tehama	Planning	Q4 2021
Islanding	Amador/Calaveras	Salt Springs Island	Ready to Operate	N/A
	Amador/Calaveras	West Point Island	Ready to Operate	N/A
	Humboldt	Humboldt Bay Island	Ready to Operate	N/A
	Plumas	Caribou Island	Ready to Operate	N/A
	Tehama	Red Bluff Island	Ready to Operate	N/A
	Tuolumne	Spring Gap	Ready to Operate	N/A

Local work plans are subject to change and data is based on the best available information at this time.

Community Wildfire Safety Program

Q3 2021 REGIONAL WORKING GROUP

North Coast Region

August 12, 2021



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

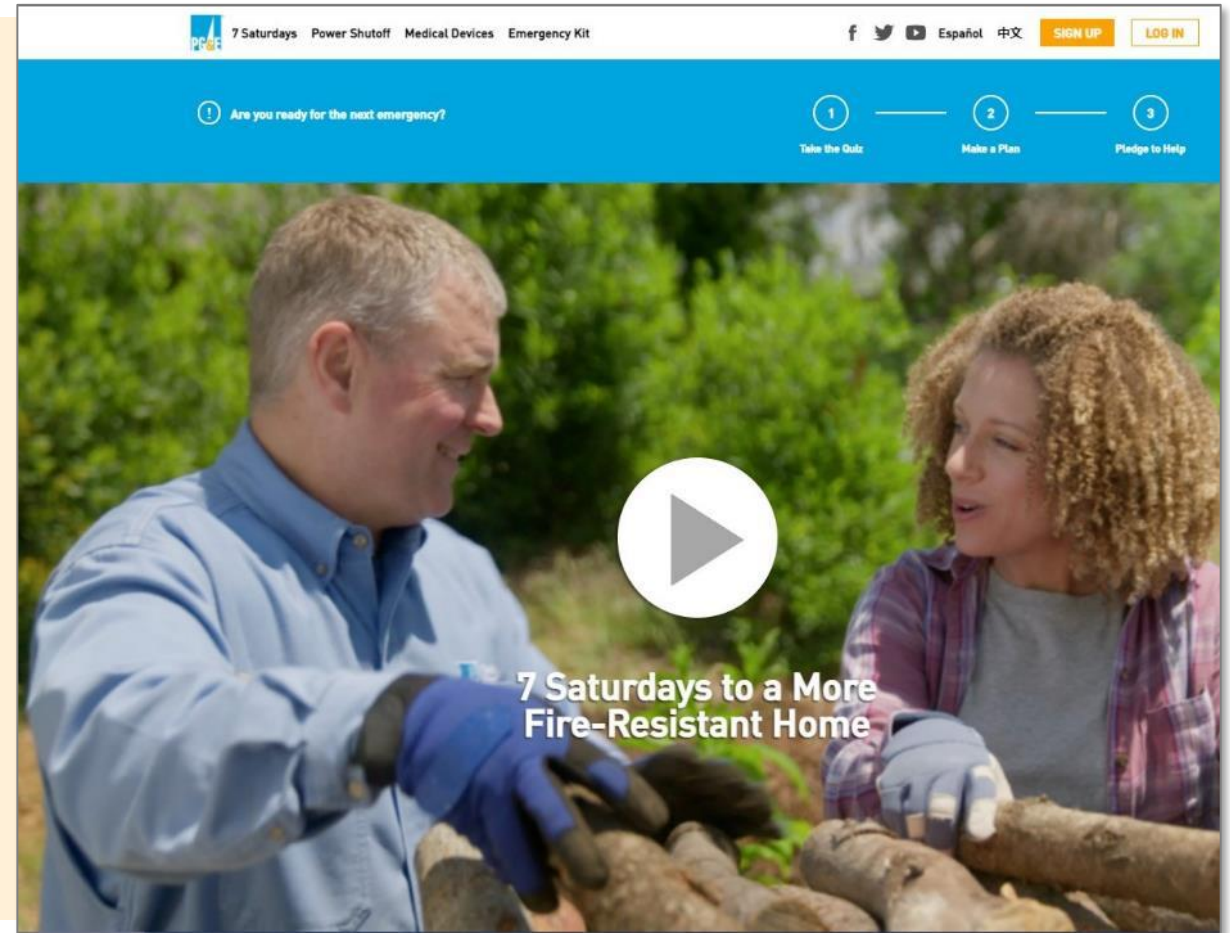


Californians are working together to make sure our families, homes and communities are ready to face wildfires and other emergencies.

From creating defensible space around your home to preparing your family for an evacuation, PG&E's new "7 Saturdays" digital video series outlines a number of actions everyone can take to prepare.

Watch now at:

safetyactioncenter.pge.com



DISCUSSION TOPICS:

- 1** Regional Leadership Team Introductions
- 2** New Weather Model
- 3** Local Electric Reliability Statistics
- 4** Systemwide Resiliency Efforts
- 5** PSPS Events and Other Emergencies
- 6** Open Discussion/Q&A

PG&E PRESENTERS:

Ron Richardson | Regional Vice President

Corey Zeigler | Regional Safety Director

Austin Sharp | Senior Manager Local Customer Experience and Division Lead

Melinda Rivera | Local Public Affairs

Rich Noonan | Public Safety Specialist

Denise Shemenski | Tribal Liaison

Evan Duffey | Manager of Meteorology Operations



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

WORKING GROUP PARTICIPANTS:

- ☐ Access and Functional Needs Representatives
- ☐ City/County Staff
- ☐ Community Based Organizations
- ☐ Community Choice Aggregators
- ☐ County Offices of Emergency Services
- ☐ First Responders
- ☐ Health and Human Services Representatives
- ☐ Public Works Partners
- ☐ Publicly Owned Electric Utilities
- ☐ Red Cross Staff
- ☐ Small, Multi-Jurisdictional Electric Utilities
- ☐ Telecommunications Providers
- ☐ Tribal Governments
- ☐ Water Agencies
- ☐ Filsinger Energy Partners
- ☐ California Public Utilities Commission Staff

Regional Leadership Team Introductions

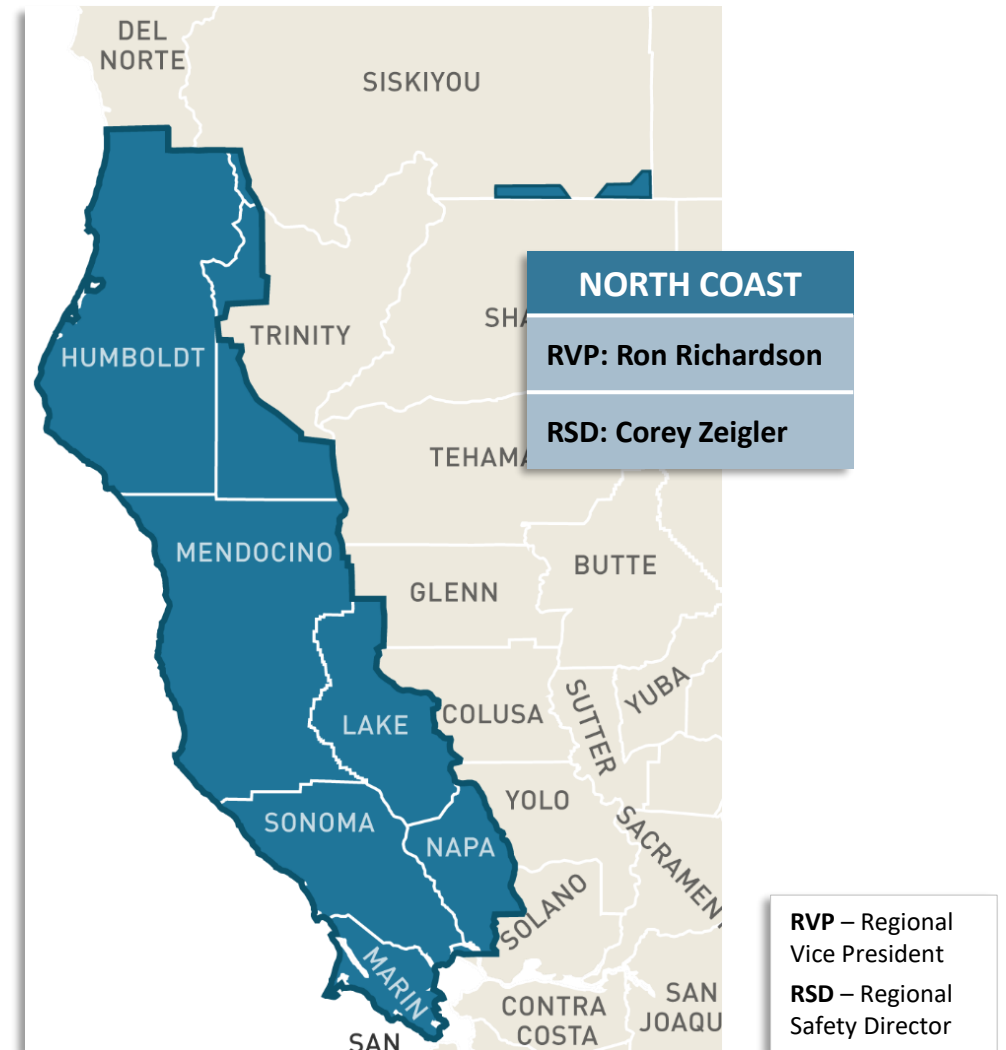


North Coast Regional Service Model Key Objectives

We are moving to a Regional Service Model so that we can better serve our customers by being more nimble and quickly resolving issues at the local level.

The addition of regional leadership and their teams increases the local resources positioned to:

- ✓ **More effectively engage customers and community for feedback**
- ✓ **Increase the speed that problems can be solved with improved local coordination**
- ✓ **Better educate communities on the reasoning behind local initiatives**
- ✓ **Develop more customized solutions for local needs**



New Undergrounding Safety Initiative

On July 21, PG&E announced a major expansion of our efforts to underground electric distribution power lines in High Fire-Threat Districts. **This new infrastructure safety initiative is a multi-year effort to underground approximately 10,000 miles of power lines.**



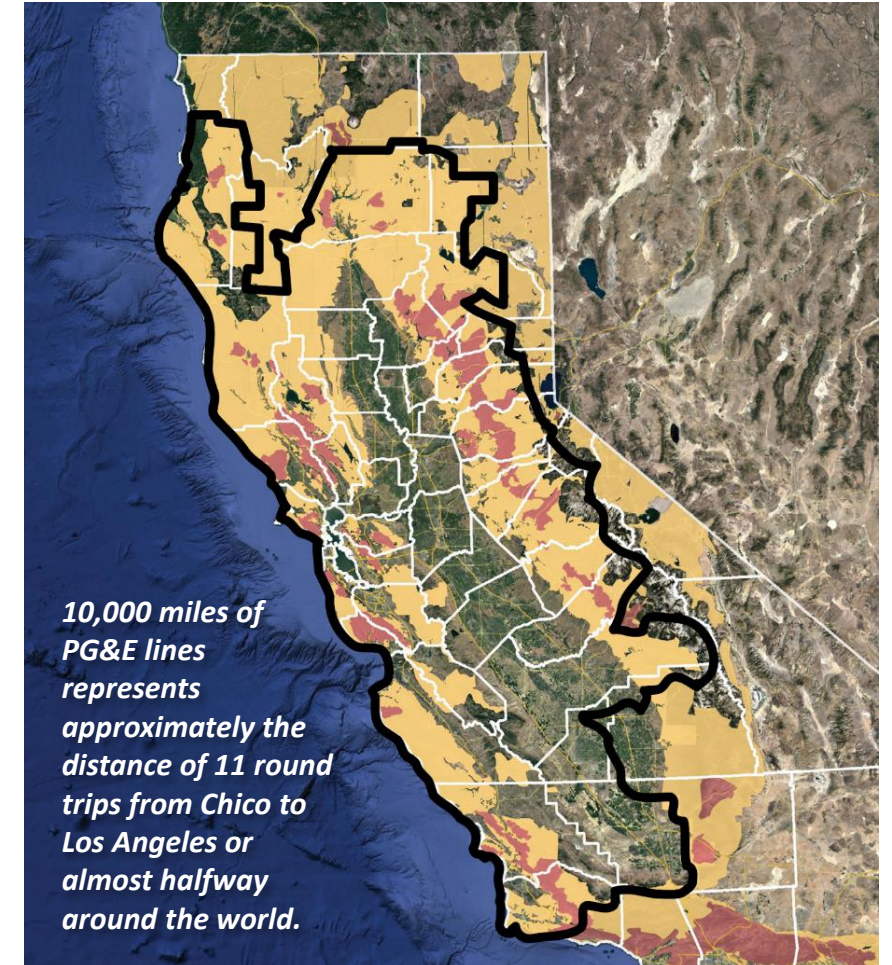
In the coming months and years **we will work to determine the exact number of projects or miles undergrounded each year.**

Potential undergrounding sites will be identified based on a variety of factors, including but not limited to:

- Local municipal planning and safety considerations.
- Project design considerations for water, natural gas, drainage and road systems.
- Location within a Tier 2 or Tier 3 High Fire-Threat District.
- Local, state, federal, tribal and regulatory requirements and feedback.

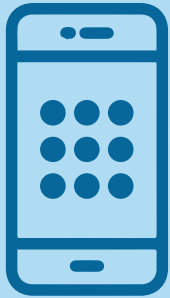


As more information becomes available about this new initiative we will be sure to share updates with you.





Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Related to PSPS, what is working well in your community?



What are challenges you have experienced with PG&E regarding PSPS?



How can we help support your community in preparing for and responding to PSPS?

New Weather Model



Building Our 2021 Machine Learning Models

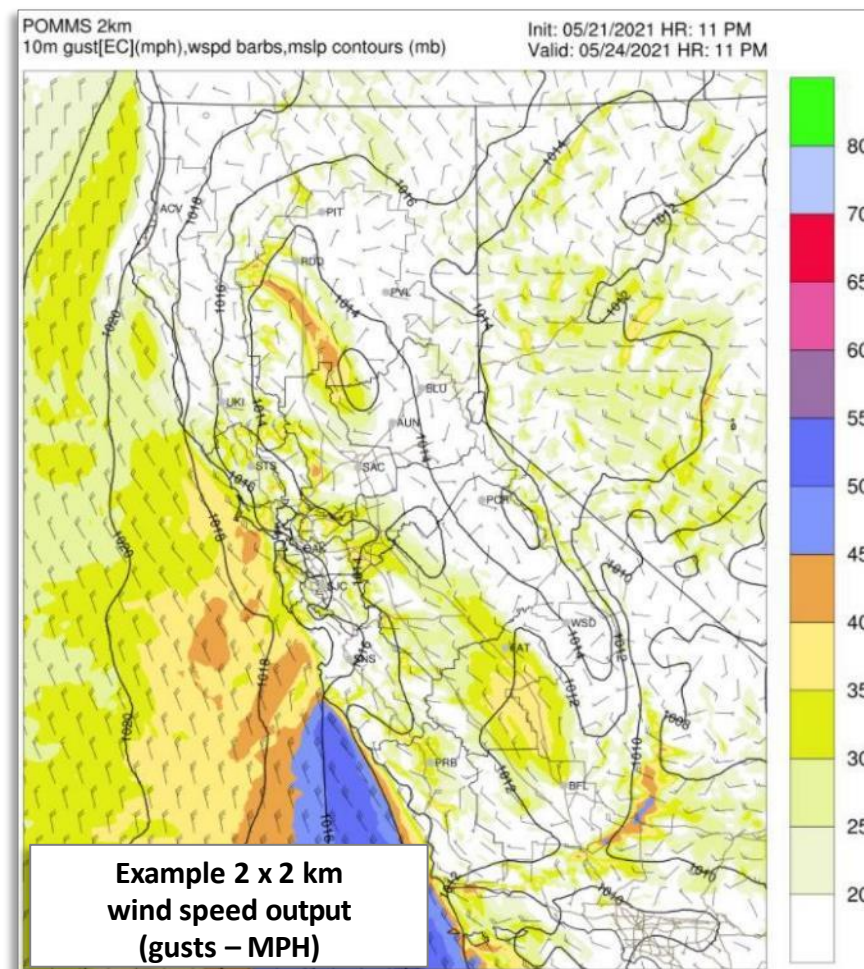
Through partnerships with external experts, we developed our 2021 machine learning models to give us a better understanding of historical weather events and to improve our weather forecasting.

This Model Uses:

- ~190,000 2x2km cells with data per cell, per hour, looking back over 31-years of high-resolution weather and fuels climatology data
- Over **100 trillion overall data points** and 20 trillion in PG&E's service area
- **Hourly weather data** such as temperature, relative humidity, wind speed, precipitation, pressure and dead and live moisture
- Data storage and processing via the **PG&E-Amazon Web Services Cloud**

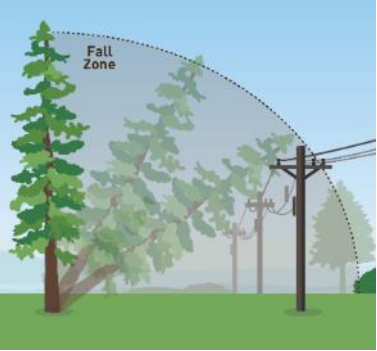
How it Helps PSPS Decision-Making and Scoping:

- Determines the **historical potential for ignitions** from each analyzed weather event (Ignition Probability Weather - IPW)
- Assists with fire model development and calibration (Fire Potential Index - FPI)
- Data inputs **improve fire spread modeling** (Technosylva)
- Provides **guidance for operation decision-making** (PSPS models)



New Machine Learning Models – Ignition Probability Weather

Ignition Probability Weather (IPW)

Weather	Vegetation Exposure	Local Performance
		
▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Precipitation ▪ Vapor Pressure Deficit	▪ Aerial Lidar tree overstrike in each 2x2 km grid cell (vegetation ignition criteria)	▪ Outage trends specific to each location

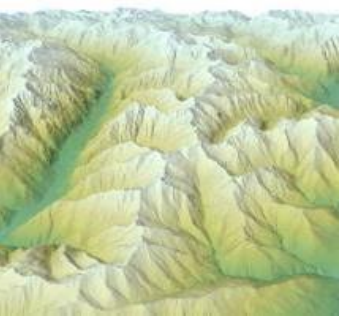
Key Model Components

- Exponentially weighting recent years more heavily to learn and predict system performance changes due to vegetation management and system hardening
- Data from PG&E's **31-year weather climatology study**
- Historical **sustained and momentary outage and PSPS damages data**
- Maximizing predictive skill with **state-of-the-art machine learning models**
- Predicting **five outage and ignition cause types**:
 - Vegetation
 - Equipment-structural
 - Equipment-electrical
 - Third party and animal
 - Unknown cause



New Machine Learning Models – Fire Potential Index

Fire Potential Index (FPI)

Weather	Fuel Moisture	Topography	Fuel Model Type
			
▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Vapor Pressure Deficit	▪ Dead fuel moisture ▪ Woody live fuel moisture ▪ Herbaceous live fuel moisture	▪ Ruggedness ▪ Slope ▪ Wind-terrain alignment	▪ Grass ▪ Shrub ▪ Timber ▪ Urban

Key Model Components

- **Historical satellite fire detection data set** from Sonoma Technology Inc. that includes fire growth in California from 2012 - 2020
- Data from PG&E's **31-year weather climatology study**
- **Technosylva** fuel moistures and granular fuel type maps
- **Forecasting hourly** probability of large and catastrophic fires
- Maximizing predictive skill **with state-of-the-art machine learning models**
- Greater predictive skill than previous model **confirmed by statistical evaluation and comparison of historical fires**

2020 vs. 2021 Improvements

2020 PSPS Models and Guidance

2021 PSPS Models and Guidance

Minimum Fire Potential Conditions

The minimum fire conditions (weather, fuels) required to consider a PSPS event.

Large Fire Probability

A risk-based assessment of the probability of outages due to weather combined with the probability of large fires. It is the 2020 Outage Producing Wind Model (OPW) combined with the 2020 Fire Potential Index (FPI).

Catastrophic Fire Probability

A risk-based assessment of the probability of fire ignitions due to weather combined with the probability of catastrophic fires by using the 2021 **Ignition Probability Weather Model (IPW)** combined with the 2021 **Fire Potential Index (FPI)**.

Black Swan Conditions

Even if the probability of an outage is unlikely, we may still turn off power if the weather and fuel conditions reach criteria where fast spreading, catastrophic fires are likely.

Catastrophic Fire Behavior

Even if the probability of an ignition is unlikely, we may still turn off power where **Technosylva** fire spread modeling indicates catastrophic fire behavior is possible.

Additional Vegetation Criteria

Locations where there is a high density of trees tall enough to strike power lines and where known high-priority trees are located.

Additional Vegetation Criteria

Electric Asset Criteria

Locations where known high-priority trees and electric compliance tags are located (vegetation ignition criteria is now part of IPW).

Event Criteria

PSPS criteria above met for at least 0.5% of PG&E's High Fire Risk Area (HFRA). Red Flag Warnings considered.

Event Criteria

PSPS criteria above met for at least 0.25% of PG&E's High Fire Risk Area (HFRA). Red Flag Warnings considered.

Catastrophic Fire: A fire that is not easily controlled, has a rapid rate of spread and threatens lives and property.

2021 Distribution-Level PSPS Decision-Making Process

1

If ALL the minimum fire conditions are met...

- ✓ High wind speeds
- ✓ Low relative humidity
- ✓ Low fuel moisture
- ✓ High fire potential

2

...we conduct an in-depth review of fire risk using three separate measures:

Catastrophic Fire Probability

Assesses the likelihood of a catastrophic wildfire by using a combination of the Ignition Producing Winds (IPW) model and the Fire Potential Index (FPI). This is an assessment of the probability that equipment will fail during the weather event, based on outage history.

Catastrophic Fire Behavior

Even if probability of failure is unlikely, we may still turn off power where catastrophic fires are possible. We evaluate fire behavior criteria across eight-hour forecast fire simulations using Technosylva technology that includes, flame length, rate of spread and area burned above 100 acres.

Vegetation and Electric Asset Criteria Considerations

We review locations where high priority trees or electric compliance tags are present that may increase the risk of ignition.

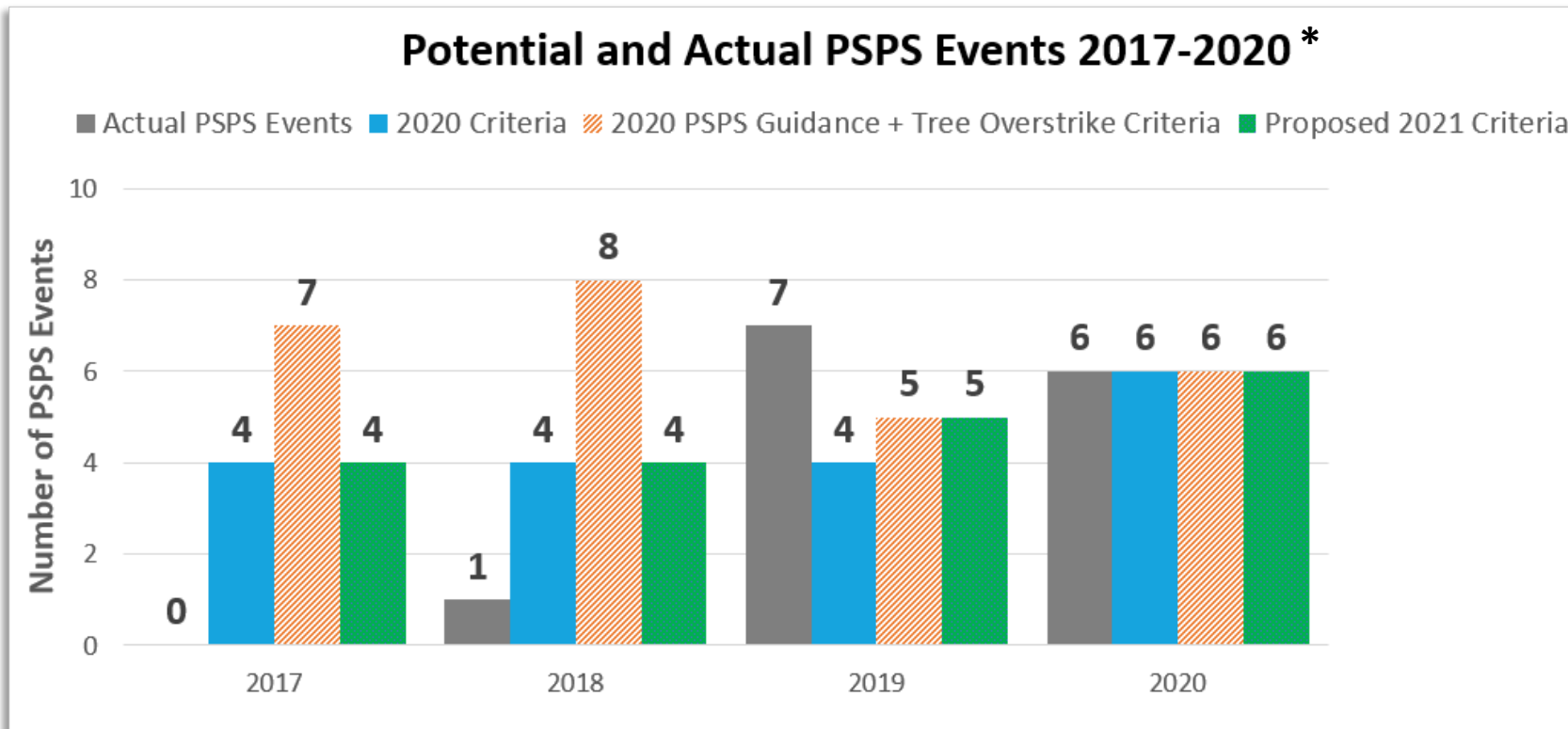
3

If ANY of these three measures are met, we turn off power for safety

Determining the Outage Area

Each of the three measures is evaluated within a small geographic area (4 square kilometers). If any of the measures are met, circuits within that area are de-energized. Because power lines travel across long distances, customers outside the affected area may also be impacted.

The chart below uses the last four years of hourly climatological weather data to show the number of potential PSPS against the 2021 proposed models and guidance.



**2020 Models and Guidance
+ Tree Overstrike Criteria:**
average of
6.5 events per year
(2017-2020)

**2021 Models
and Guidance:**
average of
4.75 events per year
(2017 – 2020)

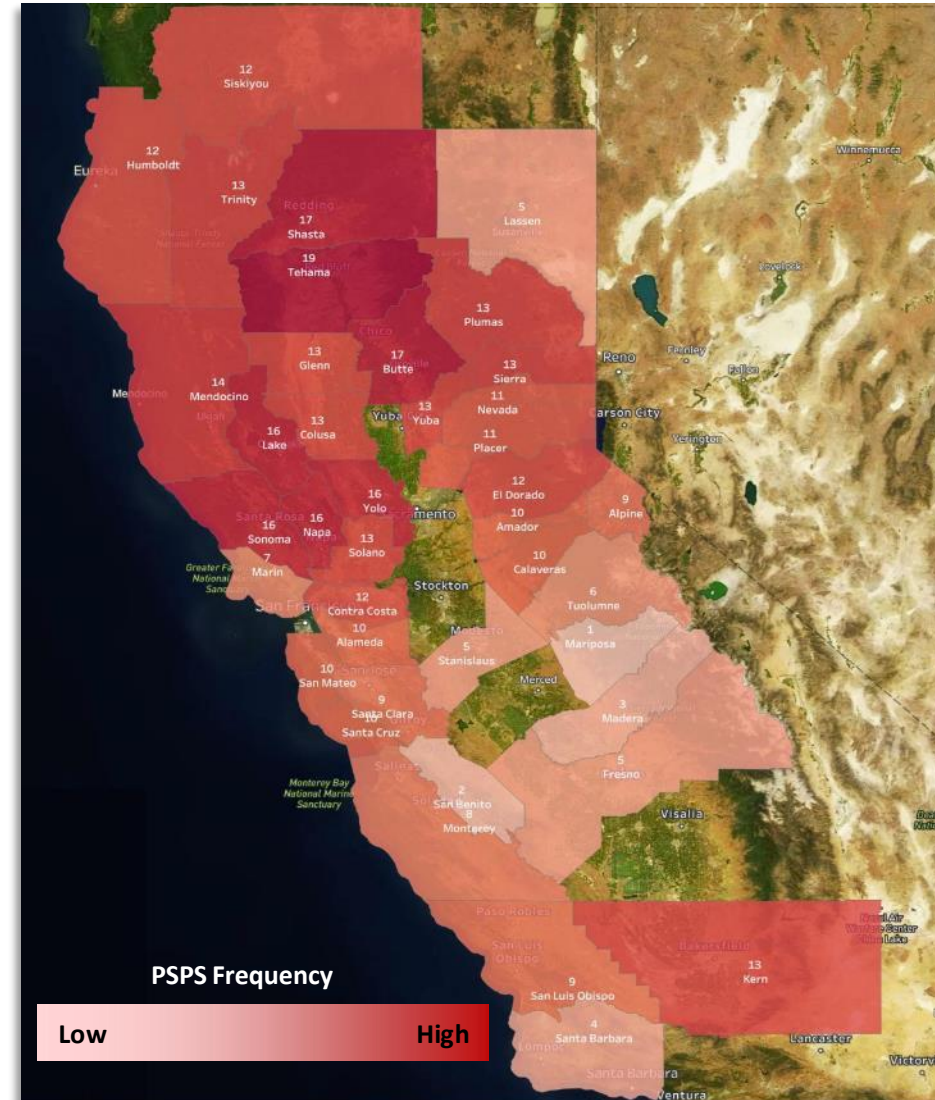
* Total PSPS per year, across the entire PG&E service territory.

2021 PSPS Models and Guidance Climatology Study

Using 2021 models and guidance, we can show the potential frequency of PSPS from 2017 – 2020.

Total PSPS from 2017-2020 Using 2021 Model

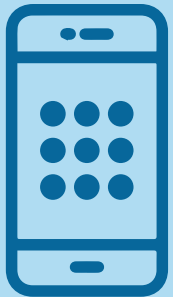
County	Event Count	County	Event Count
Tehama	19	Placer	11
Shasta	17	Nevada	11
Butte	17	Santa Cruz	10
Yolo	16	San Mateo	10
Sonoma	16	Calaveras	10
Napa	16	Amador	10
Lake	16	Alameda	10
Mendocino	14	Santa Clara	9
Yuba	13	San Luis Obispo	9
Trinity	13	Alpine	9
Solano	13	Monterey	8
Sierra	13	Marin	7
Plumas	13	Tuolumne	6
Kern	13	Stanislaus	5
Glenn	13	Lassen	5
Colusa	13	Fresno	5
Siskiyou	12	Santa Barbara	4
Humboldt	12	Madera	3
El Dorado	12	San Benito	2
Contra Costa	12	Mariposa	1



New Weather Model – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



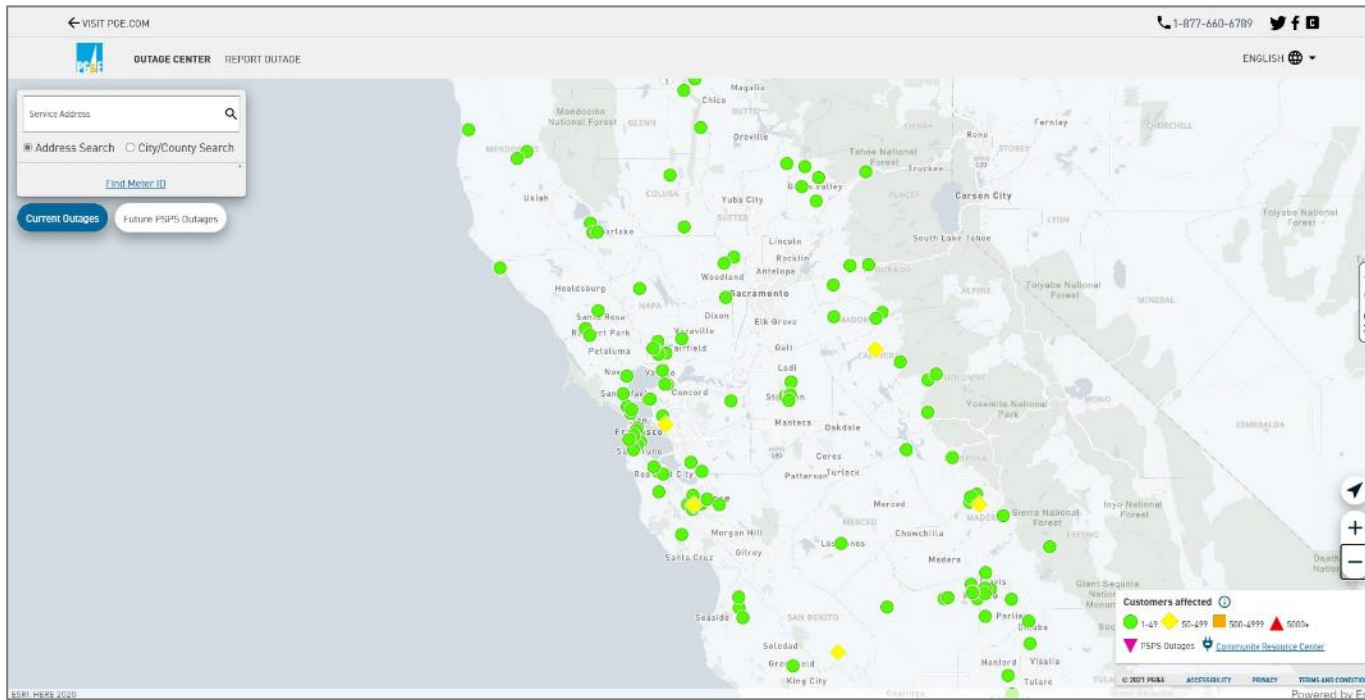
What else would you like to know about the new weather model?

Local Electric Reliability Statistics





PG&E's most important responsibility is providing safe and reliable energy to our customers and the communities we serve. To measure our reliability, we constantly track and monitor outages across our service area. Then, we calculate our reliability rates based on this data.



If you are impacted by a PSPS event or other type of outage, you can visit PG&E's electric outage map to view anticipated restoration times

Learn more about electric outages, including how to report one in your community, by visiting:

pge.com/outages





Systemwide Reliability Statistics

Each year, PG&E compiles a report that outlines our electric reliability statistics, with both a systemwide and division-level perspectives. The report is submitted to the California Public Utilities Commission (CPUC) and is available to the public. The report on 2020 electric reliability was submitted to the CPUC on July 9th, 2021.

- Including Major Event Days, the average PG&E customer experienced 1.443 outages in 2020 and those outages lasted for a combined average of 450.6 minutes.
- Excluding Major Event Days, the average PG&E customer experienced 1.068 outages in 2020 and those outages lasted for a combined average of 125.8 minutes.

Combined Transmission and Distribution System Indices (2017-2020)*

Year	Major Events <u>Included</u> **		Major Events <u>Excluded</u> **	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Total Outage Minutes Per Customer	Average Number of Outages
2017	357.8 minutes (~6.0 hours)	1.466 outages	97.3 minutes (~1.6 hours)	0.878 outages
2018	282.3 minutes (~4.7 hours)	1.053 outages	99.6 minutes (~1.7 hours)	0.960 outages
2019	1,363.3 minutes (~22.7 hours)	1.872 outages	117.7 minutes (~2.0 hours)	1.009 outages
2020	450.6 minutes (~7.5 hours)	1.443 outages	125.8 minutes (~2.1 hours)	1.068 outages

Additional reliability statistic details can be found on [pge.com](https://www.pge.com) by searching “reliability reports.”

*This table and all others in this presentation exclude planned and ISO related outages.

**Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.

Humboldt Division Reliability Statistics

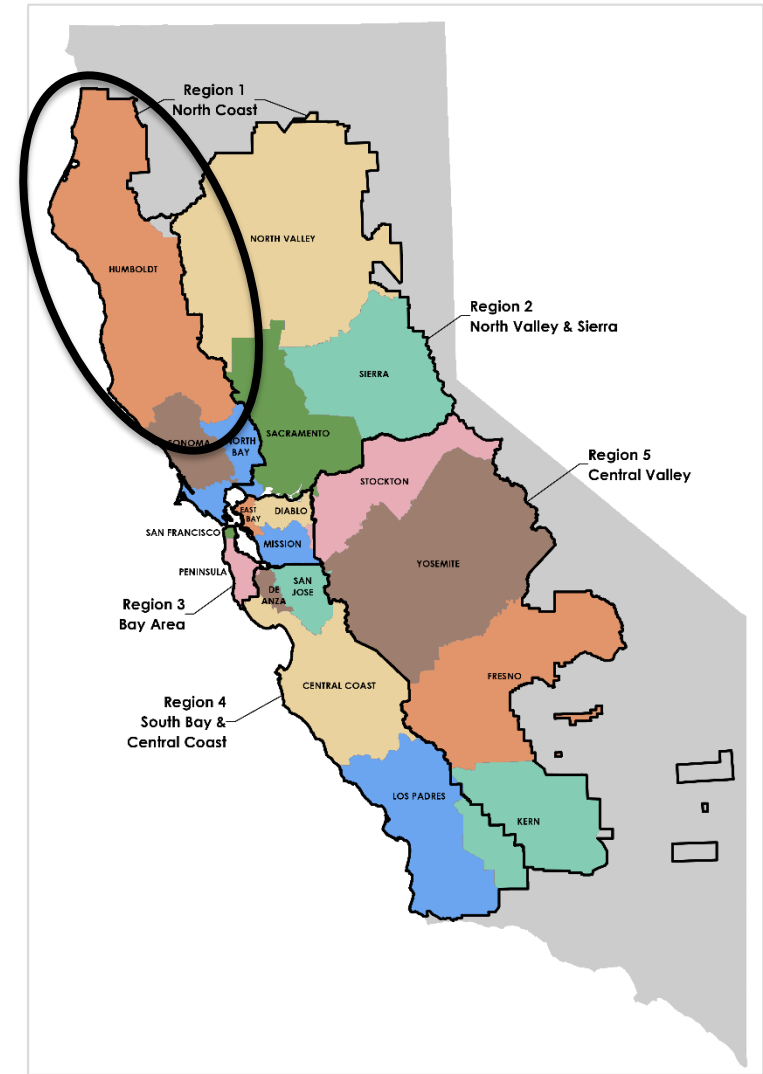
The Humboldt Division is made up of portions of Humboldt, Mendocino, Lake and Trinity Counties.

- Including Major Event Days, the average PG&E customer in the Humboldt Division experienced 2.161 outages in 2020 and those outages lasted for a combined average of 968.7 minutes.
- Excluding Major Event Days, the average PG&E customer in the Humboldt Division experienced 1.336 outages in 2020 and those outages lasted for a combined average of 191.6 minutes.

Humboldt Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	919.8 minutes (~15.33 hours)	2.362 outages	275.1 minutes (~4.56 hours)	1.306 outages
2018	402.6 minutes (~6.71 hours)	2.144 outages	225.9 minutes (~3.77 hours)	1.789 outages
2019	6,899.5 minutes (~114.99 hours)	4.365 outages	274.4 minutes (~4.57 hours)	1.616 outages
2020	968.7 minutes (~16.15 hours)	2.161 outages	191.6 minutes (~3.19 hours)	1.336 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Sonoma Division Reliability Statistics

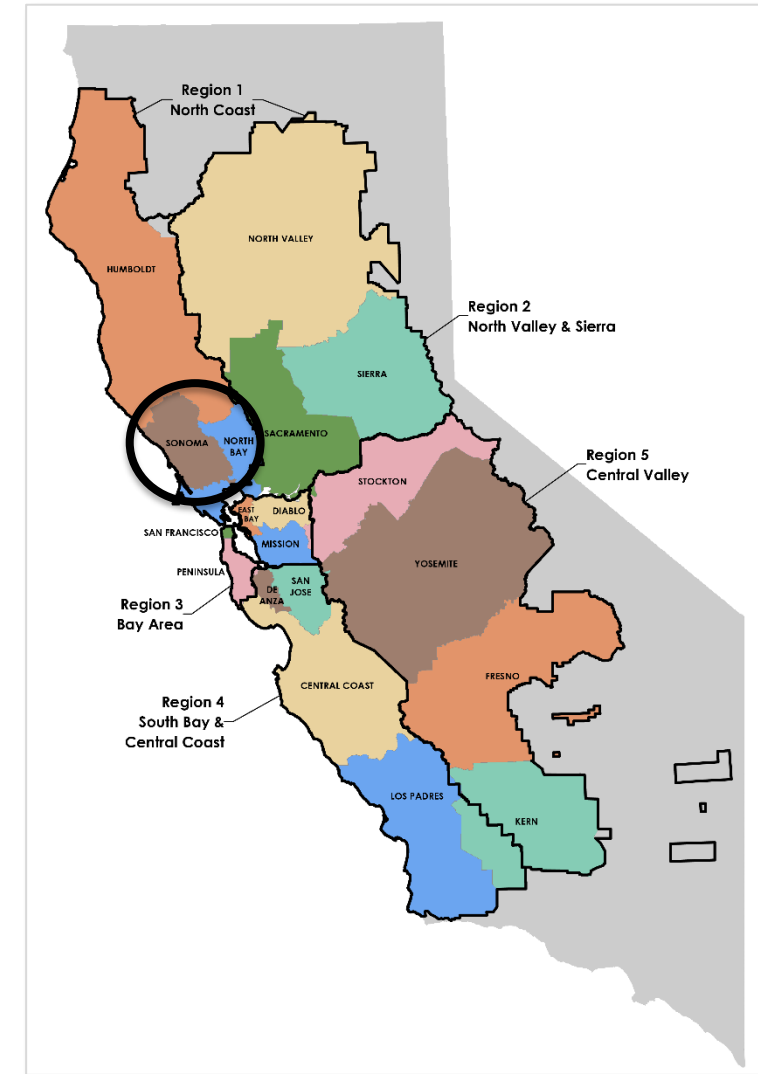
The Sonoma Division is made up of portions of Sonoma County and surrounding areas.

- Including Major Event Days, the average PG&E customer in the Sonoma Division experienced 1.645 outages in 2020 and those outages lasted for a combined average of 601.0 minutes.
- Excluding Major Event Days, the average PG&E customer in the Sonoma Division experienced 1.062 outages in 2020 and those outages lasted for a combined average of 124.5 minutes.

Sonoma Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	1,850.1 minutes (~30.84 hours)	1.951 outages	120.7 minutes (~2.01 hours)	0.886 outages
2018	107.4 minutes (~1.79 hours)	0.974 outages	105.5 minutes (~1.76 hours)	0.956 outages
2019	3,871.1 minutes (~64.52 hours)	2.540 outages	145.7 minutes (~2.43 hours)	1.070 outages
2020	601.0 minutes (~10.02 hours)	1.645 outages	124.5 minutes (~2.08 hours)	1.062 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



North Bay Division Reliability Statistics

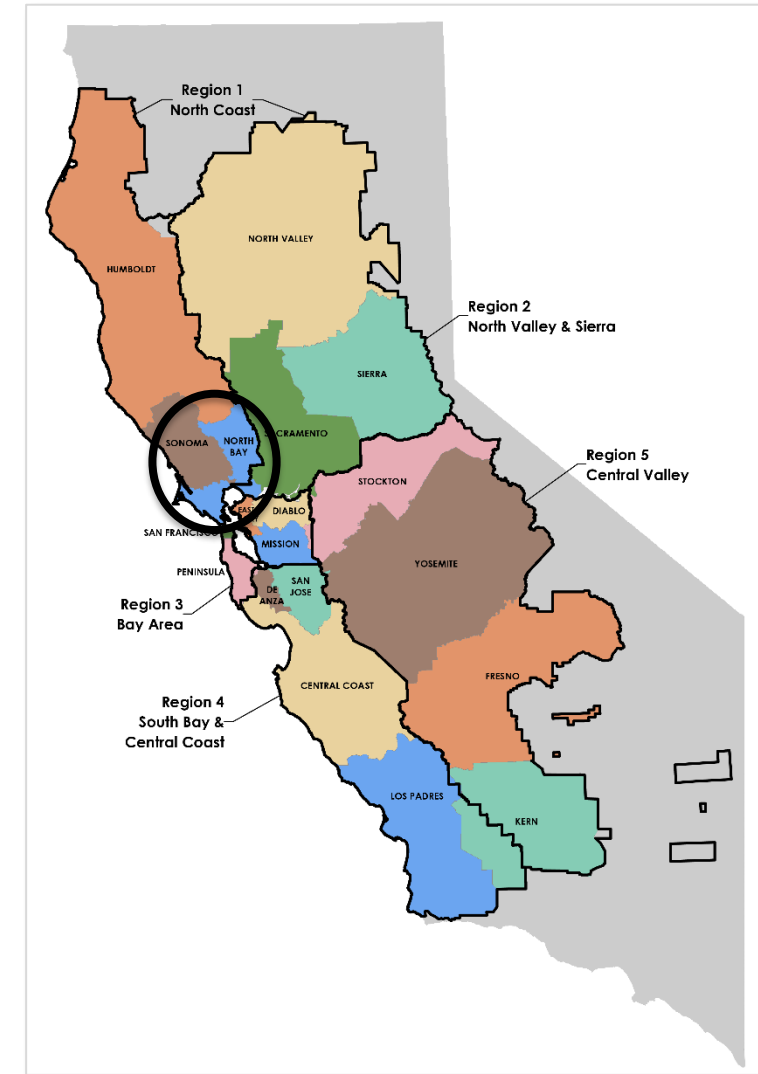
The North Bay Division is made up of portions of Marin, Napa and Solano Counties.

- Including Major Event Days, the average PG&E customer in the North Bay Division experienced 1.716 outages in 2020 and those outages lasted for a combined average of 509.2 minutes.
- Excluding Major Event Days, the average PG&E customer in the North Bay Division experienced 1.233 outages in 2020 and those outages lasted for a combined average of 143.2 minutes.

North Bay Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	733.3 minutes (~12.22 hours)	1.761 outages	148.5 minutes (~2.48 hours)	0.955 outages
2018	164.6 minutes (~2.74 hours)	0.982 outages	116.3 minutes (~1.94 hours)	0.921 outages
2019	3,518.1 minutes (~58.64 hours)	3.182 outages	148.2 minutes (~2.47 hours)	1.312 outages
2020	509.2 minutes (~8.48 hours)	1.716 outages	143.2 minutes (~2.39 hours)	1.233 outages

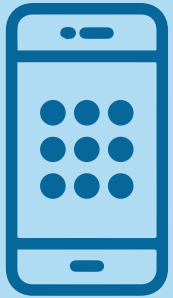
*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Local Reliability Statistics – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Do you have any additional questions about this subject?

Systemwide Resiliency Efforts



New for 2021 – Microgrid Portal

PG&E has worked to develop a new Microgrid Portal to share information with local agencies and tribes to assist in their own resiliency efforts. This new tool:



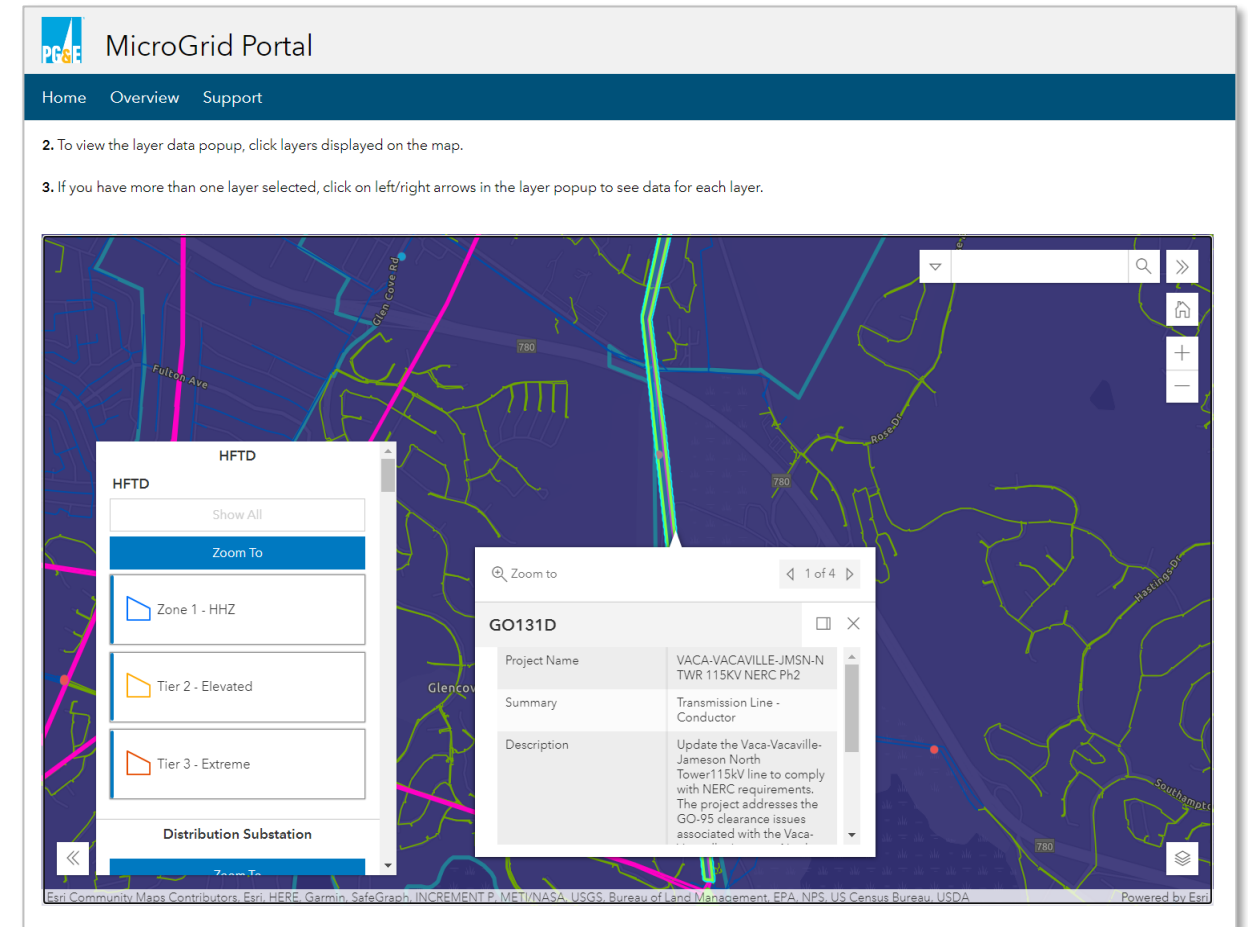
Is available to County OES representatives, tribal governments and other “organizations created by political subdivisions to carry out the provisions of the State Emergency Plan.”



Includes the following data:

- Utility planned work/grid investments (including locations, project descriptions, project timelines and completion dates)
- High Fire-Threat District Map layers
- Electric infrastructure map layers (including substations, distribution circuits and transmission lines)
- Weather polygon map layers

The Microgrid Portal launched on 7/16/21 and additional improvements will be made to the portal in the future.



How to Get Access to the Microgrid Portal



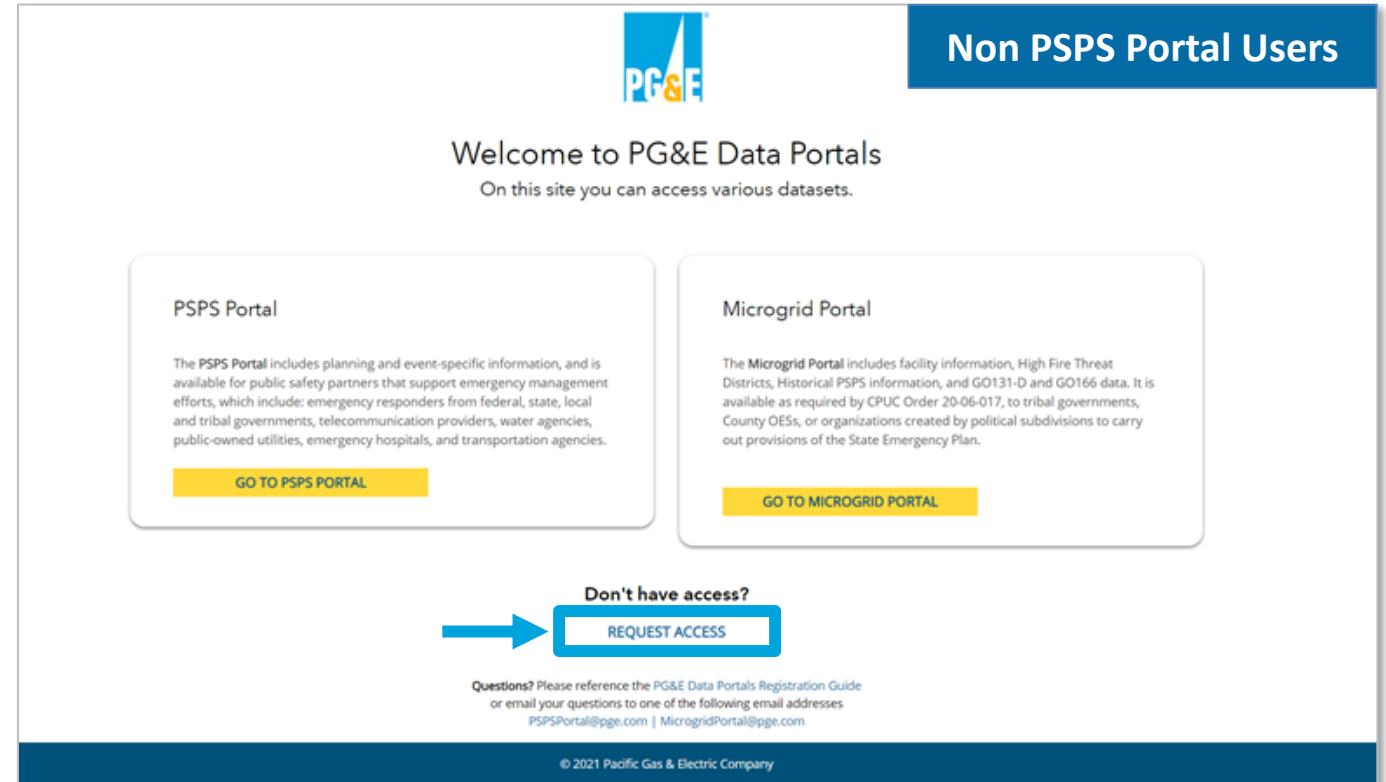
Existing PSPS Portal Users

- Log in to the **PSPS portal** and click on the banner: **Join our Microgrid Community**
- Once you have clicked on the banner, **simply follow instructions to complete.**



Non PSPS Portal Users

- Visit pge.com/pspsportal and **click on the request access button**
- Once you have clicked on the request access button, **simply follow instructions to complete.**



The screenshot shows the PG&E Data Portals homepage. At the top left is the PG&E logo. To the right, a blue banner reads "Non PSPS Portal Users". Below the logo, the text "Welcome to PG&E Data Portals" is displayed, followed by "On this site you can access various datasets." Below this, there are two main sections: "PSPS Portal" and "Microgrid Portal". The "PSPS Portal" section includes a description of its contents and a yellow button labeled "GO TO PSPS PORTAL". The "Microgrid Portal" section includes a description of its contents and a yellow button labeled "GO TO MICROGRID PORTAL". At the bottom, there is a "Don't have access?" section with a blue arrow pointing to a "REQUEST ACCESS" button. Below this button, there is a "Questions?" section with contact information for the registration guide and email addresses: PSPSPortal@pge.com and MicrogridPortal@pge.com. The footer of the page reads "© 2021 Pacific Gas & Electric Company".

Microgrid Incentive Program (MIP) Objectives

PG&E, along with San Diego Gas and Electric and Southern California Edison are in the process of developing a new Microgrid Incentive Program to fund clean community microgrids that support the critical needs of vulnerable populations most likely to be impacted by outages.

The goals of this program are to:



Increase reliability and resiliency for critical public facilities in communities that are at higher risk of electrical outages



Prioritize communities with higher portions of low-income, access and functional needs, and electricity dependent residents



Enable communities with lower ability to fund development of backup generation to maintain critical loads during outages



Provide opportunity for testing new technologies or regulatory approaches to inform future action to the benefit of all ratepayers

Foundational Microgrid Incentive Program (MIP) Elements

Key Items For Consideration		Funding Allocation	
Locations	▪ Priority for low-income, Disadvantaged, Access & Functional Needs and/or critical facility customers ▪ Priority for those impacted by grid outages (PSPS or otherwise)	Statewide Budget	▪ \$200M
Duration	▪ Microgrids should ideally be capable of maintaining identified customers' loads for up to 96-hours	Incentive Cap	▪ \$15M/per project
Eligibility	▪ Multi-customer microgrid solutions will be eligible for this incentive ▪ Single-customer solutions do not qualify	Eligible Costs	▪ Front of the meter generation and/or storage resources ▪ Microgrid controller(s) ▪ Customer outreach ▪ Community costs ▪ Reconfiguration of equipment (e.g., to isolate and serve certain loads)
Emissions	▪ Technologies must result in equal to or better than the current grid power emissions	Matching Funds	▪ PG&E, SDG&E or SCE to provide one-time matching funds to offset a portion of the utility infrastructure upgrades associated with implanting islanding function

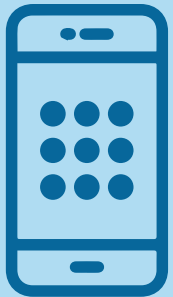
The utilities are developing the MIP with input from stakeholders and will submit a program implementation Advice Letter to the California Public Utilities Commission on October 1, 2021.

For more information visit pge.com/MIPworkshops.

Systemwide Resiliency Efforts – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Which Microgrid Portal features do you see being most useful?



Do you foresee using this resource?

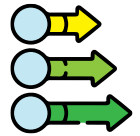


What else would you like to know about the new Microgrid Incentive Program?

PSPS and Other Emergencies



Concurrent Events Impacting Electric Service



What are concurrent events?

During wildfire season, we may experience multiple events that impact the electric system at the same time as a Public Safety Power Shutoff (PSPS) event.

Other events can include:

- ① An active wildfire
- ② A capacity event (e.g., rotating outage)
- ③ Damage to our electrical system (e.g., weather damage, car accident, construction incident, natural disaster)



What are the potential impacts?

- **Customers may lose power** even if they are not experiencing severe weather
- **PSPS restoration timelines** may be extended
- Customers may have their power turned off **without the typical notification or with limited notice**
- **Customer resource partnerships** are specific to PSPS events and wildfires*



How do we manage and communicate these events?

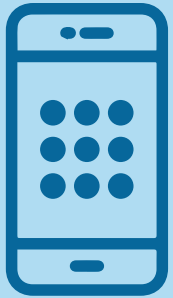
- **Managed through the Incident Command System (ICS)** using our Emergency Operations Center (EOC)
 - This system is designed to be **flexible and able to address emerging issues**
- **Open and ongoing dialogue** with external stakeholders
- **Robust internal communication** channels keep teams aligned and ensure local teams/decision-makers have integrated information

*Some customer resources (i.e., Community Resource Centers) may be made available during non-PSPS event scenarios if certain conditions are met.

PSPS and Other Emergencies – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



How do you plan to prepare for a concurrent event?



Are there additional tools/resources your agency needs?

- ✓ **Meeting survey** shared with participants to gather feedback on approach and content of regional working group
- ✓ **Follow-up on items** identified by local agencies/stakeholders
- ✓ **Upcoming meetings**
 - Q4 Regional Working Group Meetings
 - Meteorology Deep Dive

2021 REGIONAL WORKING GROUP CALENDAR

TIMING	TOPICS
Q4 2021	PSPS and Wildfire Safety

A summary of the feedback gathered here today and results from a post-meeting survey will be shared with the CPUC.



Thank You

PG&E Report It – Safety Mobile App

PG&E recently launched the pilot of our new “PG&E Report It” safety app that allows customers to submit photos of non-emergency potential safety concerns with our electric system.

Customers can use Report It to:

- ✓ Learn about the types of issues to report
- ✓ Submit photos directly to our safety team

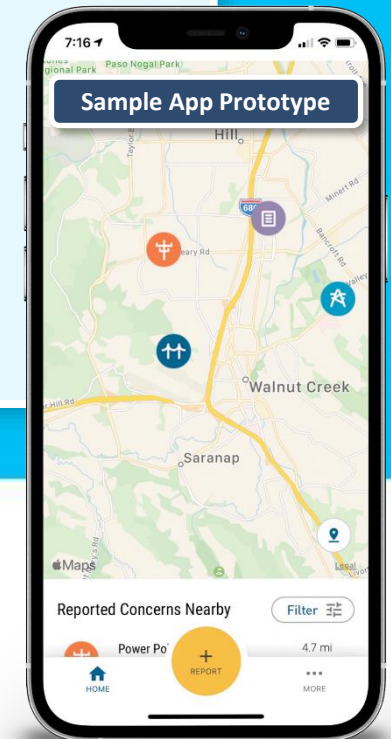
Other Safety App features include:

- ✓ Finding safety concerns submitted by other users
- ✓ Reviewing PG&E’s safety findings
- ✓ Notifications when your concern is reviewed or resolved



To learn more about **PG&E Report It**, visit

pge.com/reportit



Appendix



Q1 & Q2 2021 Follow Up and Action Items

Below is a list of the follow up and action items identified during the Q1 & Q2 Regional Working Groups in March and June as well as corresponding statuses.

Action Item	Agency	Status
Asked if the upgrades/hardening/sectionalizing data and maps be added to the PSPS Portal	Sonoma Clean Power	In Progress
Asked to see the new risk model by county to help determine where they will put new fire cameras	Sonoma County Office of Emergency Services	In Progress
Asked if PG&E is considering encouraging load shedding opportunities for large energy users (County, Businesses, etc.) via partnership opportunities. Referenced a “power shedding program” that existed previously.	Lake County Board of Supervisors	Complete
Asked if improvements discussed will be utilized during the upcoming PSPS exercise. Noted he will be an observer	Tri-County Center for Independent Living	Complete

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Substation Microgrids	Humboldt	Hoopa	Ready to Operate	N/A
	Humboldt	Willow Creek	Ready to Operate	N/A
	Lake	Clear Lake	Ready to Operate	N/A
	Lake	Hartley	Ready to Operate	N/A
	Lake	Konocti	Ready to Operate	N/A
	Nevada	Brunswick	Ready to Operate	N/A
	Placer	Weimar	In-Event Ready	N/A
	Santa Cruz	Big Basin	In-Event Ready	N/A
	Santa Cruz	Point Moretti	Ready to Operate	N/A
	Sonoma	Cloverdale	Ready to Operate	N/A
	Trinity	Low Gap	Ready to Operate	N/A
	Yolo	Plainfield	Near Complete	August 26, 2021
	Yuba	Dobbins	In-Event Ready	N/A
Distribution Microgrids	Butte	Magalia	Ready to Operate	N/A
	Calaveras	Arnold	Planning	Q4 2021
	El Dorado	Georgetown	Ready to Operate	N/A
	El Dorado	Placerville	Ready to Operate	N/A
	El Dorado	Pollock Pines	Ready to Operate	N/A
	Lake	Clearlake North	Planning	Q4 2021
	Lake	Clearlake South	Planning	Q3 2021

Local work plans are subject to change and data is based on the best available information at this time.

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Distribution Microgrids (cont.)	Lake	Lucerne	Planning	Q3 2021
	Lake	Middletown	Ready to Operate	N/A
	Napa	Angwin	Ready to Operate	N/A
	Napa	Calistoga	Near Complete	Q3 2021
	Placer	Colfax	Planning	Q4 2021
	Placer	Foresthill	Planning	Q3 2021
	Shasta	Shingletown	Ready to Operate	N/A
	Tuolumne	Groveland	Planning	Q4 2021
Remote Grids	El Dorado	El Dorado	Planning	Q4 2021
	Mariposa	Mariposa 1	Operational	N/A
	Mariposa	Mariposa 2	Planning	Q4 2021
	Mariposa	Mariposa 3	Planning	Q4 2021
	San Luis Obispo	San Luis Obispo 1	Planning	Q3 2022
	San Luis Obispo	San Luis Obispo 2	Planning	Q3 2022
	Tulare	Tulare	Planning	Q3 2022
	Tehama	Tehama	Planning	Q4 2021
Islanding	Amador/Calaveras	Salt Springs Island	Ready to Operate	N/A
	Amador/Calaveras	West Point Island	Ready to Operate	N/A
	Humboldt	Humboldt Bay Island	Ready to Operate	N/A
	Plumas	Caribou Island	Ready to Operate	N/A
	Tehama	Red Bluff Island	Ready to Operate	N/A
	Tuolumne	Spring Gap	Ready to Operate	N/A

Local work plans are subject to change and data is based on the best available information at this time.

Community Wildfire Safety Program

Q3 2021 REGIONAL WORKING GROUP

South Bay/Central Coast Region

August 12, 2021



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

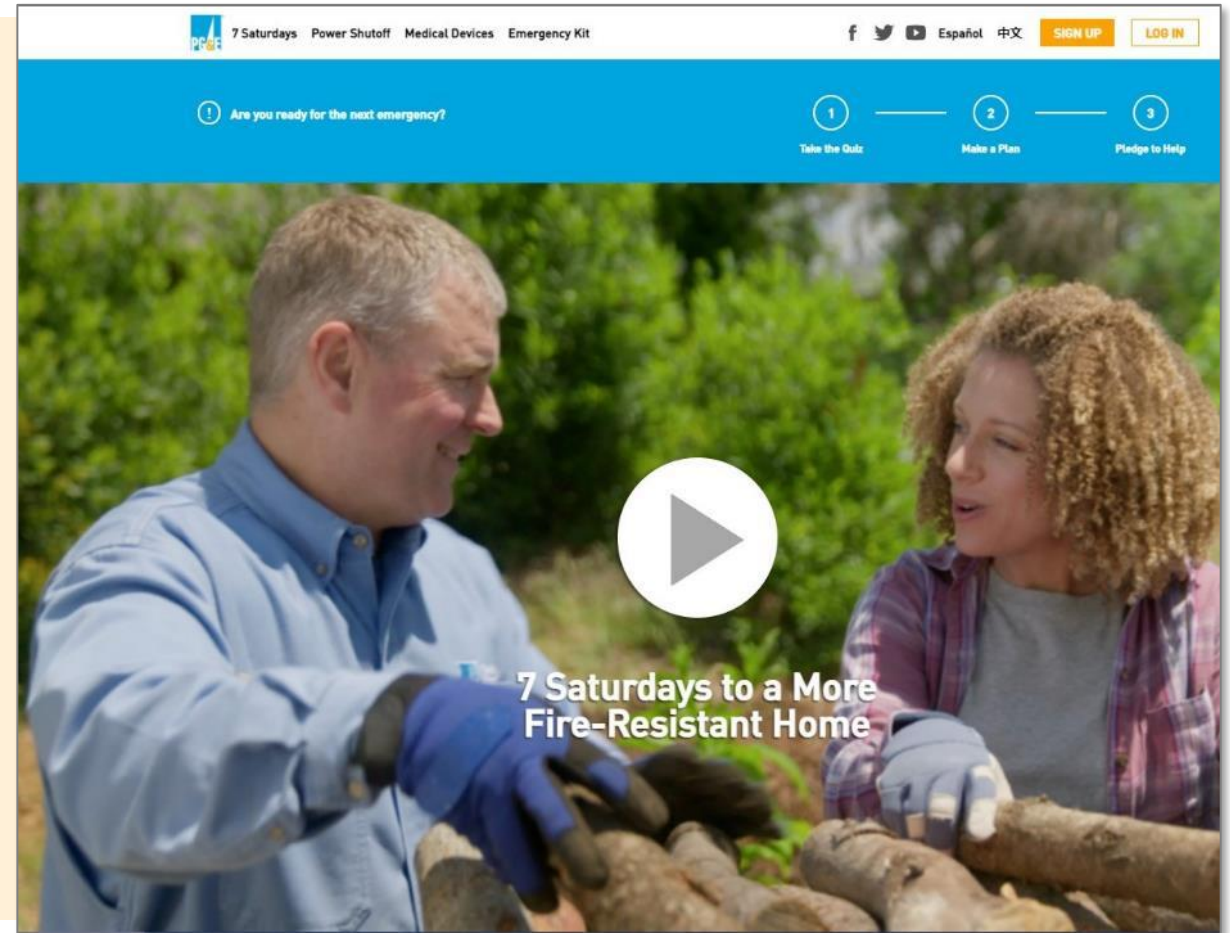


Californians are working together to make sure our families, homes and communities are ready to face wildfires and other emergencies.

From creating defensible space around your home to preparing your family for an evacuation, PG&E's new "7 Saturdays" digital video series outlines a number of actions everyone can take to prepare.

Watch now at:

safetyactioncenter.pge.com



DISCUSSION TOPICS:

- 1** Regional Leadership Team Introductions
- 2** County Office of Emergency Management
Co-Moderated Session
- 3** New Weather Model
- 4** Local Electric Reliability Statistics
- 5** Systemwide Resiliency Efforts
- 6** PSPS Events and Other Emergencies
- 7** Open Discussion/Q&A

LOCAL PRESENTER:

Dana Reed | Santa Clara County OEM

PG&E PRESENTERS:

Teresa Alvarado | Regional Vice President

Cornelius Morgan | Regional Safety
Director

Rob Morse | Senior Manager Local
Customer Experience and Division Lead

Eric Daniels | Local Public Affairs

Kevin Conant | Public Safety Specialist

Denise Shemenski | Tribal Liaison

Evan Duffey | Manager of Meteorology
Operations



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

WORKING GROUP PARTICIPANTS:

- ☐ Access and Functional Needs Representatives
- ☐ CAL FIRE Representatives
- ☐ City/County Staff
- ☐ Community Based Organization Representatives
- ☐ Community Choice Aggregators
- ☐ County Offices of Emergency Management
- ☐ First Responders
- ☐ NASA Representatives
- ☐ Publicly Owned Electric Utilities
- ☐ Red Cross
- ☐ Small, Multi-Jurisdictional Electric Utilities
- ☐ Telecommunications Providers
- ☐ Tribal Governments
- ☐ Water Agency Representatives
- ☐ Filsinger Energy Partners
- ☐ California Public Utilities Commission Staff

Regional Leadership Team Introductions

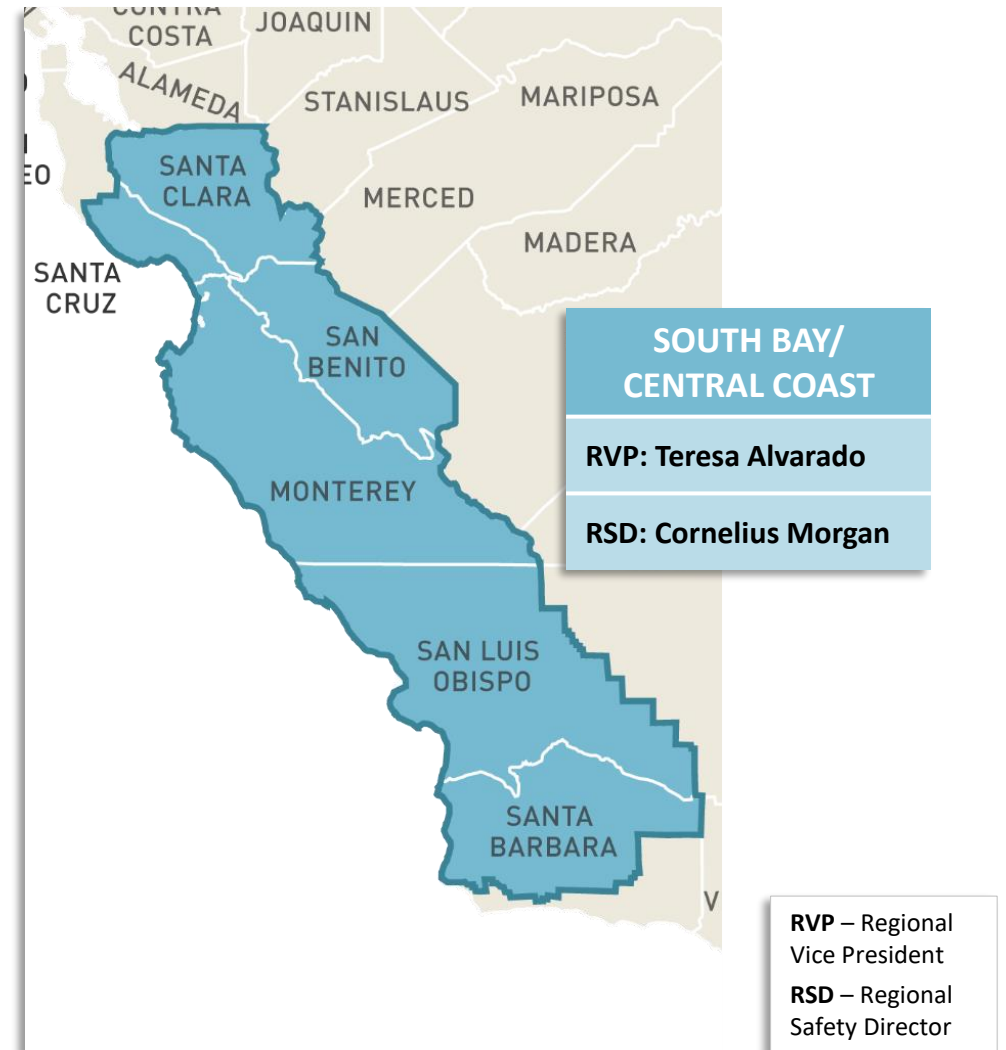


South Bay/Central Coast Regional Service Model Key Objectives

We are moving to a Regional Service Model so that we can better serve our customers by being more nimble and quickly resolving issues at the local level.

The addition of regional leadership and their teams increases the local resources positioned to:

- ✓ **More effectively engage customers and community for feedback**
- ✓ **Increase the speed that problems can be solved with improved local coordination**
- ✓ **Better educate communities on the reasoning behind local initiatives**
- ✓ **Develop more customized solutions for local needs**



New Undergrounding Safety Initiative

On July 21, PG&E announced a major expansion of our efforts to underground electric distribution power lines in High Fire-Threat Districts. **This new infrastructure safety initiative is a multi-year effort to underground approximately 10,000 miles of power lines.**



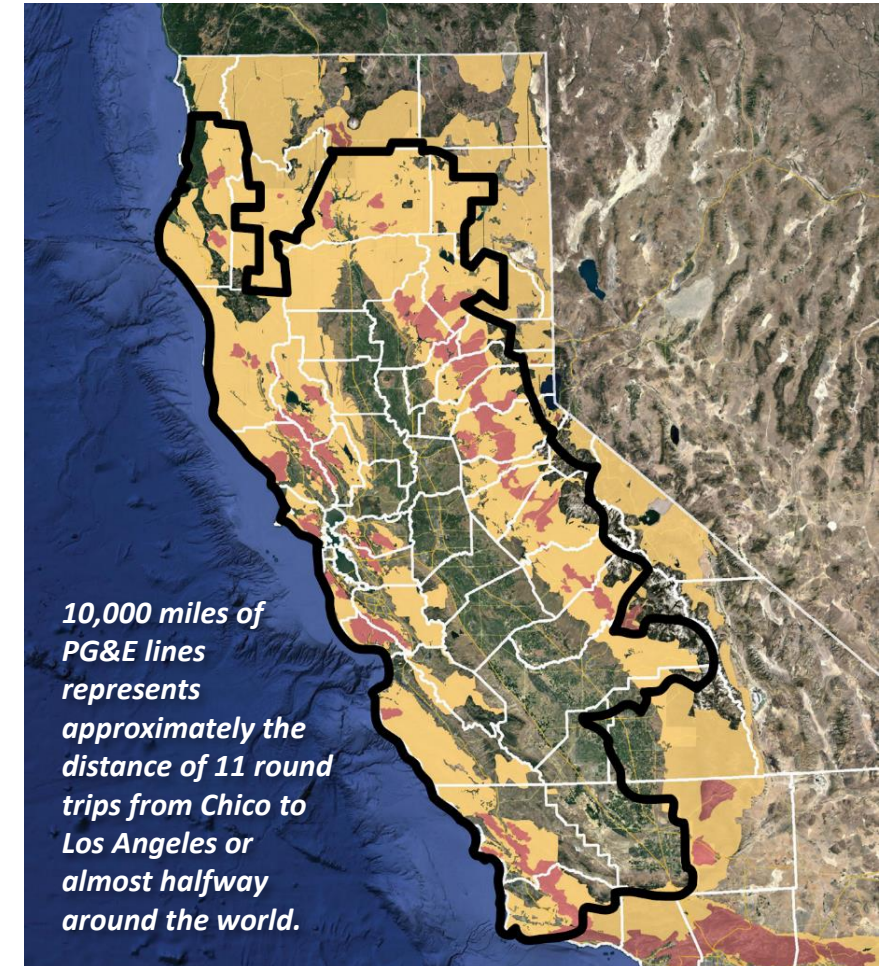
In the coming months and years **we will work to determine the exact number of projects or miles undergrounded each year.**

Potential undergrounding sites will be identified based on a variety of factors, including but not limited to:

- Local municipal planning and safety considerations.
- Project design considerations for water, natural gas, drainage and road systems.
- Location within a Tier 2 or Tier 3 High Fire-Threat District.
- Local, state, federal, tribal and regulatory requirements and feedback.

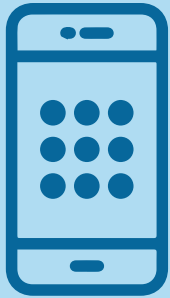


As more information becomes available about this new initiative we will be sure to share updates with you.





Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Related to PSPS, what is working well in your community?



What are challenges you have experienced with PG&E regarding PSPS?



How can we help support your community preparing for and during PSPS events?

Santa Clara County OEM Co-Moderated Session



PSPS Event Overview – Santa Clara County

Event Details

OCT
14 – 17

OCT
25 – 28



**CUSTOMERS
IMPACTED**

2,213

4,173



**COMMUNITY
RESOURCE
CENTERS OPEN**

1

2



PEAK WIND GUSTS

**53
MPH**

**65
MPH**



DAMAGE/HAZARDS

3

1



**AVERAGE
RESTORATION TIME**

**8
HRS**

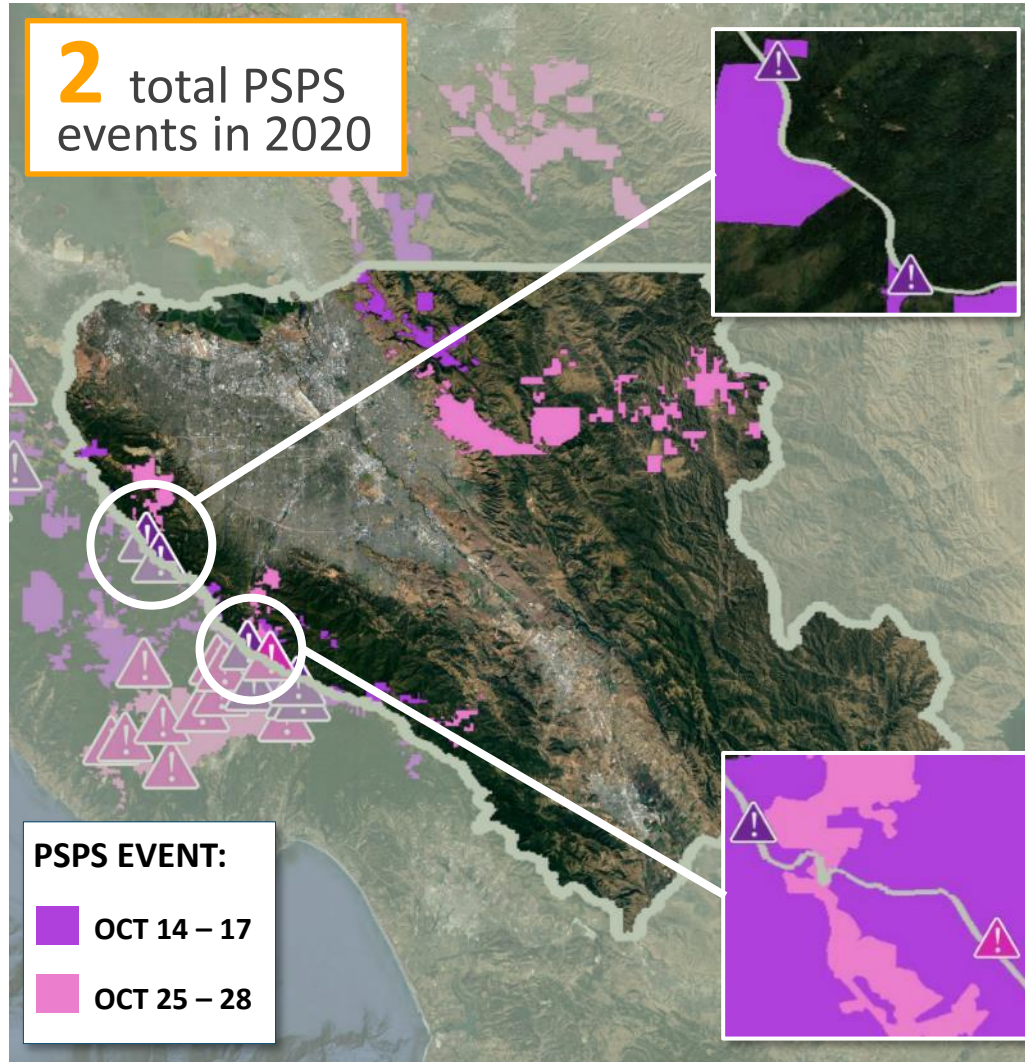
**12
HRS**



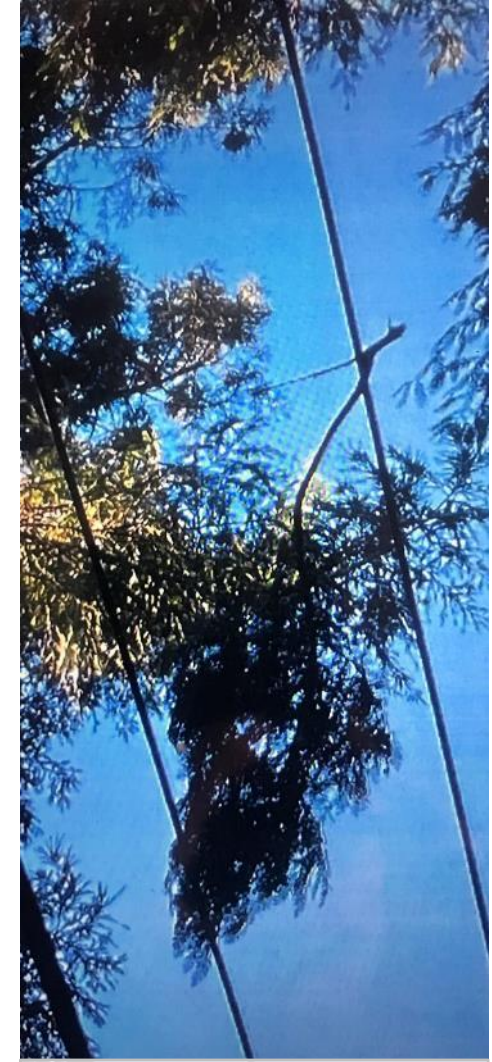
**TOTAL AVG.
OUTAGE DURATION**

**23
HRS**

**28
HRS**



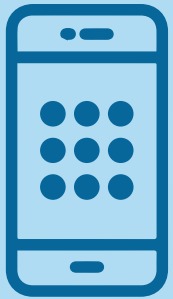
Note: PSPS impact areas are approximate and may overlap



Tree Branch on Conductor



Write your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



What past PSPS experiences have affected your planning efforts?



Do you have any practices or resources that have been helpful for you that you would like to share with participants?

New Weather Model



Building Our 2021 Machine Learning Models

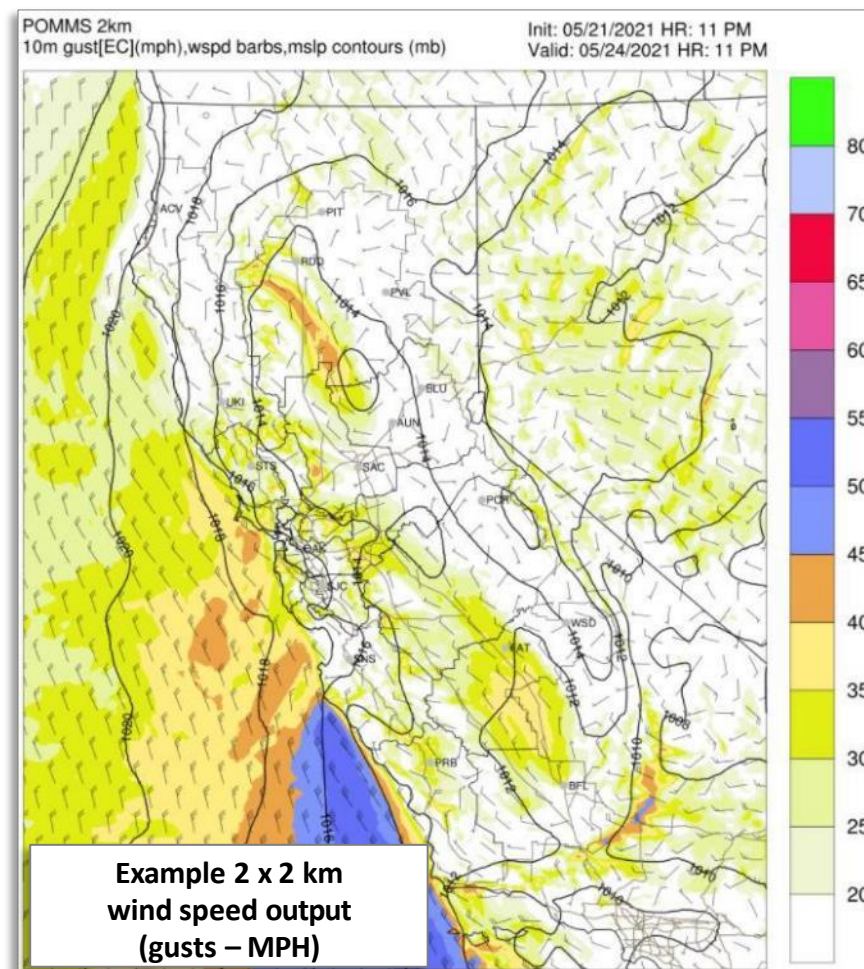
Through partnerships with external experts, we developed our 2021 machine learning models to give us a better understanding of historical weather events and to improve our weather forecasting.

This Model Uses:

- ~190,000 2x2km cells with data per cell, per hour, looking back over 31-years of high-resolution weather and fuels climatology data
- Over **100 trillion overall data points** and 20 trillion in PG&E's service area
- **Hourly weather data** such as temperature, relative humidity, wind speed, precipitation, pressure and dead and live moisture
- Data storage and processing via the **PG&E-Amazon Web Services Cloud**

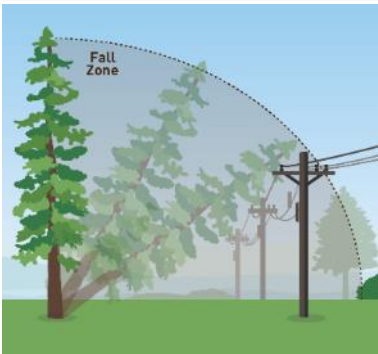
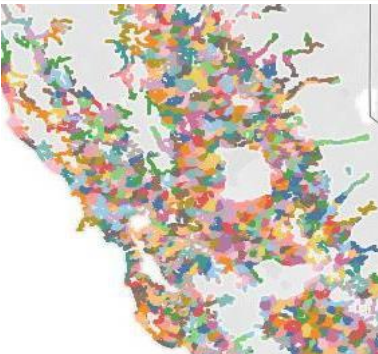
How it Helps PSPS Decision-Making and Scoping:

- Determines the **historical potential for ignitions** from each analyzed weather event (Ignition Probability Weather - IPW)
- Assists with fire model development and calibration (Fire Potential Index - FPI)
- Data inputs **improve fire spread modeling** (Technosylva)
- Provides **guidance for operation decision-making** (PSPS models)



New Machine Learning Models – Ignition Probability Weather

Ignition Probability Weather (IPW)

Weather	Vegetation Exposure	Local Performance
		
▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Precipitation ▪ Vapor Pressure Deficit	▪ Aerial Lidar tree overstrike in each 2x2 km grid cell (vegetation ignition criteria)	▪ Outage trends specific to each location

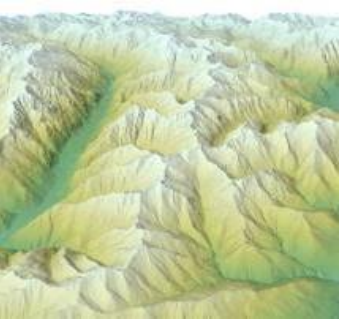
Key Model Components

- **Exponentially weighting recent years more heavily to learn and predict** system performance changes due to vegetation management and system hardening
- Data from PG&E's **31-year weather climatology study**
- Historical **sustained and momentary outage and PSPS damages data**
- Maximizing predictive skill with **state-of-the-art machine learning models**
- Predicting **five outage and ignition cause types**:
 - Vegetation
 - Equipment-structural
 - Equipment-electrical
 - Third party and animal
 - Unknown cause



New Machine Learning Models – Fire Potential Index

Fire Potential Index (FPI)

Weather	Fuel Moisture	Topography	Fuel Model Type
			
▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Vapor Pressure Deficit	▪ Dead fuel moisture ▪ Woody live fuel moisture ▪ Herbaceous live fuel moisture	▪ Ruggedness ▪ Slope ▪ Wind-terrain alignment	▪ Grass ▪ Shrub ▪ Timber ▪ Urban

Key Model Components

- **Historical satellite fire detection data set** from Sonoma Technology Inc. that includes fire growth in California from 2012 - 2020
- Data from PG&E's **31-year weather climatology study**
- **Technosylva** fuel moistures and granular fuel type maps
- **Forecasting hourly** probability of large and catastrophic fires
- Maximizing predictive skill **with state-of-the-art machine learning models**
- Greater predictive skill than previous model **confirmed by statistical evaluation and comparison of historical fires**

2020 vs. 2021 Improvements

2020 PSPS Models and Guidance

2021 PSPS Models and Guidance

Minimum Fire Potential Conditions

The minimum fire conditions (weather, fuels) required to consider a PSPS event.

Large Fire Probability

A risk-based assessment of the probability of outages due to weather combined with the probability of large fires. It is the 2020 Outage Producing Wind Model (OPW) combined with the 2020 Fire Potential Index (FPI).

Catastrophic Fire Probability

A risk-based assessment of the probability of fire ignitions due to weather combined with the probability of catastrophic fires by using the 2021 **Ignition Probability Weather Model (IPW)** combined with the 2021 **Fire Potential Index (FPI)**.

Black Swan Conditions

Even if the probability of an outage is unlikely, we may still turn off power if the weather and fuel conditions reach criteria where fast spreading, catastrophic fires are likely.

Catastrophic Fire Behavior

Even if the probability of an ignition is unlikely, we may still turn off power where **Technosylva** fire spread modeling indicates catastrophic fire behavior is possible.

Additional Vegetation Criteria

Locations where there is a high density of trees tall enough to strike power lines and where known high-priority trees are located.

Additional Vegetation Criteria

Electric Asset Criteria

Locations where known high-priority trees and electric compliance tags are located (vegetation ignition criteria is now part of IPW).

Event Criteria

PSPS criteria above met for at least 0.5% of PG&E's High Fire Risk Area (HFRA). Red Flag Warnings considered.

Event Criteria

PSPS criteria above met for at least 0.25% of PG&E's High Fire Risk Area (HFRA). Red Flag Warnings considered.

Catastrophic Fire: A fire that is not easily controlled, has a rapid rate of spread and threatens lives and property.

2021 Distribution-Level PSPS Decision-Making Process

1

If ALL the minimum fire conditions are met...

- ✓ High wind speeds
- ✓ Low relative humidity
- ✓ Low fuel moisture
- ✓ High fire potential

2

...we conduct an in-depth review of fire risk using three separate measures:

Catastrophic Fire Probability

Assesses the likelihood of a catastrophic wildfire by using a combination of the Ignition Producing Winds (IPW) model and the Fire Potential Index (FPI). This is an assessment of the probability that equipment will fail during the weather event, based on outage history.

Catastrophic Fire Behavior

Even if probability of failure is unlikely, we may still turn off power where catastrophic fires are possible. We evaluate fire behavior criteria across eight-hour forecast fire simulations using Technosylva technology that includes, flame length, rate of spread and area burned above 100 acres.

Vegetation and Electric Asset Criteria Considerations

We review locations where high priority trees or electric compliance tags are present that may increase the risk of ignition.

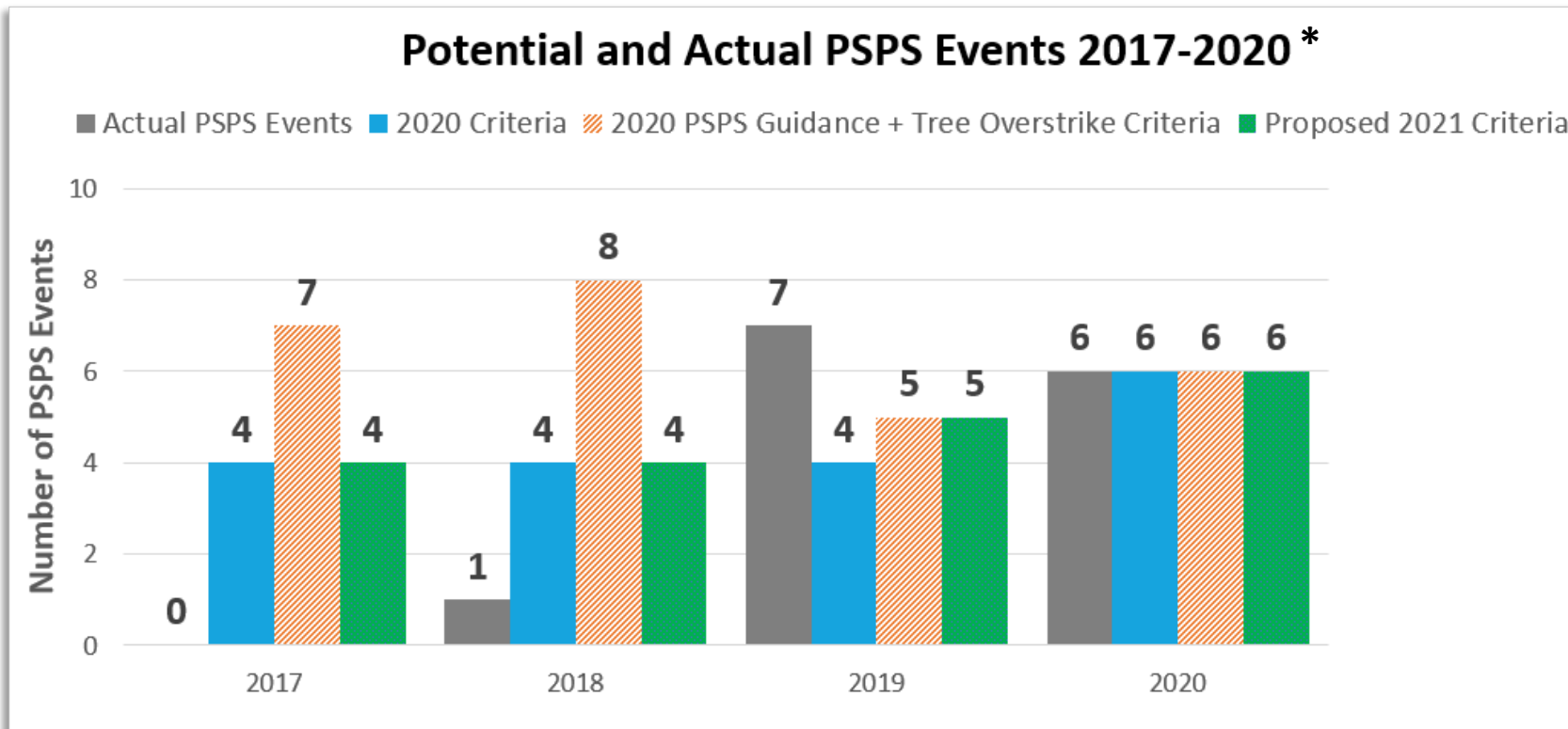
3

If ANY of these three measures are met, we turn off power for safety

Determining the Outage Area

Each of the three measures is evaluated within a small geographic area (4 square kilometers). If any of the measures are met, circuits within that area are de-energized. Because power lines travel across long distances, customers outside the affected area may also be impacted.

The chart below uses the last four years of hourly climatological weather data to show the number of potential PSPS against the 2021 proposed models and guidance.



**2020 Models and Guidance
+ Tree Overstrike Criteria:**
average of
6.5 events per year
(2017-2020)

**2021 Models
and Guidance:**
average of
4.75 events per year
(2017 – 2020)

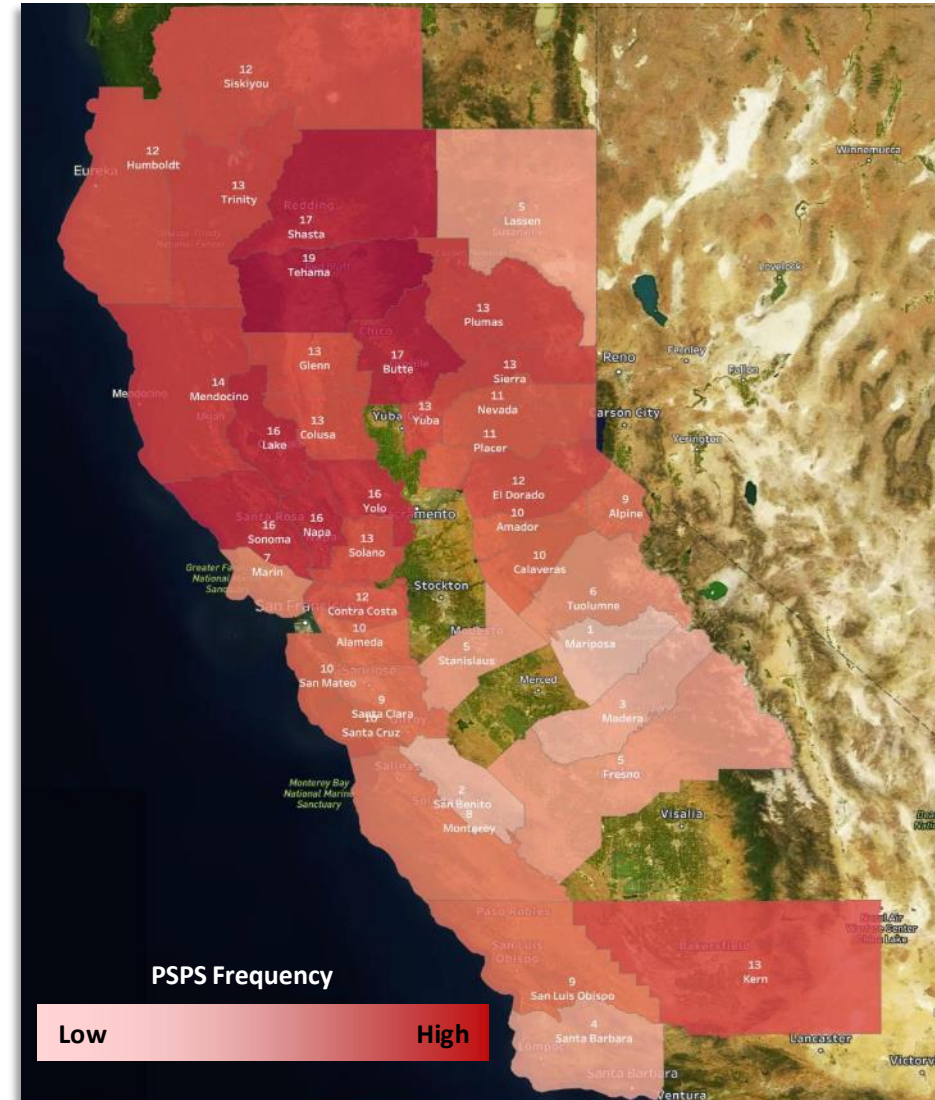
* Total PSPS per year, across the entire PG&E service territory.

2021 PSPS Models and Guidance Climatology Study

Using 2021 models and guidance, we can show the potential frequency of PSPS from 2017 – 2020.

Total PSPS from 2017-2020 Using 2021 Model

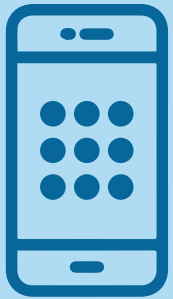
County	Event Count	County	Event Count
Tehama	19	Placer	11
Shasta	17	Nevada	11
Butte	17	Santa Cruz	10
Yolo	16	San Mateo	10
Sonoma	16	Calaveras	10
Napa	16	Amador	10
Lake	16	Alameda	10
Mendocino	14	Santa Clara	9
Yuba	13	San Luis Obispo	9
Trinity	13	Alpine	9
Solano	13	Monterey	8
Sierra	13	Marin	7
Plumas	13	Tuolumne	6
Kern	13	Stanislaus	5
Glenn	13	Lassen	5
Colusa	13	Fresno	5
Siskiyou	12	Santa Barbara	4
Humboldt	12	Madera	3
El Dorado	12	San Benito	2
Contra Costa	12	Mariposa	1



New Weather Model – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



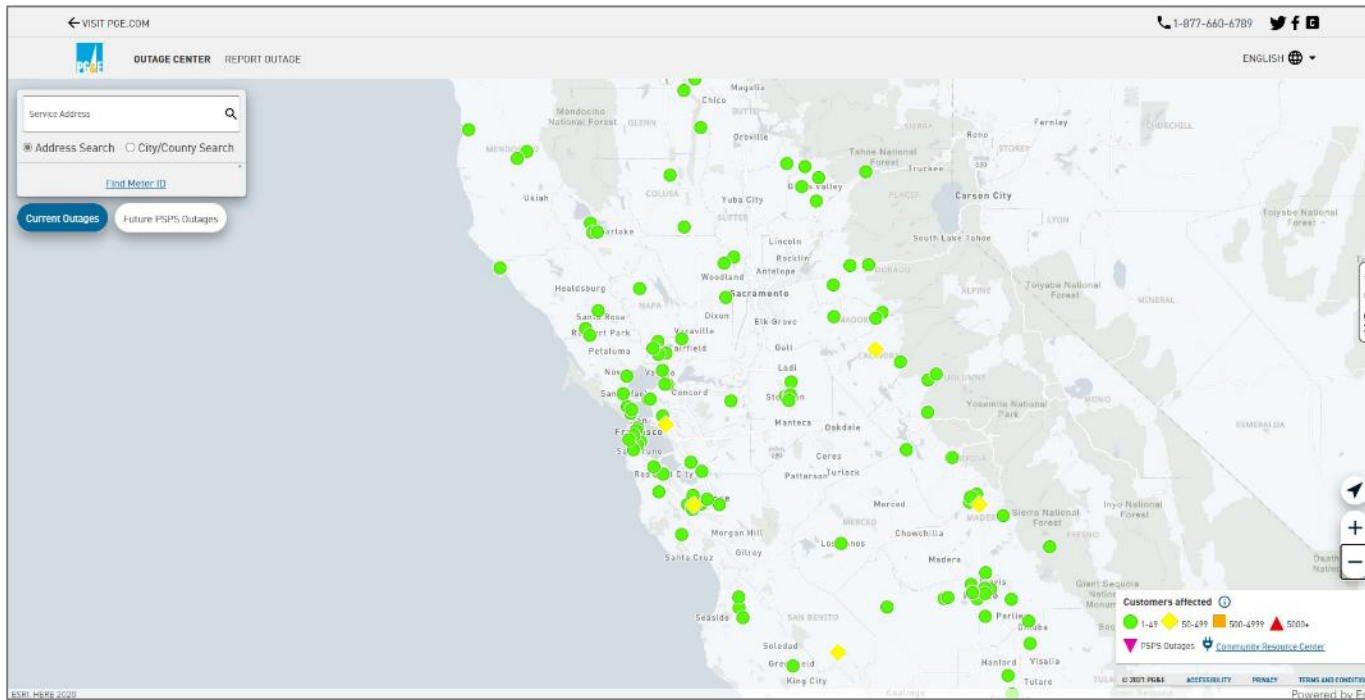
What else would you like to know about the new weather model?

Local Electric Reliability Statistics





PG&E's most important responsibility is providing safe and reliable energy to our customers and the communities we serve. To measure our reliability, we constantly track and monitor outages across our service area. Then, we calculate our reliability rates based on this data.



If you are impacted by a PSPS event or other type of outage, you can visit PG&E's electric outage map to view anticipated restoration times

Learn more about electric outages, including how to report one in your community, by visiting:

pge.com/outages





Systemwide Reliability Statistics

Each year, PG&E compiles a report that outlines our electric reliability statistics, with both a systemwide and division-level perspectives. The report is submitted to the California Public Utilities Commission (CPUC) and is available to the public. The report on 2020 electric reliability was submitted to the CPUC on July 9th, 2021.

- Including Major Event Days, the average PG&E customer experienced 1.443 outages in 2020 and those outages lasted for a combined average of 450.6 minutes.
- Excluding Major Event Days, the average PG&E customer experienced 1.068 outages in 2020 and those outages lasted for a combined average of 125.8 minutes.

Combined Transmission and Distribution System Indices (2017-2020)*

Year	Major Events <u>Included</u> **		Major Events <u>Excluded</u> **	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Total Outage Minutes Per Customer	Average Number of Outages
2017	357.8 minutes (~6.0 hours)	1.466 outages	97.3 minutes (~1.6 hours)	0.878 outages
2018	282.3 minutes (~4.7 hours)	1.053 outages	99.6 minutes (~1.7 hours)	0.960 outages
2019	1,363.3 minutes (~22.7 hours)	1.872 outages	117.7 minutes (~2.0 hours)	1.009 outages
2020	450.6 minutes (~7.5 hours)	1.443 outages	125.8 minutes (~2.1 hours)	1.068 outages

Additional reliability statistic details can be found on [pge.com](https://www.pge.com) by searching “reliability reports.”

*This table and all others in this presentation exclude planned and ISO related outages.

**Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.

De Anza Division Reliability Statistics

The De Anza Division is made up of portions of the Santa Cruz, Santa Clara and San Mateo Counties.

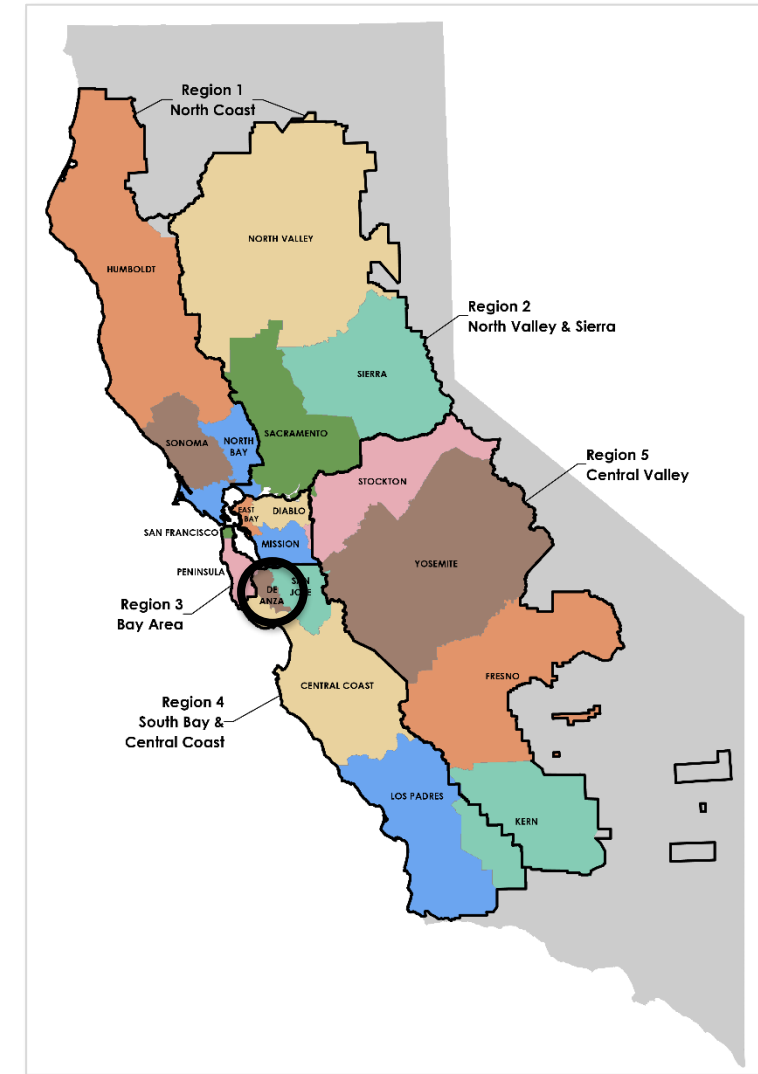
- Including Major Event Days, the average PG&E customer in De Anza Division experienced 0.958 outages in 2020 and those outages lasted for a combined average of 226.3 minutes.
- Excluding Major Event Days, the average PG&E customer in De Anza Division experienced 0.711 outages in 2020 and those outages lasted for a combined average of 83.1 minutes.

De Anza Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	315.4 minutes (~5.26 hours)	1.503 outages	97.9 minutes (~1.63 hours)	0.985 outages
2018	86.6 minutes (~1.44 hours)	0.836 outages	84.0 minutes (~1.4 hours)	0.789 outages
2019	402.2 minutes (~6.70 hours)	1.385 outages	91.3 minutes (~1.52 hours)	0.873 outages
2020	226.3 minutes (~3.77 hours)	0.958 outages	83.1 minutes (~1.39 hours)	0.711 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.

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



San Jose Division Reliability Statistics

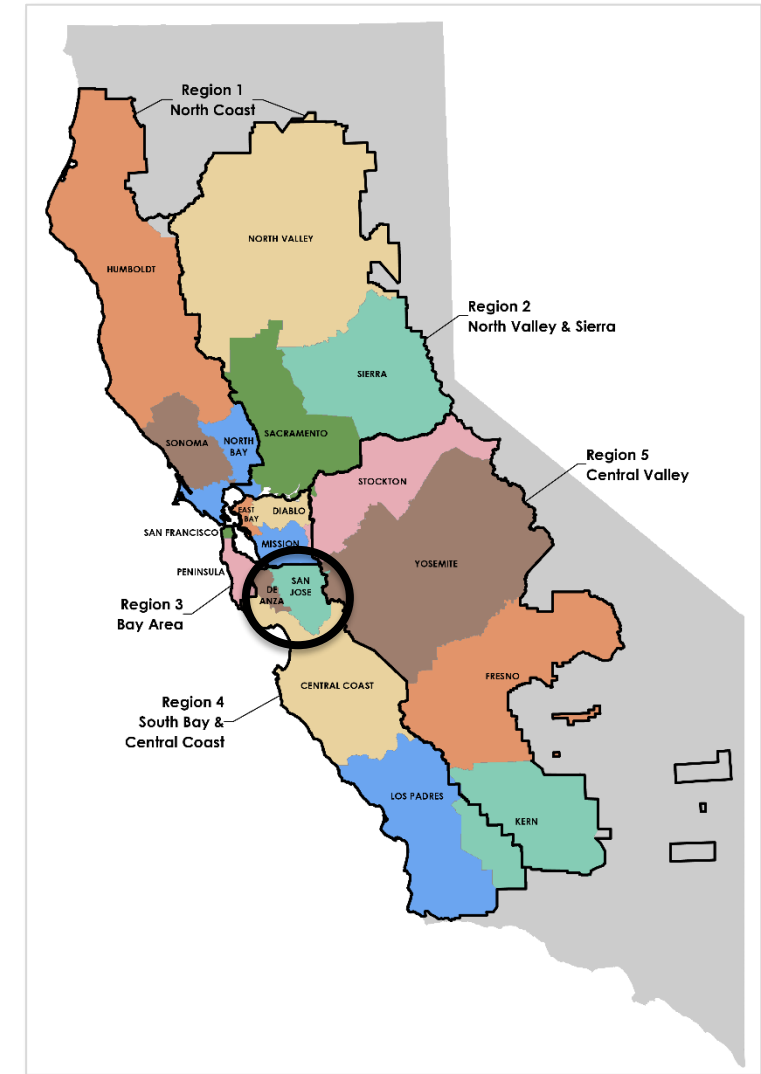
The San Jose Division is made up of portions of Santa Clara County.

- Including Major Event Days, the average PG&E customer in the San Jose Division experienced 1.074 outages in 2020 and those outages lasted for a combined average of 177.7 minutes.
- Excluding Major Event Days, the average PG&E customer in the San Jose Division experienced 0.906 outages in 2020 and those outages lasted for a combined average of 120.9 minutes.

San Jose Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	179.8 minutes (~3 hours)	1.241 outages	72.3 minutes (~1.21 hours)	0.739 outages
2018	86.9 minutes (~1.45 hours)	0.872 outages	85.0 minutes (~1.42 hours)	0.858 outages
2019	275.7 minutes (~4.6 hours)	1.083 outages	81.5 minutes (~1.36 hours)	0.747 outages
2020	177.7 minutes (~2.96 hours)	1.074 outages	120.9 minutes (~2.02 hours)	0.906 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Central Coast Division Reliability Statistics

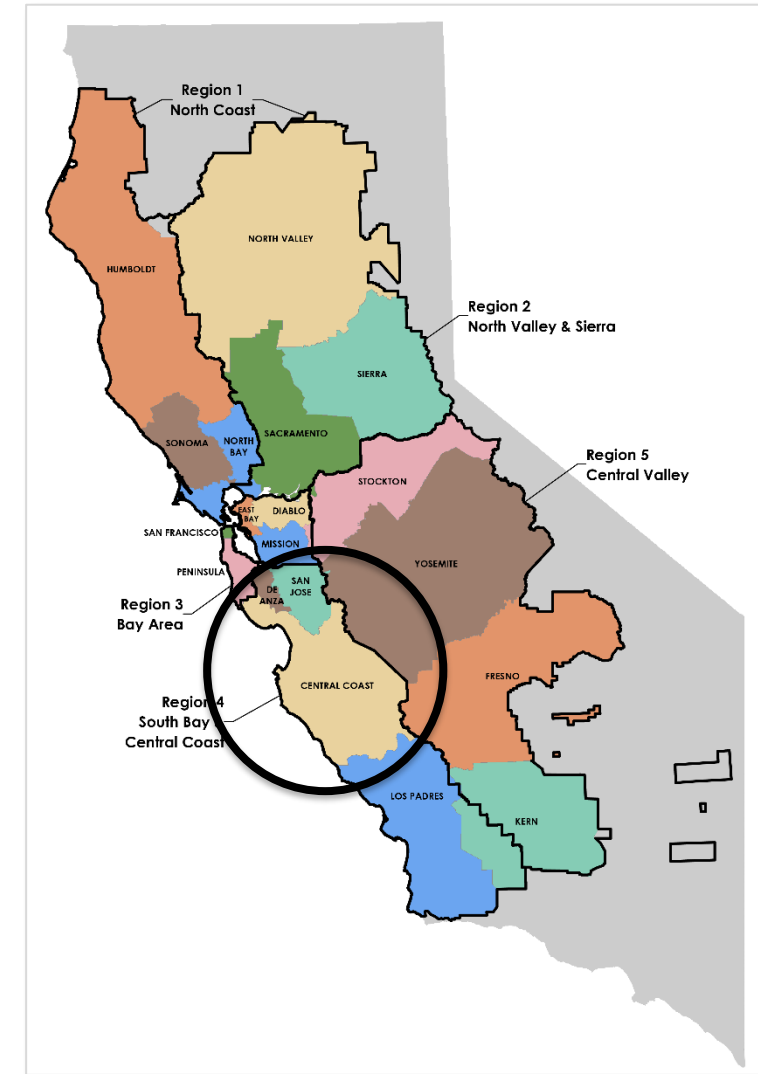
The Central Coast Division is made up of portions of Santa Cruz, San Benito and Monterey Counties.

- Including Major Event Days, the average PG&E customer in the Central Coast Division experienced 2.219 outages in 2020 and those outages lasted for a combined average of 395.9 minutes.
- Excluding Major Event Days, the average PG&E customer in the Central Coast Division experienced 1.724 outages in 2020 and those outages lasted for a combined average of 159.1 minutes.

Central Coast Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	807.8 minutes (~13.4 hours)	2.462 outages	146.3 minutes (~2.44 hours)	1.293 outages
2018	186.8 minutes (~3.1 hours)	1.598 outages	162.4 minutes (~2.71 hours)	1.447 outages
2019	1294.9 minutes (~21.5 hours)	2.548 outages	203.6 minutes (~3.39 hours)	1.470 outages
2020	395.9 minutes (~6.59 hours)	2.129 outages	159.1 minutes (~2.65 hours)	1.724 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Los Padres Division Reliability Statistics

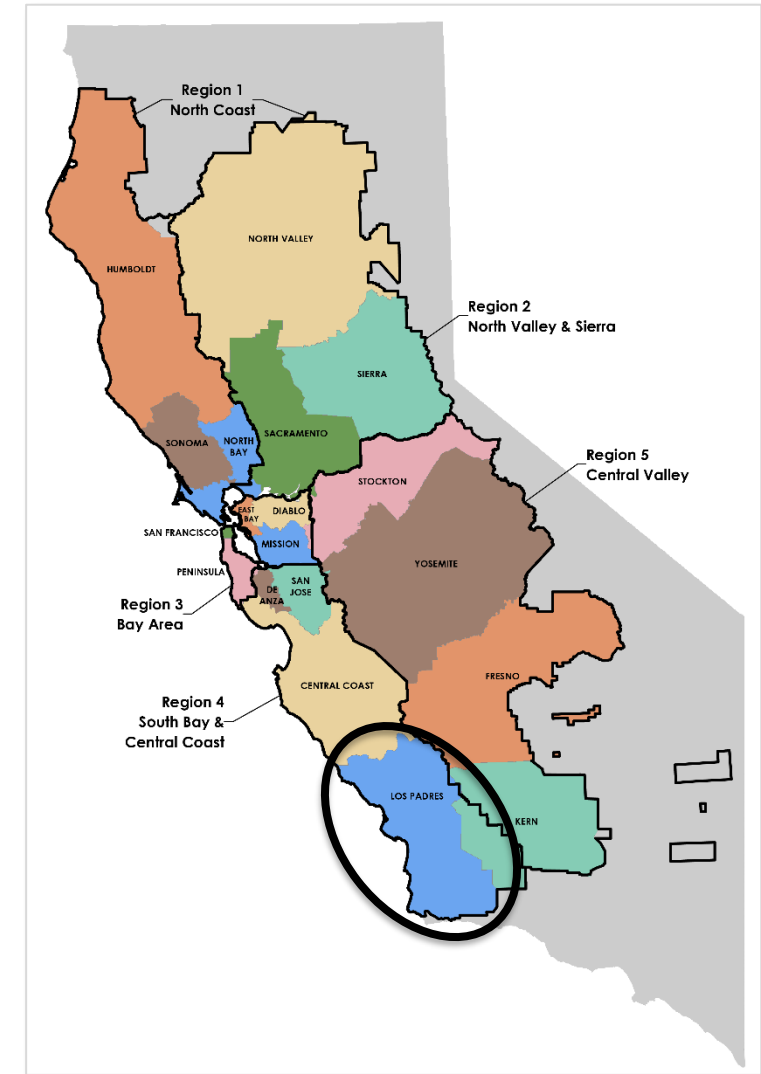
The Los Padres Division is made up of portions of Monterey, San Luis Obispo and Santa Barbara Counties.

- Including Major Event Days, the average PG&E customer in Los Padres Division experienced 1.296 outages in 2020 and those outages lasted for a combined average of 198.1 minutes.
- Excluding Major Event Days, the average PG&E customer in Los Padres Division experienced 1.141 outages in 2020 and those outages lasted for a combined average of 139.3 minutes.

Los Padres Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	315.7 minutes (~5.26 hours)	1.574 outages	106.7 minutes (~1.79 hours)	0.944 outages
2018	141.8 minutes (~2.36 hours)	1.277 outages	130.5 minutes (~2.18 hours)	1.195 outages
2019	225.9 minutes (~3.76 hours)	1.533 outages	150.7 minutes (~2.51 hours)	1.188 outages
2020	198.1 minutes (~3.3 hours)	1.296 outages	139.3 minutes (~2.32 hours)	1.141 outages

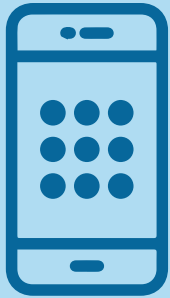
*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Local Reliability Statistics – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



What else would you like to know about the local reliability statistics in your area?

Systemwide Resiliency Efforts



New for 2021 – Microgrid Portal

PG&E has worked to develop a new Microgrid Portal to share information with local agencies and tribes to assist in their own resiliency efforts. This new tool:



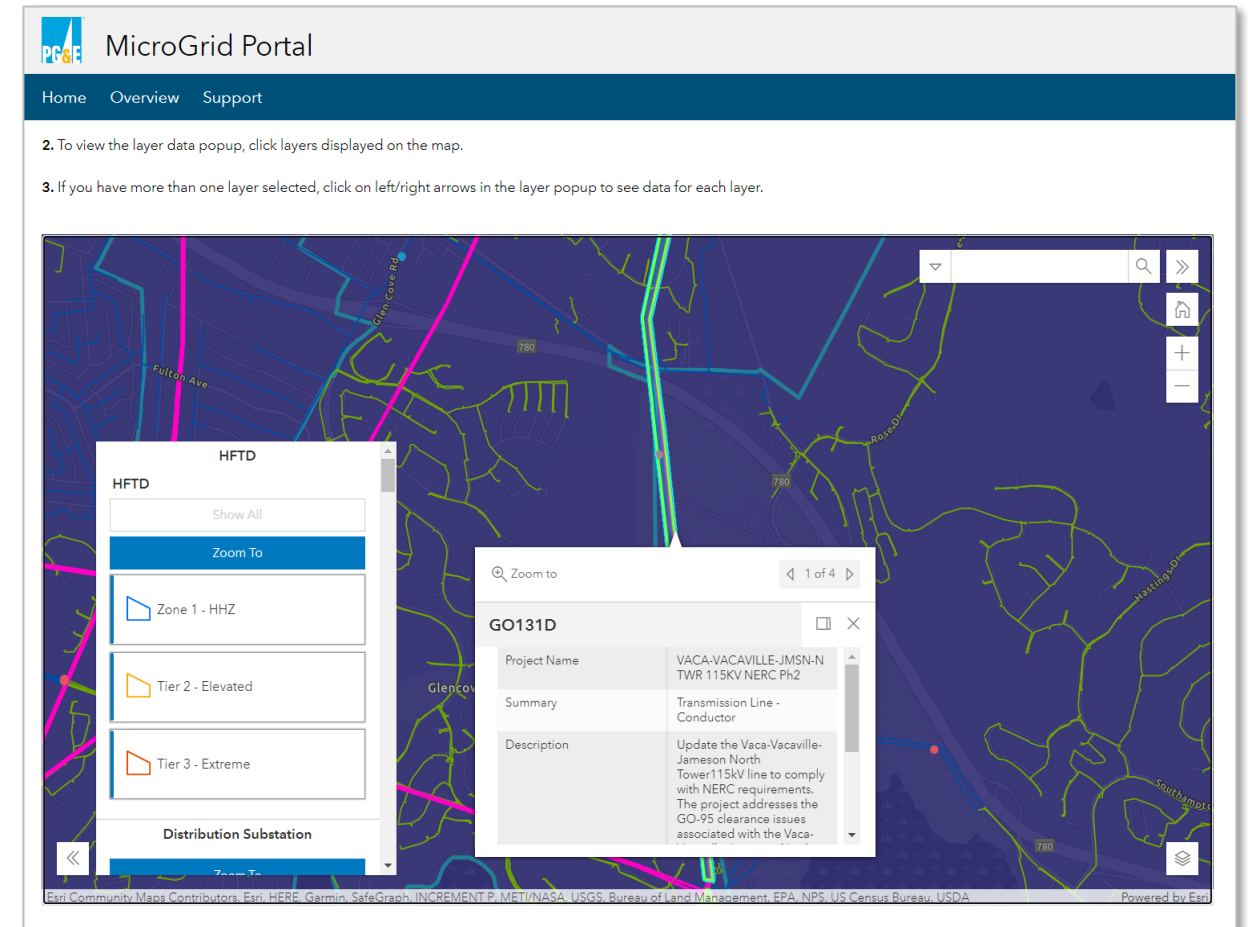
Is available to County OES representatives, tribal governments and other “organizations created by political subdivisions to carry out the provisions of the State Emergency Plan.”



Includes the following data:

- Utility planned work/grid investments (including locations, project descriptions, project timelines and completion dates)
- High Fire-Threat District Map layers
- Electric infrastructure map layers (including substations, distribution circuits and transmission lines)
- Weather polygon map layers

The Microgrid Portal launched on 7/16/21 and additional improvements will be made to the portal in the future.



How to Get Access to the Microgrid Portal



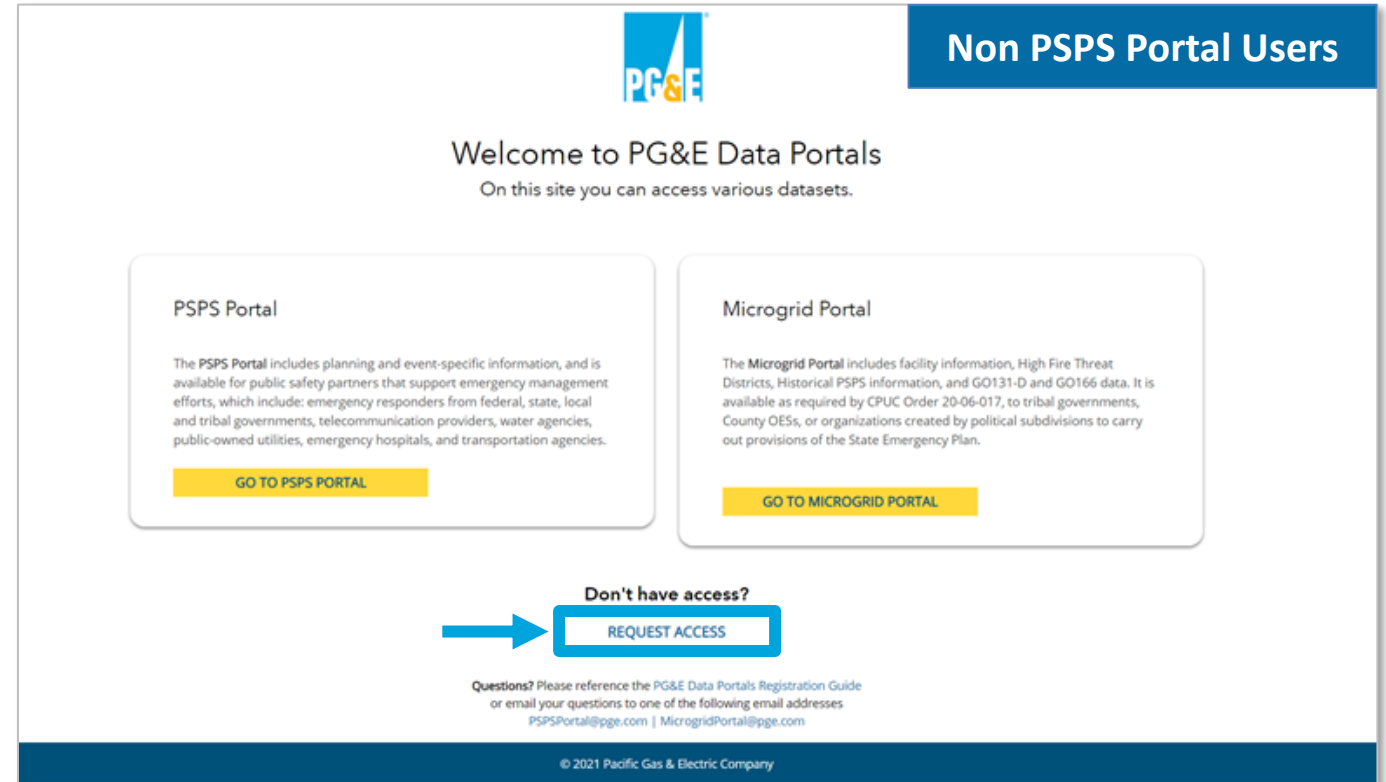
Existing PSPS Portal Users

- Log in to the PSPS portal and click on the banner: **Join our Microgrid Community**
- Once you have clicked on the banner, **simply follow instructions to complete.**



Non PSPS Portal Users

- Visit pge.com/pspsportal and click on the request access button
- Once you have clicked on the request access button, **simply follow instructions to complete.**



The screenshot shows the PG&E Data Portals homepage. At the top right, a blue banner reads "Non PSPS Portal Users". The main heading is "Welcome to PG&E Data Portals" with the subtext "On this site you can access various datasets." Below this are two white boxes. The left box is titled "PSPS Portal" and contains text about planning and event-specific information, with a yellow button labeled "GO TO PSPS PORTAL". The right box is titled "Microgrid Portal" and contains text about facility information, High Fire Threat Districts, and GO131-D and GO166 data, with a yellow button labeled "GO TO MICROGRID PORTAL". At the bottom, a blue button labeled "REQUEST ACCESS" is highlighted with a blue arrow and the text "Don't have access?". Below the button, there is a "Questions?" section with contact information for the Registration Guide and email addresses: PSPSPortal@pge.com and MicrogridPortal@pge.com. The footer of the page reads "© 2021 Pacific Gas & Electric Company".

Microgrid Incentive Program (MIP) Objectives

PG&E, along with San Diego Gas and Electric and Southern California Edison are in the process of developing a new Microgrid Incentive Program to fund clean community microgrids that support the critical needs of vulnerable populations most likely to be impacted by outages.

The goals of this program are to:



Increase reliability and resiliency for critical public facilities in communities that are at higher risk of electrical outages



Prioritize communities with higher portions of low-income, access and functional needs, and electricity dependent residents



Enable communities with lower ability to fund development of backup generation to maintain critical loads during outages



Provide opportunity for testing new technologies or regulatory approaches to inform future action to the benefit of all ratepayers

Foundational Microgrid Incentive Program (MIP) Elements

Key Items For Consideration		Funding Allocation	
Locations	▪ Priority for low-income, Disadvantaged, Access & Functional Needs and/or critical facility customers ▪ Priority for those impacted by grid outages (PSPS or otherwise)	Statewide Budget	▪ \$200M
Duration	▪ Microgrids should ideally be capable of maintaining identified customers' loads for up to 96-hours	Incentive Cap	▪ \$15M/per project
Eligibility	▪ Multi-customer microgrid solutions will be eligible for this incentive ▪ Single-customer solutions do not qualify	Eligible Costs	▪ Front of the meter generation and/or storage resources ▪ Microgrid controller(s) ▪ Customer outreach ▪ Community costs ▪ Reconfiguration of equipment (e.g., to isolate and serve certain loads)
Emissions	▪ Technologies must result in equal to or better than the current grid power emissions	Matching Funds	▪ PG&E, SDG&E or SCE to provide one-time matching funds to offset a portion of the utility infrastructure upgrades associated with implanting islanding function

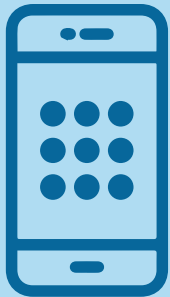
The utilities are developing the MIP with input from stakeholders and will submit a program implementation Advice Letter to the California Public Utilities Commission on October 1, 2021.

For more information visit pge.com/MIPworkshops.

Systemwide Resiliency Efforts – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Which Microgrid Portal features do you see being most useful?



Do you foresee using this resource?

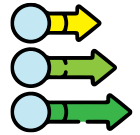


What else would you like to know about the new Microgrid Incentive Program?

PSPS and Other Emergencies



Concurrent Events Impacting Electric Service



What are concurrent events?

During wildfire season, we may experience multiple events that impact the electric system at the same time as a Public Safety Power Shutoff (PSPS) event.

Other events can include:

- ① An active wildfire
- ② A capacity event (e.g., rotating outage)
- ③ Damage to our electrical system (e.g., weather damage, car accident, construction incident, natural disaster)



What are the potential impacts?

- **Customers may lose power** even if they are not experiencing severe weather
- **PSPS restoration timelines** may be extended
- Customers may have their power turned off **without the typical notification or with limited notice**
- **Customer resource partnerships** are specific to PSPS events and wildfires*



How do we manage and communicate these events?

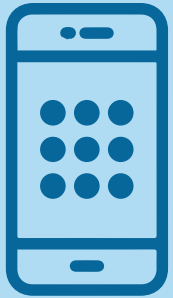
- **Managed through the Incident Command System (ICS)** using our Emergency Operations Center (EOC)
 - This system is designed to be **flexible and able to address emerging issues**
- **Open and ongoing dialogue** with external stakeholders
- **Robust internal communication** channels keep teams aligned and ensure local teams/decision-makers have integrated information

*Some customer resources (i.e., Community Resource Centers) may be made available during non-PSPS event scenarios if certain conditions are met.

PSPS and Other Emergencies – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



How do you plan to prepare for a concurrent event?



Are there additional tools/resources your agency needs?

- ✓ **Meeting survey** shared with participants to gather feedback on approach and content of regional working group
- ✓ **Follow-up on items** identified by local agencies/stakeholders
- ✓ **Upcoming meetings**
 - Q4 Regional Working Group Meetings
 - Meteorology Deep Dive

2021 REGIONAL WORKING GROUP CALENDAR

TIMING	TOPICS
Q4 2021	PSPS and Wildfire Safety

A summary of the feedback gathered here today and results from a post-meeting survey will be shared with the CPUC.



Thank You

PG&E Report It – Safety Mobile App

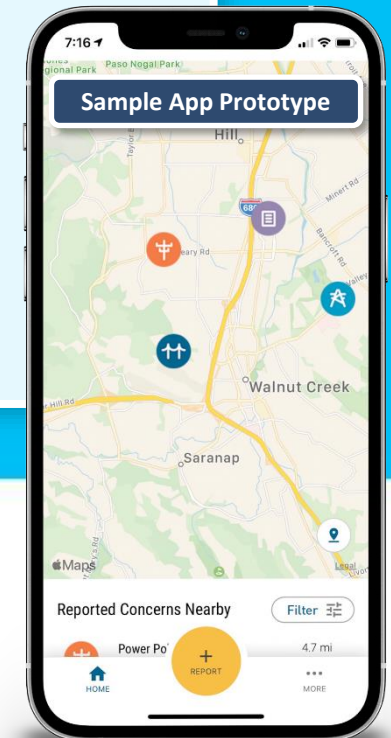
PG&E recently launched the pilot of our new “PG&E Report It” safety app that allows customers to submit photos of non-emergency potential safety concerns with our electric system.

Customers can use Report It to:

- ✓ Learn about the types of issues to report
- ✓ Submit photos directly to our safety team

Other Safety App features include:

- ✓ Finding safety concerns submitted by other users
- ✓ Reviewing PG&E’s safety findings
- ✓ Notifications when your concern is reviewed or resolved



To learn more about **PG&E Report It**, visit

pge.com/reportit

Appendix



2021 Follow Up and Action Items

Below is a list of the follow up and action items identified during the Q1 & Q2 Regional Working Groups in March and June as well as corresponding statuses.

Action Item	Agency	Status
Asked for a county level breakdown of battery distribution.	Santa Barbara County	In Progress
Asked if PG&E is planning to reach out to Medical Baseline Program participants who did not have certification from a medical professional to encourage them to re-certify this year.	Tri-County Independent Living Center	In Progress
Asked for access to a summary of all PSPS events (including shutoff and restoration times) that have impacted their region historically.	Santa Barbara County	In Progress
Discussed if it is possible to send customers a printed map/materials noting that they are within a High Fire-Threat District area and requested follow up.	Tri-County Independent Living Center	In Progress

Q1 & Q2 2021 Follow Up and Action Items (cont.)

Below is a list of the follow up and action items identified during the Q1 & Q2 Regional Working Groups in March and June as well as corresponding statuses.

Action Item	Agency	Status
Requested information on whether a microgrid is being considered on Copernicus Peak	Santa Clara Office of Emergency Services	Complete
Follow-up to discuss wood chipping assistance provided to customers.	Central Coast Community Energy	Complete
Requested a GIS layer of rotating outage blocks.	City of Cupertino	Complete
Requested follow up regarding the PSPS Portal/access to Medical Baseline customer data for things like the Portable Battery Program.	Tri-County Independent Living Center	Complete

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Substation Microgrids	Humboldt	Hoopa	Ready to Operate	N/A
	Humboldt	Willow Creek	Ready to Operate	N/A
	Lake	Clear Lake	Ready to Operate	N/A
	Lake	Hartley	Ready to Operate	N/A
	Lake	Konocti	Ready to Operate	N/A
	Nevada	Brunswick	Ready to Operate	N/A
	Placer	Weimar	In-Event Ready	N/A
	Santa Cruz	Big Basin	In-Event Ready	N/A
	Santa Cruz	Point Moretti	Ready to Operate	N/A
	Sonoma	Cloverdale	Ready to Operate	N/A
	Trinity	Low Gap	Ready to Operate	N/A
	Yolo	Plainfield	Near Complete	August 26, 2021
	Yuba	Dobbins	In-Event Ready	N/A
Distribution Microgrids	Butte	Magalia	Ready to Operate	N/A
	Calaveras	Arnold	Planning	Q4 2021
	El Dorado	Georgetown	Ready to Operate	N/A
	El Dorado	Placerville	Ready to Operate	N/A
	El Dorado	Pollock Pines	Ready to Operate	N/A
	Lake	Clearlake North	Planning	Q4 2021
	Lake	Clearlake South	Planning	Q3 2021

Local work plans are subject to change and data is based on the best available information at this time.

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Distribution Microgrids (cont.)	Lake	Lucerne	Planning	Q3 2021
	Lake	Middletown	Ready to Operate	N/A
	Napa	Angwin	Ready to Operate	N/A
	Napa	Calistoga	Near Complete	Q3 2021
	Placer	Colfax	Planning	Q4 2021
	Placer	Foresthill	Planning	Q3 2021
	Shasta	Shingletown	Ready to Operate	N/A
	Tuolumne	Groveland	Planning	Q4 2021
Remote Grids	El Dorado	El Dorado	Planning	Q4 2021
	Mariposa	Mariposa 1	Operational	N/A
	Mariposa	Mariposa 2	Planning	Q4 2021
	Mariposa	Mariposa 3	Planning	Q4 2021
	San Luis Obispo	San Luis Obispo 1	Planning	Q3 2022
	San Luis Obispo	San Luis Obispo 2	Planning	Q3 2022
	Tulare	Tulare	Planning	Q3 2022
	Tehama	Tehama	Planning	Q4 2021
Islanding	Amador/Calaveras	Salt Springs Island	Ready to Operate	N/A
	Amador/Calaveras	West Point Island	Ready to Operate	N/A
	Humboldt	Humboldt Bay Island	Ready to Operate	N/A
	Plumas	Caribou Island	Ready to Operate	N/A
	Tehama	Red Bluff Island	Ready to Operate	N/A
	Tuolumne	Spring Gap	Ready to Operate	N/A

Local work plans are subject to change and data is based on the best available information at this time.

Community Wildfire Safety Program

Q3 2021 REGIONAL WORKING GROUP

Bay Area Region

August 13, 2021



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

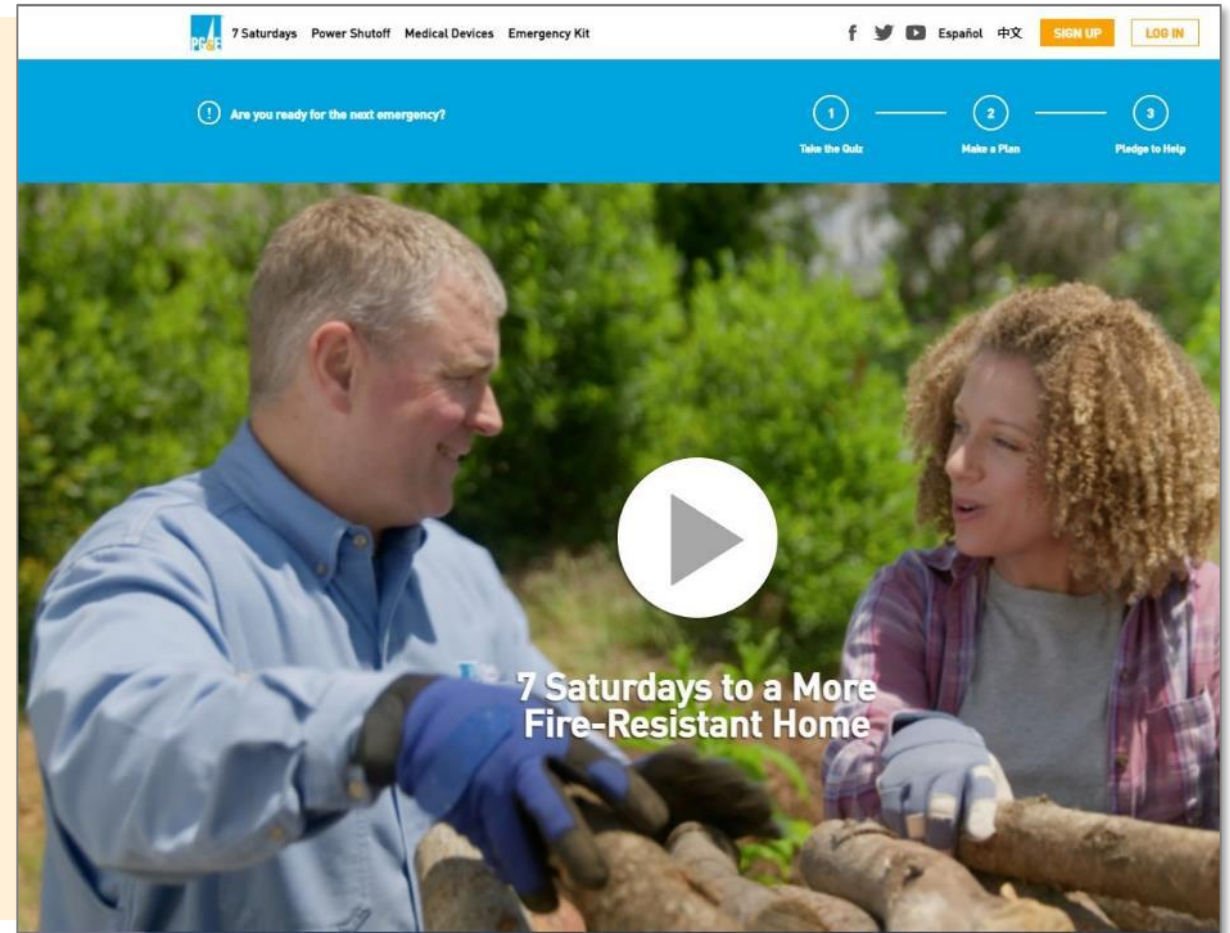


Californians are working together to make sure our families, homes and communities are ready to face wildfires and other emergencies.

From creating defensible space around your home to preparing your family for an evacuation, PG&E's new "7 Saturdays" digital video series outlines a number of actions everyone can take to prepare.

Watch now at:

safetyactioncenter.pge.com



DISCUSSION TOPICS:

- 1** Regional Leadership Team Introductions
- 2** New Weather Model
- 3** Local Electric Reliability Statistics
- 4** Systemwide Resiliency Efforts
- 5** PSPS Events and Other Emergencies
- 6** Open Discussion/Q&A

PG&E PRESENTERS:

Aaron Johnson | Regional Vice President

John Gilginas | Regional Safety Director

Laura Wetmore | Senior Manager Local Customer Experience and Division Lead

Sarah Yoell | Local Public Affairs

Jim Wickham | Public Safety Specialist

Denise Shemenski | Tribal Liaison

Evan Duffey | Manager of Meteorology Operations



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

WORKING GROUP PARTICIPANTS:

- ☐ Access and Functional Needs Representatives
- ☐ Caltrain/SamTrans Representatives
- ☐ City/County Staff
- ☐ Community Based Organizations
- ☐ Community Choice Aggregators
- ☐ County Offices of Emergency Services
- ☐ First Responders
- ☐ Public Works Partners
- ☐ Publicly Owned Electric Utilities
- ☐ Red Cross Staff
- ☐ Small, Multi-Jurisdictional Electric Utilities
- ☐ Telecommunications Providers
- ☐ Tribal Governments
- ☐ Water Agency Representatives
- ☐ Filsinger Energy Partners
- ☐ California Public Utilities Commission Staff

Regional Leadership Team Introductions



Bay Area Regional Service Model Key Objectives

We are moving to a Regional Service Model so that we can better serve our customers by being more nimble and quickly resolving issues at the local level.

The addition of regional leadership and their teams increases the local resources positioned to:

- ✓ **More effectively engage customers and community for feedback**
- ✓ **Increase the speed that problems can be solved with improved local coordination**
- ✓ **Better educate communities on the reasoning behind local initiatives**
- ✓ **Develop more customized solutions for local needs**



New Undergrounding Safety Initiative

On July 21, PG&E announced a major expansion of our efforts to underground electric distribution power lines in High Fire-Threat Districts. **This new infrastructure safety initiative is a multi-year effort to underground approximately 10,000 miles of power lines.**



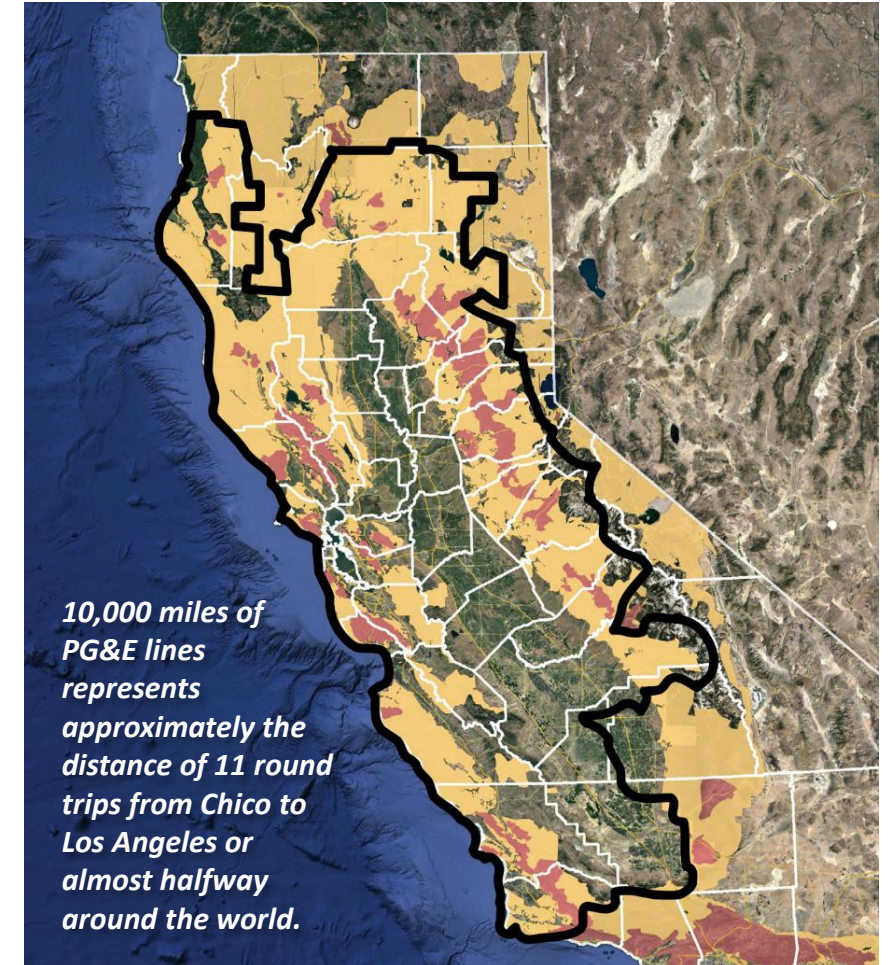
In the coming months and years **we will work to determine the exact number of projects or miles undergrounded each year.**

Potential undergrounding sites will be identified based on a variety of factors, including but not limited to:

- Local municipal planning and safety considerations.
- Project design considerations for water, natural gas, drainage and road systems.
- Location within a Tier 2 or Tier 3 High Fire-Threat District.
- Local, state, federal, tribal and regulatory requirements and feedback.

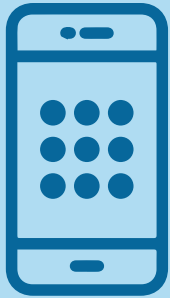


As more information becomes available about this new initiative we will be sure to share updates with you.





Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Related to PSPS, what is working well in your community?



What are challenges you have experienced with PG&E regarding PSPS?



How can we help support your community in preparing for and responding to PSPS?

New Weather Model



Building Our 2021 Machine Learning Models

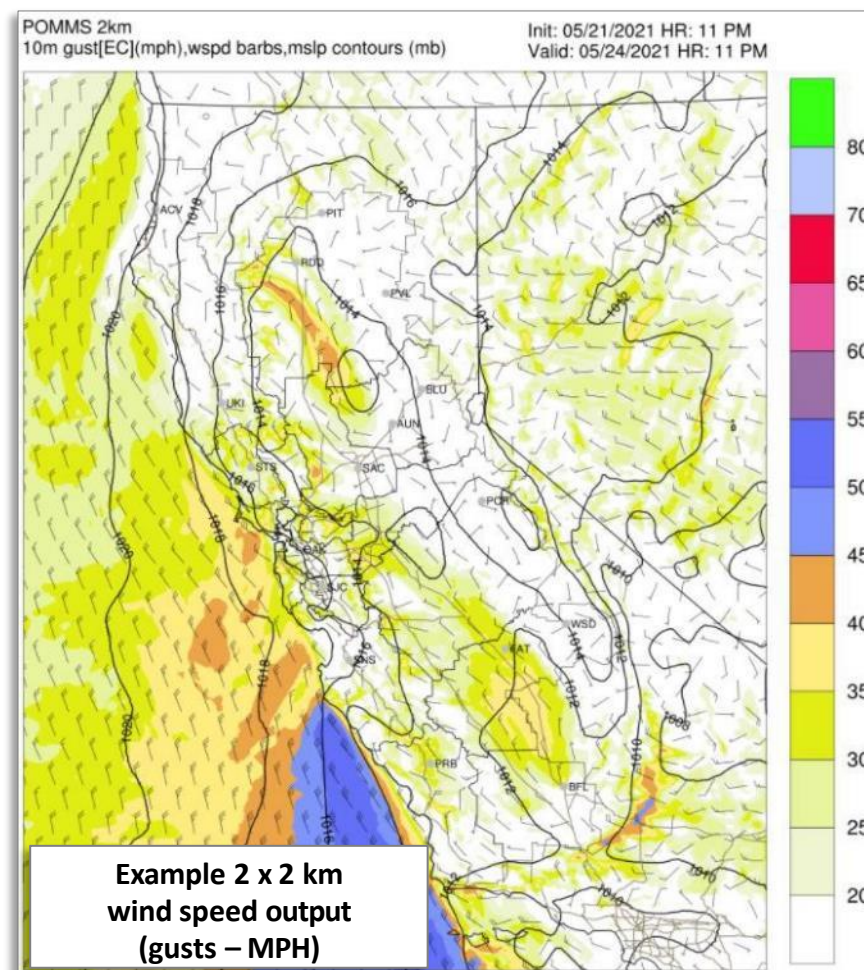
Through partnerships with external experts, we developed our 2021 machine learning models to give us a better understanding of historical weather events and to improve our weather forecasting.

This Model Uses:

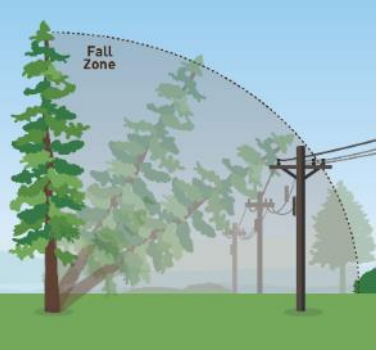
- ~190,000 2x2km cells with data per cell, per hour, looking back over 31-years of high-resolution weather and fuels climatology data
- Over **100 trillion overall data points** and 20 trillion in PG&E's service area
- **Hourly weather data** such as temperature, relative humidity, wind speed, precipitation, pressure and dead and live moisture
- Data storage and processing via the **PG&E-Amazon Web Services Cloud**

How it Helps PSPS Decision-Making and Scoping:

- Determines the **historical potential for ignitions** from each analyzed weather event (Ignition Probability Weather - IPW)
- Assists with fire model development and calibration (Fire Potential Index - FPI)
- Data inputs **improve fire spread modeling** (Technosylva)
- Provides **guidance for operation decision-making** (PSPS models)



New Machine Learning Models – Ignition Probability Weather

Ignition Probability Weather (IPW)		
Weather	Vegetation Exposure	Local Performance
 ▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Precipitation ▪ Vapor Pressure Deficit	 ▪ Aerial Lidar tree overstrike in each 2x2 km grid cell (vegetation ignition criteria)	 ▪ Outage trends specific to each location

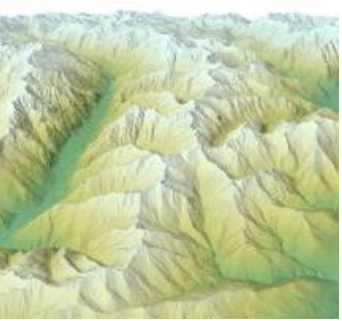
Key Model Components

- **Exponentially weighting recent years more heavily to learn and predict** system performance changes due to vegetation management and system hardening
- Data from PG&E's **31-year weather climatology study**
- Historical **sustained and momentary outage and PSPS damages data**
- Maximizing predictive skill with **state-of-the-art machine learning models**
- Predicting **five outage and ignition cause types**:
 - Vegetation
 - Equipment-structural
 - Equipment-electrical
 - Third party and animal
 - Unknown cause



New Machine Learning Models – Fire Potential Index

Fire Potential Index (FPI)

Weather	Fuel Moisture	Topography	Fuel Model Type
			
▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Vapor Pressure Deficit	▪ Dead fuel moisture ▪ Woody live fuel moisture ▪ Herbaceous live fuel moisture	▪ Ruggedness ▪ Slope ▪ Wind-terrain alignment	▪ Grass ▪ Shrub ▪ Timber ▪ Urban

Key Model Components

- **Historical satellite fire detection data set** from Sonoma Technology Inc. that includes fire growth in California from 2012 - 2020
- Data from PG&E's **31-year weather climatology study**
- **Technosylva** fuel moistures and granular fuel type maps
- **Forecasting hourly** probability of large and catastrophic fires
- Maximizing predictive skill **with state-of-the-art machine learning models**
- Greater predictive skill than previous model **confirmed by statistical evaluation and comparison of historical fires**

2020 vs. 2021 Improvements

2020 PSPS Models and Guidance

2021 PSPS Models and Guidance

Minimum Fire Potential Conditions

The minimum fire conditions (weather, fuels) required to consider a PSPS event.

Large Fire Probability

A risk-based assessment of the probability of outages due to weather combined with the probability of large fires. It is the 2020 Outage Producing Wind Model (OPW) combined with the 2020 Fire Potential Index (FPI).

Catastrophic Fire Probability

A risk-based assessment of the probability of fire ignitions due to weather combined with the probability of catastrophic fires by using the 2021 **Ignition Probability Weather Model (IPW)** combined with the 2021 **Fire Potential Index (FPI)**.

Black Swan Conditions

Even if the probability of an outage is unlikely, we may still turn off power if the weather and fuel conditions reach criteria where fast spreading, catastrophic fires are likely.

Catastrophic Fire Behavior

Even if the probability of an ignition is unlikely, we may still turn off power where **Technosylva** fire spread modeling indicates catastrophic fire behavior is possible.

Additional Vegetation Criteria

Locations where there is a high density of trees tall enough to strike power lines and where known high-priority trees are located.

Additional Vegetation Criteria

Electric Asset Criteria

Locations where known high-priority trees and electric compliance tags are located (vegetation ignition criteria is now part of IPW).

Event Criteria

PSPS criteria above met for at least 0.5% of PG&E's High Fire Risk Area (HFRA). Red Flag Warnings considered.

Event Criteria

PSPS criteria above met for at least 0.25% of PG&E's High Fire Risk Area (HFRA). Red Flag Warnings considered.

Catastrophic Fire: A fire that is not easily controlled, has a rapid rate of spread and threatens lives and property.

2021 Distribution-Level PSPS Decision-Making Process

1

If ALL the minimum fire conditions are met...

- ✓ High wind speeds
- ✓ Low relative humidity
- ✓ Low fuel moisture
- ✓ High fire potential

2

...we conduct an in-depth review of fire risk using three separate measures:

Catastrophic Fire Probability

Assesses the likelihood of a catastrophic wildfire by using a combination of the Ignition Producing Winds (IPW) model and the Fire Potential Index (FPI). This is an assessment of the probability that equipment will fail during the weather event, based on outage history.

Catastrophic Fire Behavior

Even if probability of failure is unlikely, we may still turn off power where catastrophic fires are possible. We evaluate fire behavior criteria across eight-hour forecast fire simulations using Technosylva technology that includes, flame length, rate of spread and area burned above 100 acres.

Vegetation and Electric Asset Criteria Considerations

We review locations where high priority trees or electric compliance tags are present that may increase the risk of ignition.

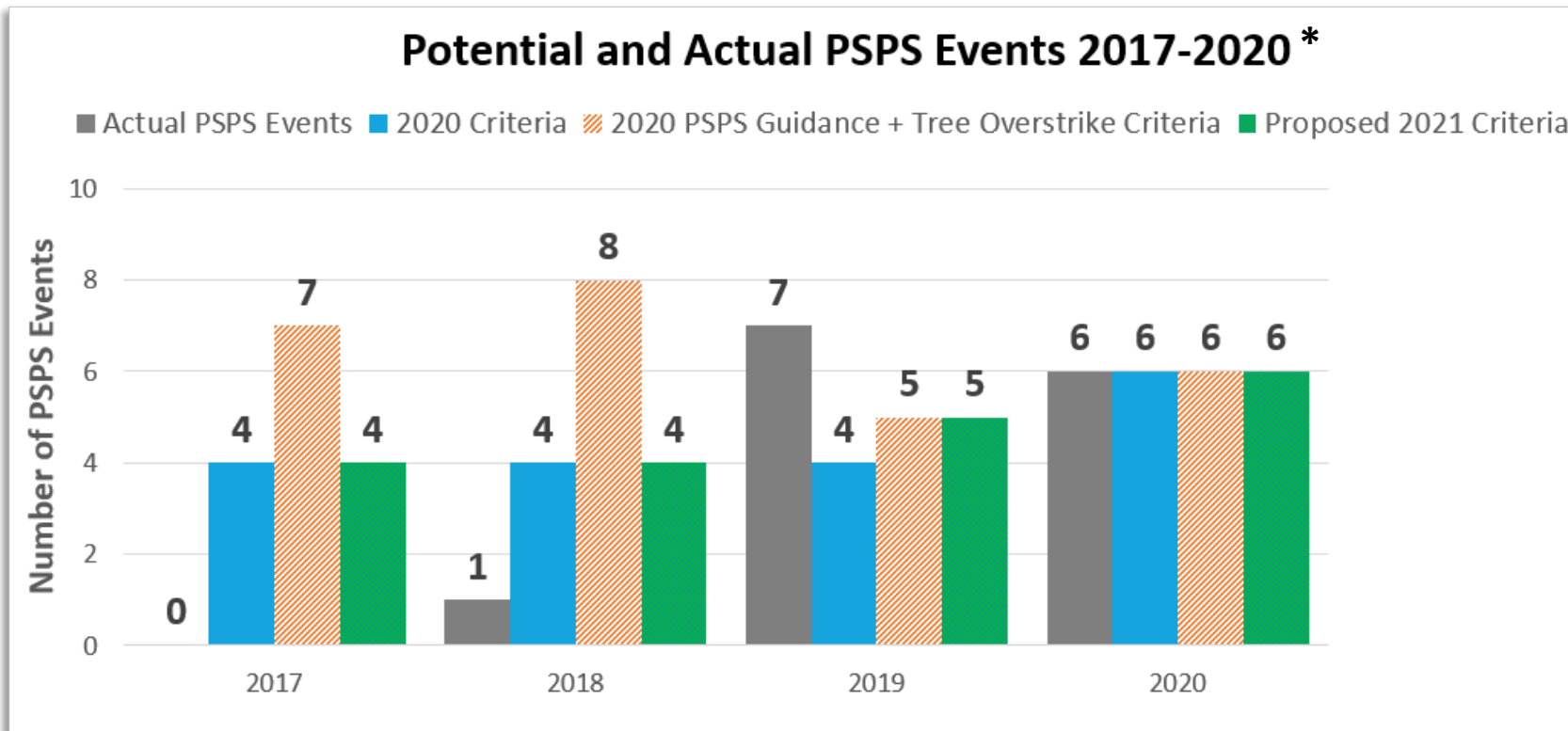
3

If ANY of these three measures are met, we turn off power for safety

Determining the Outage Area

Each of the three measures is evaluated within a small geographic area (4 square kilometers). If any of the measures are met, circuits within that area are de-energized. Because power lines travel across long distances, customers outside the affected area may also be impacted.

The chart below uses the last four years of hourly climatological weather data to show the number of potential PSPS against the 2021 proposed models and guidance.



**2020 Models and Guidance
+ Tree Overstrike Criteria:**
average of
6.5 events per year
(2017-2020)

**2021 Models
and Guidance:**
average of
4.75 events per year
(2017 – 2020)

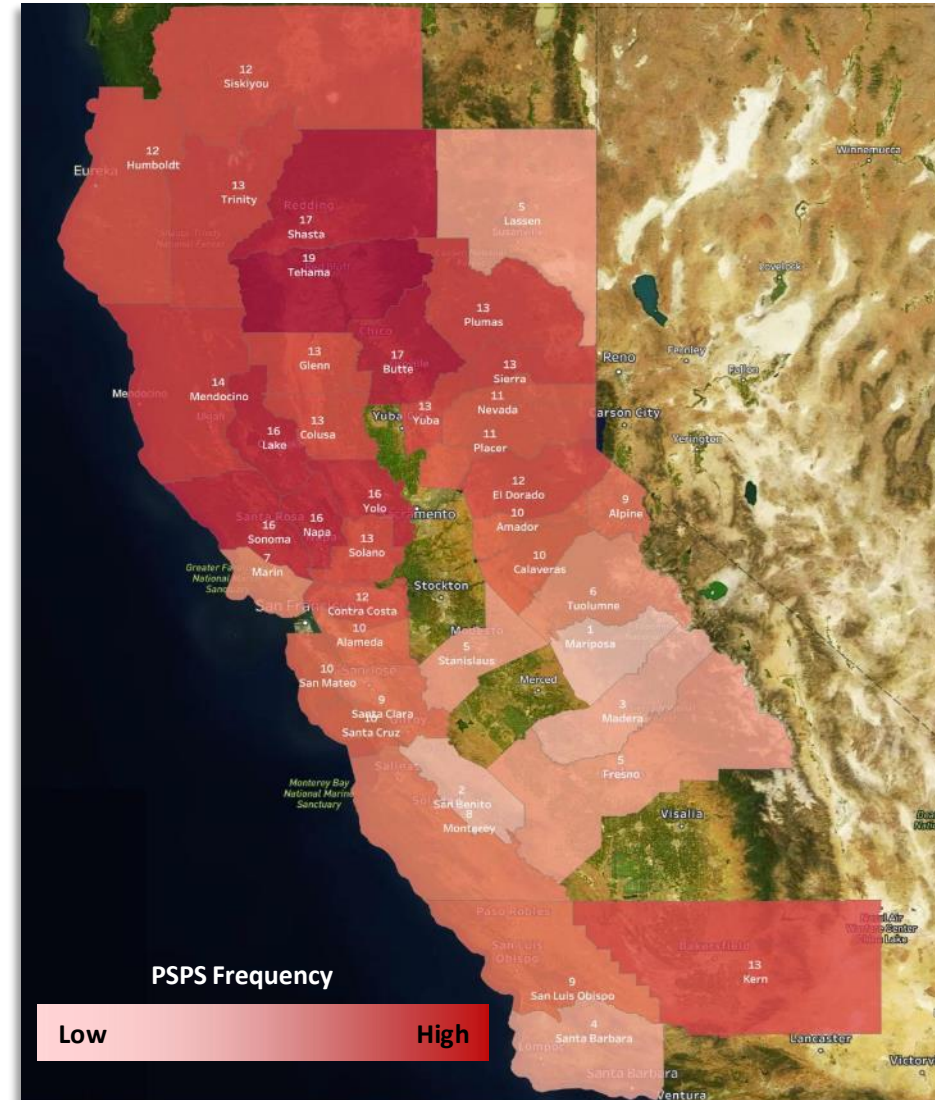
* Total PSPS per year, across the entire PG&E service territory.

2021 PSPS Models and Guidance Climatology Study

Using 2021 models and guidance, we can show the potential frequency of PSPS from 2017 – 2020.

Total PSPS from 2017-2020 Using 2021 Model

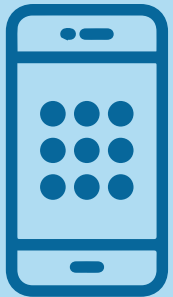
County	Event Count	County	Event Count
Tehama	19	Placer	11
Shasta	17	Nevada	11
Butte	17	Santa Cruz	10
Yolo	16	San Mateo	10
Sonoma	16	Calaveras	10
Napa	16	Amador	10
Lake	16	Alameda	10
Mendocino	14	Santa Clara	9
Yuba	13	San Luis Obispo	9
Trinity	13	Alpine	9
Solano	13	Monterey	8
Sierra	13	Marin	7
Plumas	13	Tuolumne	6
Kern	13	Stanislaus	5
Glenn	13	Lassen	5
Colusa	13	Fresno	5
Siskiyou	12	Santa Barbara	4
Humboldt	12	Madera	3
El Dorado	12	San Benito	2
Contra Costa	12	Mariposa	1



New Weather Model – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



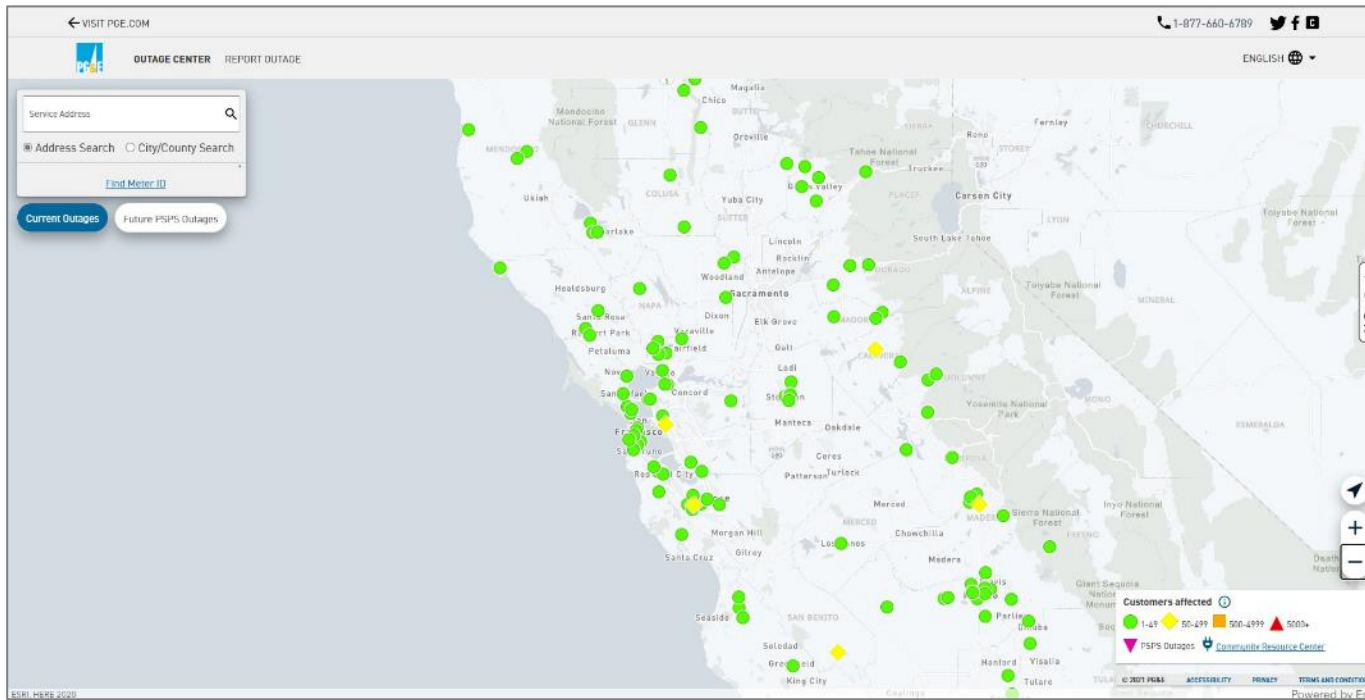
What else would you like to know about the new weather model?

Local Electric Reliability Statistics





PG&E's most important responsibility is providing safe and reliable energy to our customers and the communities we serve. To measure our reliability, we constantly track and monitor outages across our service area. Then, we calculate our reliability rates based on this data.



If you are impacted by a PSPS event or other type of outage, you can visit PG&E's electric outage map to view anticipated restoration times

Learn more about electric outages, including how to report one in your community, by visiting:

pge.com/outages





Systemwide Reliability Statistics

Each year, PG&E compiles a report that outlines our electric reliability statistics, with both a systemwide and division-level perspectives. The report is submitted to the California Public Utilities Commission (CPUC) and is available to the public. The report on 2020 electric reliability was submitted to the CPUC on July 9th, 2021.

- Including Major Event Days, the average PG&E customer experienced 1.443 outages in 2020 and those outages lasted for a combined average of 450.6 minutes.
- Excluding Major Event Days, the average PG&E customer experienced 1.068 outages in 2020 and those outages lasted for a combined average of 125.8 minutes.

Combined Transmission and Distribution System Indices (2017-2020)*

Year	Major Events <u>Included</u> **		Major Events <u>Excluded</u> **	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Total Outage Minutes Per Customer	Average Number of Outages
2017	357.8 minutes (~6.0 hours)	1.466 outages	97.3 minutes (~1.6 hours)	0.878 outages
2018	282.3 minutes (~4.7 hours)	1.053 outages	99.6 minutes (~1.7 hours)	0.960 outages
2019	1,363.3 minutes (~22.7 hours)	1.872 outages	117.7 minutes (~2.0 hours)	1.009 outages
2020	450.6 minutes (~7.5 hours)	1.443 outages	125.8 minutes (~2.1 hours)	1.068 outages

Additional reliability statistic details can be found on [pge.com](https://www.pge.com) by searching “reliability reports.”

*This table and all others in this presentation exclude planned and ISO related outages.

**Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.

Diablo Division Reliability Statistics

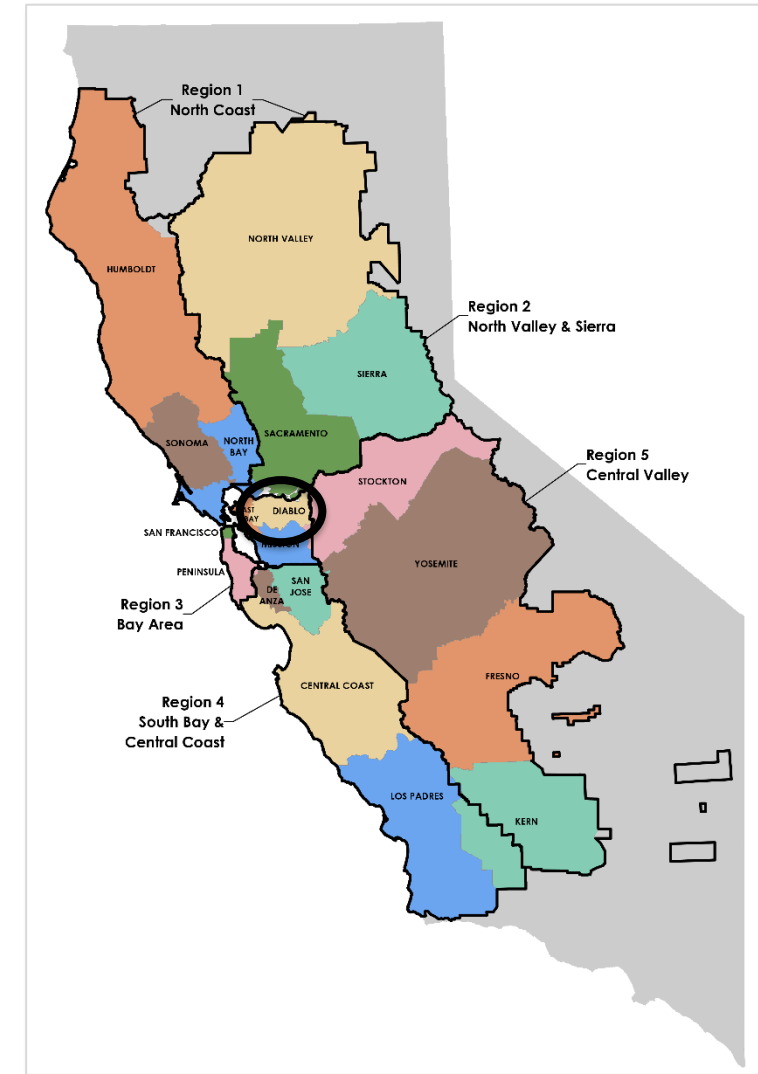
The Diablo Division is made up of portions of Contra Costa County.

- Including Major Event Days, the average PG&E customer in the Diablo Division experienced 1.433 outages in 2020 and those outages lasted for a combined average of 249.6 minutes.
- Excluding Major Event Days, the average PG&E customer in the Diablo Division experienced 1.206 outages in 2020 and those outages lasted for a combined average of 110.8 minutes.

Diablo Division Reliability (Transmission and Distribution Combined)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	140.7 minutes (~2.345 hours)	1.218 outages	78.0 minutes (~1.3 hours)	0.876 outages
2018	89.5 minutes (~1.49 hours)	1.112 outages	78.3 minutes (~1.305 hours)	1.004 outages
2019	612.7 minutes (~10.21 hours)	1.601 outages	78.8 minutes (~1.31 hours)	0.934 outages
2020	249.6 minutes (~4.16 hours)	1.433 outages	110.8 minutes (~1.85 hours)	1.206 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



East Bay Division Reliability Statistics

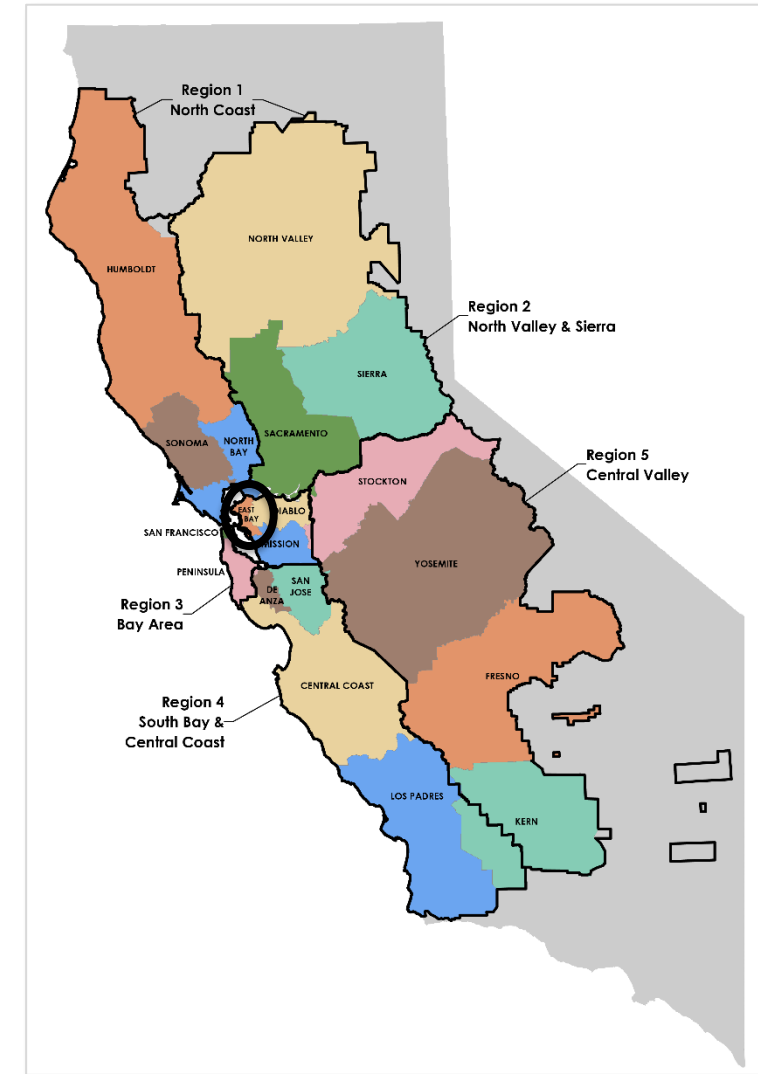
The East Bay Division is made up of portions of Contra Costa and Alameda Counties .

- Including Major Event Days, the average PG&E customer in the East Bay Division experienced 1.116 outages in 2020 and those outages lasted for a combined average of 222.4 minutes.
- Excluding Major Event Days, the average PG&E customer the East Bay Division experienced 0.838 outages in 2020 and those outages lasted for a combined average of 95.5 minutes.

East Bay Division Reliability (Transmission and Distribution Combined)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	147.3 minutes (~2.46 hours)	1.217 outages	73.8 minutes (~1.23 hours)	0.903 outages
2018	87.6 minutes (~1.46 hours)	0.990 outages	78.8 minutes (~1.31 hours)	0.901 outages
2019	459.7 minutes (~7.66 hours)	1.346 outages	84.5 minutes (~1.41 hours)	0.854 outages
2020	222.4 minutes (~3.71 hours)	1.116 outages	95.5 minutes (~1.59 hours)	0.838 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Mission Division Reliability Statistics

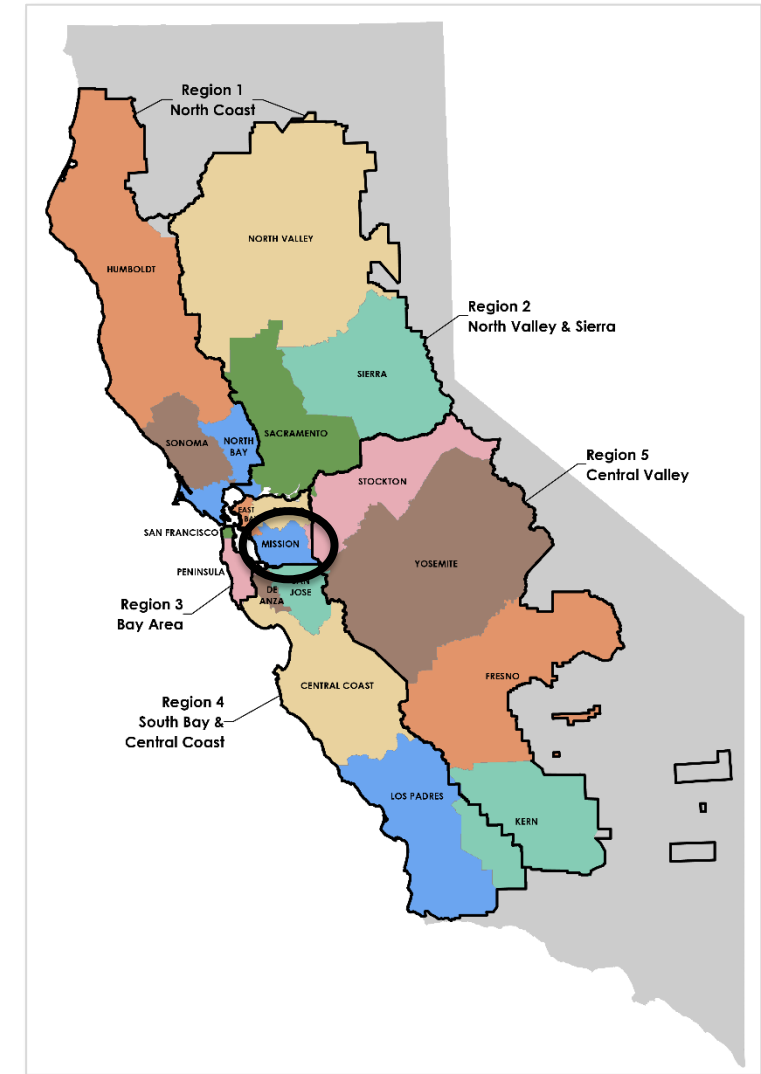
The Mission Division is made up of portions of Alameda County.

- Including Major Event Days, the average PG&E customer in Mission Division experienced 1.201 outages in 2020 and those outages lasted for a combined average of 219.2 minutes.
- Excluding Major Event Days, the average PG&E customer in Mission Division experienced 0.766 outages in 2020 and those outages lasted for a combined average of 91.1 minutes.

Mission Division Reliability (Transmission and Distribution Combined)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	137.9 minutes (~2.29 hours)	1.012 outages	60.2 minutes (~1 hours)	0.602 outages
2018	67.1 minutes (~1.12 hours)	0.672 outages	62.0 minutes (~1.03 hours)	0.644 outages
2019	296.5 minutes (~4.94 hours)	0.948 outages	65.8 minutes (~1.1 hours)	0.669 outages
2020	219.2 minutes (~3.65 hours)	1.201 outages	91.1 minutes (~1.51 hours)	0.766 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Peninsula Division Reliability Statistics

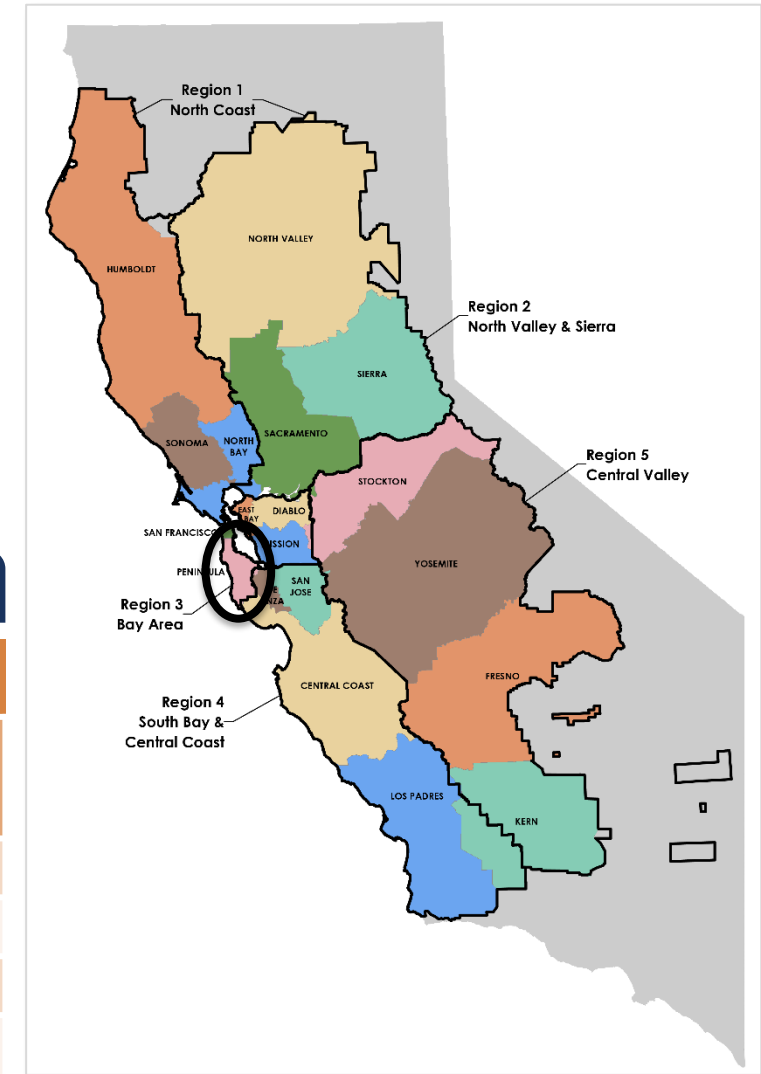
The Peninsula Division is made up of portions of San Mateo County.

- Including Major Event Days, the average PG&E customer in the Peninsula Division experienced 1.199 outages in 2020 and those outages lasted for a combined average of 169.5 minutes.
- Excluding Major Event Days, the average PG&E customer in the Peninsula Division experienced 0.855 outages in 2020 and those outages lasted for a combined average of 85.5 minutes.

Peninsula Division Reliability (Transmission and Distribution Combined)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	167.0 minutes (~2.78 hours)	1.328 outages (~5.26 hours)	61.5 minutes (~1.03 hours)	0.640 outages
2018	66.4 minutes (~1.11 hours)	0.856 outages (~5.26 hours)	60.5 minutes (~1.01 hours)	0.806 outages
2019	734.2 minutes (~12.23 hours)	1.551 outages (~5.26 hours)	88.5 minutes (~1.46 hours)	0.816 outages
2020	169.5 minutes (~2.83 hours)	1.199 outages (~5.26 hours)	85.5 minutes (~1.43 hours)	0.855 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



San Francisco Division Reliability Statistics

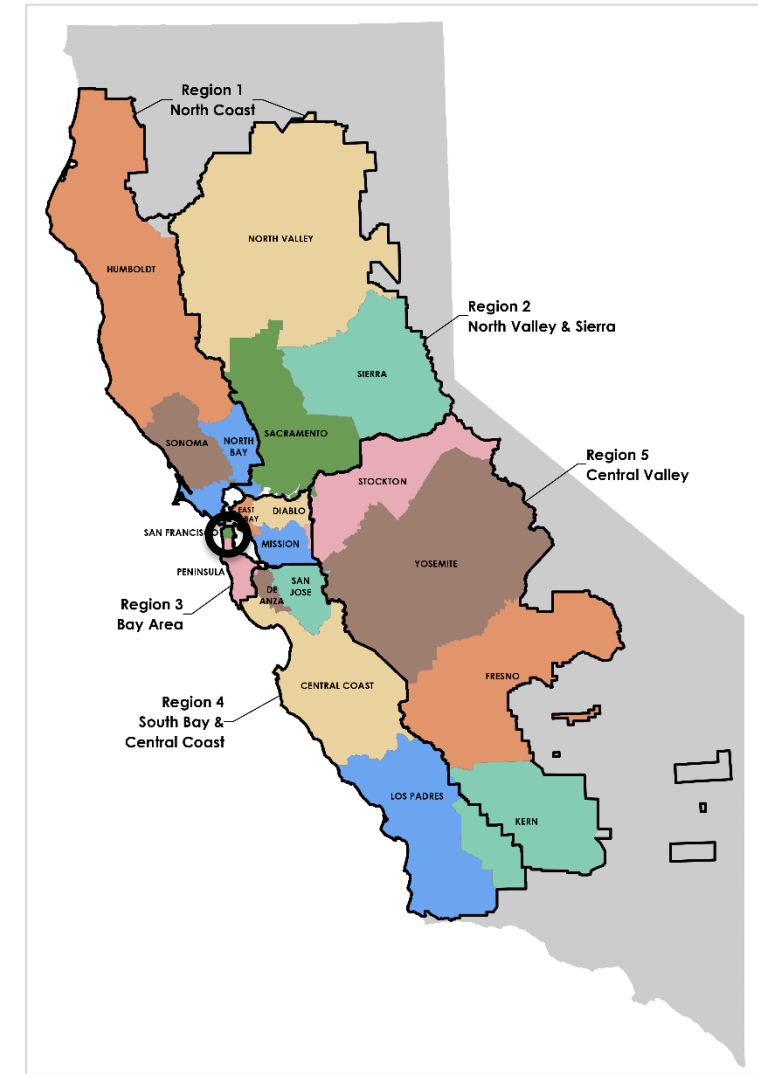
The San Francisco Division is made up of San Francisco County.

- Including Major Event Days, the average PG&E customer in the San Francisco Division experienced 0.642 outages in 2020 and those outages lasted for a combined average of 48.5 minutes.
- Excluding Major Event Days, the average PG&E customer in the San Francisco Division experienced 0.582 outages in 2020 and those outages lasted for a combined average of 43.9 minutes.

San Francisco Division Reliability (Transmission and Distribution Combined)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	116.4 minutes (~1.94 hours)	0.860 outages	36.5 minutes (~0.61 hours)	0.500 outages
2018	38.0 minutes (~0.63 hours)	0.417 outages	35.2 minutes (~0.59 hours)	0.378 outages
2019	71.7 minutes (~1.2 hours)	0.718 outages	56.8 minutes (~0.95 hours)	0.614 outages
2020	48.5 minutes (~0.81 hours)	0.642 outages	43.9 minutes (~0.73 hours)	0.582 outages

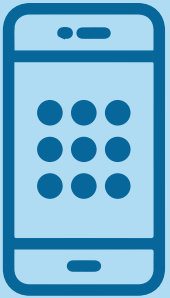
*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Local Reliability Statistics – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Do you have any additional questions about this subject?

Systemwide Resiliency Efforts



New for 2021 – Microgrid Portal

PG&E has worked to develop a new Microgrid Portal to share information with local agencies and tribes to assist in their own resiliency efforts. This new tool:



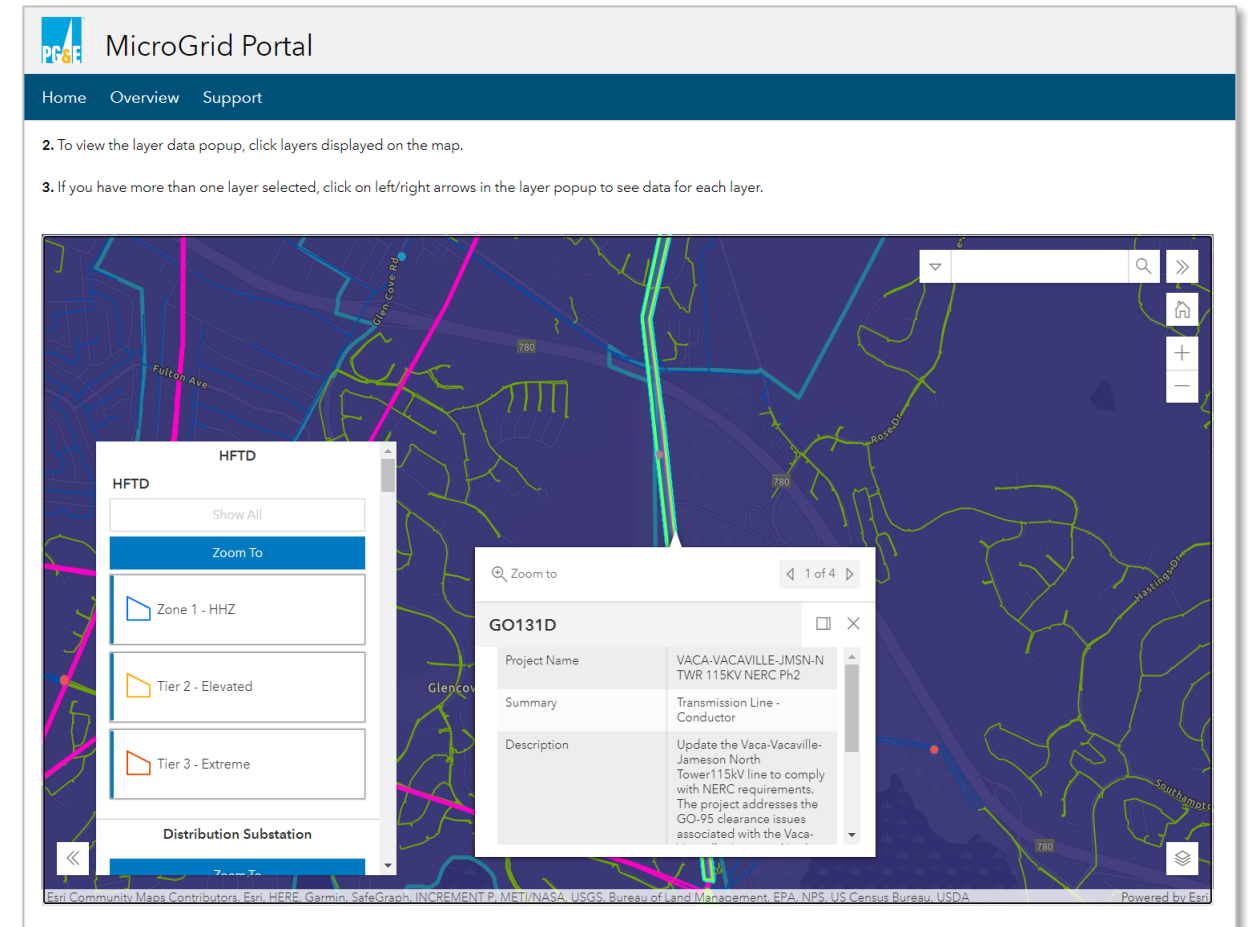
Is available to County OES representatives, tribal governments and other “organizations created by political subdivisions to carry out the provisions of the State Emergency Plan.”



Includes the following data:

- Utility planned work/grid investments (including locations, project descriptions, project timelines and completion dates)
- High Fire-Threat District Map layers
- Electric infrastructure map layers (including substations, distribution circuits and transmission lines)
- Weather polygon map layers

The Microgrid Portal launched on 7/16/21 and additional improvements will be made to the portal in the future.



How to Get Access to the Microgrid Portal



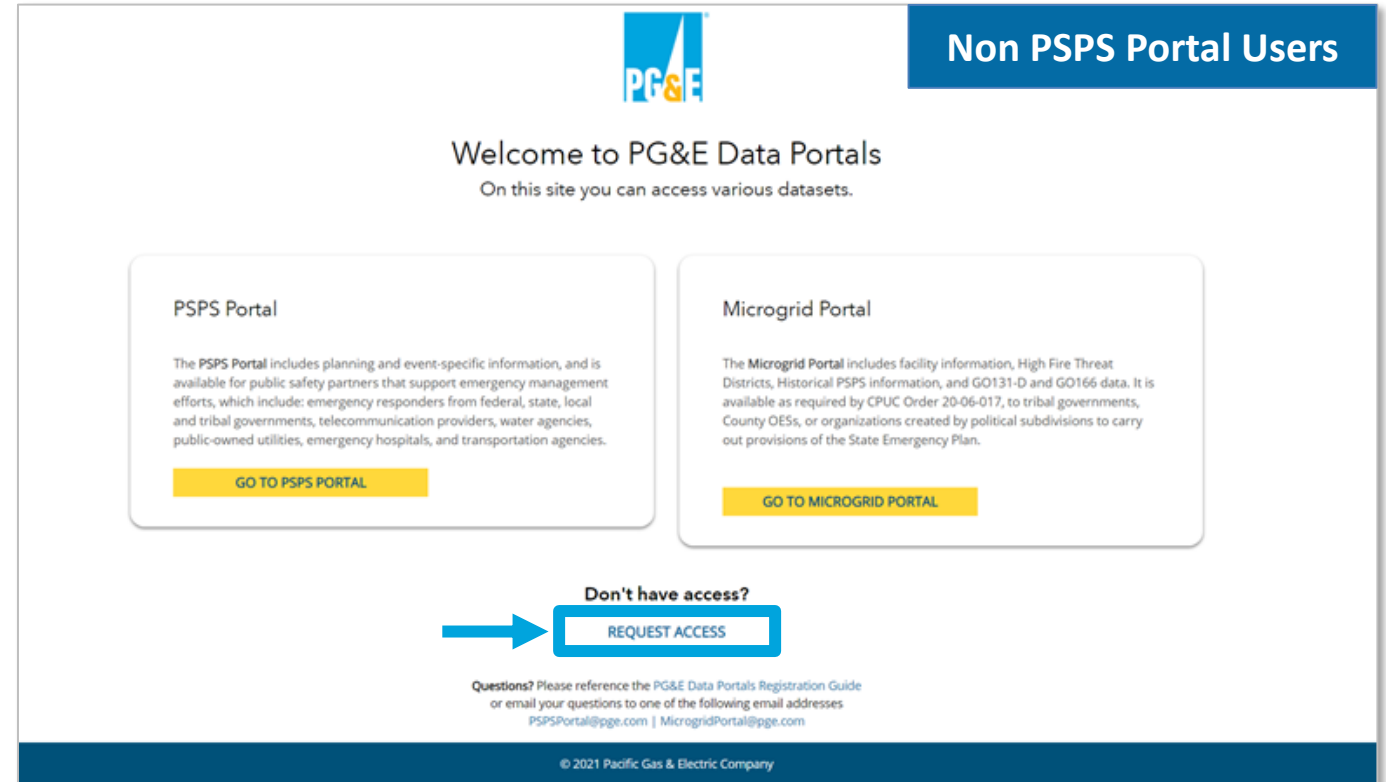
Existing PSPS Portal Users

- Log in to the **PSPS portal** and click on the banner: **Join our Microgrid Community**
- Once you have clicked on the banner, **simply follow instructions to complete.**



Non PSPS Portal Users

- Visit pge.com/pspsportal and **click on the request access button**
- Once you have clicked on the request access button, **simply follow instructions to complete.**



The screenshot shows the PG&E Data Portals landing page. At the top right, there is a blue banner that says "Non PSPS Portal Users". The main heading is "Welcome to PG&E Data Portals" with the subtext "On this site you can access various datasets." Below this, there are two main sections: "PSPS Portal" and "Microgrid Portal". The "PSPS Portal" section includes a description of its contents and a yellow button labeled "GO TO PSPS PORTAL". The "Microgrid Portal" section includes a description of its contents and a yellow button labeled "GO TO MICROGRID PORTAL". At the bottom, there is a "Don't have access?" section with a blue arrow pointing to a "REQUEST ACCESS" button. Below this button, there is a link to the registration guide and email addresses for questions.

Non PSPS Portal Users

Welcome to PG&E Data Portals
On this site you can access various datasets.

PSPS Portal
The **PSPS Portal** includes planning and event-specific information, and is available for public safety partners that support emergency management efforts, which include: emergency responders from federal, state, local and tribal governments, telecommunication providers, water agencies, public-owned utilities, emergency hospitals, and transportation agencies.
GO TO PSPS PORTAL

Microgrid Portal
The **Microgrid Portal** includes facility information, High Fire Threat Districts, Historical PSPS information, and GO131-D and GO166 data. It is available as required by CPUC Order 20-06-017, to tribal governments, County OESs, or organizations created by political subdivisions to carry out provisions of the State Emergency Plan.
GO TO MICROGRID PORTAL

Don't have access?
REQUEST ACCESS

Questions? Please reference the PG&E Data Portals Registration Guide or email your questions to one of the following email addresses
PSPSPortal@pge.com | MicrogridPortal@pge.com

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Microgrid Incentive Program (MIP) Objectives

PG&E, along with San Diego Gas and Electric and Southern California Edison are in the process of developing a new Microgrid Incentive Program to fund clean community microgrids that support the critical needs of vulnerable populations most likely to be impacted by outages.

The goals of this program are to:



Increase reliability and resiliency for critical public facilities in communities that are at higher risk of electrical outages



Prioritize communities with higher portions of low-income, access and functional needs, and electricity dependent residents



Enable communities with lower ability to fund development of backup generation to maintain critical loads during outages



Provide opportunity for testing new technologies or regulatory approaches to inform future action to the benefit of all ratepayers

Foundational Microgrid Incentive Program (MIP) Elements

Key Items For Consideration		Funding Allocation	
Locations	▪ Priority for low-income, Disadvantaged, Access & Functional Needs and/or critical facility customers ▪ Priority for those impacted by grid outages (PSPS or otherwise)	Statewide Budget	▪ \$200M
Duration	▪ Microgrids should ideally be capable of maintaining identified customers' loads for up to 96-hours	Incentive Cap	▪ \$15M/per project
Eligibility	▪ Multi-customer microgrid solutions will be eligible for this incentive ▪ Single-customer solutions do not qualify	Eligible Costs	▪ Front of the meter generation and/or storage resources ▪ Microgrid controller(s) ▪ Customer outreach ▪ Community costs ▪ Reconfiguration of equipment (e.g., to isolate and serve certain loads)
Emissions	▪ Technologies must result in equal to or better than the current grid power emissions	Matching Funds	▪ PG&E, SDG&E or SCE to provide one-time matching funds to offset a portion of the utility infrastructure upgrades associated with implanting islanding function

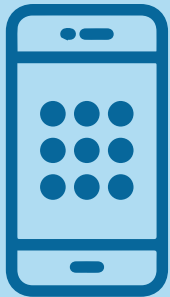
The utilities are developing the MIP with input from stakeholders and will submit a program implementation Advice Letter to the California Public Utilities Commission on October 1, 2021.

For more information visit pge.com/MIPworkshops.

Systemwide Resiliency Efforts – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Which Microgrid Portal features do you see being most useful?



Do you foresee using this resource?

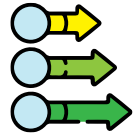


What else would you like to know about the new Microgrid Incentive Program?

PSPS and Other Emergencies



Concurrent Events Impacting Electric Service



What are concurrent events?

During wildfire season, we may experience multiple events that impact the electric system at the same time as a Public Safety Power Shutoff (PSPS) event.

Other events can include:

- ① An active wildfire
- ② A capacity event (e.g., rotating outage)
- ③ Damage to our electrical system (e.g., weather damage, car accident, construction incident, natural disaster)



What are the potential impacts?

- **Customers may lose power** even if they are not experiencing severe weather
- **PSPS restoration timelines** may be extended
- Customers may have their power turned off **without the typical notification or with limited notice**
- **Customer resource partnerships** are specific to PSPS events and wildfires*



How do we manage and communicate these events?

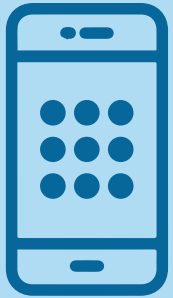
- **Managed through the Incident Command System (ICS)** using our Emergency Operations Center (EOC)
 - This system is designed to be **flexible and able to address emerging issues**
- **Open and ongoing dialogue** with external stakeholders
- **Robust internal communication** channels keep teams aligned and ensure local teams/decision-makers have integrated information

*Some customer resources (i.e., Community Resource Centers) may be made available during non-PSPS event scenarios if certain conditions are met.

PSPS and Other Emergencies – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



How do you plan to prepare for a concurrent event?



Are there additional tools/resources your agency needs?

- ✓ **Meeting survey** shared with participants to gather feedback on approach and content of regional working group
- ✓ **Follow-up on items** identified by local agencies/stakeholders
- ✓ **Upcoming meetings**
 - Q4 Regional Working Group Meetings
 - Meteorology Deep Dive

2021 REGIONAL WORKING GROUP CALENDAR

TIMING	TOPICS
Q4 2021	PSPS and Wildfire Safety

A summary of the feedback gathered here today and results from a post-meeting survey will be shared with the CPUC.



Thank You

PG&E Report It – Safety Mobile App

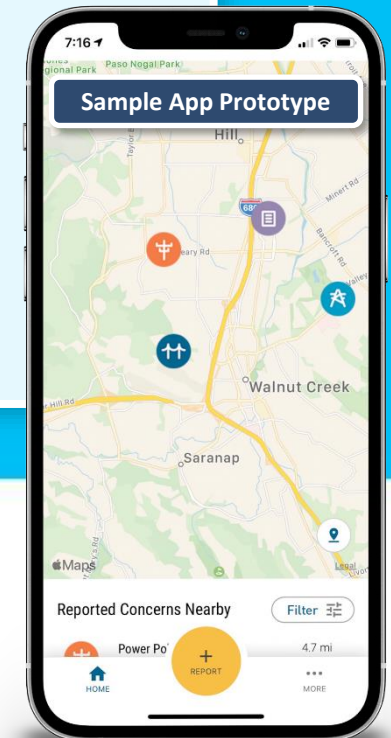
PG&E recently launched the pilot of our new “PG&E Report It” safety app that allows customers to submit photos of non-emergency potential safety concerns with our electric system.

Customers can use Report It to:

- ✓ Learn about the types of issues to report
- ✓ Submit photos directly to our safety team

Other Safety App features include:

- ✓ Finding safety concerns submitted by other users
- ✓ Reviewing PG&E’s safety findings
- ✓ Notifications when your concern is reviewed or resolved



To learn more about **PG&E Report It**, visit

pge.com/reportit

Appendix



2021 Follow Up and Action Items

Below is a list of the follow up and action items identified during the Q1 & Q2 Regional Working Groups in March and June as well as corresponding statuses.

Action Item	Agency	Status
Asked if PG&E would consider extending the new Medical Baseline Program deadline past 7/1 until the state is entirely open. Concerned that PG&E is not making it mandatory for vulnerable customers to leave their home for a doctor appointment to maintain their Medical Baseline Program participant status	Independent Living Resources, Solano & Contra Costa Counties	Complete
Inquired if the San Francisco Public Utilities Commission (SFPUC) has been engaging with PG&E regarding the controlled burns they are conducting in watersheds they manage.	Bay Area Water Supply and Conservation Agency (BAWSCA)	Complete

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Substation Microgrids	Humboldt	Hoopa	Ready to Operate	N/A
	Humboldt	Willow Creek	Ready to Operate	N/A
	Lake	Clear Lake	Ready to Operate	N/A
	Lake	Hartley	Ready to Operate	N/A
	Lake	Konocti	Ready to Operate	N/A
	Nevada	Brunswick	Ready to Operate	N/A
	Placer	Weimar	In-Event Ready	N/A
	Santa Cruz	Big Basin	In-Event Ready	N/A
	Santa Cruz	Point Moretti	Ready to Operate	N/A
	Sonoma	Cloverdale	Ready to Operate	N/A
	Trinity	Low Gap	Ready to Operate	N/A
	Yolo	Plainfield	Near Complete	August 26, 2021
	Yuba	Dobbins	In-Event Ready	N/A
Distribution Microgrids	Butte	Magalia	Ready to Operate	N/A
	Calaveras	Arnold	Planning	Q4 2021
	El Dorado	Georgetown	Ready to Operate	N/A
	El Dorado	Placerville	Ready to Operate	N/A
	El Dorado	Pollock Pines	Ready to Operate	N/A
	Lake	Clearlake North	Planning	Q4 2021
	Lake	Clearlake South	Planning	Q3 2021

Local work plans are subject to change and data is based on the best available information at this time.

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Distribution Microgrids (cont.)	Lake	Lucerne	Planning	Q3 2021
	Lake	Middletown	Ready to Operate	N/A
	Napa	Angwin	Ready to Operate	N/A
	Napa	Calistoga	Near Complete	Q3 2021
	Placer	Colfax	Planning	Q4 2021
	Placer	Foresthill	Planning	Q3 2021
	Shasta	Shingletown	Ready to Operate	N/A
	Tuolumne	Groveland	Planning	Q4 2021
Remote Grids	El Dorado	El Dorado	Planning	Q4 2021
	Mariposa	Mariposa 1	Operational	N/A
	Mariposa	Mariposa 2	Planning	Q4 2021
	Mariposa	Mariposa 3	Planning	Q4 2021
	San Luis Obispo	San Luis Obispo 1	Planning	Q3 2022
	San Luis Obispo	San Luis Obispo 2	Planning	Q3 2022
	Tulare	Tulare	Planning	Q3 2022
	Tehama	Tehama	Planning	Q4 2021
Islanding	Amador/Calaveras	Salt Springs Island	Ready to Operate	N/A
	Amador/Calaveras	West Point Island	Ready to Operate	N/A
	Humboldt	Humboldt Bay Island	Ready to Operate	N/A
	Plumas	Caribou Island	Ready to Operate	N/A
	Tehama	Red Bluff Island	Ready to Operate	N/A
	Tuolumne	Spring Gap	Ready to Operate	N/A

Local work plans are subject to change and data is based on the best available information at this time.

Attachment 3

**E-mail to Commission Staff Notifying of the Dates for
the Third Quarter 2021, Regional Working Groups
(including Resiliency Workshop)**

From: [Grinberg, Igor](#)
To: [Enis, Julian](#); [Steingass, Joyce](#); [Kaser, Forest](#)
Cc: [Toy, Deanna](#); [Ace, Andrew](#)
Subject: RE: PG&E's Semi-Annual Resiliency Workshops - Schedule for Q3 2021 Meetings
Date: Sunday, August 1, 2021 9:21:03 PM

Hi Julian et al,

I am writing to provide an update on one of the upcoming workshops to discuss resiliency initiatives as required by D.20-06-017. The North Valley-Sierra workshop scheduled for Friday, August 13th is being postponed due to the Dixie Fire in the area. The workshop will be rescheduled for some time in mid-September – most likely week of September 13th. We will keep you updated with the new date and time for that area's workshop.

Thanks,
Igor

Igor Grinberg | Case Manager | Regulatory Affairs | Pacific Gas and Electric Company | Cell: (415) 200-8772 | igor.grinberg@pge.com

From: Grinberg, Igor
Sent: Monday, July 19, 2021 10:49 AM
To: Enis, Julian <Julian.Enis@cpuc.ca.gov>; Steingass, Joyce <Joyce.Steingass@cpuc.ca.gov>; Kaser, Forest <Forest.Kaser@cpuc.ca.gov>
Subject: PG&E's Semi-Annual Resiliency Workshops - Schedule for Q3 2021 Meetings

Hi Julian et al,

Per the Microgrid OIR Track 1 decision requirements, I am informing you of PG&E's planned local and tribal government workshops to discuss resiliency initiatives. The virtual meeting and dial-in information for the workshops is provided below. I'll note that the workshop information was shared with other CPUC staff about two weeks ago and I just noticed you were not included on that distribution.

PG&E's Community Wildfire Safety Program Regional Working Groups
3rd Quarter, 2021

Area	DATE	TIME	MEETING LINK	DIAL-IN
Central Valley	Wednesday, August 11	9:30-11:00 A.M.	Click here to join the meeting	+1 415-906- 0873,,867087404#
North Coast	Thursday, August 12	9:30-11:00 A.M.	Click here to join the meeting	+1 415-906- 0873,,149662933#
South Bay/Central Coast	Thursday, August 12	1:30-3:00 P.M.	Click here to join the meeting	+1 415-906- 0873,,159670615#

Bay Area	Friday, August 13	9:30-11:00 A.M.	Join Here	+1 415-906-0873,,100879853#
North Valley – Sierra	Friday, August 13	1:30-3:00 P.M.	Click here to join the meeting	+1 415-906-0873,,994969796#

Please let me know if you have any questions.

Thanks,
Igor

Igor Grinberg | Case Manager | Regulatory Affairs | Pacific Gas and Electric Company | (415) 973-8580 | igor.grinberg@pge.com

Attachment 4

North Valley/Sierra Third Quarter 2021 Regional Working Group Report

**Pacific Gas and Electric Company
Community Wildfire Safety Program – Regional Working Groups
(Third Quarter, 2021)
Meeting Summary**

Background

On September 15, Pacific Gas and Electric Company (PG&E) hosted the third quarterly Regional Working Group meeting of 2021 with key stakeholders from communities impacted by prior Public Safety Power Shutoff (PSPS) events in the North Valley/Sierra region of PG&E's service area. The Regional Working Group meetings for the other four regions (Bay Area, North Coast, Central Valley and South Bay/Central Coast) were completed in August 2021. The North Valley/Sierra working group meeting was rescheduled from August to September due to the major wildfires impacting the region at that time. This meeting provided participants and PG&E a forum to provide updates and receive feedback regarding PG&E's new PSPS weather model, regionalization, resiliency efforts, local reliability statistics, PSPS Program updates and concurrent emergencies.

The 2021 third quarter North Valley/Sierra Regional Working Group meeting addressed the topics required under the California Public Utilities Commission's (CPUC) PSPS Phase II Decision¹: lessons learned and feedback from prior PSPS events, communication strategies and information sharing and strategies for supporting people/communities with Access and Functional Needs (AFN). The meeting also addressed new requirements from the CPUC PSPS Phase III Decision²: to address the possibility of concurrent emergencies, including fires, arising during a proactive de-energization.

As we have done in past meetings, we included topics from the Microgrids and Resiliency Strategies Rulemaking (Microgrid OIR)³ directing utilities to conduct semi-annual workshops to share valuable information and take a collaborative approach to planning grid resiliency measures responsive to local needs. As we have done in the past, the Microgrid OIR also expanded the meeting scope to include grid resiliency and hardening efforts, data on resilience progress in each region and an adjusted invitee list. PG&E subject matter experts (SMEs) and local representatives participated in the meetings to answer questions and engage with meeting participants. Working group invitees included representatives from tribal and local government entities, small multi-jurisdictional electric utilities, publicly owned electric utilities, communications and water service providers, public safety partners, the disabled, aging and AFN communities (e.g., directors of local Independent Living Centers) and CPUC staff. The meeting was structured to provide attendees with key information and metrics on the above topics and participants were encouraged to provide feedback, engage and collaborate with each other.

¹ D.20-05-051

² D.21-06-005

³ D.20-06-017

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

Timing and Facilitation

The North Valley/Sierra Regional Working Group meeting was held on September 15 and moderated by PG&E's Senior Manager Local Customer Experience and Division Lead, with support from Local Public Affairs representatives, Tribal Liaisons and Public Safety Specialists from each respective region along with a SME in PG&E's Meteorology Department. Members of PG&E's Regional Leadership Teams (Regional Vice President and Regional Safety Director) participated in the meeting as well. Additionally, an invitation to co-moderate the Grid Resilience Planning portion of the meeting was extended to County Office of Emergency Services partners in the North Valley/Sierra Region, though a co-presenter was not identified.

Attendance and Key Areas of Feedback

The North Valley/Sierra Regional Working Group meeting was attended by 17 participants. Some examples of the feedback we received included:

- "Congratulations Joe on your new role. Well, deserved!" – Regarding introduction of Joe Wilson as Regional Vice President.
- "Thank you very much, appreciate it." – Regarding update from PG&E Meteorology SME on current weather conditions and PSPS potential.

Sample Comments Received

COVID-19 physical distancing guidance mandates necessitated that the third-quarter 2021 meetings be held virtually via a web-based video conference platform. The virtual platform provided attendees the ability to participate verbally, as well as through the chat feature. In addition, the ability to turn on live captions was available to aid any participants who were deaf or experience hearing loss. All questions and comments were addressed in real-time and below are some participant comments captured during the working group.

- "Is the undergrounding prioritized by transmission or distribution or does it cover both equally?" – **Pioneer Community Energy**
- "Can you please forward me the deck from this meeting?" – **Comcast Cable**
- "Will PG&E have a portal or GIS tool forecast that identifies the location and the estimated date of construction for areas to be undergrounded? Be good to include regional agencies to add their projects for future coordination." – **Placer County Water Agency**

Continued Engagement

The feedback gathered during this Regional Working Group and subsequent participant survey (survey results to be shared with the CPUC as a follow-up) informs our future plans and local solutions to reduce PSPS impacts and wildfire risks. Additionally, we are continuing to engage with key stakeholders from this region through ongoing outreach efforts and upcoming Regional Working Groups. These continued engagements are typically conducted through assigned PG&E representatives (Account Representatives, Public Safety Specialists, Local Public Affairs Representatives, Tribal Representatives, etc.). For reference, detailed follow-up items captured during each meeting, along with meeting participant lists, are in the meeting summary forms located in the Appendix.

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

Appendix



Community Wildfire Safety Program Regional Working Group Summary Sheet

MEETING INFORMATION		
Region: North Valley/Sierra	Quarter: Q3	Meeting Date: 09/15/2021

INFORMATION REQUESTS / FOLLOW-UP ITEMS			
Description	Owner	Recipient	Status
N/A	N/A	N/A	N/A

FEEDBACK / LESSONS LEARNED	
Topic*	Summary
Regional Leadership Team Introductions	- Discussed how undergrounding will be prioritized (distribution vs. transmission). - Received feedback that an external GIS tool/portal to forecast where undergrounding work may occur would be appreciated.
New Weather Model	Outlined the type of weather PG&E is currently monitoring for this upcoming weekend/into next week related to rain and potential winds/fire weather related conditions.
Local Electric Reliability Statistics	N/A
Systemwide Resiliency Efforts	N/A
PSPS Events and Other Emergencies	N/A
Other/General Comments	N/A

*All topics listed above were discussed during the working group meeting. This section tracks specific areas of feedback and lessons learned identified by external meeting participants.

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

MEETING PARTICIPANTS (17)			
Name	Title	Agency	Email Address
Darrell Johnson		Comcast Cable	DJohns015@cable.comcast.com
Shelby Boston		Butte County	
Brant Mesker		Tehama County	bmesker@co.tehama.ca.us
Alexia Retallack		Pioneer Community Energy	AlexiaR@PioneerCommunityEnergy.ca.gov
Chuck Heisleman		Pioneer Community Energy	chuckh@pioneercommunityenergy.ca.gov
Chen, Xuan (Cindy)		California Public Utilities Commission (CPUC)	Xuan.Chen@cpuc.ca.gov
Noll, Anthony		California Public Utilities Commission (CPUC)	Anthony.Noll@cpuc.ca.gov
Richard A Saldivar		American Water	Richard.Saldivar@amwater.com
Dave Atkinson		Placer County	DAtkinso@placer.ca.gov
Rob Sandbloom		Shasta County	rsandbloom@co.shasta.ca.us
Sydney Pickern		California Foundation for Independent Living Centers	Sydney@cfilc.org
Mabel Wu		California Public Utilities Commission (CPUC)	Mabel.Wu@cpuc.ca.gov
Shelby Chase		California Public Utilities Commission (CPUC)	Shelby.Chase@cpuc.ca.gov
Steven Klaiber		California Public Utilities Commission (CPUC)	Steven.Klaiber@cpuc.ca.gov
Jeremy Shepard		Placer County Water Agency	jshepard@pcwa.net
Ron Halog		Independent Living Resources of Solano & Contra Costa Counties	
Dan Corcoran		Comcast Cable	DJohns015@cable.comcast.com

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



Pacific Gas and Electric Company

Community Wildfire Safety Program

Q3 Regional Working Group – September 2021

Agenda

Topic	Questions to Consider	Duration
Safety and Welcome		5 min
Regional Leadership Team Introductions ▪ Objectives and First 100 Days ▪ Regional Service Model ▪ Undergrounding Update	✓ Related to PSPS, what is working well in your community? ✓ What are challenges you have experienced with PG&E regarding PSPS? ✓ How can we help support your community in preparing for and responding to PSPS?	10 min
New Weather Model ▪ PSPS Decision Making	✓ What else would you like to know about the new weather model?	10 min
Local Electric Reliability Statistics	✓ Do you have any additional questions about this subject?	5 min
Systemwide Resiliency Efforts ▪ New Microgrid Portal ▪ Microgrid Incentive Program	✓ Which Microgrid Portal features do you see being most useful? ✓ Do you foresee using this resource? ✓ What else would you like to know about our Microgrid Incentive Program?	15 min
PSPS Events and Other Emergencies ▪ Wildfire/Rotating Outages ▪ Preparation	✓ How do you plan to prepare for a concurrent event? ✓ Are there additional tools/resources your agency needs?	10 min
Open Discussion/Q&A	✓ Do you have any additional questions?	35 min

Community Wildfire Safety Program

Q3 2021 REGIONAL WORKING GROUP

North Valley/Sierra Region

September 15, 2021



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

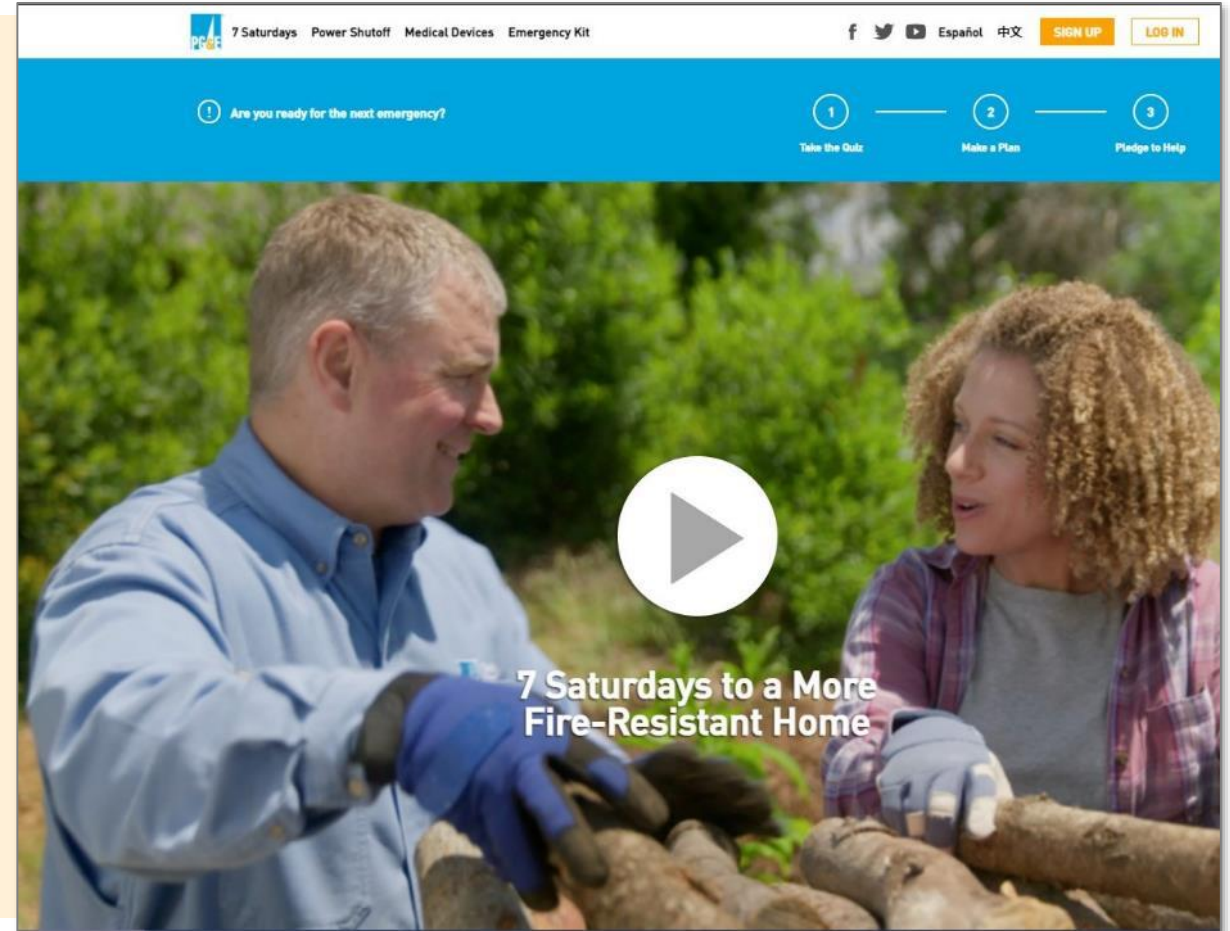


Californians are working together to make sure our families, homes and communities are ready to face wildfires and other emergencies.

From creating defensible space around your home to preparing your family for an evacuation, PG&E's new "7 Saturdays" digital video series outlines a number of actions everyone can take to prepare.

Watch now at:

safetyactioncenter.pge.com



DISCUSSION TOPICS:

- 1** Regional Leadership Team Introductions
- 2** New Weather Model
- 3** Local Electric Reliability Statistics
- 4** Systemwide Resiliency Efforts
- 5** PSPS Events and Other Emergencies
- 6** Open Discussion/Q&A

PG&E PRESENTERS:

Joe Wilson | Regional Vice President

Paul Jeske | Regional Safety Director

Jim Monninger | Senior Manager Local Customer Experience and Division Lead

Sarah Rasheed | Local Public Affairs

David Hawks | Public Safety Specialist

Reno Franklin | Tribal Liaison

Evan Duffey | Manager of Meteorology Operations



Virtual Sign-In Reminder

Please “sign-in” using the chat function and provide your **name, organization and email**.

WORKING GROUP PARTICIPANTS:

- ☐ Access and Functional Needs Representatives
- ☐ City/County Staff
- ☐ Community Based Organizations
- ☐ Community Choice Aggregators
- ☐ County Offices of Emergency Services
- ☐ Electric Co-Ops
- ☐ First Responders
- ☐ Health and Human Services Representatives
- ☐ Publicly Owned Electric Utilities
- ☐ Red Cross Staff
- ☐ Small, Multi-Jurisdictional Electric Utilities
- ☐ Telecommunications Providers
- ☐ Tribal Governments
- ☐ Water Agencies
- ☐ Filsinger Energy Partners
- ☐ California Public Utilities Commission Staff

Regional Leadership Team Introductions

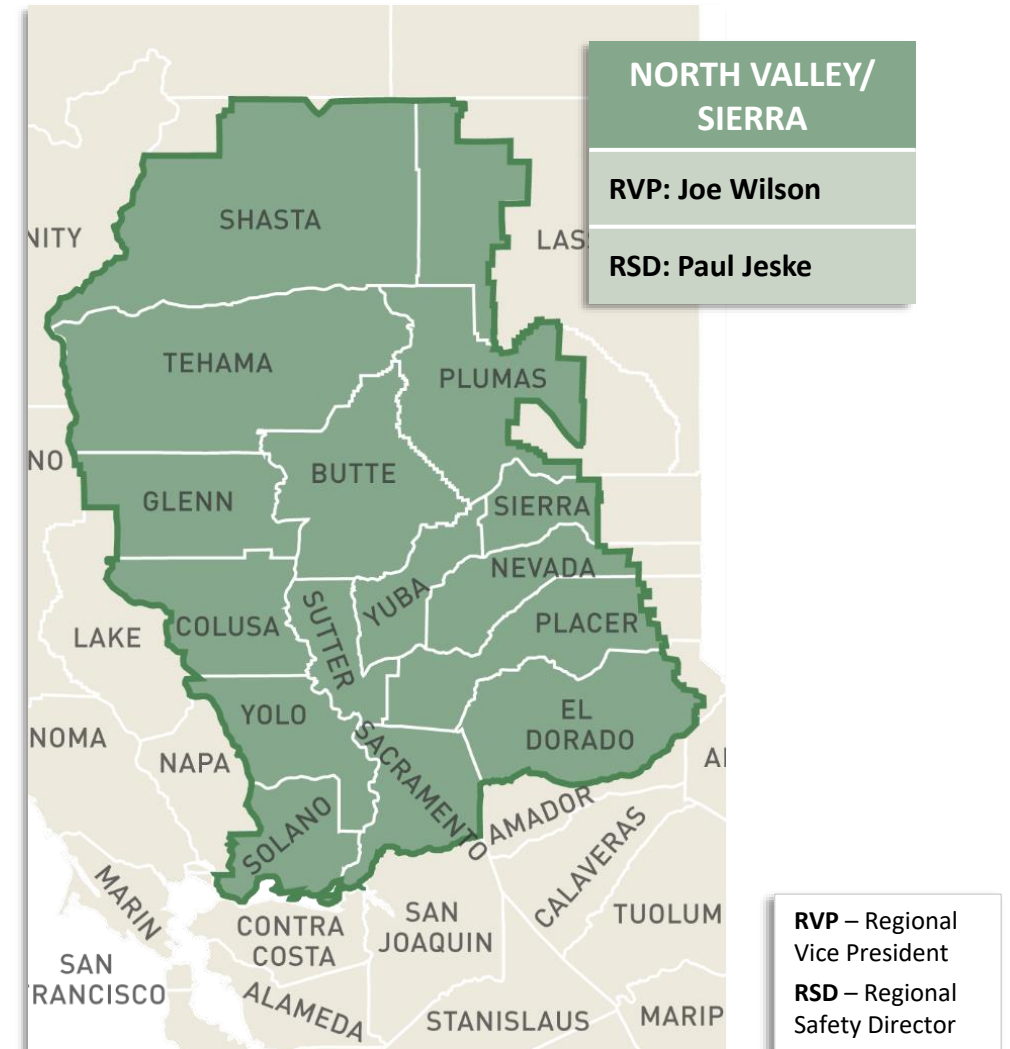


North Valley/Sierra Regional Service Model Key Objectives

We are moving to a Regional Service Model so that we can better serve our customers by being more nimble and quickly resolving issues at the local level.

The addition of regional leadership and their teams increases the local resources positioned to:

- ✓ **More effectively engage customers and community for feedback**
- ✓ **Increase the speed that problems can be solved with improved local coordination**
- ✓ **Better educate communities on the reasoning behind local initiatives**
- ✓ **Develop more customized solutions for local needs**



New Undergrounding Safety Initiative

On July 21, PG&E announced a major expansion of our efforts to underground electric distribution power lines in High Fire-Threat Districts. **This new infrastructure safety initiative is a multi-year effort to underground approximately 10,000 miles of power lines.**



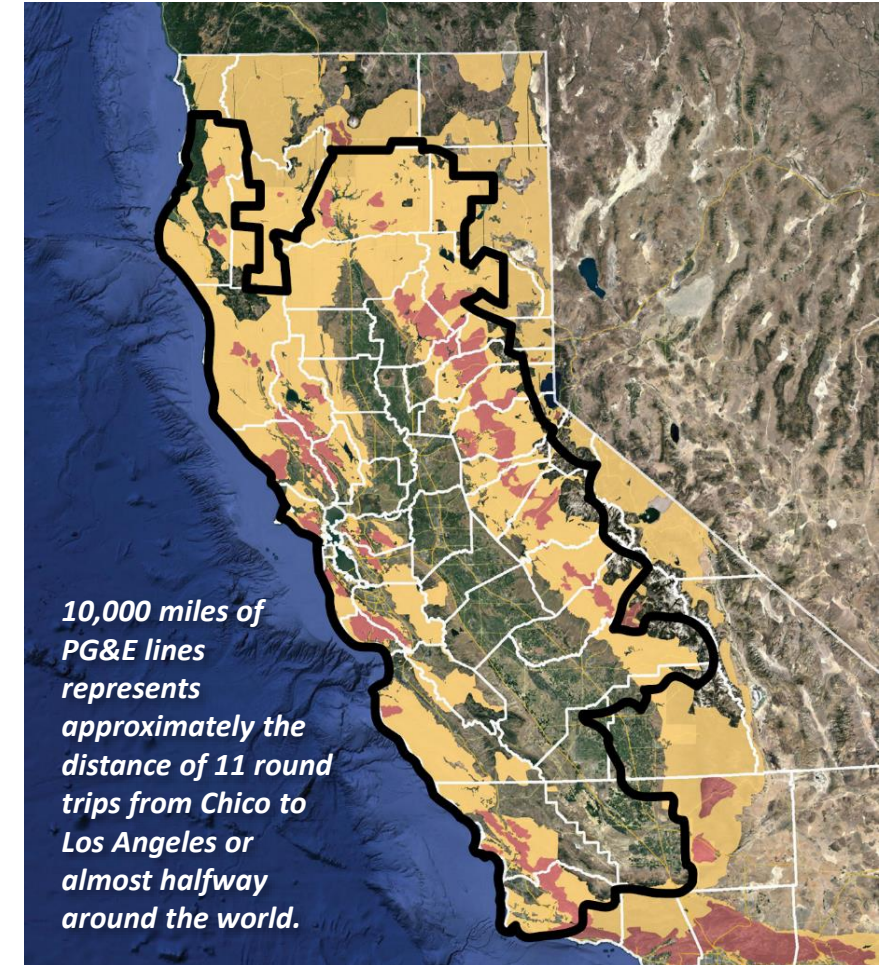
In the coming months and years **we will work to determine the exact number of projects or miles undergrounded each year.**

Potential undergrounding sites will be identified based on a variety of factors, including but not limited to:

- Local municipal planning and safety considerations.
- Project design considerations for water, natural gas, drainage and road systems.
- Location within a Tier 2 or Tier 3 High Fire-Threat District.
- Local, state, federal, tribal and regulatory requirements and feedback.

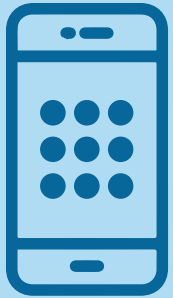


As more information becomes available about this new initiative we will be sure to share updates with you.





Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Related to PSPS, what is working well in your community?



What are challenges you have experienced with PG&E regarding PSPS?



How can we help support your community in preparing for and responding to PSPS?

New Weather Model



Building Our 2021 Machine Learning Models

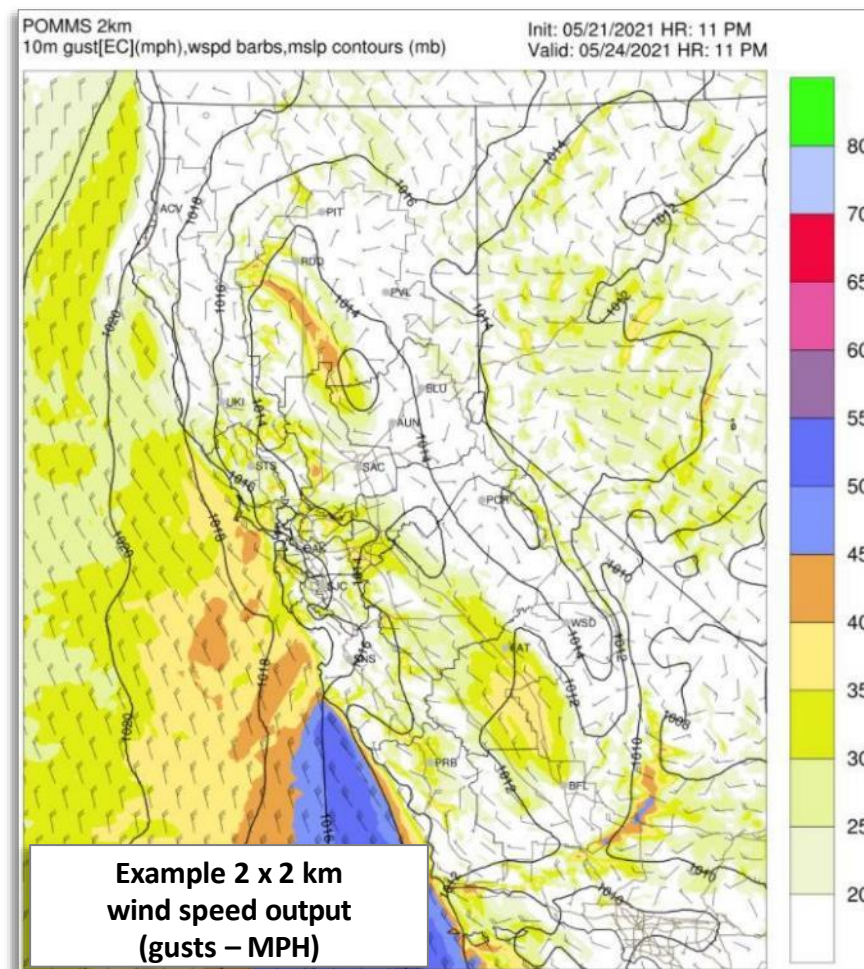
Through partnerships with external experts, we developed our 2021 machine learning models to give us a better understanding of historical weather events and to improve our weather forecasting.

This Model Uses:

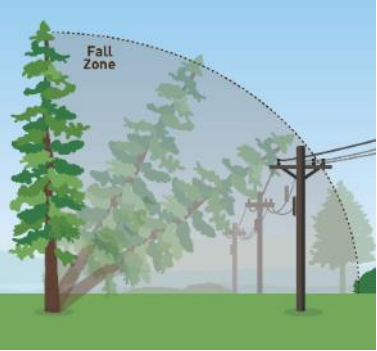
- ~190,000 2x2km cells with data per cell, per hour, looking back over 31-years of high-resolution weather and fuels climatology data
- Over **100 trillion overall data points** and 20 trillion in PG&E's service area
- **Hourly weather data** such as temperature, relative humidity, wind speed, precipitation, pressure and dead and live moisture
- Data storage and processing via the **PG&E-Amazon Web Services Cloud**

How it Helps PSPS Decision-Making and Scoping:

- Determines the **historical potential for ignitions** from each analyzed weather event (Ignition Probability Weather - IPW)
- Assists with fire model development and calibration (Fire Potential Index - FPI)
- Data inputs **improve fire spread modeling** (Technosylva)
- Provides **guidance for operation decision-making** (PSPS models)



New Machine Learning Models – Ignition Probability Weather

Ignition Probability Weather (IPW)		
Weather	Vegetation Exposure	Local Performance
		
▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Precipitation ▪ Vapor Pressure Deficit	▪ Aerial Lidar tree overstrike in each 2x2 km grid cell (vegetation ignition criteria)	▪ Outage trends specific to each location

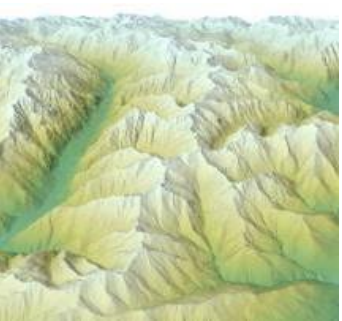
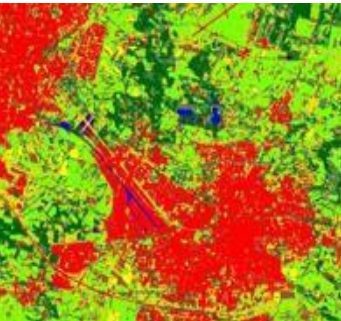
Key Model Components

- **Exponentially weighting recent years more heavily to learn and predict** system performance changes due to vegetation management and system hardening
- Data from PG&E's **31-year weather climatology study**
- Historical **sustained and momentary outage and PSPS damages data**
- Maximizing predictive skill with **state-of-the-art machine learning models**
- Predicting **five outage and ignition cause types**:
 - Vegetation
 - Equipment-structural
 - Equipment-electrical
 - Third party and animal
 - Unknown cause



New Machine Learning Models – Fire Potential Index

Fire Potential Index (FPI)

Weather	Fuel Moisture	Topography	Fuel Model Type
			
▪ Wind Speed ▪ Turbulence ▪ Temperature ▪ Vapor Pressure Deficit	▪ Dead fuel moisture ▪ Woody live fuel moisture ▪ Herbaceous live fuel moisture	▪ Ruggedness ▪ Slope ▪ Wind-terrain alignment	▪ Grass ▪ Shrub ▪ Timber ▪ Urban

Key Model Components

- **Historical satellite fire detection data set** from Sonoma Technology Inc. that includes fire growth in California from 2012 - 2020
- Data from PG&E's **31-year weather climatology study**
- **Technosylva** fuel moistures and granular fuel type maps
- **Forecasting hourly** probability of large and catastrophic fires
- Maximizing predictive skill **with state-of-the-art machine learning models**
- Greater predictive skill than previous model **confirmed by statistical evaluation and comparison of historical fires**

2020 vs. 2021 Distribution Model Improvements

2020 PSPS Models and Guidance

2021 PSPS Models and Guidance

Minimum Fire Potential Conditions

The minimum fire conditions (weather, fuels) required to consider a PSPS.

Large Fire Probability

A risk-based assessment of the probability of outages due to weather combined with the probability of large fires. It is the 2020 Outage Producing Wind Model (OPW) combined with the 2020 Fire Potential Index (FPI).

Catastrophic Fire Probability

A risk-based assessment of the probability of fire ignitions due to weather combined with the probability of catastrophic fires by using the 2021 **Ignition Probability Weather Model (IPW)** combined with the 2021 **Fire Potential Index (FPI)**.

Black Swan Conditions

Even if the probability of an outage is unlikely, we may still turn off power if the weather and fuel conditions reach criteria where fast spreading, catastrophic fires are likely.

Catastrophic Fire Behavior

Even if the probability of an ignition is unlikely, we may still turn off power where **Technosylva** fire spread modeling indicates catastrophic fire behavior is possible.

Event Criteria

PSPS criteria above met for at least 0.5% of PG&E's High Fire Risk Area (HFRA). Red Flag Warnings considered.

Event Criteria

PSPS criteria above met for at least 0.25% of PG&E's HFRA. Red Flag Warnings considered.

Additional Vegetation Criteria Electric Asset Criteria

Locations where known high-priority trees and electric compliance tags are located based on guidance from the federal court.

Catastrophic Fire: A fire that is not easily controlled, has a rapid rate of spread and threatens lives and property.

2021 Distribution-Level PSPS Decision-Making Process

1

PSPS is only considered if ALL the minimum fire conditions are met

- ✓ High wind speeds
- ✓ Low relative humidity
- ✓ Low fuel moisture
- ✓ High fire potential

Note: High risk warnings from Federal Agencies (ex. Red Flag Warnings) are also considered

2

...and if ANY of these three criteria are met, we turn off power for safety

Catastrophic Fire Probability

Assesses the likelihood of a catastrophic wildfire by using a combination of the Ignition Producing Winds (IPW) model and the Fire Potential Index (FPI). This is an assessment of the probability that equipment will fail during the weather event, based on outage history.

Catastrophic Fire Behavior

Even if probability of failure is unlikely, we may still turn off power if the fire behavior meets both of the following criteria of forecast Technosylva 8-hour fire simulations:

- Flame length above 8 ft
- Rate of speed above 20 chains per hour

Vegetation and Asset Hazard Considerations

Locations where known high priority asset hazards or trees that could strike power lines may require power shutoff. This would happen if severe weather was impacting an area where known high priority issues are located. PG&E will make every effort to clear these asset conditions and trees before a PSPS.

3

Where would power be turned off?

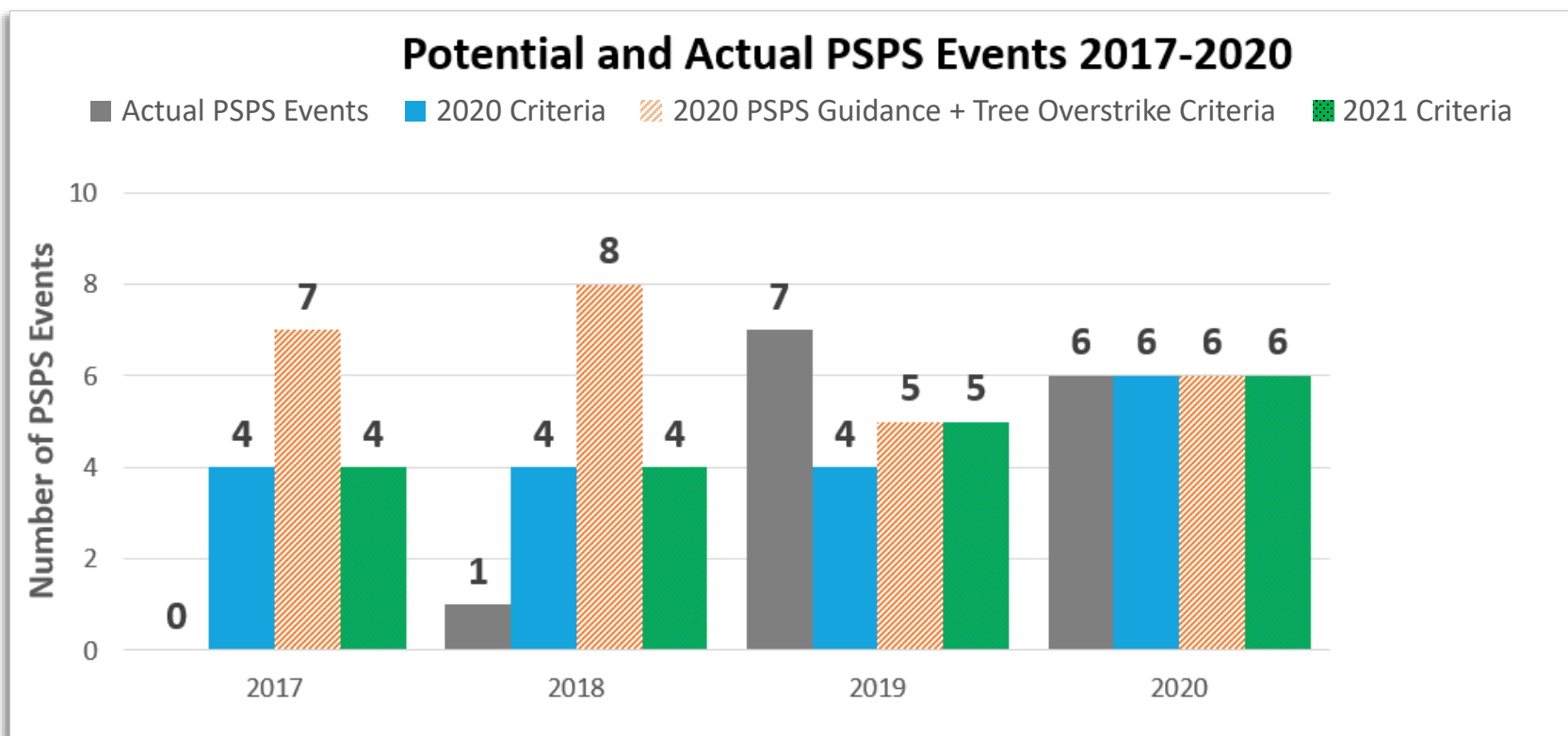
Determining the Outage Area

Power is turned off if the criteria are met for more than 25 2x2 km grid cells, 0.25% of PG&E's High Fire Risk Area (HFRA).

Catastrophic Fire: A fire that is not easily controlled, has a rapid rate of spread and threatens lives and property.

Historical Analysis of PSPS Events Based on 2021 Modeling

The chart below uses the last four years of hourly climatological weather data to show the number of potential PSPS events against the new 2021 models and guidance.



2020 Models and Guidance + Tree Overstrike Criteria:

average of

6.5 events per year
(2017-2020)

2021 Models and Guidance:

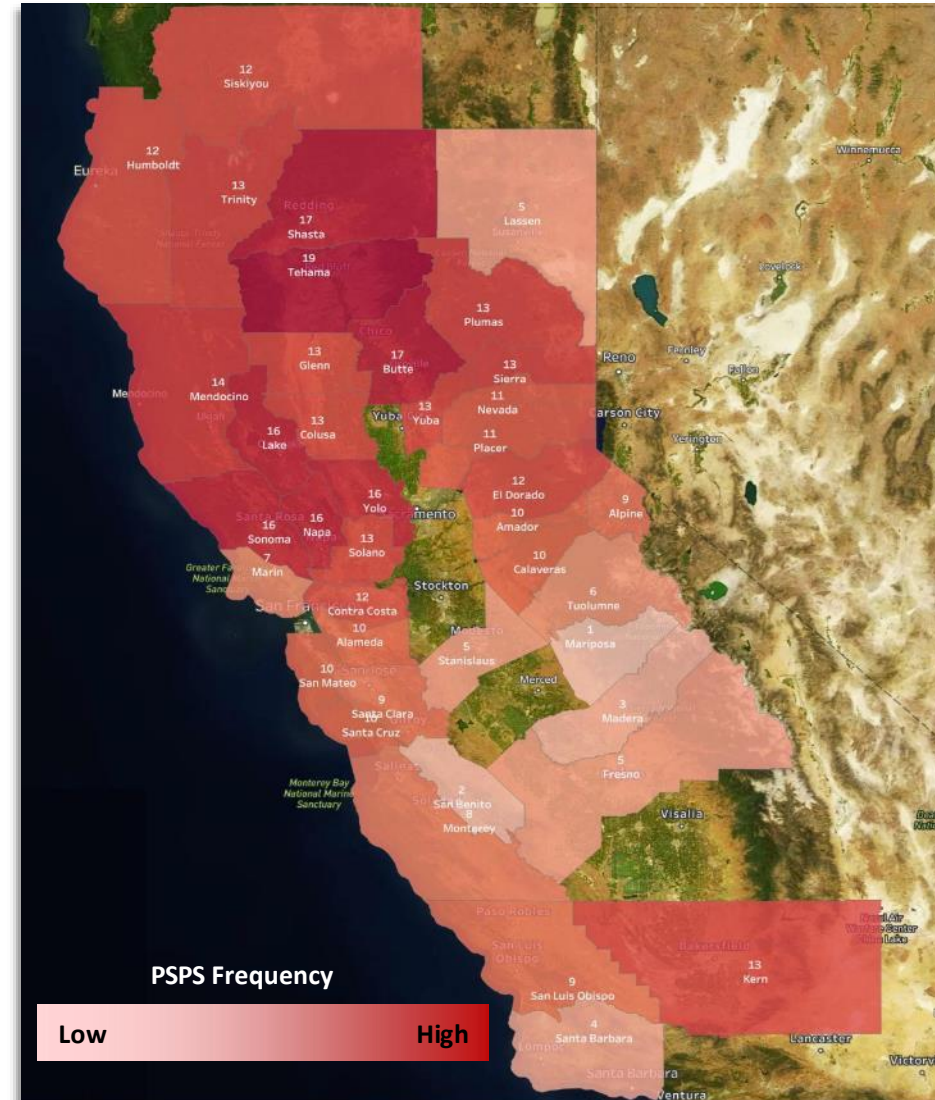
average of
4.75 events per year
(2017 – 2020)

2021 PSPS Models and Guidance Climatology Study

Using 2021 models and guidance, we can show the potential frequency of PSPS from 2017 – 2020.

Total PSPS from 2017-2020 Using 2021 Model

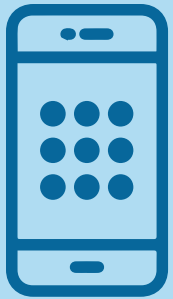
County	Event Count		County	Event Count	
Tehama	19		Placer	11	
Shasta	17		Nevada	11	
Butte	17		Santa Cruz	10	
Yolo	16		San Mateo	10	
Sonoma	16		Calaveras	10	
Napa	16		Amador	10	
Lake	16		Alameda	10	
Mendocino	14		Santa Clara	9	
Yuba	13		San Luis Obispo	9	
Trinity	13		Alpine	9	
Solano	13		Monterey	8	
Sierra	13		Marin	7	
Plumas	13		Tuolumne	6	
Kern	13		Stanislaus	5	
Glenn	13		Lassen	5	
Colusa	13		Fresno	5	
Siskiyou	12		Santa Barbara	4	
Humboldt	12		Madera	3	
El Dorado	12		San Benito	2	
Contra Costa	12		Mariposa	1	



New Weather Model – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



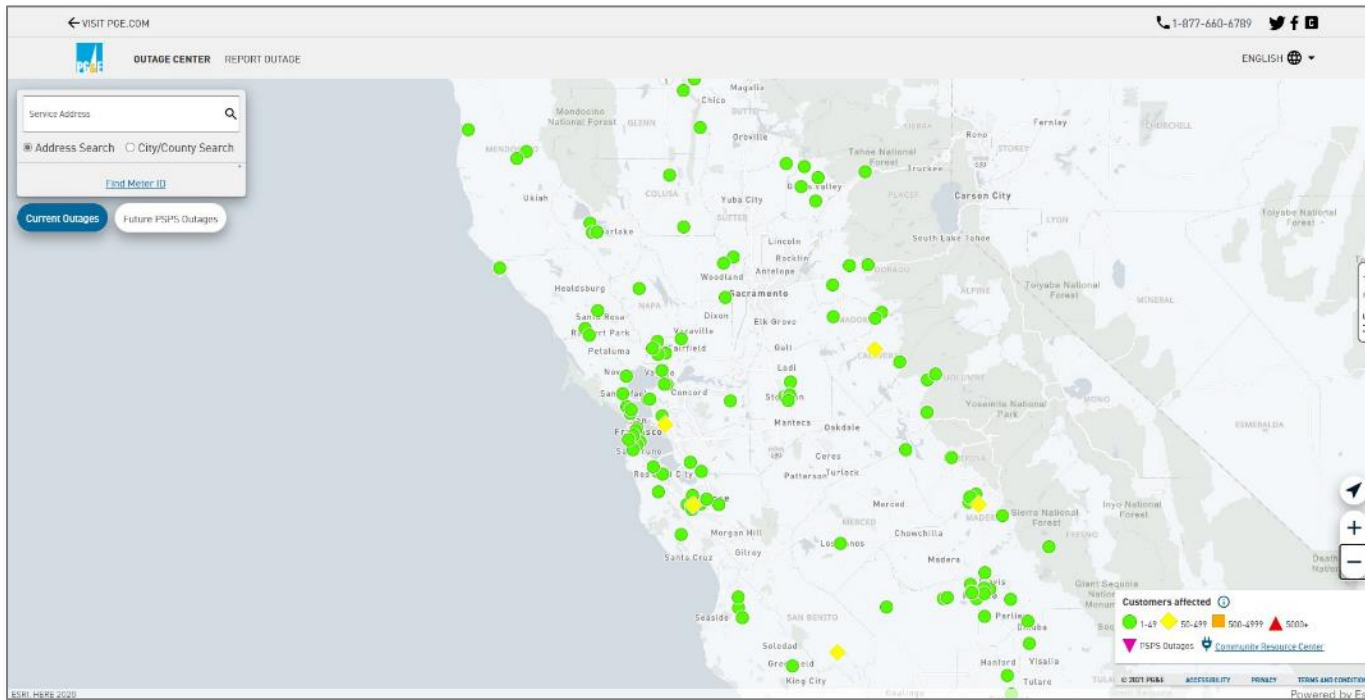
What else would you like to know about the new weather model?

Local Electric Reliability Statistics





PG&E's most important responsibility is providing safe and reliable energy to our customers and the communities we serve. To measure our reliability, we constantly track and monitor outages across our service area. Then, we calculate our reliability rates based on this data.



If you are impacted by a PSPS event or other type of outage, you can visit PG&E's electric outage map to view anticipated restoration times

Learn more about electric outages, including how to report one in your community, by visiting:

pge.com/outages





Systemwide Reliability Statistics

Each year, PG&E compiles a report that outlines our electric reliability statistics, with both a systemwide and division-level perspectives. The report is submitted to the California Public Utilities Commission (CPUC) and is available to the public. The report on 2020 electric reliability was submitted to the CPUC on July 9th, 2021.

- Including Major Event Days, the average PG&E customer experienced 1.443 outages in 2020 and those outages lasted for a combined average of 450.6 minutes.
- Excluding Major Event Days, the average PG&E customer experienced 1.068 outages in 2020 and those outages lasted for a combined average of 125.8 minutes.

Combined Transmission and Distribution System Indices (2017-2020)*

Year	Major Events <u>Included</u> **		Major Events <u>Excluded</u> **	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Total Outage Minutes Per Customer	Average Number of Outages
2017	357.8 minutes (~6.0 hours)	1.466 outages	97.3 minutes (~1.6 hours)	0.878 outages
2018	282.3 minutes (~4.7 hours)	1.053 outages	99.6 minutes (~1.7 hours)	0.960 outages
2019	1,363.3 minutes (~22.7 hours)	1.872 outages	117.7 minutes (~2.0 hours)	1.009 outages
2020	450.6 minutes (~7.5 hours)	1.443 outages	125.8 minutes (~2.1 hours)	1.068 outages

Additional reliability statistic details can be found on [pge.com](https://www.pge.com) by searching “reliability reports.”

*This table and all others in this presentation exclude planned and ISO related outages.

**Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.

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

North Valley Division Reliability Statistics

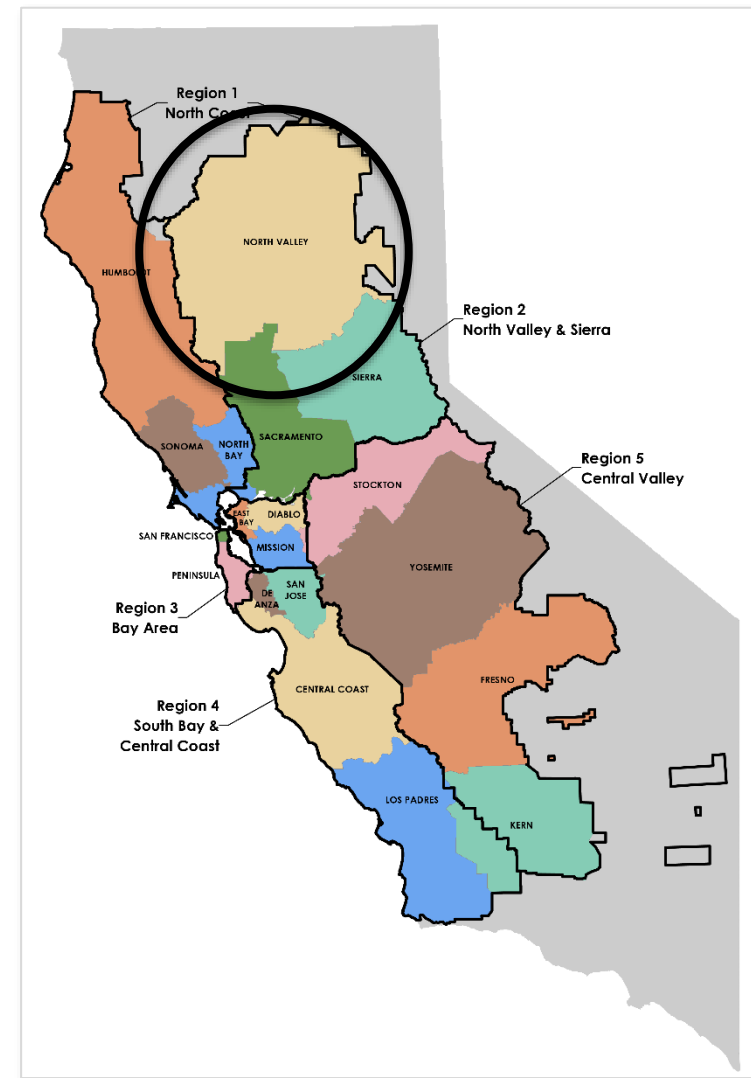
The North Valley Division is made up of portions of Shasta, Lassen, Tehama, Plumas, Butte, Glenn and Colusa Counties, along with surrounding areas.

- Including Major Event Days, the average PG&E customer in the North Valley Division experienced 2.563 outages in 2020 and those outages lasted for a combined average of 1,979.0 minutes.
- Excluding Major Event Days, the average PG&E customer in North Valley Division experienced 1.546 outages in 2020 and those outages lasted for a combined average of 269.0 minutes.

North Valley Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	398.6 minutes (~6.64 hours)	1.672 outages	112.3 minutes (~1.87 hours)	0.863 outages
2018	4,287.0 minutes (~71.45 hours)	1.629 outages	187.1 minutes (~3.12 hours)	1.364 outages
2019	4,886.2 minutes (~81.43 hours)	3.961 outages	205.0 minutes (~3.41 hours)	1.506 outages
2020	1,979.0 minutes (~32.98 hours)	2.563 outages	269.0 minutes (~4.48 hours)	1.546 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Sacramento Division Reliability Statistics

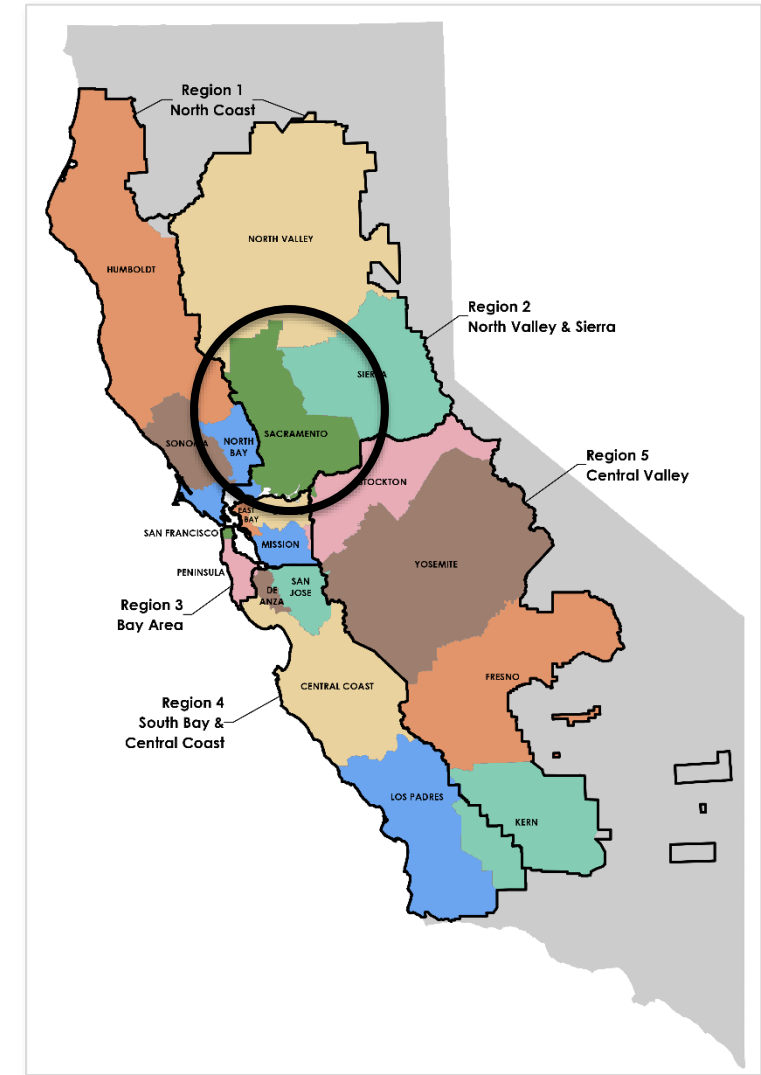
The Sacramento Division is made up of portions of Colusa, Sutter, Yolo, Solano, Sacramento and Lake Counties, along with surrounding areas.

- Including Major Event Days, the average PG&E customer in the Sacramento Division experienced 1.602 outages in 2020 and those outages lasted for a combined average of 281.9 minutes.
- Excluding Major Event Days, the average PG&E customer in the Sacramento Division experienced 1.350 outages in 2020 and those outages lasted for a combined average of 173.6 minutes.

Sacramento Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	283.0 minutes (~4.71 hours)	1.870 outages	121.2 minutes (~2.02 hours)	1.070 outages
2018	108.5 minutes (~1.81 hours)	1.059 outages	101.0 minutes (~1.68 hours)	1.021 outages
2019	670.8 minutes (~11.18 hours)	1.686 outages	98.9 minutes (~1.64 hours)	0.866 outages
2020	281.9 minutes (~4.7 hours)	1.602 outages	173.6 minutes (~2.89 hours)	1.350 outages

*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Sierra Division Reliability Statistics

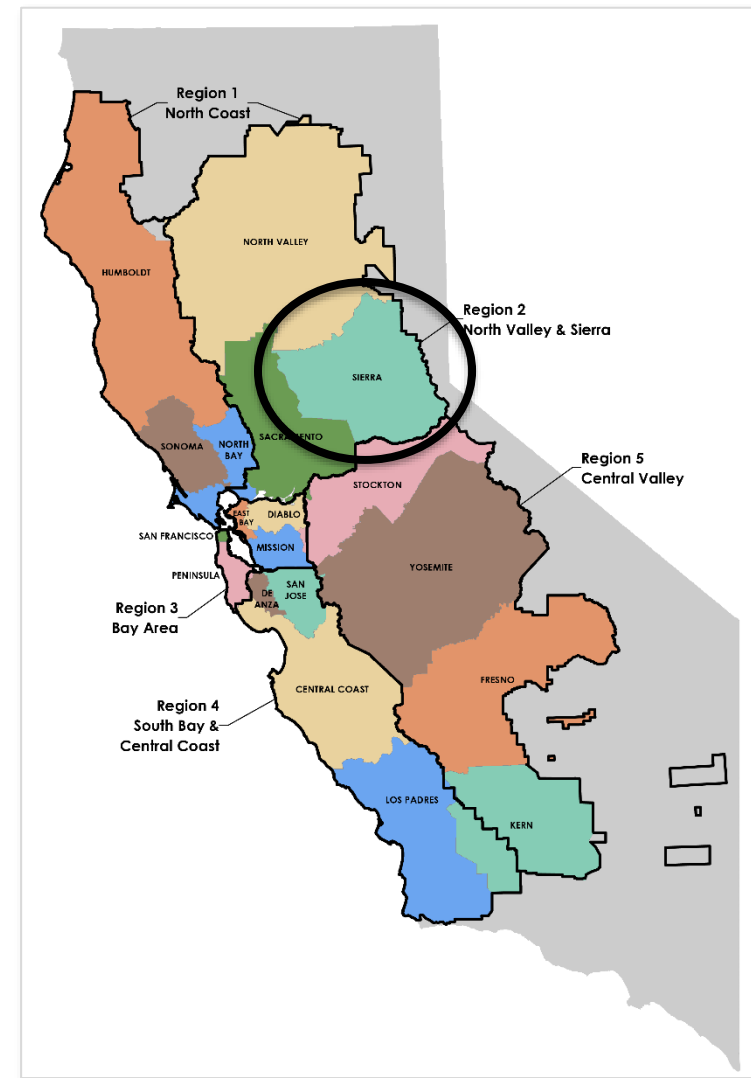
The Sierra Division is made up of portions of the foothills including portions of Sierra, Nevada, Yuba, Placer, El Dorado and Sacramento Counties.

- Including Major Event Days, the average PG&E customer in the Sierra Division experienced 2.626 outages in 2020 and those outages lasted for a combined average of 2,345.1 minutes.
- Excluding Major Event Days, the average PG&E customer in the Sierra Division experienced 1.422 outages in 2020 and those outages lasted for a combined average of 208.0 minutes.

Sierra Division Reliability Indices (2017-2020)

Year	Major Events <u>Included</u> *		Major Events <u>Excluded</u> *	
	Average Total Outage Minutes Per Customer	Average Number of Outages	Average Outage Minutes Per Customer	Average Number of Outages
2017	620.1 minutes (~10.34 hours)	2.076 outages	155.0 minutes (~2.58 hours)	1.191 outages
2018	399.2 minutes (~6.65 hours)	1.450 outages	152.9 minutes (~2.55 hours)	1.241 outages
2019	5,826.0 minutes (~97.1 hours)	4.104 outages	167.5 minutes (~2.79 hours)	1.151 outages
2020	2,345.1 minutes (~39.1 hours)	2.626 outages	208.0 minutes (~3.46 hours)	1.422 outages

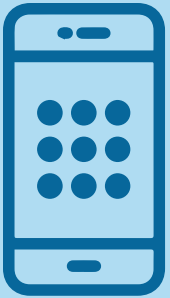
*Major Event Days are days involving major system disruptions typically due to large storm or PSPS events.



Local Reliability Statistics – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Do you have any additional questions about this subject?

Systemwide Resiliency Efforts



New for 2021 – Microgrid Portal

PG&E has worked to develop a new Microgrid Portal to share information with local agencies and tribes to assist in their own resiliency efforts. This new tool:



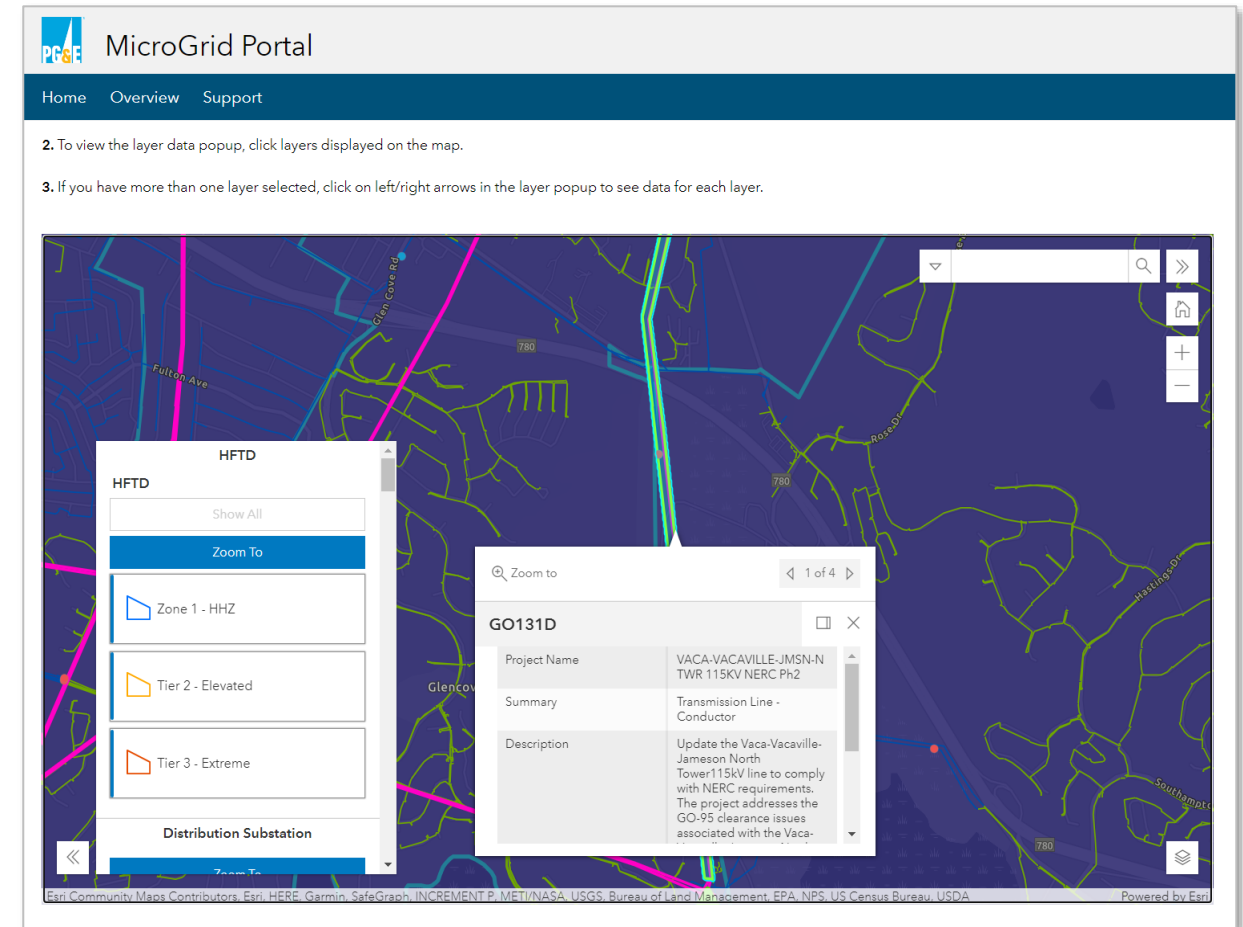
Is available to County OES representatives, tribal governments and other “organizations created by political subdivisions to carry out the provisions of the State Emergency Plan.”



Includes the following data:

- Utility planned work/grid investments (including locations, project descriptions, project timelines and completion dates)
- High Fire-Threat District Map layers
- Electric infrastructure map layers (including substations, distribution circuits and transmission lines)
- Weather polygon map layers

The Microgrid Portal launched on 7/16/21 and additional improvements will be made to the portal in the future.



How to Get Access to the Microgrid Portal



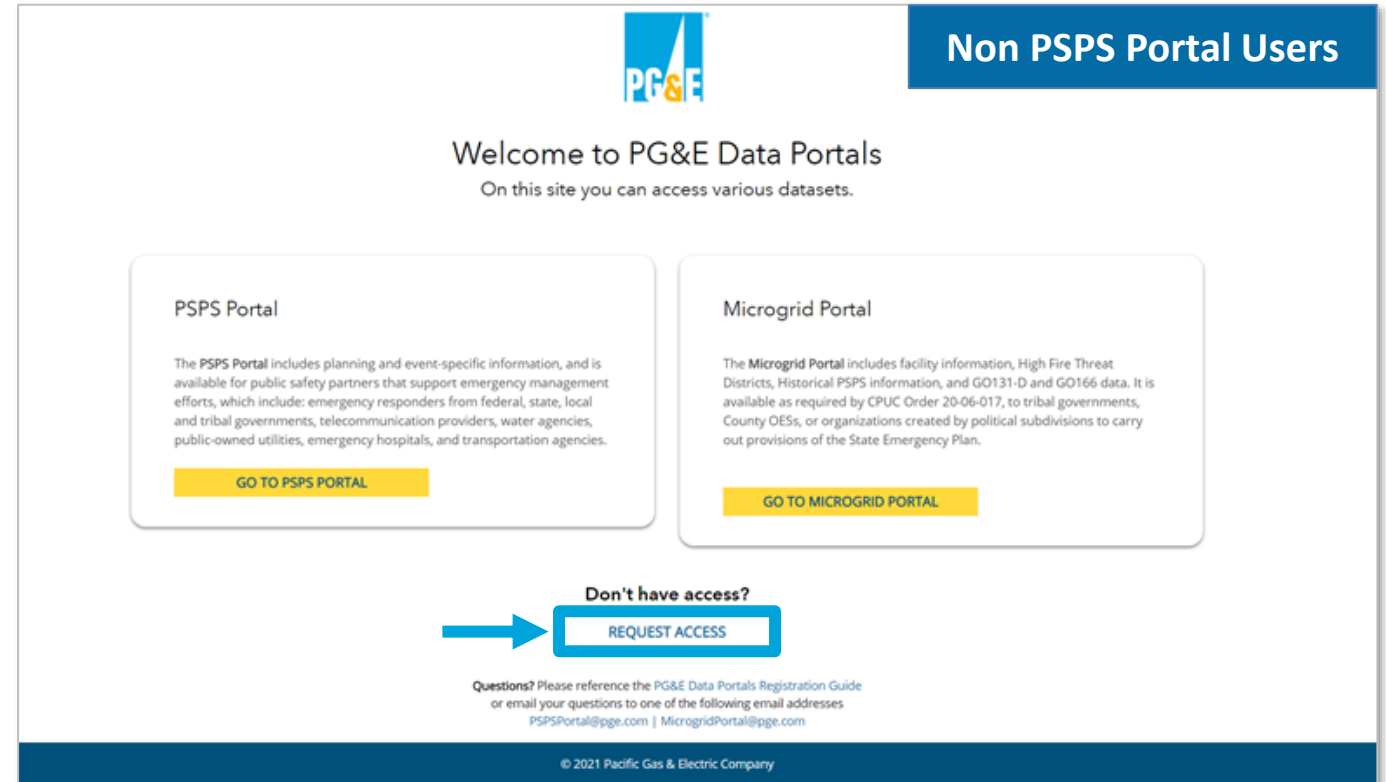
Existing PSPS Portal Users

- Log in to the **PSPS portal** and click on the banner: **Join our Microgrid Community**
- Once you have clicked on the banner, **simply follow instructions to complete.**



Non PSPS Portal Users

- Visit pge.com/pspsportal and **click on the request access button**
- Once you have clicked on the request access button, **simply follow instructions to complete.**



The screenshot shows the PG&E Data Portals landing page. At the top right, there is a blue banner that says "Non PSPS Portal Users". The main heading is "Welcome to PG&E Data Portals" with the subtext "On this site you can access various datasets." Below this, there are two main sections: "PSPS Portal" and "Microgrid Portal". The "PSPS Portal" section includes a description of the portal's purpose and a yellow button labeled "GO TO PSPS PORTAL". The "Microgrid Portal" section includes a description of the portal's purpose and a yellow button labeled "GO TO MICROGRID PORTAL". At the bottom, there is a section titled "Don't have access?" with a blue arrow pointing to a button labeled "REQUEST ACCESS". Below this button, there is a link to the registration guide and email addresses for questions.

Non PSPS Portal Users

Welcome to PG&E Data Portals
On this site you can access various datasets.

PSPS Portal
The **PSPS Portal** includes planning and event-specific information, and is available for public safety partners that support emergency management efforts, which include: emergency responders from federal, state, local and tribal governments, telecommunication providers, water agencies, public-owned utilities, emergency hospitals, and transportation agencies.
GO TO PSPS PORTAL

Microgrid Portal
The **Microgrid Portal** includes facility information, High Fire Threat Districts, Historical PSPS information, and GO131-D and GO166 data. It is available as required by CPUC Order 20-06-017, to tribal governments, County OESs, or organizations created by political subdivisions to carry out provisions of the State Emergency Plan.
GO TO MICROGRID PORTAL

Don't have access?
REQUEST ACCESS

Questions? Please reference the PG&E Data Portals Registration Guide or email your questions to one of the following email addresses
PSPSPortal@pge.com | MicrogridPortal@pge.com

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Microgrid Incentive Program (MIP) Objectives

PG&E, along with San Diego Gas and Electric and Southern California Edison are in the process of developing a new Microgrid Incentive Program to fund clean community microgrids that support the critical needs of vulnerable populations most likely to be impacted by outages.

The goals of this program are to:



Increase reliability and resiliency for critical public facilities in communities that are at higher risk of electrical outages



Prioritize communities with higher portions of low-income, access and functional needs, and electricity dependent residents



Enable communities with lower ability to fund development of backup generation to maintain critical loads during outages



Provide opportunity for testing new technologies or regulatory approaches to inform future action to the benefit of all ratepayers



Foundational Microgrid Incentive Program (MIP) Elements

Key Items For Consideration	
Locations	▪ Priority for low-income, Disadvantaged, Access & Functional Needs and/or critical facility customers ▪ Priority for those impacted by grid outages (PSPS or otherwise)
Duration	▪ Microgrids should ideally be capable of maintaining identified customers' loads for up to 96-hours
Eligibility	▪ Multi-customer microgrid solutions will be eligible for this incentive ▪ Single-customer solutions do not qualify
Emissions	▪ Technologies must result in equal to or better than the current grid power emissions

Funding Allocation	
Statewide Budget	▪ \$200M
Incentive Cap	▪ \$15M/per project
Eligible Costs	▪ Front of the meter generation and/or storage resources ▪ Microgrid controller(s) ▪ Customer outreach ▪ Community costs ▪ Reconfiguration of equipment (e.g., to isolate and serve certain loads)
Matching Funds	▪ PG&E, SDG&E or SCE to provide one-time matching funds to offset a portion of the utility infrastructure upgrades associated with implanting islanding function

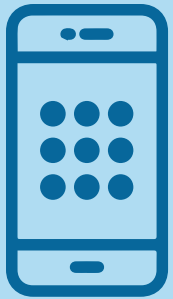
The utilities are developing the MIP with input from stakeholders and will submit a program implementation Advice Letter to the California Public Utilities Commission on October 1, 2021.

For more information visit pge.com/MIPworkshops.

Systemwide Resiliency Efforts – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



Which Microgrid Portal features do you see being most useful?



Do you foresee using this resource?

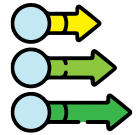


What else would you like to know about the new Microgrid Incentive Program?

PSPS and Other Emergencies



Concurrent Events Impacting Electric Service



What are concurrent events?

During wildfire season, we may experience multiple events that impact the electric system at the same time as a Public Safety Power Shutoff (PSPS) event.

Other events can include:

- ① An active wildfire
- ② A capacity event (e.g., rotating outage)
- ③ Damage to our electrical system (e.g., weather damage, car accident, construction incident, natural disaster)



What are the potential impacts?

- **Customers may lose power** even if they are not experiencing severe weather
- **PSPS restoration timelines** may be extended
- Customers may have their power turned off **without the typical notification or with limited notice**
- **Customer resource partnerships** are specific to PSPS events and wildfires*



How do we manage and communicate these events?

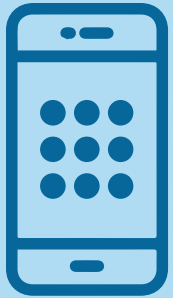
- **Managed through the Incident Command System (ICS)** using our Emergency Operations Center (EOC)
 - This system is designed to be **flexible and able to address emerging issues**
- **Open and ongoing dialogue** with external stakeholders
- **Robust internal communication** channels keep teams aligned and ensure local teams/decision-makers have integrated information

*Some customer resources (i.e., Community Resource Centers) may be made available during non-PSPS event scenarios if certain conditions are met.

PSPS and Other Emergencies – Feedback



Insert your questions or feedback into the chat function.



Ask your question or provide your feedback verbally by unmuting your line.



How do you plan to prepare for a concurrent event?



Are there additional tools/resources your agency needs?

- ✓ **Meeting survey** shared with participants to gather feedback on approach and content of regional working group
- ✓ **Follow-up on items** identified by local agencies/stakeholders
- ✓ **Upcoming meetings**
 - Q4 Regional Working Group Meetings

2021 REGIONAL WORKING GROUP CALENDAR

TIMING	TOPICS
Q4 2021	PSPS and Wildfire Safety

A summary of the feedback gathered here today and results from a post-meeting survey will be shared with the CPUC.



Thank You

PG&E Report It – Safety Mobile App

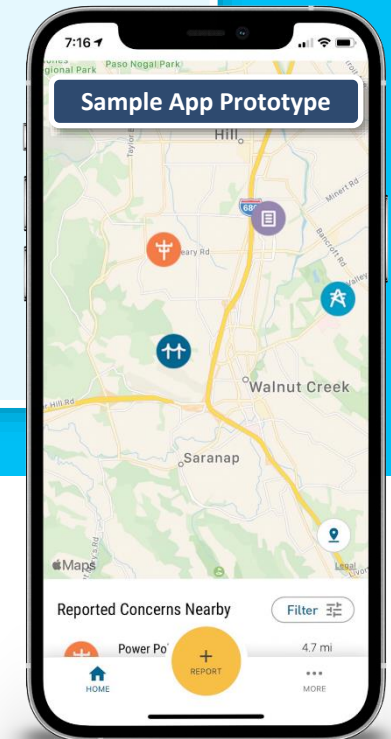
PG&E recently launched the pilot of our new “PG&E Report It” safety app that allows customers to submit photos of non-emergency potential safety concerns with our electric system.

Customers can use Report It to:

- ✓ Learn about the types of issues to report
- ✓ Submit photos directly to our safety team

Other Safety App features include:

- ✓ Finding safety concerns submitted by other users
- ✓ Reviewing PG&E’s safety findings
- ✓ Notifications when your concern is reviewed or resolved



To learn more about **PG&E Report It**, visit

pge.com/reportit

Appendix



Q1 & Q2 2021 Follow Up and Action Items

Below is a list of the follow up and action items identified during the Q1 & Q2 Regional Working Groups in March and June as well as corresponding statuses.

Action Item	Agency	Status
Asked for information regarding additional areas that will be impacted by overstrike criteria for PSPS planning purposes.	El Dorado Irrigation District	In Progress
Invited a follow up regarding opportunities for critical infrastructure (e.g., Paradise Irrigation District) to be considered for microgrids and/or other PSPS mitigations.	Butte County Department of Social Services	In Progress
Requested follow-up regarding suggestions for improving Meals on Wheels offerings for seniors who are outside of delivery service areas.	Disability Action Center	In Progress
Solicited a follow-up regarding criteria used to allocate mobile generation during a PSPS event and whether or not there is generation dedicated to a specific substation.	Pioneer Community Energy	In Progress

Q1 & Q2 2021 Follow Up and Action Items (cont.)

Below is a list of the follow up and action items identified during the Q1 & Q2 Regional Working Groups in March and June as well as corresponding statuses.

Action Item	Agency	Status
Requested access to PG&E's PSPS Portal. Noted that NCPA is a publicly owned Joint Action Agency and would like access to be able to answer questions from their members on any potential PSPS events, especially transmission impacts.	Northern California Power Agency (NCPA)	In Progress
Requested follow-up related to uncoordinated work efforts related to ongoing PG&E system hardening work. Noted that NCPA is attempting to coordinate their own work with PG&E efforts and last-minute changes are causing staffing/timing gaps.	Northern California Power Agency (NCPA)	In Progress
Requested access to Google Earth mapping files with transmission system layers through the PSPS Portal	Northern California Power Agency (NCPA)	In Progress
Requested follow-up coordination regarding uncoordinated work contractors have done recently on FREED property	FREED	In Progress
Requested maps for the microgrids and/or commercial power due to hardening of lines for Nevada, Yuba, Placer and El Dorado counties	FREED/Yuba County Office of Emergency Services	In Progress

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Substation Microgrids	Humboldt	Hoopa	Ready to Operate	N/A
	Humboldt	Willow Creek	Ready to Operate	N/A
	Lake	Clear Lake	Ready to Operate	N/A
	Lake	Hartley	Ready to Operate	N/A
	Lake	Konocti	Ready to Operate	N/A
	Nevada	Brunswick	Ready to Operate	N/A
	Placer	Weimar	In-Event Ready	N/A
	Santa Cruz	Big Basin	In-Event Ready	N/A
	Santa Cruz	Point Moretti	Ready to Operate	N/A
	Sonoma	Cloverdale	Ready to Operate	N/A
	Trinity	Low Gap	Ready to Operate	N/A
	Yuba	Dobbins	In-Event Ready	N/A
Distribution Microgrids	Butte	Magalia	Ready to Operate	N/A
	Calaveras	Arnold	Planning	Q4 2021
	El Dorado	Georgetown	Ready to Operate	N/A
	El Dorado	Placerville	Ready to Operate	N/A
	El Dorado	Pollock Pines	Ready to Operate	N/A
	Lake	Clearlake North	Planning	Q4 2021
	Lake	Clearlake South	Planning	Q4 2021

Local work plans are subject to change and data is based on the best available information at this time.

Status of Planned/Upcoming Resilience Efforts – Systemwide

Program	County	Site Name/Area	Status	Estimated Completion
Distribution Microgrids (cont.)	Lake	Lucerne	Planning	Q4 2021
	Lake	Middletown	Ready to Operate	N/A
	Napa	Angwin	Ready to Operate	N/A
	Napa	Calistoga	Ready to Operate	N/A
	Placer	Colfax	Planning	Q4 2021
	Placer	Foresthill	Near Complete	Q4 2021
	Shasta	Shingletown	Ready to Operate	N/A
	Tuolumne	Groveland	Planning	Q4 2021
Remote Grids	El Dorado	El Dorado	Planning	Q4 2021
	Mariposa	Mariposa 1	Operational	N/A
	Mariposa	Mariposa 2	Planning	Q4 2021
	Mariposa	Mariposa 3	Planning	Q4 2021
	San Luis Obispo	San Luis Obispo 1	Planning	Q3 2022
	San Luis Obispo	San Luis Obispo 2	Planning	Q3 2022
	Tulare	Tulare	Planning	Q3 2022
	Tehama	Tehama	Planning	Q4 2021
Islanding	Amador/Calaveras	Salt Springs Island	Ready to Operate	N/A
	Amador/Calaveras	West Point Island	Ready to Operate	N/A
	Humboldt	Humboldt Bay Island	Ready to Operate	N/A
	Plumas	Caribou Island	Ready to Operate	N/A
	Tehama	Red Bluff Island	Ready to Operate	N/A
	Tuolumne	Spring Gap	Ready to Operate	N/A

Local work plans are subject to change and data is based on the best available information at this time.

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

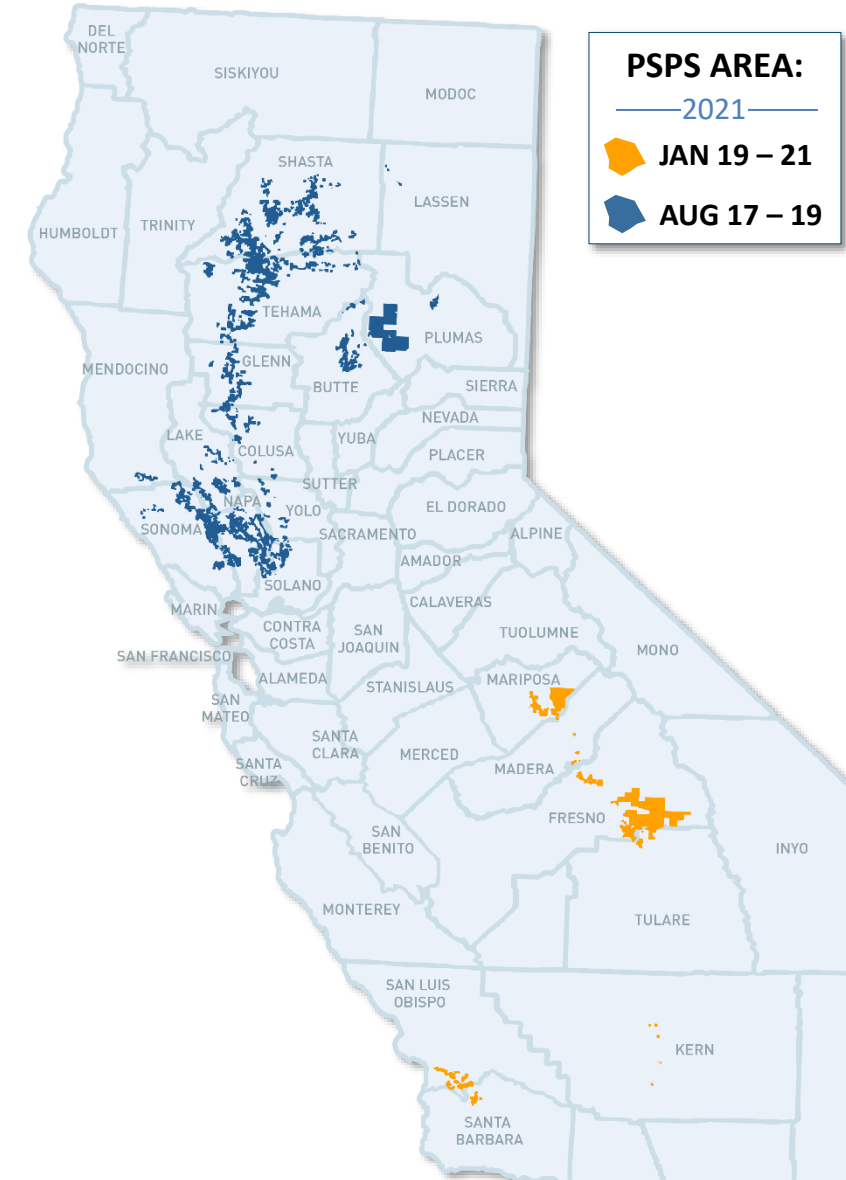
2021 PSPS Outages Systemwide

To view post de-energization reports, visit

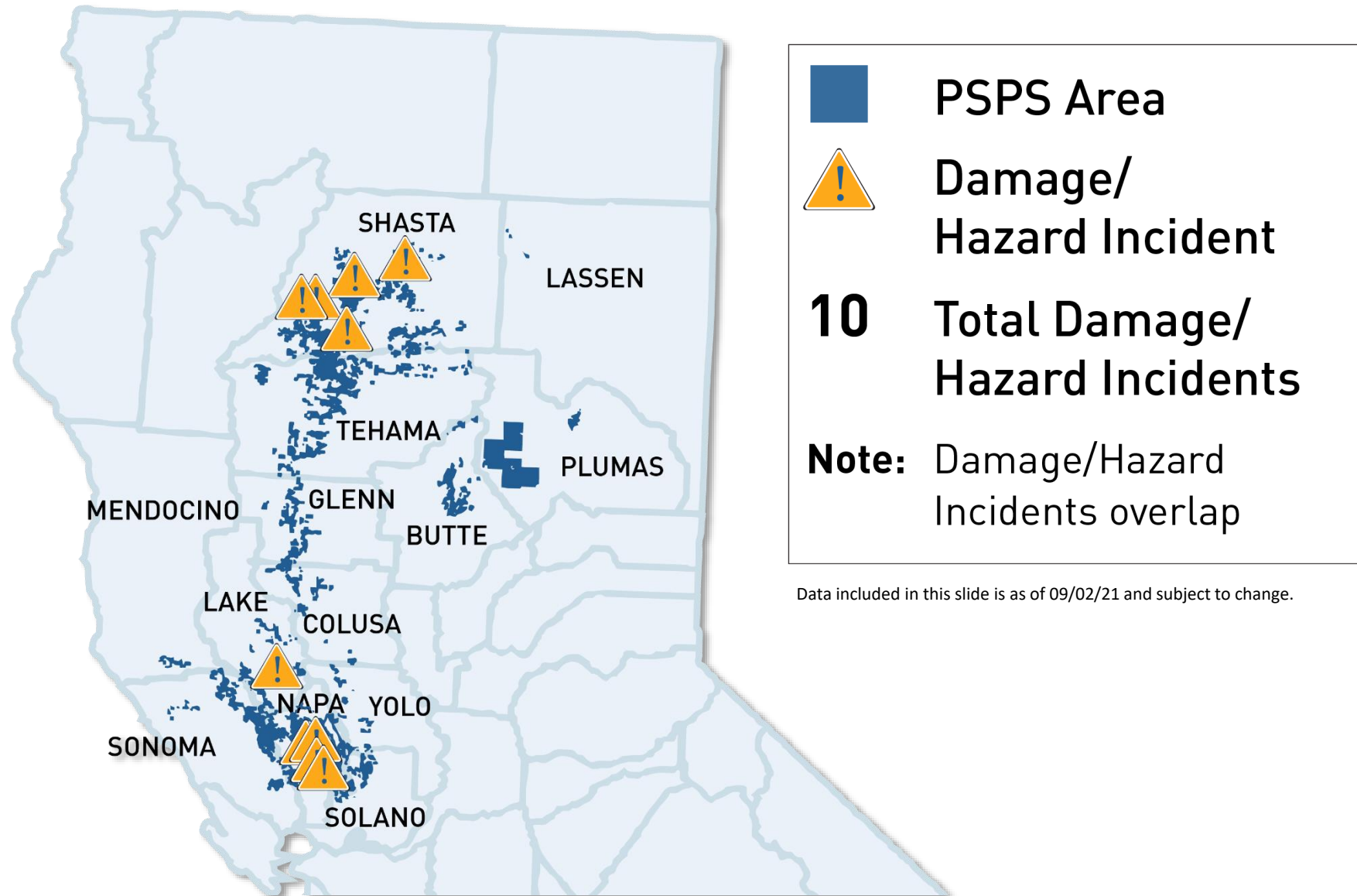
pge.com/pspsreports

OUTAGE DETAILS		JAN 19 – 21	AUG 17 – 19
	CUSTOMERS IMPACTED	5,099	48,155
	COUNTIES IN SCOPE	7	13
	TRIBES IN SCOPE	0	3
	COMMUNITY RESOURCE CENTERS OPEN	7†	34
	PEAK WIND GUSTS	83 MPH	56 MPH
	DAMAGE/HAZARDS	423	10

†Does not include resource centers activated for wind event
Data included in this slide is as of 09/02/21 and subject to change.



August 17-19, 2021 – PSPS Damage/Hazard Incidents





Safer Equipment Settings During Wildfire Season

One of our new enhancements to reduce wildfire risk and make our system safer includes adjusting the settings of the protection devices on power lines in some communities. These settings automatically turn off power faster if an object strikes a line or there is an issue with the equipment.



Reducing Wildfire Potential

Decreases the risk for utility-caused wildfires



Targeted High-Risk Areas

Protects customers and communities in areas where wildfire risk is the highest



Turned on During Wildfire Season

Settings will be in place in late summer and fall when wildfire potential is the greatest

This setting can help prevent wildfires, **but it may also result in power outages.**

WHAT TO EXPECT IF THE NEW SETTINGS ARE USED



Outage for Safety

Customers may experience outages that are longer or more frequent than usual



Patrolling the Line

We conduct ground and air patrols of the entire circuit to look for damage



Repairing Damage

We will make any repairs necessary before restoring power



**Power
Safely
Restored**

We are working to notify customers more quickly of an outage and encourage visiting our online outage map for updates.



Find an interactive outage map and sign up for alerts at pge.com/outages

Learn more about preparing for an emergency at safetyactioncenter.pge.com

**PG&E Gas and Electric
Advice Submittal List
General Order 96-B, Section IV**

AT&T Albion Power Company	East Bay Community Energy Ellison Schneider & Harris LLP Energy Management Service Engineers and Scientists of California	Pioneer Community Energy Public Advocates Office
Alta Power Group, LLC Anderson & Poole		Redwood Coast Energy Authority Regulatory & Cogeneration Service, Inc. SCD Energy Solutions San Diego Gas & Electric Company
Atlas ReFuel BART	GenOn Energy, Inc. Goodin, MacBride, Squeri, Schlotz & Ritchie Green Power Institute Hanna & Morton ICF IGS Energy International Power Technology	SPURR San Francisco Water Power and Sewer Semptra Utilities
Barkovich & Yap, Inc. California Cotton Ginners & Growers Assn California Energy Commission	Intertie	Sierra Telephone Company, Inc. Southern California Edison Company Southern California Gas Company Spark Energy Sun Light & Power Sunshine Design Tecogen, Inc. TerraVerde Renewable Partners Tiger Natural Gas, Inc.
California Hub for Energy Efficiency Financing	Intestate Gas Services, Inc. Kelly Group Ken Bohn Consulting Keyes & Fox LLP Leviton Manufacturing Co., Inc.	TransCanada Utility Cost Management Utility Power Solutions Water and Energy Consulting Wellhead Electric Company Western Manufactured Housing Communities Association (WMA) Yep Energy
California Alternative Energy and Advanced Transportation Financing Authority California Public Utilities Commission Calpine	Los Angeles County Integrated Waste Management Task Force MRW & Associates Manatt Phelps Phillips Marin Energy Authority McKenzie & Associates	
Cameron-Daniel, P.C. Casner, Steve Cenergy Power Center for Biological Diversity	Modesto Irrigation District NLine Energy, Inc. NRG Solar	
Chevron Pipeline and Power City of Palo Alto	OnGrid Solar Pacific Gas and Electric Company Peninsula Clean Energy	
City of San Jose Clean Power Research Coast Economic Consulting Commercial Energy Crossborder Energy Crown Road Energy, LLC Davis Wright Tremaine LLP Day Carter Murphy		
Dept of General Services Don Pickett & Associates, Inc. Douglass & Liddell		