Diane Conklin
Spokesperson
Mussey Grade Road Alliance
PO Box 683
Ramona, CA 92065

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Ms. Caroline Thomas Jacobs
Director, Wildfire Safety Division
California Public Utilities Commission, Wildfire Safety Division
505 Van Ness Avenue
San Francisco, CA 94102

Ref: R.18-10-007

Transmittal via email: wildfiresafetydivision@cpuc.ca.gov, Cal Fire, and the R.18-10-007 service list

RE: MUSSEY GRADE ROAD ALLIANCE COMMENTS ON PROPOSED STRATEGIC ROADMAP

Dear Ms. Thomas Jacobs:

As per instructions stated in the Wildfire Safety Division (WSD) May 12th email served on the service list for California Public Utilities Commission (CPUC) proceeding R.18-10-007, the Mussey Grade Road Alliance (MGRA or Alliance) provides the following public comment.

1. INTRODUCTION

As we have noted in our previous communications with WSD, the Mussey Grade Road Alliance is a is a grass-roots citizen-based organization established in 1999 that has been active in wildfire safety issues at the CPUC since 2006. We have been working diligently in this time to improve the safety of residents in wildland urban interface areas where utility wildfire has been a constant threat. WSD's proposed roadmap presents a comprehensive revisioning of wildfire safety in California, and promises to finally apply the required resources to the problems at hand.

MGRA supports WSD's vision statement and roadmap. However, there are a number of technical and strategic issues which need further work. We are pleased to have the opportunity to provide these comments to assist WSD in achieving its goal of eliminating catastrophic utility wildfire from the California landscape.

MGRA comments have been prepared by Joseph W. Mitchell, Ph. D.

2. COMMENTS ON STRATEGY AND ROADMAP DOCUMENT

2.1. Historical Context

The strategy and roadmap document presents a detailed description of the utility wildfire problem in California. The wildfire crisis is primarily attributed to the consequences of climate change, in addition to utility infrastructure issues. This narrative looks over the period of the last ten years, and within this time frame the events of 2017 to 2019[1] stand out as extreme examples. From this perspective the utility wildfire crisis appears to have come as a surprise. It was not. While the events of 2017 to 2019 are shocking in their size and unique in their occurrence for three straight years, they are not entirely without precedent. Description of this historical precedent is important. Without historical context, it is possible for utilities to define the narrative of the utilities as victims of an overwhelming climate crisis. It also focusses the spotlight on Northern California and PG&E as the primary actors, whereas historically the focus of the power line fire issue was in Southern California.

This could be remedied by expanding the historical context of the roadmap. Histories – specifically fire histories – should be expanded from ten years to twenty, incorporating the fire storms of the early and mid 2000's, which did much to shape California's approach to wildfire and utilities prior to the Northern California fires of 2017.

The narrative should include historical fires:

- The first well-documented "power line firestorm", in which multiple electrical fires ignited within a short period of time during an extreme fire weather event was in

[1] The major utility wildfires responsible for the majority of California's recent (and historical) life and property losses occurred in 2017 and 2018. By 2019, the utilities had power shutoff protocols in place and losses may have been substantially reduced (though not eliminated) as a result. To what extent power shutoff reduced fire losses in 2019 is currently being examined at the CPUC in investigation and rulemaking proceedings.

February of 1977, in the state of Victoria in Australia. (Citation 2009 Victorian Bushfires Royal Commission Final Report. v2, p. 148.)

- The "Ash Wednesday" fires of Australia in 1983 (Id.)
- The Southern California firestorm of 2007 should be given special prominence, since this was the beginning of the "pre-modern" era of utility wildfire awareness in California. Prior to 2007, utility-ignited wildfire was viewed as an occasional singular and local occurrence, though still with potentially catastrophic consequences, such as the 1970 Laguna fire in San Diego County.
- It is also recommended that the Southern California fires of 2003 be included as a reference. Otherwise similar to the 2007 fires in many aspects, it is an important observation that none of the fourteen 2003 fires were started by utility equipment, whereas nine of the twenty 2007 fires were started by power lines. This has been attributed to the fact that there were significantly higher wind speeds in 2007.[2]

2.2. Regulatory Context

The 2007 Southern California wildfires were also the catalyst for the first major CPUC programs intended to address wildfire. Additionally, investigations and proceedings related to those fires re-defined utility responsibility liability with respect to wildfires. Prior to the 2007 fires, there were no wildfire-specific regulations at the CPUC. This regulatory context should also be briefly included in the vision statement. CPUC topics originating from the 2007 wildfires that are important to the WSD roadmap include:

- The development of the utility wildfire hazard maps and designation of High Fire Threat Districts.[3] These are regularly referred to on pages 12 and 52 of the Draft Roadmap.
- The requirement that utilities prepare and submit fire prevention plans (FPPs), which were the precursors to the Wildfire Mitigation Plans.[4]

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[2] Mitchell, J.W., 2013. Power line failures and catastrophic wildfires under extreme weather conditions. Engineering Failure Analysis, Special issue on ICEFA V- Part 1 35, 726–735. https://doi.org/10.1016/j.engfailanal.2013.07.006

[3] D.17-12-024; pp. 5-7.

[4] Id; p. 6.

- The requirement that utilities collect ignition data.[5] This led to the collection of fire ignition data starting in 2014, which is now one of the foundational data components of the WMP and used in the roadmap.
- The application of SDG&E to de-energize lines, which was rejected with a requirement that utilities had to analyze customer harm from shut off with a cost benefit analysis.[6] The exception to this restriction for extreme conditions allowed shutoff,[7] and was later applied to all utilities as ESRB-8 after the 2017 fires.
- Re-affirmation of California's interpretation of the inverse condemnation liability law as applied to utilities and the "prudent manager" standard for utility reasonableness claims. These were tested at the appellate level and made their way to the US Supreme Court, which refused to review them.[8]

The historical and regulatory contexts in which the Wildfire Safety Division initiates its program are important for the lessons they can provide regarding utility-initiated wildfire in California and understanding the position of the IOUs regarding utility wildfire. Understanding why these measures were ultimately unsuccessful in preventing the catastrophic wildfires and outages of 2017 to 2019 will also be important to WSD as it attempts to chart a more successful course. And understanding what role if any power shutoff had to play in preventing wildfire in the SDG&E service area is important to WSD as it tries to reach conclusions about geographic dependence of utility hazards and the appropriate role of PSPS in the utility fire prevention toolbox.

WSD should briefly discuss the regulatory context which preceded WSD's creation.

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[5] D.14-02-015; pp. 78-85.
[6] D.09-09-030; p. 2.
[7] D.12-04-024.
[8] San Diego Gas and Electric v. Public Utilities Commission, Protect our Communities Foundation et al.; D074417.
Review of this decision was refused by the California Supreme Court and subsequently the United States Supreme Court (No. 18-1368).
https://www.supremecourt.gov/DocketPDF/18/18-1368/98044/20190430151930791_18-___PetitionForAWritOfCertiorari.pdf

2.3. Climate Change and Extreme Weather

2.3.1. Extreme weather events are a driver of utility wildfire risk

p. 11 – The four drivers of utility wildfire risk are listed as:

"• Climate change

• Fire management and suppression

• Wildland-urban interface population

• Utility infrastructure"

To this "Extreme weather events" should be added. These are utility wildfire drivers even in the absence of climate change, as can be seen in the historical record of wildfire events (example, Laguna fire, 1970).

2.3.2. There is as of yet no evidence that climate change drives extreme winds

The Roadmap makes some contradictory, uncited, and apparently incorrect statements regarding the relationship between climate change and extreme winds.

p. 6, fn. 11 – The Roadmap claims that offshore Santa Ana winds are expected to decrease with climate change:

"Although extreme offshore winds like the Santa Ana winds are projected to decrease in intensity and frequency, continued warming and delayed onset of precipitation is predicted to offset this decrease."

This needs to be cited. The citation for this may be:

Hughes, M., Hall, A., 2010. Local and synoptic mechanisms causing Southern California's Santa Ana winds. Clim Dyn 34, 847–857. https://doi.org/10.1007/s00382-009-0650-4

It is important to note that Hughes and Hall's observation on future Santa Ana intensity is a hypothesis based on the reduced temperature difference between desert and coastal areas, and is not yet definitively supported by theory or evidence.

p. 16 – The roadmap also suggests that extreme wind events are increasing, which appears to be in conflict with its previous statement:

"Unusually strong winds exacerbate these problems, and such events are no longer anomalies in a world where climate change may cause more extreme wind days."

There are two issues with this statement. The first issue is that "exacerbate" is not the best word to use. Extreme winds are a major driver of utility-caused catastrophic wildfire, and do not merely "exacerbate" wildfire. Instances where extreme winds are not drivers are relatively rare (i.e. the Butte fire) and are statistical outliers as well as usually less destructive.

A more serious problem, however, is the suggestion that climate change is causing more extreme wind days. If this assertion is based on academic work then this work needs to be cited, otherwise this assertion should be removed.[9] The following line may be intended as a reference:

"For example, SDG&E weather equipment installed in 2010-2011 recorded data indicating wind gusts exceeding 100 mph, a new phenomenon in some areas."

The fact that 100 mph winds were not observed before weather stations were in place in no way implies that this is a "new phenomenon", but rather that SDG&E is now accumulating data that was not being collected before. Locations like the infamous "Sill Hill" are being monitored by new weather stations and are measuring wind speeds that are higher than those measured at weather stations with a longer history.[10] In fact, the KQED article cited as Footnote 50 states as much, and does not support the assertion of extreme wind events being "new phenomena" or "no longer anomalies".

This does not necessarily mean that climate is not influencing extreme wind behavior. It may well be. However, such a claim will require substantial scientific evidence, and WSD has provided no references to data or theory supporting its statements. The appearance of extreme wind events in Northern California for three years in a row is remarkable. The origin of this phenomenon, however, is a mystery. Indeed, the ultimate success of WSD's vision and roadmap will depend upon this mystery being solved. If WSD lacks the resources or background to fully address all the complex elements that led to the 2017-2019 firestorms and blackouts, it should be

[9] I am currently unaware of any climate research supporting this assertion but if it exists it should be cited.
[10] Cao, Y., Fovell, R.G., 2016. Downslope Windstorms of San Diego County. Part I: A Case Study. Monthly Weather Review 144, 529–552. https://doi.org/10.1175/MWR-D-15-0147.1

supporting research and partnering with institutions that can contribute to understanding them. WSD's mandate is to be a point of excellence for wildfire science, and it must therefore apply care and rigor to the claims it makes, which may be used by government officials to set policy or craft legislation. It therefore needs to strengthen its claims regarding climate and extreme winds with appropriate references and it needs to remove any unsupported assertions.

2.4. Strategic Approach

p. 20 – The roadmap should be revised to incorporate initial results from the 2020 WMPs, and references to the 2019 WMPs should be updated.

2.5. Vision and Objectives

The WSD has adopted what the goals of "no catastrophic utility-related wildfires" and "zero deaths due to utility-related wildfires or mitigation". While these are good as aspirational goals there can be negative impacts if they are used as tactical or strategic guidelines.

One illustrative anecdote comes from the development of the utility fire threat maps. As the "High Fire Threat Districts" (HFTDs) were being defined, MGRA pushed for a selective map that would identify areas where extreme winds were most likely. At the time this work was being done, the Butte fire, which occurred under relatively mild wind conditions, raised doubts as to the efficacy of the map, and broadened the acceptance criteria for what was considered high utility fire hazards. As a result, HFTD areas were expanded so that a considerable fraction of utility service areas were placed under elevated or extreme HFTD classifications. While the maps are now more likely to encompass all fire starts, they provide limited guidance as to where the most hazardous regions are and where mitigation is most urgent.

Another potential misapplication of the "zero death" goal would be to avoid applying cost/benefit, risk/benefit, or risk-spend efficiency analyses to optimize the public good with regard to wildfire mitigations such as power shutoff. A "zero death" requirement (rather than as an aspirational goal), effectively puts its thumb on the scale of these balancing analyses, eliminating all other considerations. So, for instance, a decision could be made to underground all distribution lines

in the WUI. This would eliminate the potential for utility wildfire ignitions, and result in zero deaths from wildfire. But, at the cost of millions of dollars per mile, it would bankrupt California ratepayers and cause massive disruptions and harm. Poverty and lack of access to affordable power kill as well, but quietly and out of sight.

The "zero death" goal is also logically incompatible with the other proposed definitions of "catastrophic" wildfire. Under the proposed definition, a wildfire burning 400 structures would not be "catastrophic". But what if residents are trapped in one or more of those 400 structures? That potential cannot be eliminated unless zero structures are lost as well. "Zero deaths" logically necessitates "zero structures lost" and "zero acres burned" – in other words: "zero utility-ignited wildfires". Everyone can agree that this would be ideal, if it could be achieved. And it is fine for the state's utility wildfire agency to adopt it as its lodestar, to ensure that utilities continually work to improve. However, it could be a dangerous guide to actual deeds in a world in which choices need to be made.

Those of us who choose to reside in the wildland-urban interface do so for our own reasons, and we take on risks that people living in suburban or urban settings do not. Most try to manage those risks through awareness and preparation, but there always remains a potential for bad personal outcomes. Anyone with knowledge of wildfire recurrence intervals in California knows that land that has burned once will burn again and again. It is not a matter of if but when. We need no additional risk from utility-ignited wildfire, and would like to see all reasonable measures taken to prevent it, but even if WSD were to achieve its "zero death" goal it will not make California's WUI residents safe from wildfire.

While it may be beneficial to adopt aspirational goals for overall direction and for the benefit of the public and government officials, WSD must ensure that the practical strategies and tactics it supports aim to reduce public harm in a way that is effective, efficient, and rapid. Perfection must not be the enemy of the good. One methodology that WSD may wish to explore is ALARP (As Low as Reasonably Practicable), which was put forward by SED staff in the S-MAP proceeding several years ago.[11] Such an approach might allow frank discussion and decisions regarding societal values and how we determine what is "acceptable" risk.

[11] A.15-05-002/003/004/005; ADMINISTRATIVE LAW JUDGE'S RULING ENTERING STAFF WHITE

2.6. Priority Actions for the WSD

p. 34 – "The WSD can work with subject matter experts to update the maturity model criteria every three years or as needed."

The initial maturity model was released without the incorporation of any vetting or review. It has a number of critical weaknesses and must not wait for a three year cycle to resolve them - otherwise three years of process improvement opportunities will be lost.

Suggestion: Remove "every three years".

2.7. Collaboration Areas for the WSD and Utilities

p. 42 - Missing from the list of institutions that WSD will collaborate with as part of "Statewide Coordination" is the CPUC, which WSD will likely be exiting in 2021. This may be an oversight, and it should be added to the list.

Coordination with the CPUC going forward will be critical in order to ensure that cost effective mitigation measures are put into place, and that utility safety is enforced. WSD can enforce only WMP compliance. CPUC also maintains the ability to reject utility WMPs that have been accepted by WSD if the WSD has not ensured that all state regulations are adhered to. Furthermore, funding for utility wildfire mitigation will be provided by rate cases that will be run by the CPUC. If WSD requires mitigation measures but the CPUC rate case rejects funding these measures, it will create a crisis that will need legislative or legal intervention to resolve.

Hence, it is absolutely essential that WSD continue to work collaboratively and regularly with CPUC and its divisions after its exit from the CPUC.

Other initiatives that the WSD could engage in with collaborators include:

PAPER AND COMBINED UTILITIES REPORT INTO THE RECORD AND SEEKING COMMENTS; December 28, 2015; Attachment 1: Safety and Enforcement Division Staff White Paper on As Low As Reasonably Practicable (ALARP) Risk-informed Decision Framework Applied to Public Utility Safety; By Steven Haine, P.E.; California Public Utilities Commission.

- Analysis of de-energization events to ascertain whether wildfires were prevented by shutting off the power
- Development of a mechanism to quantify public harm from shut-off events.

3. APPENDIX 1 – GLOBAL STRATEGIES FOR WILDFIRE MITIGATION

p. 6 – California is listed as having 8-13% of wildfires started by electrical equipment. Historically, this has been less than 10%, and has been subject to systematics of data collection. In fact, prior to a few years ago, this number was believed to be only a few percent. The data from CALFIRE's Redbook shows how this number has changed as it shifted to different forms of electronic data collection:[12]

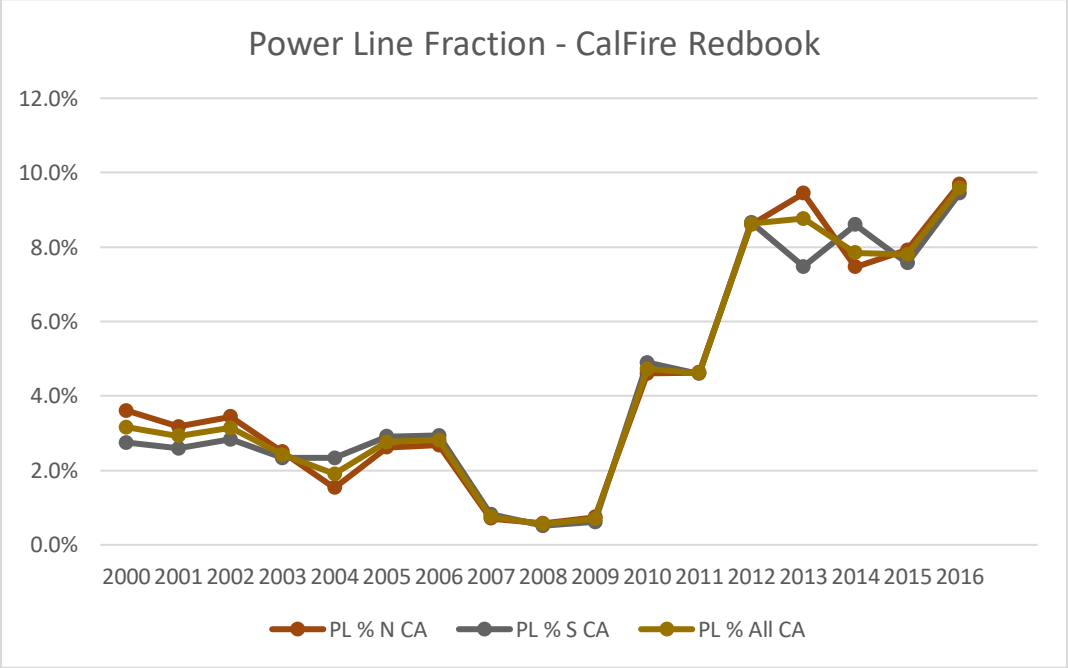

Figure 1 - Fraction of Wildfires Attributed to Power Lines in CAL FIRE DPA between 2000 and 2016. Fraction of power line fires are shown for Northern California, Southern California, and total. Electronic collection started in the mid 2000's, and went through several iterations. The cause of the low fraction for 2007 to 2009 is not definitively known.

The extreme dependence of power line fire reporting rate on data collection systematics is noteworthy, and it implies that numbers from other geographies should also be regarded critically.

[12] R.18-12-005; MUSSEY GRADE ROAD ALLIANCE COMMENTS ON PROPOSED DECISION ADOPTING DE-ENERGIZATION GUIDELINES; May 16, 2019; pp. 2-4.

In general, power providers are averse to acknowledging responsibility for ignitions, and so unless it is understood how fire cause is attributed in the various geographies one should not jump to conclusions regarding where power line fire is most prevalent.

Not all geographies experiencing wildfire are equally prone to utility ignitions. Geographies subject to catastrophic utility wildfires have a coincidence of climate, geography, infrastructure and population in which human development abuts and extends into fire-prone landscapes under climatic stress, and the electrical infrastructure supporting those developments is subject to mechanical stresses from extreme winds. Historically, Australia and California have been particularly vulnerable to "power line firestorms" with multiple near-simultaneous wildfire ignitions.

p. 16 – "One example comes from Victoria, Australia, in the form of the F-Factor Scheme, outlined in Figure 5 below. In Victoria, the F-Factor Scheme makes an adjustment to the return that the utility receives by directly incentivizing reduction in ignitions, focusing on those most likely to lead to catastrophic wildfire."

Incentives for wildfire safety were extensively discussed during the initial wildfire mitigation rulemaking, R.18-10-007. One concern that was raised by parties is that when incentives are put into place, they are inevitably accompanied by a perverse incentive to "game" the system to improve the score. For example, one way to reduce reported ignitions is to fail to record them. WSD will want to prevent such behavior. If financial incentives are adopted, they will need to be accompanied by stringent safeguards that will monitor for and prevent any attempts by the utility to bypass their intent.

4. APPENDIX 2 – UTILITY WILDFIRE MITIGATION VISION AND OBJECTIVES

p. 3 – Fire statistics are shown for 2008-2018. As mentioned in Section 2.1, there is considerable context to be gained by extending this timeline back to 2000. The fire years of 2003 and 2007 in particular were significant and show that the problems of 2017 and 2018 are not entirely without precedent or context.

5. APPENDIX 3 – UTILITY WILDFIRE MITIGATION DATA STRATEGY

p. 20 – Figure 11a – This figure shows the WMP review process for 2020. One important omission is that it neglects to show that parties participating in the R.18-10-007 rulemaking were able to submit data requests to the utilities. The data returned by the utilities then became part of WSD's data collection record for the 2020 WMP reviews. Some of the data requested by parties was important to the WMP review process and supplemented the data submissions required by WSD.

WSD should indicate this data collection path and the contribution of the public (or CPUC) in its figure. This is important because it not only reflects the actual 2020 review process, but it also indicates whether WSD will continue to support public data requests through some mechanism in 2021 and subsequent years.

p. 23 – "In addition, a rich data set could be used by the WSD and utilities to inform resource planning and rate design. For example, if the WSD determined that no adequate or cost-effective measure existed to mitigate a circuit's wildfire risk, rather than either allowing the utility to spend inefficiently or to bear the extraordinary risk, they could recognize the need to use PSPS on that circuit. At the same time, interconnected customers could be encouraged to adopt local power solutions (e.g., backup generation, solar paired with energy storage, owned either by the consumer, the utility, or a third party) to allow communities to withstand frequent de-energizations."

What WSD is discussing in this section is effectively a cost/benefit analysis for utility de-energization, which is something that MGRA has actively been advocating since 2008. MGRA strongly supports data collection for the purpose of setting appropriate de-energization thresholds and comparing de-energization against alternative mitigations.

6. CONCLUSION

MGRA appreciates the opportunity to provide comment on the Wildfire Safety Division's proposed strategic roadmap and wishes all success to WSD as it implements its mandate.

Respectfully submitted this 30th day of June, 2020,

By: __*/S/*____***Diane Conklin***_____

Diane Conklin
Spokesperson
Mussey Grade Road Alliance
P.O. Box 683
Ramona, CA 92065
(760) 787 – 0794 T
(760) 788 – 5479 F
dj0conklin@earthlink.net