From: Nancy Macy
To: Thomas Jacobs, Caroline
Cc: Wildfire Safety Division
Subject: Comments 2021 Update PG&E WMP
Date: Monday, March 29, 2021 4:02:43 PM
Attachments: page1image111970176.png
page1image111975936.png
page3image111885888.png
page4image111878784.png
page5image111879552.png
page5image111880704.png
page6image111882048.png
page7image111877056.png
page10image111836352.png
page10image111824832.png
page10image111826560.png
page10image111831552.png
page11image38146528.png
page14image111778560.png
page15image111832704.png
page17image111835008.png
page20image38159376.png
page21image111822720.png
page21image111826944.png
page21image111827328.png
page21image111825216.png
page23image111830976.png
page24image111834048.png
page25image111783360.png
page27image111823488.png
Importance: High

COMMENTS and CRITICISMS RE 2021 UPDATE
PG&E WILDFIRE MITIGATION PLAN
Valley Women's Club Environmental Committee for the San Lorenzo Valley March 29, 2021

Dear Director Thomas-Jacobs,
We are grateful for the opportunity to comment on PG&E's 2021 Update of its Wildfire Mitigation Plan

(WMP). We are working with, and representing, residents of virtually every forested region in PG&E's service territory, having years of experience with PG&E's policies and procedures – including personal dealings on our own properties, and those of neighbors and associates; study and analyses of CPUC and PG&E; on-going participation in (and investigation for) a broad range of agency oversight processes; involvement in legislative and legal efforts; and supporting and influencing community involvement.

As such, we recognize that PG&E's current Wildfire Mitigation Plan Update will still fail in virtually every essential mitigation measure because of misplaced planning and priorities. Unless compelled to change,

• ***PG&E will still chronically fail to prevent wildfires*** *by failing to prioritize and speed up infrastructure modernization, specifically by replacing antiquated conductor (especially outdated 6-gauge bare copper wire and corroding bare aluminum wire in the salty air along the coast) with triple-insulated ASCR, installing computerized circuit breakers, expanding the use of spacer cable, and removing unsafe equipment (such as expulsion fuses) and installing modern, safe replacements.*

• ***PG&E will be forced to rely on Public Safety Power Shutoffs (PSPS) for decades*** *(with no guarantee that it will always succeed as with the surprisingly high winds in the Santa Cruz Coastal Mountains (January, 2021), where downed power lines sparked fires since PG&E failed to initiate PSPS there.* ***PG&E's goal is limiting PSPS impacts rather than eliminating the need for PSPS (in comparison to Southern California Edison (SCE) that clearly states its goal is to eliminate PSPS;***

• ***PG&E will cut literally millions of trees from every forested area in a futile attempt to prevent damage to power lines, while failing to prevent the other 75%+/- of wildfire ignitions;***

• ***PG&E will cause extensive, lasting environmental and financial damage while accelerating climate change;*** *and,*

• ***PG&E will waste billions of dollars by failing to address outdated equipment as the emergency it is*** *in the Tier 2 and 3, High Utility-Associated Wildfire Areas, while it is permitted, even encouraged, to distract criticism by, 1. focusing on Enhanced Vegetation Management (EVM), 2. by installing technology to respond after a fire has started (cameras) 3. by reacting after a powerline has failed and a fire started (Smart Meters), or 4. by creating microgrids for temporary use to avoid PSPS, instead of enabling greater local power production to reduce dependence on massive, aging power grids, and to function under permanent control by local governments or regional organizations such as CCA's.*

We recognize the enormous pressure the WSD is under to complete this evaluation process so quickly, and hope that you will find our discussion compelling. In reviewing your June 10, 2020 Action Statement on PG&E's 2020 WMP, you said, "For PG&E's plan to be most effective with its finite resources, strategic prioritization of initiatives geographically and by ignition driver to target the highest risk elements of PG&E's grid is crucial." We agree. PG&E's failure to provide adequate risk assessments comparing all mitigation measures was the very reason the Office of the Public Safety Advocate was so critical of PG&E's downed wire plan to focus on EVM.

We are looking at this WMP from the point-of-view of those who are most susceptible to wildfire.

Most of us have been personally involved in wildfire; all of us have dealt with years of pressure by PG&E and its contractors to remove healthy trees unnecessarily – without proof of efficacy – especially due to EVM. All of us have endure this while cognizant of PG&E's failure to maintain, no less upgrade and modernize, its system. Thousands of California residents have experienced disastrous wildfires -- destroying homes, property and lives. Far too many of them were the result of failed infrastructure, and even PG&E's 25% vegetation - caused fires would have been prevented, had the branches or trees fallen on strong, multi-layered conductor.

PG&E is still failing to recognize the emergency nature of modernizing its distribution system by upgrading to stronger, triple insulated conductor (as SCE is doing), installing proven computerized circuit breaker technology, expanding the use of spacer cable, and prioritizing the removal and upgrading of equipment that definitely causes fires, even when properly working, like expulsion fuses and reclosers. Some improvements are happening, but far fewer and far more slowly than the situation warrants – less than 200 miles planned for hardening in 2021 – with no clarity about what that hardening invoves. Instead, PG&E continues to distract attention from its decades of proven egregious neglect of public safety, decades of increasing profits with higher costs to rate payers, and disturbing disregard of fire victims by taking down tens

of thousands of trees without their notice or approval – removing the opportunity for damaged trees to heal and help restore the forests – and contributing to its ever-expanding environmental destruction.

PG&E is spending millions to make PSPS less onerous rather than less necessary; and spending millions on cameras and upgrades to Smart Meters to try to improve response to fires already burning. This is commendable but a diversion. You can require that PG&E takes strong, fast action to prevent over 95% of ignition sources by insisting on modernizing distribution lines; and, that it curtail spending millions to degrade forested environments by EVM, and exacerbating climate change -- while actually increasing the likelihood of fire and the speed of fire-spread by denuding Rights of Way, exposing long swaths of land to fast-growing, easily-ignited grasses and invasive plant species, and creating tree tunnels to focus wind-driven fire brands. We fear that the 84 murders in Paradise will again be repeated elsewhere.

While PG&E readily acknowledged (p. 551)[1] that replacing bare overhead conductor with covered conductor can be an "effective mitigation of wildfire ignitions on distribution lines...," and can "reduce the likelihood of faults due to line-to-line contacts, tree-branch contacts, and faults caused by animals." It may be working on replacing old expulsion fuses, and replacing power poles in a spotty manner -- but none of the infrastructure improvements are comprehensive, nor are they happening fast enough.

For months and after the huge wildfires were out, we have been dealing with PG&E's massive effort to clearcut trees in the fire zones: The *Rim Fire* burned through the Sawmill Mountain area of Tuolumne County nearly eight years ago, but old-growth Cedar and heritage Oaks are still being removed to protect burned poles and antiquated, fragile, bare, many-time-spliced copper conductor. Sonoma County, Napa County and the City of Santa Rosa have united to convince the CPUC of the legal mandate that PG&E must remove the thousands trees it chose to destroy in each of their

massive fire-impacted areas. In the *CZU Lightning Complex Fire*, in Santa Cruz County's Coastal Mountains, PG&E was presented with seven Notices of Violation for its clearcutting of fire damaged trees, many of which were viable and still able to regenerate and help restore the forest, failing to inform landowners, ignoring winter harvesting restrictions, bulldozing roads and cutting across important creeks for water supply and threatened salmonids. Five of the NOV's were from CAL FIRE, one from the Regional Water Quality Control Board and one from the Coastal Commission. The distrust of PG&E had existed long before the fires, when many of us repeatedly faced coercive pressure by

[1] **PG&E 2021-Wildfire-Safety-Plan.pdf, page 551, Primary and secondary covered conductor replacement.**

PG&E and its contractors to give in and allow that our healthy, mature trees be cut down rather than trimmed, with contractors returning many times a year, as in Arnold in Calaveras County; returning year after year to pressure property owners as in Tuolumne County; removing beautiful Dogwoods from the Ebbetts Pass Scenic Byway that drew thousands of visitors, rather than trimming them; cutting down over one hundred beautiful cottonwoods and oaks along the American River Parkway in Sacramento, rather than trimming them as done for decades; destroying the magnificent avenue of trees in Nevada City, in spite of efforts involving the entire community – both in court and by tree-sitting.

There is significant irony in the WSAB's recommendation that the 2021 WMP Guidelines require the utilities to "develop explicit vegetation management residual plans that ensure that vegetation management itself does not contribute to increased fuel load and increased risk of fire." Stressed-out landowners are staring at many thousands of trees of every species lying sprawled across acres and acres of land in every one of the Lightning Complex Fires, adding to the fuel load to feed future fires. PG&E refuses to remove the trees because it's too expensive, in spite of doing so in the past, and it argues that is cannot remove them since are not a "commercial" entity. It is trying to thwart CALFIRE, protesting that it doesn't need to obtain or comply with the Utility Exemption Permits that CAL FIRE requires for utility ROW tree work; a "commercial" timber harvester would take and market the trees, so PG&E argues that if it doesn't take the logs, it is not a commercial enterprise. This is not a criteria of the Board of Forestry definition of "commercial" in relation to a utility, so PG&E has acted illegally throughout the Lightning Complex Fires' areas, and is facing both criminal and civil liability.

You aptly identified PG&E's "*Deficiency (PGE-3, Class C):* *High incidence of conductor failure. As shown in Appendix B, Figure 2.6a, PG&E has approximately 50 percent more conductor failure ignitions as a percentage of total ignitions, nearly 2.5 times the number of "conductor failure"-driven ignitions per overhead circuit mile compared to peer utilities.... The high rate of conductor failure poses a serious risk."* [2] We could not agree more; it is an appalling situation. However, PG&E plans to delay replacement – down to less than 200 miles for 2021, and yet is wasting billions of dollars, and years of time, as it continues and expands on

[2] June 10, 2020 **Wildfire Safety Division Action Statement on Pacific Gas and Electric Company's 2020 Wildfire Mitigation Plan,**

prioritizing its decades of manipulation of Vegetation Management for profit gains[3], with the expansion of EVM and, since 2019, removing millions of trees "within striking distance" of the power lines. You must stop PG&E from prioritizing this unproven process over regular facility maintenance and rapidly upgrading to modernize infrastructure.

In your May 7, 2020 letter to Stakeholders, Agenda ID#: 18413, you remarked that PG&E's initiatives, which are "the actions and programs PG&E will take to reduce wildfire risk," (to) address the major risk factors that PG&E faces, are "lacking in detail, reported in large bundles (reducing your ability to see into the scale of planned activities," while its so-called "enhanced inspection programs" are not clearly effective nor does it delineate how the enhanced inspections differ from traditional inspections. The pilot projects to try "innovative technologies to detect system problems that lead to ignitions," are not described in sufficient detail, nor does PG&E provide a detailed plan for "deploying these technologies at scale." Even its claims to reduce the size and scope of PSPS, PG&E "does not articulate quantitatively how it expects hardening to increase PSPS thresholds for individual circuits, thus impeding the WSD's ability to determine how the %5.3 billion in hardening work will affect the probability of a PSPS in communities in California." **These are typical PG&E tactics – ambiguity, obfuscation, and vague promises.** You are correct in doubting that PG&E will be able to fulfill its PSPS plan completely and on time, no less replace the fuses in a pragmatic, methodical manner.

Even worse, PG&E will continue to test (rather than install) computerized circuit breakers that can diagnose arc faults and immediately act to cut off power to prevent wildfires and electrocutions, while notifying maintenance of the precise location of the problem for quick and efficient repair. Circuit breakers are a crucial, basic part of every electric circuit in every building everywhere. **Incredibly, there is NO MENTION of such in any CPUC regulation. GO 95 has no mention of circuit breakers at all, and pressure should be applied for the CPUC to modernize its regulations!** This egregious neglect, however, is no excuse for PG&E's failure to have not already begun installing such equipment. It is available on-line from well-respected companies, having been thoroughly tested; it is remarkably inexpensive and readily installed**. Coupled with steel-core, triple insulated conductor, an electric circuit become fail-safe from wildfire ignition; it improves reliability year-round. It fulfills the mandate for a safe, reliable and affordable system.**

[3] Pages 120-ff, **The Grid: The Fraying Wires Between Americans and Our Energy Future**, Gretchen Bakke, Ph.D., Bloomsbury USA.

PG&E knows the regulations and how to manipulate procedures to best serve its bottom line, so the fact that failing to modernize the electric system has been "legal" under GO 95, GO 127 and related GO's, gives PG&E carte blanche to use materials and equipment that are convenient or cheaper – whether it be to leave 70-80 year-old conductor that served as telegraph wire and continuing to add splices rather than replacing it with strong covered conductor; be it continuing to install "new" (but still outdated) equipment; or even leaving older and even burned poles and other equipment in operation, no matter how fragile it is. **"Run to Failure" has been a remarkably effective business model – a sure way to reduce costs and increase the bottom line.** Of course, failure to act proactively wasn't as critical when utility-caused fires were smaller (though nonetheless disastrous and deadly), until climate change brought drought and massive winds to exacerbate any situation -- and then to raise the public's consciousness of wildfire's damage.

The Wildfire Safety Advisory Board points out that the aspects of PG&E's WMP (that) raise the greatest concern *"include vegetation management, grid hardening, its calculation of RSE (where to channel mitigation for the greatest reduction in wildfire risk), modeling of ignitions as a basis for deciding on mitigation measures, and PG&E's approach to PSPS."* Most of the specifics of these concerns underline what we have been stressing in our comments each year since PG&E's 2018 "Wildfire Safety Plan," that first introduced EVM and PSPS, before the legislature mandated Wildfire Mitigation Plans. We knew that EVM has insufficient metrics to demonstrate success (because making such a risk assessment (aka environmental impact report in this case) would have assured PG&E would not have decided to depend upon it. We recognized that it would be impossible for PG&E to provide adequate oversight of both inspectors and tree contractors – resulting in thousands of mistakes made with no chance to rectify them. We knew intimately that unbridled VM damages the watershed and reduces our property values, and that it has caused and continues to cause severe emotional stress for many landowners who face the loss of their trees -- losing the emotional and physical comfort that trees had provided.

In the summer of 2018, the CPUC self-declared this first EVM project to be exempt from CEQA (and compounded that disregard for the potential harm of EVM by failing to inform the many agencies and entities that should have been given notice about the exemption, as required under CEQA regulations). Failing to complete an environmental impact assessment meant that better, cheaper, safer alternatives were ignored, or treated as minor in importance – and the problem of disastrous wildfires continued to worsen. In November, 2018, **the Commission ignored the consistently reliable advice of the Office of the Public Safety**

Advocate on this new EVM; this opinion[4] authoritatively stated that the CPUC should require more specific information about PG&E's plans to reduce wires-on-the-ground incidents of all types. It emphasized that PG&E had provided no metrics to demonstrate EVM's efficacy, no comparison of its efficacy with that of overhead conductor replacement, no discussion of technological alternatives, and pointed out the relevance of these metrics to wildfire ignition. This was a major mistake of the CPUC, but only one of many.

The results of this extreme EVM -- the uncompromising clearance of a 30-foot swath, from ground to sky, under and along the distribution wires -- were deplorable. The destruction was first focused on private roads and private property, restricting the already-limited authority of the County to support its citizens. (The 5th District Supervisor, Bruce McPherson, met numerous times with PG&E authorities, and was successful in protecting redwood trees, reducing threats to landowners, and in compelling PG&E to hold public meetings.) An army of inspectors and teams of tree cutters had been staged in nearby Scotts Valley, and without warning (without prior notice to the County as it had promised in June), dozens of trucks swarmed into the San Lorenzo Valley, frightening property owners into allowing valuable trees to be removed, without recourse. Property owners were threatened with wildfire and liability for a fallen branch or tree. The sub-contractors, from Texas and beyond, inexorably removed thousands of healthy, mature trees of every species, along distribution wires – disregarding the exposure of highly erosive soils, on unstable slopes, along riparian corridors of creeks valued for endangered and threatened salmonid fish habitat, along well-recognized "scenic corridors" valued by thousands of residents and visitors alike – for months. This went on

throughout PG&E's forested service areas, and lasted until mid-December when public pressure affected a delay, and PG&E made a few minor changes to demonstrate it was responding to our concerns. The hiatus provided PG&E with the chance to bombard the media with ads to build up fear and reinforce the idea that the trees, not the wires, were the cause of wildfires.

Meeting on-going resistance, the plan shifted from year to year and now appears to be a more limited plan for clearing and trimming, from wire to sky rather than from ground to sky. But adds "Fire Safety Zones" clearing at least that original 30-feet, and working hard and fast to remove those million-plus trees "within striking distance" each year – adding up to about $2 billion/year. The reduction is evident in its newly modified graphics and PR (see its website and fear-mongering TV ads promoting evacuation plans), but not necessarily in what its contractors are doing. *PG&E was smart and moved fast to enlist legislative changes. PG&E first*

[4] [Investigation 17-11-003] (Filed November 9, 2017)

mentioned its desire to get legislation support for vegetation work (i.e. removing trees) far outside its Right of Way (ROW), in the 2018 WSP. It had already been lobbying hard, and by the end of summer, it was successful in getting AB 2911 passed and signed by the Governor. ***This resulted in the addition of PRC 4295.5(a)(b) in January, 2019 – enabling PG&E to ramp up its removal of trees "within striking distance," planning to remove 30 million trees in 30 years****, as it explained at a 2019 WMP workshop on VM, where it also suggested that this alone would cost over $500 million per year.*

PG&E is still to employ adequately trained and experienced inspectors to identify true "Danger" or "Hazard" trees*. It has been forced to bring in inspectors from out-of-state, and* ***is now enlisting its tree contractors, like Nate's Tree Service in Tuolumne, to take a two-week training class and empowering them to both identify the trees to be removed, and then to remove them.*** *(Is there a possible conflict of interest there? Hasn't Davey Tree been doing that for years?)*

Even the Court Monitors (see next paragraph) state PG&E has been unable to provide enough qualified inspectors. Now ***PG&E states in their current PR that they will be removing specific tree species whether healthy or not –*** *and provides the list of those common, widespread and biologically important trees in their handouts.*

What is happening in our lives, on the ground, in the forests of this State, does not live up to PG&E's description of the process of inspection, as is was presented in testimony to Federal Court Judge William Alsup, and less formally in a letter to the San Lorenzo Valley Water District – as well as on its website and in its PR materials. (See SLVWD letter below in Additional Information.) **The inspection procedure descriptions profess that there will be fair treatment of landowners and careful justification for removal of each specific tree.** That rarely exists in post-wildfire areas or virtually anywhere else – unless Judge Alsup's inspectors of the PG&E inspectors make it so. (See PG&E's statement to Judge Alsup below.)

You should be aware that Federal Judge William Alsup, who is overseeing PG&E's probation since its six- felony conviction from its San Bruno gas pipeline explosion, received reports last December (Case 3:14- cr-00175-WHA Document 1277-1 Filed 12/29/20), from Court Monitors Kirkland & Ellis LLP, that add information undermining PG&E's credibility regarding EVM. The Monitors found PG&E's recordkeeping significantly faulty. Trees had been taken off the removal list that shouldn't have been. Also, many trees were **assigned to two or more separate tree subcontractors in error** (Data inconsistency), resulting in repeated visits within weeks of one another, by competing companies, each removing more and more trees than

initially required. **The monitors found 31,000 trees marked for removal without the required examination information (tree assessment scores),** so it is dubious that they should have been removed. Also, they found incorrect data entries by contractors that claimed trees had been worked (trimmed or cut down), when the trees were untouched. **PG&E has failed to provide adequate oversight of its contractors, no less its inspectors.** This lack is also evident in CAL FIRE citations to PG&E for failing to comply with its Utility Exemption Permit's requirements, from working in restricted waterways to failing to carry required fire- fighting safety equipment in case their work sparks a fire.

Please note, as I'm sure you've observed, Southern California Edison puts PG&E to shame. After focused and thoughtful risk-spend analyses, followed by extensive testing, SCE rightfully concluded that steel- core, triple insulated conductor must be its "regular" wire -- if it wants to reduce wildfire risk. SCE immediately began installing it at four times the rate of PG&E's miserly, spotty upgrades. SCE is increasing safety by removing expanses of outdated bare wire starting with high fire threat areas - even if that bare wire still worked to distribute power. In contrast, PG&E's massive update to its Wildfire Mitigation Plan seeks to obfuscate and mislead you, the Wildfire Safety Division -- along with the public, legislators and the captive CPUC, into going along with its destructive priorities. It's time to **mandate massive modernization.**

An additional contention is that PG&E has responded very quickly to the pressure to improve PSPS. It has spent time and money on preventing PSPS by improving its ability to separate various sections of its system more readily, and other technological innovations, so it has reduced the scope and size (and the number of people) forced to endure PSPS. They should have been doing the same with outdated bare wire and dangerous equipment – having ignored it since 2013 when Liberty Consulting first warned the CPUC (in its extensive safety analysis) that PG&E had over 23,000 miles of "outdated, bare, 6-gauge copper wire" throughout its system, with over 7,000 miles in high fire danger areas. It will take decades to replace and upgrade that wire unless you mandate rapid replacement with triple-insulated ASCP now.

Also, although PG&E's 2020 hardening goal was exceeded, the goal was pathetic in relation to the need, and only piecemeal, here and there; not the comprehensive modernization needed. It should follow the examples of SCE. **It is remarkable that PG&E has not been held liable for any fire started by balloons, animals, tree limbs or other items falling on uninsulated wire, since they KNOW that insulated wire can protect from fire starts.**

The other aspect of the WSAB's advice that we concur to is the need for greatly improved Risk Assessment and Cost-Benefit Analysis.[5] This is a major weakness in every aspect of PG&E's planning and processes – failing to assess which of its actions might be the most effective in reducing risk, and comparing the costs involved. Due to the lack of clear financial data, it is very difficult to make those analyses, but we knew that modernizing the distribution system would quite quickly be more cost effective, and far better in reducing risk, than EVM**. To verify this. we produced our own Cost-Benefit Assessment. It is copied into the Additional Information section at the end of this document. The conclusions are convincing. PG&E is wasting billions of dollars on a failed plan that can never provide safety nor reliability nor affordability.**

In conclusion, PG&E still insists on wasting billions of dollars to unnecessarily remove millions of trees, rather than prioritizing conductor upgrades and computerized circuit breakers such as high impedance arc fault interrupters. **Thus, PG&E insures that its power lines will continue to be unsafe, unaffordable and unreliable everywhere, but most especially in high fire threat areas. This is unconscionable, and it's time to go further than requiring piecemeal fixes, and insist on a complete change in focus from trees/vegetation to modernizing its distribution lines, starting with HFTD's.**

(Continued, next page.)

[5] System Hardening for Electric Utility Resiliency (SHEUR) Threshold, WSAB workshop, August, 2020.

ADDITIONAL INFORMATION:

- **2018 – PG&E Before and After Photos to show tree crews the goal for EVM *along distribution lines*** in Santa Cruz Mountains, taken by Rob Morse, PG&E Senior Manager, Central Coast. No regard for tree species, erosive soils, slope stability (unlike photo, much of the area has steep slopes), damage to scenic vistas, rights of landowners.
- **PG&E's Testimony to Federal Judge Alsup regarding its supposed process to provide notice to property owners and "case-specific, risk-based determination" ... This didn't happen in any of PG&E's post-wildfire tree clearing, nor have we ever experienced such a respectful process:**

  Case 3:14-cr-00175-WHA Document 1132 Filed 01/15/20 Page 5 of 13

  [2] Section 4295.5(a) of the Public Resource Code authorizes PG&E to enter private property to identify and address hazard trees. However, Section 4295.5(b) provides that this authorization does not exempt PG&E from liability for damages (including treble damages) for the removal of hazard trees or other vegetation that is located on private property outside of PG&E's easement. PG&E provides notice to private property owners of work it intends to conduct to abate any risk

identified on their property, regardless of whether it has an easement. Where a property owner refuses that work, PG&E tries to persuade the property owner to grant permission to proceed. If the property owner continues to refuse, PG&E will still proceed if the work is within PG&E's

11

easement. For work outside of PG&E's easement, PG&E is working on a process under which PG&E makes a case-specific, risk-based determination as to whether to conduct the work over the private property owner's objection or take other action.

• Letter from PG&E to the SLV Water District, describing tree inspection procedure – rarely adhered to in our experience:

Email dated June 9, 2020 from Jeanna Arnold of PG&E, Public Relations, to SLV Water Board re their May 2020 letter expressing concern over EVM in its vital, fragile watershed. NOTE DESCRIPTION OF TREE INSPECTION PROCEDURE. (Email is as received, with multiple typos.)

From: "Arnold, Jeana" <J9A8@pge.com>**Subject: Following up on your letter regarding PG&E wildfire safety efforts****Date:** June 9, 2020 at 1:17:59 PM PDT**To:** "sswan@slvwd.com" <sswan@slvwd.com>**Cc:** "Morse, Rob" <RBM8@pge.com>, "Vetere, Therese" <TXVE@pge.com>

SUBJECT: Following up on your leer regarding PG&E wildfire safety efforts Dear Board President Swan:

Thank you for your leer regarding PG&E's vegetaon management efforts in the San Lorenzo River area. We understand your concerns regarding the impact that vegetaon management can have on the water and environment, as well as how our efforts may impact the San Lorenzo Valley Water District (SLVWD). I want to express our commitment to keeping you informed of any potenal work that may take place on SLVWD property.

As you noted in your leer, PG&E has expanded and enhanced our vegetaon and safety work as a safety measure to prevent wildfires. At this me, no Enhanced Vegetaon Management work is planned for SLVWD this year but may take place in future years. Our Enhanced Vegetaon Management work includes addressing vegetaon that poses a high potenal for wildfire risk in high fire-threat areas through the following:

Exceeding state standards for minimum clearances around the power lines Addressing overhanging limbs and branches to create a clearance zone of 4 feet out from the lines and up to the sky

Removing hazardous vegetaon such as dead, diseased, dying or defecve trees that pose a potenal risk to the lines or equipmentEvaluang the condion of trees that may need to be addressed if they are tall enough to strike the lines or equipment

12

We share your goals of our program not impacng our communies' watersheds and habitat. PG&E's Enhanced Vegetaon Management work does not result in a zero- vegetaon situaon or significantly increase the potenal for greater erosion.

That is why, as part of our commitment to protecng the environment, PG&E relies on a team of

experts to help minimize impacts on vegetaon, trees and wildlife habitat. Every project is

reviewed by a team of biology, cultural resource and environmental field specialists. The review

involves idenfying any crical habitat, endangered species, nave plants or cultural resources that

need to be protected during work. The review is done through a search and analysis of aerial and

topographic imagery, U.S. Fish and Wildlife Service crical habitat designaons and species

databases, the California Natural Diversity Database and various cultural resources inventory

databases. PG&E contractors are also trained on Best Management Pracces and Avoidance and

Minimizaon Measures to manage erosion, prevent impacts to sensive environmental resources

and to protect waterways.

Regarding your request for PG&E to priorize hardening the system serving the SLVWD and other similar areas, please understand that PG&E's Community Wildfire Safety Program priorizes work in locaons that are at the highest risk of wildfire, based on such factors as potenal ignion risk associated with equipment, risk of wildfire spreading if one were to occur, and challenges to exing a community in the event of an evacuaon. Areas at high risk of wildfire are defined by the California Public Ulies Commission High-Fire Threat District map. And while system hardening helps to reduce wildfire risks, hardening overhead facilies is a complement to, not a substute for, vegetaon management efforts.

Thank you again for your inquiry regarding our wildfire safety and preparedness efforts. More informaon on our wildfire safety efforts can be foundat pge.com/wildfiresafety. If you have any addional quesons, please do not hesitate to contact me.

Sincerely,

Jeana Arnold | Government Relaons and Public Policy Local Public Affairs | Central Coast Division356 E. Alisal Street, Salinas, CA 93901Cell: 831-202-2289 | Email: jeana.arnold@pge.com

13

COST-BENEFIT ASSESSMENT OF PG&E'S EXPENDITURES FOR VEGETATION MANAGEMENT VS BENEFITS OF INFRASTRUCTURE IMPROVEMENTS

PREFACE

The massive system failures in Texas these last days, has awakened the nation to how our Utilities are vulnerable. From the Big Freeze we heard words such as "It is as bad as California".

Texas, also, has a history of Utility failures. Out of cold frozen nights, broken pipes and rotating power outages, comes the word that they didn't perform:

MODERNIZA TION

And it applies to us. For over one hundred years, PG&E's treatment of thousand after thousands of miles of their distribution system has been in opposition to Modernization. Think about it, the greatest change of their primary solution to any Wildfire-Safety-Plan, has been more Vegetation Management. And over those miles and years, their modernization solution to fire ignition has been changing from a tree ax to a chainsaw.

Their bare lines exist, as a testimony to their lack of foresight.

In the enclosed paper, we will show that working on vegetation is no excuse for ignoring modernization of an antiquated system while achieving only a 5% reduction of causation of wildfire, which is not economically justified, and falls far short of making PG&E's circuits safer compared to other operators.

Southern California Edison's approach to a modern system is not only better, cheaper, but also significantly safer, and PG&E should, without doubt, follow SCE's lead and drop Enhanced Vegetation Management and install covered conductors which address almost 90% of known initiators.

COST BENEFIT ASSESSMENT .PDF ATTACHED BELOW

Respectfully Submitted,
Nancy B. Macy, Chair
Environmental Committee for the San Lorenzo Valley Valley Women's Club www.valleywomensclub.org

14

COST-BENEFIT ASSESSMENT OF PG&E'S EXPENDITURES FOR VEGETATION MANAGEMENT VS BENEFITS OF INFRASTRUCTURE IMPROVEMENTS
February 21, 2021

Addressing PG&E's unsafe, unsuccessful and inadequate Wildfire Mitigation Plan (WMP)

Wildfire safety for a utility is of paramount importance. PG&E's business practices have been failing the mandate to provide a safe and reliable system for decades. This is due to the excessive expense of a program which cannot achieve its stated goals. As a business, its current handling of wildfire mitigation can only be assessed as a long- term failure. PG&E should be addressing all drivers of wildfire ignition; however, the majority of its monies is only going to one, and that pathway is so repeatedly expensive for bare line conductors, as to guarantee failure.

This is supported by analyses from the Wildfire Safety Division (WSD), the Wildfire Safety Advisory Board (WSAB), the CPUC, this state's other Investor Owned Utilities (IOU's), Southern California Edison (SCE) and San Diego Gas & Electric (SDG&E).

"PG&E accepts and acknowledges that, with respect to wildfire mitigation measures, there are certain areas in which SDG&E and SCE are more advanced than PG&E."[1] These mitigations are superior to any vegetation management.

PG&E is spending billions of dollars on a driver that only mitigates 5 fires out of 440 a year, creating a repeatable pathway to bankruptcy while failing to address the real problem (p.3). They are spending 86% of their allocated expenditures on a driver that only has 25% of ignitions (p.5).

As seen in the charts below, PG&E's focus on Vegetation Contact, including the unsustainable costly removal of millions of trees - for short-term profitability -- cannot accomplish a safe and reliable electric system.

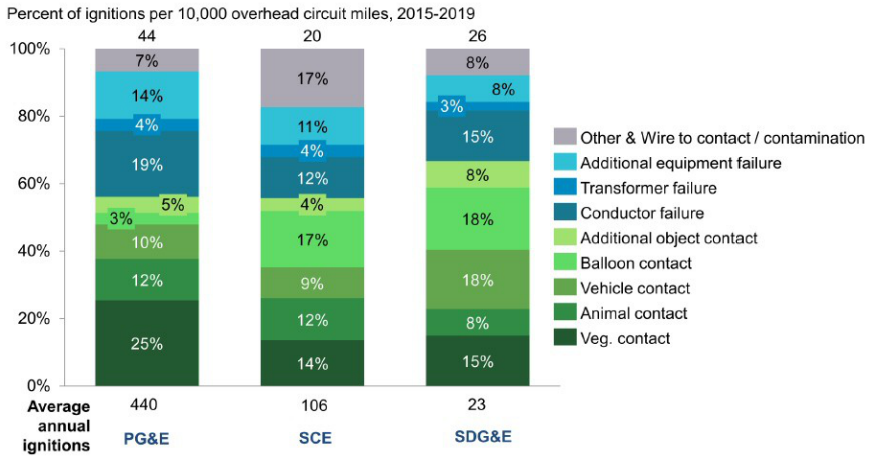
The charts below are from the ***Wildfire Safety Division (WSD) "Draft Guidance Resolution WSD-002, May, 2020,"*** except Chart 4, 31.1, which is from ***PG&E's "Wildfire Mitigation Plan Report," February 28, 2020.*** What they show is that PG&E's historic narrow focus is a waste of money, and of limited, unproven efficacy in reducing wildfires. WSD charts compare PG&E with SCE and SDG&E.

[1]CASE 3:14-cr-00175-WHA Document 1022 1022.Pitre-and-Campora's-Comments-on-Accuracy-of-PG-E's-Response-(Part-1).pdf Page 45 line 24

1 of 12

15

Figure 2.6a: Detail: Share of ignitions due to each ignition probability driver (Large utilities)



Note: Conductor failure includes conductor failure (as reported), splice, clamp and connector. Other includes wire to wire contact / contamination.

Source: Tables 11a and 11b from utility WMPs and data request normalized by data from Table 13 of utility WMPs; SDG&E equipment failure numbers adjusted to address inconsistencies in subtotal calculations provided. Since SDG&E has less than 10,000 overhead circuit miles, its average number of total annual ignitions per 10,000 circuit miles is greater than its average number of total annual ignitions.

Chart 1: ***Wildfire Safety Division (WSD) "Draft Guidance Resolution WSD-002" (336461968.pdf), p.118, May, 2020***

Chart 1 shows sources of ignition, *with only 25% attributed to vegetation contact by PG&E*. It shows that PG&E's vegetation ignitions are almost double versus the other IOU's. Most ignitions are within PG&E's forested regions, where thousands of circuit miles are antiquated bare copper wire. (Liberty Consulting Group, *Study of Risk Assessment and PG&E's GRC, May 6, 2013)* We don't know how many of their ignitions are from failed splices igniting ground vegetation but that may be reflected in the Conductor Failure numbers. Pictures from the Tubbs Fire show initial cause was not trees catching fire, but the grass along the highway, something arc- fault interrupters (computerized circuit breakers) would have handled, even with antiquated conductor. Steel-core, triple insulated cable would have prevented ignition in the first place.

In analyzing PG&E's section of the chart, you will see that 75% of the ignition drivers are unrelated to vegetation. The effort to control Vegetation Contact through Enhanced Vegetation Management (EVM) and expanded inspections, is taking over $1.17 billion annually, while only reducing ignitions by an average of 5 per year out of 440. This is less than a 5% improvement *over three years*, while being ineffective for any other ignition causes. (See following Charts.)

Yet, the WSD and the CPUC are allowing PG&E to continue in this manner rather than requiring alternative solutions, specifically upgrading its systems. Such upgrades must be effective on all on all ignition drivers, this is being better accomplished by the two other major IOU's and include the following: replacing bare distribution cable with steel core, triple insulated conductor (as done by Southern California Edison (SCE)), the installation of computerized circuit breakers for immediate protection from arcing broken cable (as done by San Diego Gas & Electric (SDG&E)), or even installing spacer wire for significantly improved strength and safety at relatively lower cost (about $100,000/mile, plus installation, per Hendricks Spacer Cable and Services for Norman Utilities LLC in New Hampshire).

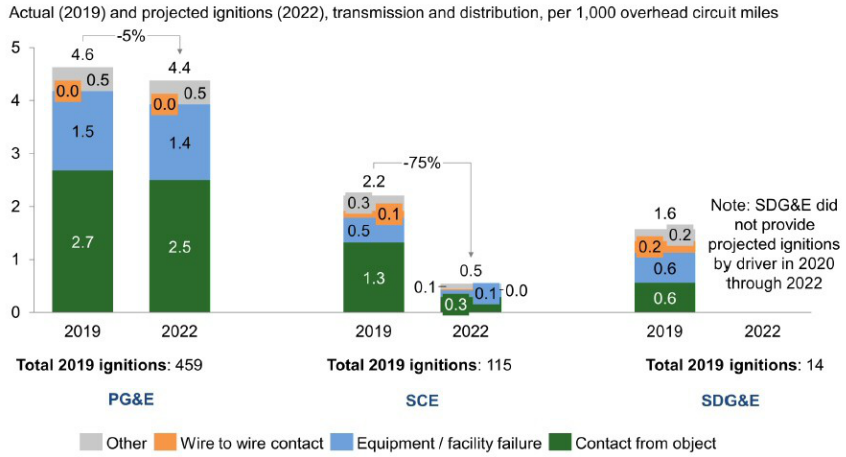
SCE has committed to replacing all its distribution cable at a rate of over three times PG&E's Wildfire Mitigation Plan (WMP). SDG&E has greater than 60% of its system underground, hence the very low Average Annual Ignitions; it went underground rather than replacing miles of wires. Significantly, in contrast to PG&E, they are rapidly installing computerized circuit breakers to improve their safety on the remaining 40% of its system.

CHART 2 NEXT PAGE

2 of 12

16

Figure 2.7a: Actual and projected ignitions for top ignition drivers, 2019 and 2022



Note: Projections assume WMP implementation acording to plan and weather pattens consistent with 5 year historical average. See the 2020 WMP Guidelines for further detail.

Small utilities populated Table 31 either not at all or with all zeroes. Specifically: Horizon West Transmission left it blank as it did not yet have operational facilities when it submitted its 2020 WMP; Trans Bay Cable and Bear Valley Electric Service reported anticipating no ignitions (having seen no ignitions in the past 5 years); Liberty did not populate Table 31; PacifiCorp reported only a general reducing trend anticipated with no discrete data available.

Source: Tables 11a, 11b, 31a, and 31b from utility WMPs and data requests; SDG&E equipment failure numbers adjusted to address inconsistencies in subtotal calculations provided by SDG&E.

CHART 2 shows a meager 5% reduction in projected ignitions by PG&E under its vegetation focused plan. Worth noting, PG&E will be spending over $4 billion in the period between 2020 and 2022, for vegetation management alone (see Resource Allocations, Chart 4). Thus, it takes $1.3 billion per year to achieve a reduction of barely 5 fires per year, out of 459 projected fires per year. Southern California Edison (SCE) is projecting a 75% reduction in the 2019-2022 period. That is reduction of 86 fires out of a current level of 115 per year. San Diego Gas & Electric (SDG&E) has 14 total ignitions per year, currently. This is the result of over 60% of their system circuits being undergrounded, hardening of their overhead wires, and on-going installation of arc fault interrupters (computerized circuit breakers).

This failure guarantees that PG&E will be forced to depend upon Public Safety Power Shutoffs (PSPS) to protect its antiquated system. PSPS, however, is not the answer they thought it could be, as demonstrated by the January 18-19, 2021 fires and lengthy outages caused during the high winds in the Santa Cruz Coastal Mountains, in spite of PSPS in the area. (https://sanfrancisco.cbslocal.com/2021/01/19/fire-santa-cruz-county-evacuations-aptos-hills-larkin-valley/)

CHART 3, NEXT PAGE

TABLE 31-1: CHANGE IN DRIVERS OF IGNITION PROBABILITY TAKING INTO ACCOUNT PLANNED INITIATIONS, FOR EACH YEAR OF PLAN – DISTRIBUTION

Incident type by ignition probability driver	Detailed risk driver	Are near misses tracked ?	Number of incidents per year				Average percentage likelihood of ignition per incident			Number of ignitions (mitigated)			
			2019 (Actual)	2020	2021	2022	2020	2021	2022	2019 (Actual)	2020	2021	2022
Contact from object	All types of object contact	Y	13,434.00	13,094.17	12,788.32	12,513.05	1.88%	1.88%	1.88%	253.00	246.60	240.84	235.66
	Animal contact	Y	2,072.00	2,034.33	2,000.42	1,969.91	3.19%	3.19%	3.19%	66.00	64.80	63.72	62.75
	Balloon contact	Y	464.00	464.00	464.00	464.00	3.02%	3.02%	3.02%	14.00	14.00	14.00	14.00
	Vegetation contact	Y	8,167.00	7,807.10	7,483.19	7,191.67	1.44%	1.44%	1.44%	118.00	112.80	108.12	103.91
	Vehicle contact	Y	1,835.00	1,835.00	1,835.00	1,835.00	2.02%	2.02%	2.02%	37.00	37.00	37.00	37.00
	Contact from Object - Other	Y	896.00	896.00	896.00	896.00	2.01%	2.01%	2.01%	18.00	18.00	18.00	18.00
All types of equipment / facility failure	All types	Y	13,031.00	12,835.54	12,659.62	12,501.29	1.07%	1.07%	1.07%	140.00	137.90	136.01	134.31
	Capacitor bank failure	Y	70.00	70.00	70.00	70.00	10.00%	10.00%	10.00%	7.00	7.00	7.00	7.00
	Conductor failure—all	Y	3,382.00	3,328.60	3,280.54	3,237.29	2.25%	2.25%	2.25%	76.00	74.80	73.72	72.75
	Conductor failure—wires down	Y	1,593.00	1,593.00	1,593.00	1,593.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Fuse failure—all	Y	345.00	345.00	345.00	345.00	0.58%	0.58%	0.58%	2.00	2.00	2.00	2.00
	Fuse failure—conventional blown fuse	Y	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Lightning arrestor failure	Y	130.00	130.00	130.00	130.00	3.08%	3.08%	3.08%	4.00	4.00	4.00	4.00
	Switch failure	Y	189.00	179.55	171.05	163.39	2.12%	2.12%	2.12%	4.00	3.80	3.62	3.46
	Transformer failure	Y	3,962.00	3,905.40	3,854.46	3,808.61	0.53%	0.53%	0.53%	21.00	20.70	20.43	20.19

CHART 3 This is PG&E data from their 2020 Wildfire Mitigation Plan. (The WSD has based Chart 2 on this data.) Look closely at the *Contact from Object* section, and the "Number of Ignitions (Mitigated)" column. Subtract the number of ignitions projected each year from the year before to reach the average 5 mitigations per year), at a cost of over $2 billion per year. NOTE THE OTHER TYPES OF EQUIPMENT AND THEIR PROJECTED FAILURES: balloon and animal contacts, though less frequent, have double the likelihood of causing a wildfire than "vegetation." (Further note that the "Conductor Failure-wires down" data is the same for four years, and then "Not Available" (NA) after that because PG&E's record keeping is not granular enough. (Poor record keeping is an on-going problem with PG&E's data.)

CHART 4, NEXT PAGE

1.3 Resource Allocation

Figure 3.1a: Overview of total plan spend across utilities (Large utilities)

		PG&E	SCE	SDG&E
Total spend	2019 planned spend	$2,296M	$671M	$255M
	2019 actual spend	$2,999M	$1,557M	$307M
	2020 planned spend	$3,171M	$1,606M	$444M
	2021 planned spend	$3,130M	$1,404M	$445M
	2022 planned spend	$3,247M	$1,501M	$448M
	Total planned spend as for 2020, 2021 and 2022, as reported by utility	**$9,548M**	**$4,511M**	**$1,336M**[1]
Normalized spend	Total planned spend for 2020, 2021 and 2022 per overhead HFTD circuit mile	$307K	$318K	$291K

1. Totals for SDG&E include a calculation error on the part of SDG&E in which the sum of the reported spend for 2020, 2021, and 2022 is not equal to the reported total 2020-2022 planned spend. This error has not been corrected by the WSD in this table.

Note: "M" stands for millions, "K" stands for thousands.

Source: Tables 21-30 from utility WMPs and data requests, normalized by data from Table 13 of utility WMPs

CHART 4 ***The cost per overhead High Fire-Threat District (HFTD) circuit mile***

Even though the amounts are almost the same, there is a great difference. PG&E is spending empty calories for its EVM, amounting to billions of dollars, but not adding worth to its physical system. SCE on the other hand, is hardening its system, adding worth year after year. Even more interesting is that SCE has recently published an estimate of how much it costs to steel core-triple insulate its lines --$428K per mile. This is far less than PG&E's claimed costs. It is an investment which will pay off for SCE in the coming decades, with far less maintenance cost coupled with greater safety, including wildfire protection, fewer electrocutions, and protection from all causes of ignitions -- and they are justifiably proud of it. Another way to look at this, PG&E's Table 3.4b (p.6) shows that Enhanced Vegetation Management (EVM) costs consumes 24 percent of PG&E's total spend. That works out to 24/28 or 86 percent PG&E's total allocation for "Vegetation management and inspections" . The result is 86% of total expenditures for Vegetation Management are being spent for a 25% ignition driver., Vegetation Contact (Chart 1).

For 2020, PG&E completed 1878 EVM miles (p.7). If PGE had kept to its budget, EVM cost per circuit mile would have been $3,171M x .24/(1878 circuit miles) = $405K/circuit mile. But PG&E didn't keep to its budget.

CHART FIVE, NEXT PAGE

Figure 3.4b: PG&E resource allocation detail for top 4 categories by planned spend

Total plan spend is shown for 2020-2022 plan period as calculated by utility

Category	Total Category Planned Spend	Category spend as percent of total planned spend	Top 3 initiatives by planned spend in category Initiative names as reported in WMP	Initiative spend as percent of total planned spend
Grid design and system hardening	$5.1B	53%	17-1. System Hardening, Distribution	17%
			15. Transmission tower maintenance and replacement	10%
			6. Distribution pole replacement and reinforcement, including with composite poles	7%
Vegetation management and inspections	$2.6B	28%	15. Remediation of at-risk species-Enhanced Veg Mgt.	15%
			2. Detailed inspections of vegetation-Distribution	6%
			9. Other discretionary inspection of veg. around distribution lines and equipment, beyond those required by regulations	3%
Asset management of inspections	$499M	5%	1. Detailed inspections of distribution electric lines/equip.	3%
			2. Detailed inspections of transmission electric lines/equip.	2%
			15-1 Substation inspections - Transmission Substation	0%
Grid operations and protocols	$788M	8%	5-1. PSPS events and mitigation of PSPS impacts-Distribution	4%
			5-3. PSPS events and mitigation of PSPS impacts - Additional PSPS Mitigation Initiatives, Distribution	2%
			2. Crew-accompanying ignition prevention and suppression resources and services	1%

Note: "M" stands for millions, "B" stands for billions.

Source: Tables 21-30 of utility WMP

CHART 5 shows PG&E's vegetation planned spend is 28% of total spend for years 2020-2022. Grid design and system hardening is 53% of planned spend. This value is in light of what actually has been accomplished, which is deeply disturbing. For decades, PG&E has consistently specified vegetation management as solution to their problems. Hence, it fails the mandate to provide a SAFE and RELIABLE system. Instead, with a system of bare wires, antiquated age, and thousands of pole attachments and line splices which will necessarily fail, it spends millions annually removing healthy, mature trees at enormous cost and enormous environmental damage, for little benefit. It is certainly not an upgrade to a modern system.

Not only has PG&E's 53% hardening expense been equaled, it is woefully short of SCE's 70% projected spending and conductor replacement mileage in the same period. PG&E's monies allocated for 2000 miles in this period, have resulted in 370 miles of hardening with covered conductors in 2020, and even that low figure is debatable. The difference between what they claim in their rate case (2,000) and their actual (370), is systemic in their language in a multitude of documentation. **The percentage of cost for vegetation management by PG&E is 6 times that of SCE. In contrast, PG&E's percentage spending on system hardening is not only significantly less than the other large Investor Owned Utilities (IOU's), it fails to prioritize modernization of its system by replacing bare line conductors (with less than 400 miles planned yearly for replacement, almost half of SCE's projected mileage).**

Calculated Cost per Mile for Enhanced Vegetation Management and Enhanced Inspection

Note Amounts

1. $2645M
2. $229M
3. $319M
4. $416M
5. $494M
6. 1878
7. 15%
8. 6%

Reference found Online
Total Vegetation Maintenance and inspection Figure 3.3a in 336461968.pdf Routine VM (RVM) projected spend for full year 2020 in ELEC_5951-E.pdf EVM (Enhanced Vegetation Management) full year in ELEC_5951-E.pdf EVM spend by end of August 2020 in ELEC_5951-E.pdf
RVM spend by end of August 2020 in ELEC_5951-E.pdf
EVM miles completed by end of 2020 in 2021-Wildfire-Safety-Plan.pdf Remediation of at-risk species EVM Figure 3.4b in 336461968.pdf
Detailed inspection of vegetation Figure 3.4b in 336461968.pdf

$229M + $319M = $548M (Total projected spend for RVM and EVM 2020) [2][3] $548M x 3 = $1644M (Total cost for 3 year period for RVM and EVM 2020-2022)

$2645M - $1644 = $1001M (cost for 3 years of vegetation inspection, non-VM) [1] $1001M/3 = $333M (spend per year for vegetation inspection)

8/12 = .67 (67, percent of months in the year-to-date, as of end of Aug. 2020)

$416M = Real cost reported for Enhanced Vegetation Management as of August 31 [4] $494M = Real cost reported for Routine Vegetation Management as of August 31 [5]

$416M/.67 = $621M (new projected cost of EVM for whole year) [4] $494M/.67 = $714M (new projected cost of RVM for whole year) [5]

$621M + $714M = $1365M (Total new projected cost for RVM and EVM as of December 31) $1365M/$548M = 2.49 (ratio of overspending for RVM and EVM)

$621M/$1365M = .46 (46 percent of projected cost for EVM) $714M/$1365M = .54 (54 percent of projected cost for RVM)

1878 = (EVM – Crews completed 1,878 miles in 2020)[6]
6%/15% = .40 (ratio of spend for inspection of EVM and EVM cost)[7][8]
$621M x .40 = $248M (calculated enhanced inspection spend as a percentage of EVM)
$621M + $248M = $869M (Total spend for EVM and enhanced inspection for 2020)
$869M/1878 miles = $463K/mile (spending per mile for EVM and enhanced inspection for 2020)

Conclusion from Charts

Vegetation Management (VM) costs 28% of the monies of PG&E's Wildfire Mitigation Plan (WMP). Vegetation Contact is responsible for 25% of ignitions, **75% of known causes of ignition are not addressed by PG&E's VM** (see Chart 1, p.2). On-going total vegetation management costs are an unnecessary waste of funds when bare line conductors are not replaced. PG&E has historically fought modernization.

Additional Documented Cost-Benefit Arguments Excessive Vegetation Management (VM) Expenditures

From: https://www.pge.com/en_US/safety/electrical-safety/safety-initiatives/system-inspections.page
"In 2020, we plan to inspect more than 15,000 miles of electric lines, including all lines in Tier 3 areas and one-third of lines in Tier 2 areas. We inspect infrastructure in non-high fire-threat areas at least every five years."

TPG&E's data is manipulated to confuse. Even so, it is obvious that its vegetation management costs are out of control. In PG&E's *Advice 5951-E, October 20, 2020* (to the CPUC), it admits to massive overspending for *total* vegetation management (VM). Its projected total for VM expenditures for 2020 was $548M. However, their Enhanced Vegetation Management (EVM) costs alone, *through August, 2020,* came to $416M. Combined with the additional $494M spent, in that time, for Routine Vegetation Management (RVM), the total spent far exceeds the projected costs for a year. EVM costs for a full year, at the same pace, would reach $624M; RVM would reach $741M. The grand total reaches $1365M (see page 7). PG&E is spending two and a half times what was planned for 2020. **This equates to $463K per mile for EVM for 1878 miles completed for the year.** Place that against Southern California Edison's (SCE) **cost for hardening a mile is $428K for modernization with covered conductors (p.11).** Another important reason for covered conductors, it **reduces fire risk by at least 75% versus 35% for EVM.**

These figures strongly challenge PG&E's assertion that covered conductor installation is too expensive and costs over $1,000,000/mile.

Here is where system hardening estimations comes into the calculations, changing EVM to RVM with up to a 5 year maintenance service cycle for covered conductors.

What the calculations show is that costs for System Hardening are less than for EVM and its associated, on-going costs alone. . This is a revealing and remarkable cost analysis. The current cost-benefits are abysmal for Vegetation Management, only a 1.4% of their ignitions are mitigated per year (see p.3). For a one-time System Hardening $428K/mile cost-benefits are superior in every way. Costs for System Hardening in Tiers 2 and 3, if accelerated, provide economies of scale for new installations, lead to significant reduction of on-going equipment maintenance costs, and major reductions in all Routine Vegetation Management costs, due to a far-stronger, modern, and a more resilient infrastructure. It also shows a benefit for the environment in saving more than 100 million trees which convert CO2 to Oxygen, helping to mitigate Climate Change, along with fewer fires and a greener environment – as opposed to an EVM which is counter to California's Climate Change laws. The result of a faster deployment of System Hardening, is a safer system, fewer fires and greatly reduced year-after-year costs to rate-payers.

In addition, EVM never ends while failing to significantly reduce wildfire ignitions, leaving PG&E continuously vulnerable to increasing liability and forced usage of Public Safety Power Shutoffs (PSPS) with all its devastating economic impacts.

PG&E's Distorted Information

Importantly, determining these costs required the analysis of data that is not in PG&E's documentation. This is an example of PG&E's typical manipulation of data. The Wildfire Safety Division (WSD) points out in its comments on PG&E's 2019 WMP that there are many areas where PG&E's data is incomplete, conflated or otherwise manipulated. For example, "PG&E reported all inspection types together, providing no basis for comparison of PG&E to its peers by inspection type and making it difficult to determine the effectiveness of PG&E's various inspection types."[4] This meant that it became very difficult to differentiate inspection of individual trees by arborists to determine trees for removal, vs inspection of circuit lines for defects or age and ready to fail – a crucial distinction.

Another paragraph states, "A continuing issue from 2019 that persists in 2020 WMPs is the extensive use of non-commit- tal equivocating language. The prevalent use of equivocating language results in sparse commitment from utilities for achieving the intended goal of WMPs – reducing the risk of catastrophic wildfire posed by electrical lines and equip- ment."

And "In R.18-10-007, as noted above, the Commission directed the electrical corporations to use metrics that do not sim- ply count trees trimmed or miles of covered conductor installed, but that measure **the effectiveness of these actions in mitigating utility-caused wildfire."**

For PG&E, a 5% reduction of mitigated fires over a 4 year period is not demonstrating the reliability or trustworthiness of its documents and data.

SCE Sets the Standard

Southern California Edison (SCE) is replacing lines with superior covered conductor, with the approval of the CPUC, "the first large-scale deployment of covered conductor in California to harden the distribution system against extreme weath- er events and designed to reduce wildfire ignition events". Southern California Edison's projected cost for triple covered conductors is $428K/mile. It is cheaper to harden their system which protects over 75% of their circuits from wildfires. Along with their normal vegetation management (no EVM), over 90% of sources of ignitions are addressed. (see p.11)

PG&E Fails to Respond to Emergency Nature of Increasing Wildfires

Touting a meager few hundred miles hardened, while counting on PSPS and massive expenditures on EVM to protect us from wildfire, PG&E's accomplishments don't hold up when the facts are known. PG&E's **Currents** article, "*PG&E Crews Meet the Challenge-- Hardening Infrastructure as They Rebuild in Areas Burned by Wildfires,"* posted on December 2, 2020, is a case in point: "To date, PG&E has completed over 370 miles of hardening work in the field this year – that's 370 miles of more resilient and fire-resistant distribution system."

That statement is not untrue but it is an empty boast. PG&E had set an extremely low goal for distribution cable replacement in its 2019 Wildfire Mitigation Plan (to last through 2021), resulting in a disturbingly minimal number of miles (370) upgraded in 2020, in face of the following facts:

The number of overhead circuit miles, Figure 1.2a (from WSD Report on 2019 WMP) is 25,921 miles of distribution line in high fire threat areas.
Add transmission lines of 5,448 miles to make 31,369 circuit miles. Much of these, and their related equipment and poles/support structures are antiquated and severely degraded.

In "CASE 3:14-cr-00175-WHA Document 1022" 7000 miles of those distribution lines are obsolete bare 6-gauge copper line, critically in need of replacement due to severe deterioration and age. PG&E gives no indication of where the replacements will be installed, nor with what type of cable will be used (i.e. tree wire vs the far

[4] Resolution WSD-003 WSD/CTJ/gp2 DRAFT

superior SCE, cost-benefit-assessed, steel core/triple insulated conductor.).

In its current 2020-2022 General Rate Case argument, PG&E promises mitigation through Smart Meters software

that will "detect downed wires within minutes." However, SmartMeters data won't show if the wires are arcing or broken, and therefore a wildfire ignition point, requiring on-site investigation to determine any hazard and taking unknown minutes to respond. The time taken respond and inspect the site will allow damaged wires to ignite and cause a fire.

However, with readily available, well tested, off-the-shelf ready computerized circuit breakers, such as arc fault interrupters, that cut the power within a second or so, the danger is eliminated quickly – no matter the cause, whether branch or balloon, vehicle or animal, wind or vandalism. It can even give the precise location to PG&E so it will take far less time to repair.

PG&E 's Slow-moving Infrastructure Improvements

PG&E's failure in planning and prioritizing decision-making is evident in this statement of its *2020-General-Rate-Case- Fact-Sheet-121218.pdf, p.1:* **"Hardening Wires and Poles**: Installing stronger and more resilient poles and covered power lines across 2,000 miles of high fire-risk areas." PG&E obviously wants the CPUC to be impressed by this inadequate number.

Significantly, that 2,000 miles of hardening will take place over three years, while there is a total of 25,921 miles of distribution lines in high-fire threat areas. After 2020, the first year with the increased Rate Case income, PG&E touted replacing 370 miles. (Only about 25,551 miles to go.) In previous documents, PG&E claimed that there are only 7,000 miles of obsolete bare #6 copper wire conductor in High Fire-Threat areas in need of replacement (out of a total of 22,000 miles system-wide as presented in CPUC's *Study of Risk Assessment* by Liberty Consulting, 2013). At 2,000 miles in three years, it will be almost a decade to replace that bare copper wire alone, based on PG&E's own information. There are many other unsafe wire types requiring replacement but there is no way to tell what wires PG&E will focus on, nor where, nor how much.

Without major changes in priorities, it will take far more money to "protect" degraded wires over time, by cutting down trees, than replacing the wires would cost. This does not account for the reduction of Routine Vegetation trimming (the 4-foot radial trim requirement) when it is reduced to a 6-inch radial trim with such covered conductor.

See SCE approach to system hardening in pages 3, and next page 11.

From: "SCE 2021 WMP Update.pdf"
"SCE has already seen real-world success from covered conductor. For example, when a vehicle hit a pole and caused energized 16kV covered conductor to fall into adjacent trees, no fault or ignition occurred."

We also learned some success stories of covered conductor that prevented wildfire ignitions from United Power in Colorado, From: "Feb. 27th Workshop SCE Covered Conductor Presentation.pdf"

"United Power has experienced wildfires in years past in the forested area, typically in high elevation of Colorado. To mitigate this issue, United Power installed covered conductor on spacer configuration due to compact right-of-way. United Power received a notification from the forest services tree fall on line after a wind storm on Fall 2018
United responded to the site and removed the tree, found the covered conductor intact, with no interruption or wildfire ignition. The manager at United Power reflected that this wind storm event would have resulted in a wire down event, and possibly a wildfire ignition if the tree fell on bare conductor span."

Southern California Edison (SCE) is replacing lines with superior covered conductor, with the approval of the CPUC, "the first large-scale deployment of covered conductor in California to harden their distribution system against extreme weather events and designed to reduce wildfire ignition events," as this article explains:

CPUC Oks the Largest Rollout of Covered Conductor
Modern Insulated Lines More Effective Than Traditional Tree Wire Proponents Say By Hudson Sangree
April 21, 2020
RTO Insider

The California Public Utilities Commission on Thursday approved Southern California Edison's ambitious plan to install nearly 600 miles of covered conductor to prevent its higher-voltage distribution lines from starting wildfires. The move comes after devastating utility-sparked fires swept Northern and Southern California in 2017 and 2018, causing the state and utilities to rethink prevention efforts.

Covered conductor, with layers of insulation to protect it from sparking vegetation, is one of the main tools that utilities plan to use in fire-prone areas.

SCE's Wildfire Covered Conductor Program would replace bare wires with insulated ones across a sizable slice of its service territory. This is the first large-scale deployment of covered conductor in California to harden the distribution system against extreme weather events and designed to reduce wildfire ignition events.

Administrative Law Judge Robert Haga wrote in a proposed decision that the commission adopted unanimously, without discussion as one of the items on its consent agenda. In its ruling. the commission accepted a settlement between its Public Advocate's Office consumer groups and SCE, granting the utility more than $407 million for its Grid Safety and Resiliency Program, including nearly $285 million to install 592 circuit miles of covered conductor representing about 6% of SCE's primary distribution lines (typically rated at 12 to 16 kV) in high-risk fire areas.

SCE estimated a cost of $428,000 per circuit mile, including replacing wooden poles with stronger composite ones and installing fiberglass crossarms as needed.

High-voltage transmission lines have been blamed for sparking some of the worst fires in recent years. including the 2018 Camp Fire, the state's deadliest and most-destructive blaze. A Pacific Gas and Electric line fell from a broken C-hook, igniting dry vegetation, state fire investigators found.

Distribution lines have been less prone to starting major fires. But SCE said that from 2015 to 2017, its distribution lines in high-risk regions sparked at least 132 fires large enough to report to the CPUC. The utility said 22 of the fires were started by lines contacting vegetation. more than any other identifiable cause. "All else [being] equal, there was a relatively greater likelihood that a vegetation-related fault was ultimately associated with a fire event" SCE said in *written testimony* to the CPUC in September 2018 that urged it to approve rate increases to fund its fire-prevention efforts, including covered conductor.

SCE said the covered conductor now used is a big improvement over traditional tree wire that had one layer of low- density polyethylene insulation. Today's wire, the new standard, has three layers, an outer coating of high-density polyethylene, an inner wrapping of cross-link polyethylene, and a semi-conducting sleeve wrapped around aluminum or copper wires. The old covered conductor was heavy, required careful handling to avoid damage, and reduced load capacity because it heated up without the cooling properties of bare wire. It also was subject to degradation from the sun's ultraviolet rays. SCE said.

The new insulated conductor is lighter but still weighs more than bare wire. It catches the wind because of its added bulk and needs stronger poles and cross arms. It also takes longer to install, said Brian Wilbur, electrical service manager with the Los Angeles Department of Water and Power. Wilbur made his case in a separate meeting Wednesday of the CPUC's

25

Wildfire Safety Advisory Board. a group created last year to advise the commission's new Wildfire Safety Division.

Wilbur said LADWP is using covered conductor in high fire-risk areas. "Covered conductors or tree wire is certainly nothing new to the industry," Wilbur said. "But the advancement of the technology used today has made tree wire a viable solution in a lot of areas. The old tree wire that we used — that we've had in the systems for a long time — was heavy. required more robust construction techniques, had reduced loading capabilities and was very difficult to work with. Today's tree wire is essentially a stronger construction material, and a lighter installation available on these conductors is becoming a great solution where other mitigating measures are not possible."

"Covered conductor is being used with along with vegetation management, composite poles, fiberglass crossarms and other measures", he told the board. "The conductor adds an additional layer of safety." he said. "One of the major things that we learned from the past wildfires is that even the most thorough vegetation management plan may not prevent branches from being blown into lines from an untrimmed palm tree on private property 50 feet away from our lines", Wilbur said. "They can still dislodge, blow long distances and wreak havoc on our system."

"Covered conductors and resilient construction materials are critical in the high-fire-threat area ..." prevent these hazards" he said.

End-of -article.

Prepared Testimony in Support of Southern California Edison Company's Application for Approval of Its Grid Safety and Resiliency Program – Annotated (September 10, 2018, p. 35)

"Given the significance of contact from objects as a cause of fire ignitions, SCE evaluated a number of potential risk miti- gation measures focused on: (1) reducing the population of potential objects (i.e., reducing tree branches, metallic bal- loons, animals, etc. near overhead lines); and (2) **designing the system to be able to withstand such contact without leading to a fire ignition.** Regarding the first approach, enhanced vegetation management practices can further reduce the likelihood that vegetation will contact overhead distribution system by increasing clearances and removing even more trees. **But this approach has limitations, including the utility's limited ability to increase clearances in certain areas, the fact that wind can often blow debris into lines from significant distances despite appropriate clearances to nearby trees, and that taller trees can fall onto lines even when located well outside of the utility's right of way. Thus, SCE also evaluated mitigation measures focused on the second approach (withstanding contact), concluding that covered conductor is the most feasible mitigation solution for fault and ignition prevention.**"

Respectfully submitted,
Paul Norcutt, *Santa Cruz County;* Senior Systems Programmer, retired; Recipient 2019 Hammer-Marcum Award.
Nancy B. Macy, *Santa Cruz County;* M.A.T.; Chair, Valley Women's Club's Environmental Committee for the San Lorenzo Valley; Director SLV Redemption/Recycling Centers and College Professor, retired; founding President, Valley Women's Club of SLV.
Kevin Collins, *Santa Cruz County;* B.A. Political Science, CA Licensed General Building Contractor; Author/Complainant CPUC Adjudicatory Complaint, C.18-09-011 filed 9-17-18; Co-founder, Lompico Watershed Conservancy.
Dan Courtney, *Tuolumne County;* Trustee, The Jacqueline Courtney Trust; Landowner.
Jodi Frediani, *Santa Cruz* County; Wildlife Photographer; Environmental Consultant and Sierra Club Consultant, retired; Executive Director-Central Coast Forest Watch, retired.
Robin McCollum, *Butte County;* Certified ISA Arborist and Urban Forester; Wildland Firefighter; Chair of Chico Tree Advocates; Butte County Public Works Tree Crew Supervisor, retired.
Julie Wuest, *Santa Cruz County;* Board Member, Valley Women's Club of San Lorenzo Valley; Member, VWC Environmental Committee for SLV
Jennifer Gomez, *Santa Cruz County;* Board Member, Valley Women's Club of San Lorenzo Valley; Member, VWC Environmental Committee; Member, Santa Cruz County Fish and Wildlife Commission.
Brackin Andrews, *Santa Cruz County;* Quality Engineer, Retired; Member, VWC Environmental Committee for SLV.
Kristen Sandel, *Santa Cruz County;* B.A. Studio Arts; Member, VWC Environmental Committee for the SLV; Climate Activist.
Jeanne Wetzel Chinn, *Mendocino County;* M.S. Environmental Management; Chair, Ukiah's Western Hills Fire Safe Council; CA Department of Fish and Wildlife, retired; former Board Member and Chair, Conservation Affairs Committee-Bay Area Chapter-The Wildlife Society.

26

Thank you, again, for considering the vital necessity of mandating modernization of PG&E's infrastructure. We are anxious to reduce utility-associated wildfire risk. We hope to speed up the process to address the ever-increasing danger from PG&E's failure to address ALL ignition risks, to create a truly fail-safe system and to realize the objective of SAFE, RELIABLE AND AFFODABLE electricity for California.

Respectfully yours,

Nancy B. Macy, Chair
The Valley Women's Club's Environmental Committee for the San Lorenzo Valley www.valleywomensclub.org

27

Nancy Macy
Chair, Sierra Club Utility-Wildfire Taskforce
Chair, Environmental Committee for the SLV
(Valley Women's Club
www.valleywomensclub.org)
831/338-6578 home
831/345-1555 cell