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

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| Application of Pacific Gas and Electric Company for Approval of its Mobile Application and Supporting Systems Pilot. (U39E). | Application 19-07-019<br>(Filed July 29, 2019) |

# COMMENTS OF THE BROADBAND INSTITUTE OF CALIFORNIA AT SANTA CLARA UNIVERSITY SCHOOL OF LAW

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# COMMENTS OF THE BROADBAND INSTITUTE OF CALIFORNIA AT SANTA CLARA UNIVERSITY SCHOOL OF LAW

## I. INTRODUCTION

The Broadband Institute of California at Santa Clara University School of Law ("BBIC") respectfully submits these comments in response to Pacific Gas and Electric ("PG&E")'s Application 19-07-019 for Approval of its Mobile Application and Supporting Systems Pilot, and the CPUC's Workshop regarding this application held on February 12, 2020. This application falls far short of the CPUC's June 27, 2019 order for Immediate Corrective Action in OII.19-06-015. PG&E's application leaves Californians without the tools needed to protect public safety, ensure reliable service, and foster accountability.

The CPUC should order PG&E to amend its application to comply with the CPUC's directive in OII.19-06-015. The CPUC should order PG&E to design an Application open to all Californians that connects to PG&E's analytical and assest management systems including its Artificial Intelligence (AI) system used to analyze photos. The CPUC should order PG&E to make public photos submitted through the App (after a screen for relevance, *e.g.* no cat photos), and order PG&E to remove customer identifying information. PG&E should be required to publicly post and explain its analysis of the infrastructure,management, or CPUC rule

compliance issues raised in the photos, and describe its planned action. The CPUC should order PG&E to engage in training and outreach for a revised App that complies with the CPUC's Order and safety objectives.

## II. THE CPUC SHOULD ORDER PG&E TO REVISE ITS APPLICATION TO PROTECT PUBLIC SAFETY

### A. The CPUC Ordered PG&E to Develop an App, Asset Database, and to Communicate its Analysis to the Public as an Immediate Corrective Action in its Investigation into PG&E Rule Violations Alleged with the 2017 and 2018 Fires

As an Immediate Corrective Action arising from the CPUC's Investigation into PG&E's role in igniting the 2017 and 2018 fires in its service territory, the CPUC ordered PG&E to create an App to allow the public to submit photos about PG&E infrastructure issues.[1] The goal of this remedial order is to protect public safety through a proactive order effective at the beginning of the OII. The CPUC ordered PG&E to develop an Open Source App to connect the public to PG&E's asset management database, analyze and communicate to the public about the information provided, and translate that process into action that improves system management and public safety.

Instead of complying with the CPUC's Order, the Application PG&E submitted in 19-07-019 consigns the public to complaining through mid-twentieth century phone calls and a late 1990s-type web-based invitation-only pilot that does not work in areas of California where the Internet is not accessible. PG&E proposed a small invitation-only pilot to be run for one fire season in Tier 2 and Tier 3 high fire threat areas as defined by CPUC maps. PG&E proposes

[1] CPUC OII and Order to Show Cause Why the Commission Should not Impose Penalties and/or Other Remedies for the Role PG&E's Electrical Facilities had in Igniting Fires in its Service Territory in 2017 (I.19-06-015) (June 27, 2019).

inappropriate assessment metrics and system design that PG&E envisions will justify the end of shareholder obligations to follow the CPUC's Immediate Corrective Action Order.

PG&E's Application reflects the utility's safety problems and its safety culture failures. PG&E envisions an isolated pilot, disconnected from its central asset database, PG&E's public complaint system, and the machine learning PG&E is applying to photos taken by its employees, drones, LIDAR (Light Detection and Ranging), and other sources. This "pilot in a box" misses opportunities for enterprise-wide learning that harnesses investments in machine learning to improve responsiveness to customers, enhance safety and reliable, and support just and reasonable rates.

The CPUC's Order requires that PG&E make photos submitted through the App accessible to the general public.[2] The CPUC's Order requires PG&E to identify "1) whether the photo identifies a problem; 2) whether the problem presents a safety concern or is a violation of safety regulations; 3) PG&E actions to remedy the matter; and 4) when the remedial action was or will be taken."[3] PG&E is required to post information into the asset management database within 30 days of receipt of the photo through the mobile app about its assessment and response to the factors identified in the CPUC's order.

PG&E's proposes to not post the photos received during its small pilot (a design the CPUC should order PG&E to revise), and to email individuals submitting photos. PG&E's proposals do not comply with the CPUC's Order. Public communication about the photos received and public explanation of PG&E's analysis will foster transparent decision-making that enables deliverative contestation, accountability, enforcement of CPUC rules, and safety.

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2 *Id.* at 18.

3 *Id.*

PG&E's proposal misses opportunities to increase transparency, improve analysis, link information to action, and enhance public safety. This application falls far short of the CPUC's June 27, 2019 order for Immediate Corrective Action. The CPUC should require substantial revision to PG&E's application as discussed below.

### B. Development of this Application Was Ordered As Part Of An Immediate, Corrective Action as a Proactive Penalty Following the 2017 Fire Siege.

PG&E's Application must be considered in the context of the fires traced to PG&E's infrastructure and management that led to loss of life and property. The CPUC's Order to develop this Application is designed to prevent loss of life, property and environmental harm that result from electric system induced fires triggered by utility facilities and management that violates CPUC rules such as those at issue in OII 19-06-015.

The Commission's Safety and Enforcement Division ("SED"), alongside CAL FIRE, found that PG&E equipment sparked at least 16 fires during the October 2017 "Fire Seige." SED identified at least one violation of General Order 95 in all but four of those fires. The most common violation cited was of GO 95, Rule 31.1, for failing to identify and abate a hazardous tree. (I.19-06-015 at p.12). SED also alleged that PG&E violated SED Resolution E-4184 for failing to report a second location of ignition of the Potter/Redwood Fire. SED alleged that PG&E violated other CPUC rules including recordkeeping violations. SED further identified concerns that may violate a CPUC General Order, but that are a result of PG&E operations subject to CPUC authority under CA PU Code 451, including: inadequate training and qualifications of vegetation inspectors, a lack of procedures for proactive deenenergization, and unreliable recordkeeping in which some issues were flagged, but never addressed. Some issues went unaddressed, yet were marked as completed.

Through the investigation that ordered PG&E to submit the subject Application, "the Commission seeks to . . . investigate and address alleged deficiencies in PG&E's operations and maintenance of its electric facilities that may violate section 451 of the Public Utilities Code or other provisions of the law." (I.19-06-015 at p.3). Section 451 requires every public utility to "furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities . . . as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public." Section 451 creates a duty for any public utility to maintain its services and equipment in a manner that *promotes* safety—and not merely in a way that does not impair safety.

The Preliminary Scoping Memo for I.19-06-015 asks "what penalties, in the form of fines, remedies, and other corrective actions, should be imposed for any proven violation(s) found above pursuant to PU Code §§ 701, 2107, and 2108?" (I.19-06-015 at p.15-16). It also sets out Immediate Corrective Actions including the development of an asset management database ("AMDB") and a mobile application ("App") that can access that database, both to be paid for at shareholder expense. (I.19-06-015 at p.18).

The CPUC's Order takes advantage of advances in communications and information technology to mandate that PG&E create an App, assest management and processing systems to translate information about problems into analysis and action. In the Rural Call Completion proceeding, 14-05-012, the CPUC created a mechanism for the public to submit photos of telecommunications infrastructure issues to the CPUC. CPUC Decision 16-12-066 discusses the photographic evidence of infrastructure issues submitted in the proceeding that substantiated the Commission's decision to order a variety of actions to promote communications reliability and public safety. The Commission's record of using photos submitted by the public to identify and

analyze infrastructure and utility safety and reliability issues highlights the opportunities a robust photo submission process can create to connect information to action.

### C. PG&E's Application Reflects PG&E's Safety Culture Problem and Does not Comply with the CPUC's Order.

The Assigned Commissioner's Scoping memo sets forth five issues to be determined in this proceeding:

1. Whether a pilot mobile app complies with the directives in I.19-06-015.
2. Whether the parameters of the pilot are reasonable.
3. Whether the results of the pilot indicate that a mobile app can specifically improve public safety.
4. Whether the metrics and process for evaluating the effectiveness of the mobile app are reasonable.
5. Are there any other relevant safety considerations

The answer to each of the first four questions is *no*. The Application here does not comply with the CPUC's directive in the OII. PG&E neither offers reasonable parameters nor is the limited invitation-only one season pilot PG&E proposes well-calibrated to improve public safety. The metrics and evaluatation process PG&E proposes are not reasonable and seem calculated to produce results that justify ending the limited pilot after only one season.

PG&E's application raises other safety considerations. The proposed web portal design is inaccessibile to customers who lack Internet access. PG&E's application lacks transparency in its analytical process because it fails provide the opportunity for the public or the CPUC to contest PG&E's assessment of the potential hazard or CPUC rule violations members of the public identified. PG&E's proposes to create a web-based system cordoned off from the machine learning system it is applying to photos submitted by PG&E employees, drones, LIDAR, and other methods. PG&E's proposal misses the opportunity to enhance and speed systematic analysis of photo images to improve public safety.

PG&E's Application and its comments at the February 12, 2020 workshop in this proceeding were dismissive of the potential of public input to improve public safety. PG&E repeated its assessment that the public would not know how to recognize safety problems. Yet, PG&E takes no responsibility to communicate with or train the public about safety hazards or CPUC rule violations at PG&E facilities. The CPUC should order PG&E to prepare and conduct training and outreach to the public regarding the App, safety issues, and CPUC rules applicable to PG&E infrastructure as part of a revised application that meets the requirements of the OII.

PG&E proposes that customers who complain about PG&E facilities should call in by phone, without any option to submit a photo. PG&E cites resource constrains as a rationale to shrink its proposal to a one season invitation-only pilot, run in only Tier 2 and Tier 3 high fire hazard zones. The Application PG&E submitted misses the opportunity to better deploy resources to protect public safety and offer reliable service by allowing the public to submit photos as a component of the complaint process, and as a complement to PG&E's infrastructure analysis. PG&E's Application fails to create a traceable line from public issue or hazard identification, to analysis and classification, to workflow referral, safety and reliability.

## III. PG&E'S APPLICATION DOES NOT COMPLY WITH THE CPUC'S ORDER

### A. The Web-based Portal PG&E Proposes Does Not Perform the Functions of An Open Source App and Ignores Internet Access Problems

The CPUC ordered PG&E to submit a plan for the development of a publicly available, open source App. The CPUC's Order requires that the App be an "open source," "publicly available," and interface between a Geographic Information Service (GIS)-equipped phone and PG&E's AMDB.

Instead, PG&E filed a closed sample, browser-based reporting tool that requires consistent internet access. PG&E states that it is "willing to publicly share the design of the web-based mobile app." (Pilot Implementation Plan (PIP) at 2). This statement ignores the fact that PG&E proposes a system not functionional in areas of California lacking internet service. Several of those communities are located in or near areas afflicted by fires CalFire determined were ignited by PG&E, and are located within areas that lost power during PG&E's Public Safety Power Shutoffs (PSPS) in October 2019.

The CPUC's Broadband Maps show areas of California that are unserved or underserved by broadband Internet access.[4] Many of the areas the CPUC has identified as unserved or underserved by broadband Internet access are in Sonoma, Napa, and other counties where CalFire determined PG&E's infrastructure ignited fires. PG&E's web-based portal would not enable access in areas lacking Internet access. Some of those communities also experience high winds, face fire threats, and may be served by aging, overloaded, or poorly managed utility infrastructure.

The CalSpeed App developed by the CPUC in conjunction with a team at California State University at Monterey Bay provides an example of an App designed to work in places without Internet access.[5] Designed as a "Native" App with offline capability, CalSpeed measures Internet speed and latency and stores the data when Internet access is not available. When the CalSpeed App user returns to a location with Internet access, the stored data is sent to the data processing

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4 CPUC, GIS Data and Broadband Maps, Data as of Dec. 31, 2019, https://www.cpuc.ca.gov/Broadband_Availability/.

5 CPUC, Mobile Broadband Testing, https://www.cpuc.ca.gov/General.aspx?id=1778; CPUC, CPUC Seeks Volunteers in Fresno for Home Internet Pilot Study, August 21, 2018, http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M223/K844/223844494.PDF.

system used to populate the CPUC's broadband availability maps. The Geographical Information Center at California State University, Chico manages CalSPEED mapping and measurement field operations. The CalSpeed App's design provides a model PG&E can follow in designing a widely accessible App that will function in areas without Internet access.

### B. PG&E's Proposed Invitation-Only Pilot in Tier 2 and Tier 3 High Fire Danger Zones Does Not Reflect the Scope of PG&E Facility and Management Issues or Respond to the CPUC's Order

PG&E proposes to launch a limited, invitation-only Pilot in Tier 2 and Tier 3 high fire danger areas to test its web-based system for one fire season. PG&E hopes to recruit 384 submittals through its narrow pilot. This limited geographic scope and invitation-only design fails to harness public identification of hazards and connect public information to action across PG&E territory. The CPUC neither ordered a pilot nor a one season system to be run for six months. The CPUC should direct PG&E to make the App accessible to everyone.

The CPUC should also clarify the timeline for PG&E shareholder responsibility for a robust App and asset management system. The CPUC should impose a term for system operation of the ordered remedy at PG&E shareholder expense, commensurate with the harms caused by PGE's infrastructure management: 12 years broken into four, three-year cycles that will complement a Wildfire Mitigation Plans and General Rate Case investments.

PG&E's limited pilot design appears to rest on its interpretation that the primary focus of PG&E's Mobile App "is to further mitigate Wildfire risk," defined "as the risk that PG&E assets may initiate a wildfire that is not easily contained."[6] PG&E's "definition of wildfire risk focuses

[6] PG&E, Application A-19-07-019, Exhibit 1, p. 2.

on ignitions in geographic areas with elevated wildfire risk, also known as High Fire Threat Districts (HFTD)."[7]

CPUC OII 19-06-015 does not limit PG&E's app to areas PG&E defines as high wildfire risk. The CPUC ordered this immediate corrective action to protect public safety as the CPUC investigates PG&E violations of CPUC rules associated with the 2017 and 2019 fires sparked by PG&E infrastructure and management. During the October 2019 PSPS, fires broke out in the high wind areas of Milpitas and Layfayette, California—locations not classified as high threat districts. PG&E should not be permitted to run this small, brief pilot in response to a large and widespread problem under investigation in the OII that ordered the App.

PG&E's narrow framing of App's purpose and geographic scope compounds the distorted measures the utility proposes to assess the App. PG&E proposes that the Mobile App should be assessed by examining:

> "[U]tility in reducing the risk of catastrophic wildfire should be measured against the diversion of resources from other wildfire mitigation efforts that may be caused by the Mobile App, namely, to what extent use of the Mobile App would require a response to:
>
> 1. Submittals that do not report an ignition risk;
> 2. Emergencies that require a 9-1-1 response;
> 3. Issues outside of high fire threat areas; and/or
> 4. Issues on assets that do not belong to PG&E; and
> 5. Issues that would have been otherwise identified by PG&E (i.e., potential for duplication and suboptimal resource allocation).

CPUC OII 19-06-015 did not limit the purpose of the App to identifying ignition risks, emergencies that require a 9-1-1 response, high wildfire threat areas, PG&E assets, or to issues PG&E would have identified.

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7 *Id.*

Rather, PG&E seeks to redefine the CPUC's Order as requiring identification and response only to "immediate safety hazards"—a point PG&E emphasized at the February 12, 2020 workshop. Yet, the CPUC's Order is not so limited. Facilities issues worsening over time pose safety hazards that PG&E has a duty to prevent as required of a prudent utility operator. PG&E's duty to maintain a safe reliable system with adequate facilities under CA PU Code 451 and 399 requires it to address issues that affect safety and reliability. PG&E's duties are not limited to addressing "immediate safety hazards."

CPUC OII 19-06-015 alleges a range of CPUC rule violations including failure to identify and abate potential hazards such as vegetation, late work or lack of work completion, and poor record keeping.[8] Had PG&E addressed these issues before they became an "immediate hazard," lives could have been saved and property and the environment could have been protected. Photos of safety hazards in the making and CPUC rule violations can prevent "immediate safety hazards" from emerging.

Neither does the CPUC's Order give PG&E the discretion to label the App and analysis of public input as a "suboptimal resource allocation." The risk of underperformance of the App is baked into PG&E's limited design.

Issues that may pose safety hazards such as pole overloading can create ignition risks. Violations of CPUC rules that do not require a 9-1-1 response need to be addressed before they become emergencies. PG&E has a duty to maintain safe and reliable service throughout its territory—not just in high fire threat areas.

[8] CPUC OII 19-06-015, p. 13-14.

PG&E contends that a "lack of participation would be an indication that the public is simply not interested in using the Mobile App."[9] PG&E's "administrator unwillingness" evidenced in its small, invitation-only pilot design sows the seeds of limited participation. Instead of a six month invitation-only pilot inaccessible in areas without Internet access, a robust App design connected to PG&E's complaint process and asset database and analysis systems, accompanied by media and public outreach and training—with public feedback—will encourage participation. The App the CPUC ordered PG&E to develop should allow anyone to snap a picture of a sparking transformer box, obstructed climbing space, or other infrastructure or rule compliance issue, and create a report based on that picture. Even submissions that are found to have not identified a safety hazard would provide PG&E with asset image and location data.

The CPUC should order PG&E to conduct outreach and training for use of a properly designed App. The CPUC should order such outreach and training in several areas of PG&E's service territory including: locations the CPUC has identified as high fire risk zones; frequent high wind zones; areas affected by PG&E's October 2019 PSPS, and; regions affected by PG&E-induced fires since 2015. The CPUC should also require to PG&E conduct outreach, and offer training to public safety organizations including neighborhoods that have received Firewise certifications such as Firewise Chemeka Park in Santa Clara County and other Firewise communities in high fire threat zones and high wind zones.[10]

The CPUC should order PG&E to do outreach and offer training to public safety agencies, municipalities, Native American Tribes in PG&E territory, non-profit organizations, universities and community colleges, and the media. The CPUC should also order PG&E to

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9 PG&E, Application A-19-07-019, Exhibit 1, p. 5.

10 Santa Clara County, Fire Safe Council, *What is Firewise USA*, https://sccfiresafe.org/learn/what-is-firewise-usa/.

outreach and offer training about the redesigned App in areas with aging PG&E infrastructure. Outreach and training should also be mandated in areas where PG&E has identified overloaded or obstructed utility poles or potential CPUC rule violations by PG&E or joint pole owners or attachers.

### C. The App Should Be Designed to Enable Layered Risk Analysis

The App and database system design resulting from the CPUC's Order should reflect and enable layered analysis of risk factors and promote action to reduce risk. CPUC Decisions including D. 16-08-018 and D. 14-12-025 called for shared learning as part of risk-based utility operation and the framework for alignment of resources and risks in ratemaking. A properly designed App can promote identification and analysis of risk factors including their *interrelationships,* e.g. fire hazard & high wind zones, tree types & fire risk, infrastructure age or type & fire risk, other pole attacher practices & fire risk. The App should connect to PG&E asset management and analysis systems including those enabled by artificial intelligence to learn from hazards, near misses, and incidents, and incorporate that learning into its action plans and safety management.

### D. PG&E's Application Reflects its Safety Culture Problem and "Administrator Unwillingness" to Enable Public Safety Engagement

#### 1. Public Participation through Crowdsourcing Methods to Identify Issues is a Tested Method of Improving Governance and Addressing Issues

PG&E's Application and comments at the February 12, 2020 workshop reflect PG&E's skepticism about the value of creating a method to allow the public to submit photos to PG&E to promote safe and reliable operation. Citizen participation and "crowdsourcing" to identify issues

through photos submitted by smartphones is an input method deployed all over the globe during the past decade. In 2013, researchers Kari Benouaret, Raman Valliyur-Ramalingam and François Charoy wrote that it is "now a well established notion that organizations can achieve large-scale, coordinated endeavors by requesting contributions from smartphone users in a context that uses these devices' capabilities. Using citizens' local knowledge, experience, and collaboration could help local officials to obtain an overview of the status of city infrastructure and utilities through crowdsourcing questions such as, "[w]hat roads need repair in Nancy?" or "[w]hat places are slovenly in Paris?"[11]

Systems that transform publicly submitted photos into action reflect our system of democratic governance and harness an engaged citizenry. As Professor Sandoval stated in the February 12, 2020 workshop, Californians are smart, capable, and engaged in preventing utility fire and infrastructure risk issues. From students to teachers, farm workers, Girl Scout Troops, Firewise Safety Councils, local and tribal governments, to Californians in a variety of occupations, Californians are eager to use their time and talent to enhance the safety of our state's infrastructure.

Researchers Yueping Zhenga and Hindy Lauer Schachte examined the role of "administrator willingness" or desire to enable citizen participation through information and communications technology (ICT).[12] Their study examined the effect of administrator willingness on local government deployment and use of ICT, but its lessons apply to the CPUC's

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11 Kari Benouaret, Raman Valliyur-Ramalingam and François Charoy, *CrowdSC: Building Smart Cities with Large-Scale Citizen Participation*, SMART CITIES, NOVEMBER/DECEMBER 2013.

12 Yueping Zhenga and Hindy Lauer Schachte, *The Impact of Administrator Willingness on Website E-Participation: Some Evidence from Municipalities*, PUBLIC PERFORMANCE & MANAGEMENT REVIEW, Vol. 41, No. 1, 1–21 (2018).

order to a regulated utility such as PG&E. Zhenga and Schachte found that ICT action "is most likely to take place when administrators both want it to occur and possess the resources to make change happen."[13] "Administrator willingness plays an important role in determining e-participation offerings at the municipal level. Thus, a change in government administrators' attitudes toward using ICT and involving citizens would promote more abundant e-participation offerings."[14]

PG&E's proposed design of a small, invitation-only pilot to be run for one season while being isolated from its larger asset management, analysis and learning strategies reflects the "administrator unwillingness" problem Zhenga and Schachte identified. PG&E's undersized, invitation-only proposal for a one season web-enabled pilot exemplies PG&E's safety issues and the company's safety culture problem.

PG&E should embrace this opportunity to learn about the status of its infrastructure from the public it is licensed by the State of California to serve. The CPUC should order PG&E to revise its application to create a sustainable method that embraces public input including photographs, and connects that information to its analysis system including machine learning methods to lead to action that improves public safety and reliability.

### 2. PG&E Expresses Undue Skepticism about the Value of Public Photos; The CPUC should Require PG&E to Provide Training and Outreach to the Public

In its Pilot Implementation Plan (PIP), PG&E expresses skepticism centering on whether the public will submit any valuable information through the photo submission system PG&E envisions. PG&E states that "the general public is not trained to identify or distinguish between

13 *Id.* at 2-3.
14 *Id.* at 8.

electrical and communication assets, nor is the public trained to identify the potential for an ignition risk related to a PG&E asset." PG&E's comments assume no responsibility to communicate to the public to recognize safety issues. The CPUC should order PG&E to engage in public training as part of this Application to inform the public about how to recognize safety issues and CPUC rule violations on PG&E facilities in a manner that is safe for the public and does not cause any damage or hazards to PG&E or other facilities.

PG&E expresses concern that the public will submit photos of "non-issues (i.e., constructed to regulation and design)."[15] PG&E should take the opportunity to use the App and public reporting of its analysis of photos to explain what PG&E believes are facilities constructed to regulation and design. For example, CPUC General Order 95 doesn't place a degree limit on how much a pole can lean, but a pole cannot lean in a manner that compromises safety and reliability. PG&E should explain why it contends certain designs are acceptable. Informed deliberation and contestation enabled by the App the CPUC ordered would foster examinination of design parameter assumptions that may create safety hazards, particularly when they are tested by time, wind, drought, and poor record keeping or management.

The analysis and explanation process enabled by the App can also identify issues such as whether PG&E and others are misclassifying practices such as using electrical tape on worn equipment, use of rope, and corrosion as "not a safety issue." Aging and corroded C Hooks and Jumper Cables have been identified by CalFire as likely fire ignition causes for the 2018 Camp Fire and 2019 Kincaid Fire.

The CPUC should reject PG&E's proposal not to make public photos submitted through the App and not require PG&E to public explain its analysis of the photos during the limited six-

[15] PG&E, Application A-19-07-019, Exhibit 1, p. 4.

month invitation only pilot PG&E envisions. Public posting of photos of PG&E infrastructure and explanation of PG&E's analysis will foster accountability and shared understanding of CPUC rules. Photos support informed contestation of PG&E's interpretations of its obligations, conduct, and assessments.

The CPUC should order public posting of photos submitted (with a screen for irrelevant photos and respect for the privacy of the poster's name and identifying information) and public explanation of PG&E's analysis. Doing so will increase public information, promote transparency, enhance PG&E's accountability, and facilitate appropriate CPUC enforcement.

As part of the public training in use of the App, the CPUC should order PG&E to conduct public training about electric hazards, joint use poles, CPUC rules, and safe use of Apps including downed pole line safety and traffic safety (*e.g.* don't stand in the street to take photos and avoid downed power lines!) Two-way public education and communication will enhance mutual sharing of information and increase public safety.

### 3. Photos of "Duplicates" and Issues Known to PG&E Create Opportunities for Accountability and Follow-up; They Not App Failure Indicators as Urged by PG&E

PG&E proposes to count as a "failure" any photos PG&E characterizes as "duplicates" of issues of which PG&E is already aware. This is an example of PG&E's miscalibrated metrics. The public does not know that PG&E is aware of a PG&E facility safety issue or ongoing problem because PG&E does not inform the public about its asset assessments or its plans to fix problems.

Information about an ongoing problem is a valuable asset as it confirms that the problem still has not been fixed and may reveal deteriorating or changed conditions that spurred the citizen to take and send the photograph. SED's findings in OII 19-06-015 of PG&E's unreliable

recordkeeping in which some issues were flagged, but never addressed and some went unaddressed but were marked as completed highlight the value of public input and verification.

Public reporting of issues PG&E characterizes as "duplicates" to the information in its database can identify lagging repairs and conditions that do not match utility records. PG&E's practice of flagging, but not addressing issues, and poor record keeping identified in OII 19-06-015 underscore the value of public accountability for ongoing problems. Communication to the public about PG&E's plans to address issues with its facilities would improve PG&E's transparency, accountability to the public, and enhance regulatory oversight.

### 4. Telecommunications Equipment on Joint Poles can create Safety Hazards and Limit PG&E's Ability to Deploy ICT to Enhance Safety

PG&E's Application, proposed metrics, and workshop statements overlook the safety linkage between electrical and communications assets which often occupy the same utility pole. Telecom facilities and practices have been associated with fires that affected electric facilities, such as the Malibu Canyon Fire (CPUC Decision 13-09-026).

PG&E proposes to count as a indicator of its pilot failure photos submitted that show issues with telecommunications equipment. PG&E's Application expresses concern that the public could "mistakenly submit issues with non-PG&E infrastructure (i.e., telecom), non-issues (i.e., constructed to regulation and design), or duplicate issues (i.e., already known to PG&E and prioritized appropriately)."[16]

PG&E fails to recognize the potential for telecommunications equipment failure to spark electrical fires. When a fire broke out in Lafayette, California during high winds in October 2019, PG&E Troubleman reported "the lashing wire of a communication cable near a PG&E

[16] PG&E, Application A-19-07-019, Exhibit 1, p. 4.

open wire secondary conductor was broken."[17] Lafayette is not in an area designated by CPUC maps as a high fire threat zone, but it does have a history of high winds. Photos submitted by the public of equipment on jointly owned poles can help identify hazardous conditions that can lead to fires and other safety hazards such as obstructions in the climbing space of a joint use pole.

PG&E stated at the February 12, 2019 workshop that if it received public photos of communications equipment issues, it would report the issue to the communications attacher or owner of the communications space. CPUC OII 17-06-027 is examining the interrelationship between utility pole safety and competitive access.

CPUC OII 14-05-012, the Rural Call Completion proceeding, and Decision 16-12-066 uncovered problems that often linger for years on jointly owned poles, despite the electric-communications company reporting process. "Pegs" and "buddy poles" (portions of utility poles to which telecommunications equipment is still attached even when a new utility pole is planted) leave hundreds of extra pounds on poles and violate CPUC rules. CPUC rules set limits on how long conditions such as Pegs and Buddy poles can last, but they often hang on poles for years.[18] The CPUC's Safety and Enforcement Division identified examples of communications equipment that blocks the climbing space to access electrical facilities.[19] Climbing space obstructions not only violate CPUC rules, they create safety and reliability hazards.

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17 Mattias Gafni, *PG&E to state, 2 Lafayette Fires Linked to Electrical Malfunctions*, SAN FRANCISCO CHRONICLE, Oct. 18, 2019, https://www.sfchronicle.com/california-wildfires/article/PG-E-to-state-2-Lafayette-fires-linked-to- 14568505.php.

18 Fadi Daye, Utility Pole Safety, CPUC Safety and Enforcement Division, May 12, 2016, Slides 12-16, https://www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/Safety/Presentations_for_Commission_Meeting/SED%20Utility%20Pole%20Safety.pdf.

19 *Id.* at Slide 17.

Violations of CPUC rules in the communications space hinders PG&E's proposal to increase its use of communications and information technology to improve situational awareness. PG&E's 2020 Wildfire Safety Mitigation Plan proposes increased use of cameras and weather monitoring equipment.[20] Figure 5-9 in PG&E's Wildfire Safety Mitigation proposal shows equipment throughout the pole's length, including in the communications space. Mounting cameras, fire, and wind detection equipment on poles, whether jointly or solely owned, requires space and contributes to pole loading. Jointly owned poles with multiple attachments or CPUC rule violations preclude or complicate safety equipment mounting.

PG&E's Wildfire Safety Mitigation 2020 Proposal states "poles at highest risk of being overloaded are jointly owned, Class 5 (smallest pole) with both primary and secondary conductors and multiple communication attachments."[21] Public photos can inform PG&E's pole loading calculation, risk models described in its Wildfire Safety Mitigation Proposal, and speed deployment of technologies that can detect and reduce hazards.

### E. PG&E customers are ready and willing to help track damaged assets

Californians are ready and willing to report utility pole and facility issues to protect our state and communities. In May 2018 Professor Catherine Sandoval organized a utility pole tour in the San Jose area, accompanied by then CPUC President Picker. The tour highlighted violations of CPUC rules in plain sight on urban streets. Shortly after the pole tour, lingering issues such as some buddy poles created by PG&E were finally repaired. Other hazards and CPUC rule violations still dangle on the region's poles nearly two years later.

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20 PG&E 2020 Wildfire Mitigation Plan Report, Rulemaking 18-10-007, Feb. 7, 2020, p. Figure 5-9, pg. 5-69.

21 *Id.* at 5-134.

Residents of the Firewise Chemeketa Park neighborhood, located in a Tier 3 high wildfire danger area in the hills approximately 15 miles from Santa Clara University, exemplify communities who are capable, willing and motivated to participate in an App system that enhances safety and accountability. In fall 2019, a Chemeketa Park resident notified PG&E by telephone about the sparks coming from some power lines in the neighborhood. PG&E personnel who visited the site told that resident nothing was wrong with PG&E's facilities. When sparks flew again, the resident called Cal Fire first and Cal Fire intervened to spur PG&E to take a closer look. PG&E informed the resident that their employee's inspection found a fault with the transformer, and that PG&E had repaired the transformer.

This incident illustrates why it would be helpful to create a channel to link photos and videos to the complaint and reporting process. PG&E's Application states that within high fire threat zones such as Chemeketa Park, the primary ignition risk drivers between from 2015 to 2017 were vegetation contact (49 percent) and equipment failure (27 percent).[22] The transformer issue is an example of equipment failure that could have ignited a fire. When Professor Sandoval visited Chemeketa Park in 2019 and took the picture of a jointly owned pole largely covered in dead vegetation, she saw and photographed many instances of vegetation contact with PG&E facilities.

Yet, PG&E's Application limits customer complaints to 20th century voice telephone technology to report problems. PG&E misses the opportunity to create an App linked to its customer complaint process and its management and analysis of facilities and hazards. At the February 12, 2020 workshop SED representatives presented data about the high number of hourly calls to PG&E to report safety complaints. A well-designed App can harness photos and

[22] PG&E, Application A-19-07-019, Exhibit 1, p. 2.

21st century technology to make the complaint process more effective and increase public safety. California residents such as those in Firewise Chemeketa Park are ready and willing to use a well-designed App to report hazards and initiate prompt repairs and maintenance to enhance the safety of their community and all California communities. While 9-1-1 calls are still appropriate to report immediate safety risks with PG&E infrastructure, enabling photos to accompany those calls will enhance PG&E assessment of the nature and level of the risk, improving PG&E's effective response.

### F. AMDB can combine crowdsourcing, PG&E internal records, and machine learning to improve public safety

PG&E's Application and workshop comments emphasized that the App the CPUC ordered should not substitute for PG&E's work to manage and inspect its facilities. The CPUC never ordered the App as a substitute for PG&E's work, which remains PG&E's responsibility. The App creates a means to complement PG&E's work by facilitating public input through photographs that can inform its asset analysis, management, and public safety.

PG&E should see crowdsourcing as a resource that can enhance analysis and management of PG&E's assets and improve its safety record. PG&E's proposal would create a small web-based invitation-only pilot, disconnected from the artificial intellitence and machine learning process PG&E applies to its own photos. In response to Professor Sandoval's question at the February 12 workshop in this proceeding, PG&E answered that it is using Artificial Intelligence to analyze photos taken by PG&E employees, drones, and LIDAR. PG&E personnel commented that the machine learning process takes time.

In its 2020 Wildfire Mitigation Plan, PG&E references its development of "new inspections tools and methods to quickly identify issues and proactively manage asset and

system maintenance." In doing so, PG&E claims it is "leveraging" existing technologies which include "remote sensing technologies", "drone imagery capture" and use of "machine learning software" to identify dead or dying trees posing threats as wildfire hazards. According to PG&E, some of these technologies are yet untested; with regards to future drone technology, the utility claims its use of such technology is dependent on FAA regulation requirements.

"Machine learning is an application of AI in which machines are given access to data and, based on this data, "learn" without being explicitly programmed."[23] More exposure to data, along with proper training, can increase and improve the AI learning process. As Professor Catherine Sandoval highlighted during the February 12, 2020 workshop, Google Images has repeatedly labeled a picture she took of a utility pole in a Tier 3 high wildfire danger area covered in dead vegetation as a tree.[24] The artificial intelligence Google uses has not yet been trained to recognize the difference between a utility pole covered in dead vegetation and a tree. Neither has it been trained that dead vegetation on a utility pole creates an ignition hazard, and should trigger action by both the electric and communications utilities to elimate the hazard. A copy of the presentation Santa Clara University Law Professor Catherine Sandoval made at the CPUC's February 12, 2020 Workshop in this proceeding is attached to these comments as Exhibit 1.

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23 James McClelland, *Connected Assets, How Machine Learning Will Transform the Utilities Industry*, Feb. 28, 2018, D!GITALIST MAGAZINE, https://www.digitalistmag.com/iot/2018/02/26/connected-assets-how-machine-learning-will-transform-the-utilities-industry-05921360.

24 Catherine Sandoval, *Go Big to Connect Public Information to Analysis and Action to Protect Public Safety!* Comments on PG&E's Application 19-07-019 to Develop and Operate a Mobile App to Improve Public Safety as an Immediate Corrective Action for the CPUC Investigation, OII.19-06-015, into 2017 and 2018 Fires Associated with PG&E Infrastructure and Practices, Slide 4, Feb. 12, 2020, https://1x937u16qcra1vnejt2hj4jl-wpengine.netdna-ssl.com/wp-content/uploads/CSandoval-2nd-Workshop-Feb-12-2020.pdf.

PG&E's Application proposes to have a team of trained PG&E employees "triage" the photos and email the individual who submitted the photo to explain PG&E's assessment and anticipated action. This technique is familiar to Sherlock Holmes fans where a trained inspector takes a close look at photographs to assess their significance. Connecting the publicly submitted photos to the machine learning process, and using people to train AI tools will unlock new potential for safe and reliable operation.

Machine learning occurs when a system is repeatedly exposed to the same task over and over. To foster machine learning from sets of images, AI can be repeatedly exposed to images as needed for training. AI could identify vegetation that will encroach on electrical infrastructure and dispatch crews to trim the vegetation before it creates a safety hazard. By submitting photos taken by the public, AI learning would advance at a higher rate.

PG&E effectively puts the web-based portal it proposes in lieu of an App into an organization box, separated from its machine learning and central asset management or complaint process. PG&E's application misses the opportunity to create synergies through an App that connects to its asset management database and process including its machine learning process. PG&E's Application misses the opportunity to advance the speed and depth of machine learning, improve responsiveness to customers, and to stay ahead of hazards.

## IV. CONCLUSION

In Proceeding 19-07-019, the CPUC ordered PG&E to create a mobile phone application that would allow users to submit pictures of damaged PG&E assets. The Application must (1) be open source; (2) allow public reporting of electric infrastructure issues; (3) attach GIS data to the pictures so that PG&E can use the data to locate and repair damaged assets; (4) allow the public

to access a database of submitted pictures; and (5) submit information on reported and addressed issues to the Asset Management Database within 30 days of the customer report. PG&E has sought to redefine the criteria of the CPUC order throughout this proceeding.

This proceeding did not order PG&E to develop a one-season, invitiation only pilot study on the implementation of a web-based portal inaccessible in areas without Internet access. Sadly, PG&E has so far used the public's time in this proceeding to attempt to redefine its obligations into a smaller and less expensive project with metrics that would justify the project's swift demise. PG&E's application reflects its safety culture and "administrator unwillingness" issues. The CPUC should order PG&E to develop an App consistent with the CPUC order. The suggestions offered in these comments are designed to protect public safety and increase PG&E's transparency and accountability.

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Respectfully submitted,

*/s/ Catherine J.K. Sandoval*

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