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24 UNITED STATES DISTRICT COURT
25 NORTHERN DISTRICT OF CALIFORNIA
26 SAN FRANCISCO DIVISION

27 UNITED STATES OF AMERICA,
28
Plaintiff,

v.
PACIFIC GAS AND ELECTRIC COMPANY,
Defendant.

Case No. 14-CR-00175-WHA

**RESPONSE TO ORDER RESOLVING
PROPOSED CONDITIONS OF
PROBATION RE PSPS CRITERIA**

Judge: Hon. William Alsup

1 Defendant Pacific Gas and Electric Company (“PG&E”) respectfully submits this
2 response to the Court’s April 29, 2021 order regarding the criteria by which PG&E will decide
3 whether to de-energize distribution lines as part of a Public Safety Power Shutoff (“PSPS”) event in
4 2021. (Dkt. 1386.)

5 This submission proceeds in two parts. Part I describes the criteria by which PG&E
6 currently determines whether to de-energize distribution lines as part of a PSPS event, and which
7 have been in effect since May 2021 and which PG&E expects to be in effect through August 2021.
8 Part II describes the criteria that PG&E expects to put in place in August 2021 to replace the current
9 PSPS criteria.

10 **I. Current PSPS Criteria**

11 PG&E’s current PSPS criteria are the same as its 2020 PSPS criteria, which are
12 described in PG&E’s November 11, 2020 filing (*see* Dkt. 1265), with the exception of two sets of
13 changes described below:

14 *First*, in January 2021, PG&E amended the dead fuel moisture components of the
15 minimum fire potential conditions in light of an improved satellite-based fire-occurrence dataset and
16 weather information. Minimum fire potential conditions are now satisfied when each of the
17 following is met: Utility Fire Potential Index (“Utility FPI”) greater than 0.2; sustained wind speed
18 greater than 20 mph; relative humidity less than 30%; dead fuel moisture – 10-hour less than 9%;
19 dead fuel moisture – 100-hour less than 11%; and dead fuel moisture – 1000-hour less than 11%.

20 *Second*, in May 2021, PG&E completed its initial operationalizations of
21 methodologies that expand the scope and frequency of potential de-energizations by taking into
22 account outstanding Priority 1 or Priority 2 tags and Tree Overstrike Potential. Specifically, PG&E
23 now considers for inclusion in the initial scope for de-energization any distribution line that either
24 (a) has an outstanding Priority 1 or Priority 2 tag not mitigated prior to the PSPS event or
25 (b) traverses a grid cell that falls in the 70th percentile or higher in terms of Tree Overstrike
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1 Exposure as compared with other areas subject to potential de-energization.¹ These two new criteria
2 serve as additional de-energization triggers, on top of the criteria that, as set forth in prior filings,
3 consider including in the initial scope for de-energization grid cells that are forecast to have a
4 Distribution Large Fire Probability (“LFP_D”) model output above 6.0 or to satisfy the Black Swan
5 criteria. PG&E’s current PSPS criteria therefore recommend for de-energization distribution lines in
6 high fire threat areas if (i) one of the above-mentioned criteria is satisfied, (ii) minimum fire
7 potential conditions are forecast and (iii) either a Red Flag Warning is in effect or at least 24 other
8 grid cells with distribution lines in high risk fire areas are also otherwise recommended for
9 de-energization.

10 As the Court is aware, the CPUC previously expressed concerns with PG&E’s
11 decision to move forward with the above approach of taking into account Tree Overstrike Potential
12 given that it will result in more PSPS events and greater customer impacts. (*See, e.g.*, Dkt. 1314 at
13 4; Dkt. 1349 at 4-7.) The CPUC directed PG&E on March 29 to work with CPUC staff to initiate an
14 expedited process for the CPUC to evaluate PG&E’s Tree Overstrike Potential criterion. (*See*
15 Dkt. 1368 at 7-8.) As one part of that expedited review process, PG&E participated in a public
16 workshop in April attended by, among others, the CPUC president, commissioners and senior staff,
17 and PG&E answered various of the CPUC’s questions concerning the new criterion. (*See*
18 Dkt. 1380-1.) On June 28, 2021, the CPUC sent PG&E a letter, which is attached as Exhibit B,
19 directing PG&E to adhere to additional requirements with respect to PG&E’s incorporation of, and
20 subsequent reporting regarding, Tree Overstrike Potential. The letter noted that PG&E had
21 explained “that including tree overstrike data in the implementation of PSPS will likely increase the
22 frequency, duration, scope and scale of PSPS called by PG&E, particularly in rural counties”, and
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24 ¹ PG&E’s Revised 2021 Wildfire Mitigation Plan (the “Revised 2021 WMP”), which was
25 submitted to the CPUC on June 3, discusses PG&E’s current PSPS criteria, which it refers to as
26 “2020 PSPS Protocols Plus Tree Overstrike Potential and Priority Tags”. The Revised 2021 WMP is
27 attached as Exhibit A and was made available to the public on PG&E’s website at the following
28 URL: https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/2021-Wildfire-Safety-Plan-Revised-060321.pdf.

1 that “[CPUC] President Batjer, the Commissioners, and senior staff at the CPUC have expressed
2 concern about the impacts of PSPS and we continue to expect PG&E to make all reasonable efforts
3 to mitigate those impacts”.

4 **II. Expected 2021 PSPS Criteria as of August 2021**

5 PG&E currently anticipates updating its PSPS criteria in August 2021 (the “Expected
6 2021 Criteria”).² As explained below, the Expected 2021 Criteria will continue to take into account
7 outstanding Priority 1 or Priority 2 tags and Tree Overstrike Potential. Consideration of Tree
8 Overstrike Potential will be a part of the CFP_D model (described below) rather than a standalone
9 criterion as with the current PSPS criteria.

10 The Expected 2021 Criteria will recommend for de-energization distribution lines in
11 high fire threat areas if (i) PG&E’s minimum fire potential conditions—which will be amended to
12 take into account live fuel moisture levels, lowered required windspeeds and an updated instance of
13 the Utility FPI model—are forecast,³ (ii) either a Red Flag Warning is in effect or at least 24 other
14 grid cells with distribution lines in high risk fire areas are also otherwise recommended for
15 de-energization and (iii) at least one of the following three criteria for de-energization is satisfied:

16 *Distribution Catastrophic Fire Probability (“CFP_D”) Model Criterion.* Under the
17 Expected 2021 Criteria, the CFP_D model will replace the LFP_D model that was used in 2020. The
18 CFP_D criterion will be satisfied if the CFP_D model output is forecast to exceed 9.0. Like the LFP_D
19 model, the CFP_D model will also assess the probability of an outage and potential ignition together
20 with the potential consequence of a resulting fire by using the outputs of two other models. The
21 LFP_D model was the product of the Utility FPI model and the Outage Producing Winds (“OPW”)
22 model. The CFP_D model will be the product of an updated instance of the Utility FPI model and the
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24 ² The Revised 2021 WMP refers to the Expected 2021 Criteria as the “2021 PSPS Protocols”.

25 ³ The minimum fire potential conditions for the Expected 2021 Criteria will be satisfied if each
26 of the following is met: Utility FPI greater than 0.7; sustained wind speed greater than 19 mph;
27 relative humidity less than 30%; dead fuel moisture – 10-hour less than 9%; dead fuel moisture –
100-hour less than 11%; dead fuel moisture – 1000-hour less than 11%; herbaceous live fuel
28 moisture less than 65%; and shrub (chamise) live fuel moisture less than 90%.

1 new Ignition Probability Weather (“IPW”) model. While the existing Utility FPI model predicts the
2 probability of a 40-acre fire growing to 1,000 acres or more, the updated instance of the Utility FPI
3 model will use machine learning to predict the probability of rapidly growing and not easily
4 controlled fires, rather than only large fires.

5 The OPW model will serve as the foundation of the IPW model, which will use the
6 probability of an outage predicted by the OPW model to predict the probability of an *ignition*, using
7 known outage-to-ignition ratios for specific outage causes (*e.g.*, vegetation, equipment failure,
8 animal/third-party contacts). The OPW model itself will be updated as well, including by
9 incorporating Tree Overstrike Potential data into its machine learning model, which will allow
10 PG&E to consider such data in a more sophisticated manner than only determining whether a grid
11 cell falls above or below the 70th percentile.

12 *Catastrophic Fire Behavior Criteria.* Under the Expected 2021 Criteria, the
13 Catastrophic Fire Behavior criteria will replace the Black Swan criteria that were first used in 2020.
14 Like the Black Swan criteria, the new Catastrophic Fire Behavior criteria will focus on the
15 consequences of a potential fire without regard to its likelihood of occurring. To create a model for
16 forecasting potential fire spread, PG&E partnered with Technosylva, an industry expert in wildfire-
17 spread technology that has separately modeled wildfire spread for both the CPUC and CAL FIRE.
18 The Catastrophic Fire Behavior criteria were derived by analyzing the fire behavior of historical
19 catastrophic fires, and they will be satisfied if all of the following are forecast based on fire-spread
20 modeling for a fire that is assumed to ignite in a grid cell and grow at its natural rate without any
21 fire-suppression efforts: (i) flame lengths of greater than eight feet during the first two hours of the
22 fire, (ii) a rate of spread of greater than 20 chains per hour⁴ during the first two hours and (iii) the
23 area burned is greater than or equal to 100 acres during the first eight hours.

24 *Vegetation and Asset Tag Criteria.* Under the Expected 2021 Criteria, this criterion
25 will be satisfied if there are any outstanding Priority 1 or Priority 2 vegetation management tags or
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27 ⁴ A chain is a unit of linear measurement equivalent to 66 feet.

1 outstanding high-risk distribution asset equipment maintenance tags that PG&E does not mitigate
2 prior to the PSPS event.

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1 Dated: July 1, 2021

Respectfully Submitted,

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