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April 18, 2021 VIA ELECTRONIC FILING

Caroline Thomas Jacobs, Director
Office of Energy Infrastructure Safety
California Natural Resources Agency
715 P Street, 20th Floor
Sacramento, CA 95814

RE: MUSSEY GRADE ROAD ALLIANCE REPLY TO STAKEHOLDER COMMENTS ON THE 2022 WILDFIRE MITIGATION PLANS

Dear Director Thomas Jacobs:

The Mussey Grade Road Alliance (MGRA or Alliance) files these reply comments pursuant to the Procedures for Review of 2022 Wildfire Mitigation Plan Updates,[1] which authorizes replies to stakeholder comments on the Large Utility WMPs (Wildfire Mitigation Plans) by April 18, 2022. The Alliance filed its own comments on April 11, 2022.[2] Other stakeholders also filed comments. Those we will be responding to in this filing include CPUC Public Advocates (Cal Advocates),[3] The Utility Reform Network (TURN),[4] Will Abrams,[5] Green Power Institute (GPI),[6] and Rural Counties (RCRC).[7]

[1] Office of Energy Infrastructure Safety; FINAL ATTACHMENT 5; Guidelines for Submission and Review of 2022 Wildfire Mitigation Plan Updates; Undated; p. 5.
[2] 2022-WMPs; 10759-4; MUSSEY GRADE ROAD ALLIANCE COMMENTS ON 2022 WILDFIRE MITIGATION PLANS OF PG&E, SCE, AND SDG&E; April 11, 2022. (MGRA Comments)
[3] 2022-WMPs; TN10760; Comments of the Public Advocate's Office on the 2022 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities; April 11, 2022. (Cal Advocates Comments)
[4] 2022-WMPs; TN10759-6; OPENING COMMENTS OF THE UTILITY REFORM NETWORK ON THE 2022 WILDFIRE MITIGATION PLANS; April 11, 2022. (TURN Comments)
[5] 2022-WMPs; TN10762; WILLIAM B. ABRAMS COMMENTS ON THE UTILITY PROPOSED 2022 WILDFIRE MITIGATION PLAN UPDATES; April 11, 2022. (Abrams Comments)
[6] 2022-WMPs;10759-5; COMMENTS OF THE GREEN POWER INSTITUTE ON THE 2022 WMP UPDATES OF THE LARGE IOUS; April 11, 2022. (GPI Comments)
[7] 2022-WMPs; TN 10758; Comments of the Rural County Representatives of California on the Large IOU 2022 Wildfire Mitigation Plan Updates; April 11, 2022. (RCRC Comments)

The Alliance is gratified that other citizens, organizations, and regulators have taken on the burden of reviewing the voluminous 2022 Wildfire Mitigation Plans and we generally support the comments and observations made by the other stakeholders. As we stated in our original comments, the Alliance was unable to review all relevant topics due to the sheer size of the plans and the limited time available. We submit this reply to highlight specific stakeholder comments and add additional relevant information where appropriate

The Alliance reply comments are authored by the Alliance expert, Joseph W. Mitchell, Ph.D.

Respectfully submitted this 18th day of April, 2022,

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

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REPLY TO STAKEHOLDER WILDFIRE MITIGATION PLAN COMMENTS ON BEHALF OF THE MUSSEY GRADE ROAD ALLIANCE

The Mussey Grade Road Alliances' (MGRA or Alliance) Wildfire Mitigation Plan reply comments are authored by MGRA's expert witness Joseph W. Mitchell, Ph.D.[8]

Replies are listed by commenter.

1. CAL ADVOCATES COMMENTS

1.1. PG&E Undergrounding Program Should be Limited

Cal Advocates strongly questions PG&E's proposed undergrounding program, and suggests that PG&E "limit its undergrounding efforts to the riskiest 10 percent of its HFTD circuit segments" and only be approved "contingent on the utility consistently meeting specific success metrics and minimum performance criteria."[9] PG&E's determination of which segments pose the most risk is based on its WDRM v2 Wildfire Distribution Risk model for its "circuit protection zones".[10]

MGRA shares Cal Advocates' concerns that PG&E's undergrounding program is excessively aggressive and lacking in justification. MGRA in its comments urged that: "Energy Safety should recommend against any major roll-out of undergrounding as a long term solution until questions regarding effectiveness of alternatives such as covered conductor and REFCL have been evaluated, and proper risk/benefit of other alternatives such as PSPS and EPSS have been incorporated as well."[11]

Of particular concern is Cal Advocates' noting that the circuit ranking it proposes would be based on PG&E's WDRM v2 model. MGRA pointed out in its comments that PG&E's planning risk models -- WDRM v2 in particular and likely WDRM v3 – as well, have several technical issues. The MGRA comments show that PG&E's WDRM models do not correctly account for the

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[8] M-bar Technologies and Consulting, LLC; http://www.mbartek.com; Email: jwmitchell@mbartek.com. Dr. Mitchell is also a board member of the Mussey Grade Road Alliance.
[9] Cal Advocates Comments; p. 2.
[10] Cal Advocates Comments; p. 7; fn.6.; p. 18.
[11] MGRA Comments; p. 76.

correlation between ignition probability and ignition consequence.[12] Additionally, MGRA Comments show that the WDRM v2 consequence model likely is biased to amplify risk near population centers, though this issue will possibly be addressed in v3.[13] Therefore, even if the roll-out of PG&E's undergrounding program is limited to the "riskiest" circuits, it is likely that PG&E's risk estimation at the circuit level is inaccurate and will need further work and correction.

Energy Safety should therefore review and approve the risk models prior to any support for even a partial roll-out of a major utility undergrounding program in order to ensure that the riskiest circuits are being addressed first. While Energy Safety should support Cal Advocates proposals for reporting and accountability[14] if the undergrounding program moves forward, it should in addition set a high threshold for its approval of even a partial roll-out of such a program, including realistic cost estimates and timelines, proof of cost-effectiveness, and validation of risk models.

2. TURN COMMENTS

Like MGRA and Cal Advocates, TURN is highly skeptical of PG&E's proposed undergrounding project. TURN introduces a novel approach to convert PG&E's risk-spend efficiency (RSE) calculation into a cost/benefit ratio, and uses this to set a threshold for mitigation effectiveness. Using this approach, TURN determines that only 17% of the undergrounding miles proposed in the 2022 WMP are cost effective, and that less that 1% of the miles proposed for enhanced vegetation management (EVM) are cost effective.[15]

2.1. PG&E Should Use Linear Scaling and Standard Value of Statistical Life

TURN reiterates in its comments its objections to PG&E's implementation of non-linear scaling for its MAVF function and its use of an excessively high implied Statistical Value of Life (SVL).[16] MGRA has also supported use of a linear MAVF scale and adoption of an implied SVL that is in line with that used by other regulatory agencies.[17] While PG&E wishes to adopt an MAVF

[12] MGRA Comments; pp. 17-42.
[13] MGRA Comments; pp. 44-47.
[14] Cal Advocates Comments; p. 12.
[15] TURN Comments; p. iii.
[16] TURN Comments; p. 8.
[17] 2021-WMPs; MGRA Comments; p. 67.
Citing:

that is "catastrophe-averse", we argued that by removing caps to allow the full range of catastrophic events and using risk modeling functions such as power laws that are consistent with high-end wildfire losses, PG&E could achieve its goal of catastrophe avoidance without recourse to artificial assumptions. In reviewing PG&E's ERM model in preparation for its GRC, MGRA found that PG&E had adopted a number of improvements that increase confidence that its risk model more accurately represents catastrophic wildfire risk, and these were presented in the MGRA comments.[18] Specific improvements to the PG&E model were:

- Removal of caps on the maximum attribute values.
- Adoption of a power law (Pareto) distribution for catastrophic wildfire losses.
- Incorporation of weather criteria (National Weather Service Red Flag Warning) in a tranche in a manner that addresses correlations between ignition and PG&E's consequence model implementation using "worst case" weather days.
- Incorporation of PSPS damage events as risk events equivalent to ignitions.

These improvements in the PG&E model are complementary to the modifications to the maximum attribute values and linear scale that TURN suggests in its comments and which MGRA continues to support. TURN's proposed values for attribute ranges are reasonable if hard caps are not applied (losses can exceed the range for specific catastrophic risk events). For instance, TURN's proposed cap of $5 billion for financial losses is far less than the $16 billion already observed for the Camp fire.[19] However, this is not consequential if modeled risk events are allowed to exceed the range value, which has a primary purpose of scaling and weighting the various attributes contributing to the MAVF.

R.20-06-012; MUSSEY GRADE ROAD ALLIANCE COMMENTS ON THE PACIFIC GAS AND ELECTRIC COMPANY 2020 RISK ASSESSMENT AND MITIGATION PHASE REPORT AND THE SAFETY POLICY DIVISION STAFF EVALUATION REPORT; January 15, 2021.

[18] MGRA Comments; pp. 52-54.

[19] MGRA Comments; p. 56; citing
Extreme storms, wildfires and droughts cause heavy nat cat losses in 2018 | Munich Re [WWW Document], n.d. URL https://www.munichre.com/en/company/media-relations/media-information-andcorporate-news/media-information/2019/2019-01-08-extreme-storms-wildfires-and-droughts-cause-heavynat-cat-losses-in-2018.html (accessed 4.3.22).

2.2. Mitigations Should be Driven by Cost Benefit Analysis

Risk-spend efficiencies (RSEs) have been calculated by utilities in all WMPs according to their own specific formulae and methodologies. While in cases these RSEs have been useful for comparative purposes, the three major utilities calculate RSEs for different mitigations that varied wildly between utilities but also in the relative value of different mitigations, leading MGRA to question whether "the three major California IOUs are operating on different planets."[20]

TURN and its expert in the 2022 WMP comments propose a simple conversion that changes the cryptic RSE into a benefit/cost ratio.[21] MGRA has supported cost/benefit and risk/benefit analyses as a mechanism to make decisions regarding wildfire mitigation issues – specifically power shutoff – since 2009.[22] TURN's proposal is attractive because it converts the RSE from a utility-specific and opaque calculation to a unitless ratio with a specific meaning: a ratio of greater than one means that a mitigation provides more benefit than it costs.

Energy Safety should closely review the TURN B/C ratio proposal and adopt it as a standard if it more accurately represents effectiveness of mitigations than RSEs.

2.3. Fine-Grained Tranching with B/C Ratios is Valuable and Needs to be Actionable and Accurate

TURN's Comments clearly demonstrate the value of fine-grained tranching in combination with a benefit/cost ratio. By using these in combination, it is possible to come up with a "cut-line" at B/C ratio of 1.0, with tranches above the cut-line having mitigations that provide more value than they cost, and below the cut-line providing less value than their cost.[23] TURN's examples make the value of fine-grained tranching and risk modeling perfectly clear, and provide a template for evaluating mitigation programs not as monolithic projects applied to the entire utility service area but as targeted operations on the areas where the mitigation provides the most benefit.

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[20] 2021-WMPs; p. 66.
[21] TURN Comments; Appendix; pp. 14-19.
[22] D.09-09-030; p. 2, 59.
[23] TURN Comments; pp. 10-12.

There are two areas that need to be evaluated closely in this approach, however.

The first concern, discussed in great length in MGRA's Comments, is that utility wildfire risk weighting methodology is flawed.[24] To briefly summarize, utility probability of ignition models look at all ignitions, whereas utility consequence models evaluate only "worst-case" weather days, without any accounting for the conditional probability that an ignition with a certain driver in a certain location takes place on a "worst-case" weather day. This leads to an absurd and incorrect emphasis on ignitions from third party agents such as vehicles, animals, and balloons rather than equipment damage and blowing vegetation. PG&E's ERM addresses this in its "RFW" tranches, but these are not the same tranches used by TURN to break down risk into fine-grained tranches, but are effectively an independent set of tranches. This leads to the suspicion that the PG&E risk tranches used by TURN may not be calculated and ranked properly. Energy Safety should more closely analyze this issue to ensure that accurate risk estimations are used to assign risk to tranches.

The second issue that needs to be evaluated in this model is whether the tranches are *actionable*, in other words that a mitigation can be effectively applied to one specific tranche. "Effectively" in this case means that when utilities "bundle" work in order for operational efficiency that the entire tranche can have the mitigation applied without excessive extraneous work bleeding into the other tranches. For example, if the service area were divided up into small sub-segments, and these were grouped *only* by risk, then each tranche might have segments appearing in circuits widely spread over the utility service area. Mitigating such a tranche would mean a truck roll to every circuit in the service area. Mitigating each additional tranche would require the same expenditure of effort, leading to great additional cost and inefficiency and defeating the original purpose of creating the tranche to allow more efficient application of resources. So when utilities talk about "bundling" work for the sake of efficiency, this "bundling" needs to be part of the tranche definition.

Energy Safety should consider adopting the model proposed by TURN as a standard for addressing large, expensive utility mitigation programs, while ensuring that risk tranches are accurate and actionable.

[24] MGRA Comments; pp. 17-42.

3. WILL ABRAMS

3.1. Energy Safety Should Incorporate Mr. Abrams' Gap Analysis into its Findings

Mr. Abrams's comments present a "gap analysis" based on testimony provided during PG&E's Kincade fire trial. These comments list various statements regarding safety issues uncovered in the Kincade investigation and trial, and question how and whether PG&E has addressed each of these safety issues in its WMP. While Mr. Abrams reaches a conclusion for each item, there is no corresponding validation or data request associated with each claim, leaving a number of open questions.

In order to understand the context for Mr. Abrams' comments, it is necessary to review PG&E's request for an extension of time to respond to Mr. Abrams' data request[25] and Mr. Abrams' subsequent opposition to this request.[26] Particularly noteworthy is Mr. Abrams' statement that "PG&E is very much aware that the Kincade and Dixie Fire settlement announcements and associated release of evidence came on the very same day that WMP intervenor comments were due."[27] In other words, Mr. Abrams entire comments appear to have been written on the afternoon and evening of April 11th, a formidable feat, and adequately explaining why there are no supporting data requests for these comments.

Mr. Abrams' assertion that past problems should be learned from and incorporated into WMPs is sound and Energy Safety should support Mr. Abrams' gap analysis. It is neither Mr. Abrams' nor PG&E's fault that the Kincade and Dixie fire settlement announcements and release of data happened to coincide with the due date of the WMP comments. However Energy Safety should be deeply skeptical of PG&E's claim that it needs an entire month to respond to Mr. Abrams data requests when ordinary response time is three days. PG&E is also totally disingenuous when it suggests that: "To the extent Mr. Abrams believes this information is relevant to Energy Safety's review of the 2022 WMP, he can address it in public comments on the proposed decision regarding PG&E's WMP, which are due June 15, 2022." PG&E knows well that comments on Proposed

[25] Letter; Extension Request of Pacific Gas and Electric Company to the Second 2022 Wildfire Mitigation Plan Data Request of William Abrams; April 14, 2022. (PG&E Extension Request)
[26] Letter; RE: Extension Request for Reply Comments on the 2022 Wildfire Mitigation Plans; April 14, 2022. (Abrams Extension Reply)
[27] Id.

Resolutions are supposed to focus on legal and factual error, and are not the appropriate venue for the presentation of new information.

Energy Safety should require an appropriate response by PG&E to each of the items in Mr. Abrams' gap analysis as a precondition of approval of its WMP. If this information cannot be provided in time for Energy Safety to incorporate it into its review, then Energy Safety should require a supplemental filing by PG&E to address any issues that Energy Safety encounters in its review of the gap analysis as a precondition for plan approval.

4. RCRC COMMENTS

4.1. PG&E's 10,000 Undergrounding Program is Unjustified

MGRA supports comments of the Rural Counties skepticism regarding PG&E's undergrounding program:

"PG&E is still developing scoping criteria to identify the highest risk areas and determine whether undergrounding is achievable, prompting the inevitable question of why, and how, they identified 10,000 miles. It appears to be a value without any justification or rationality."[28]

"We question not only the validity of PG&E's fundamental shift of using undergrounding as the most preferred option, but also its probability of execution. Energy Safety and the CPUC must reconcile these competing interests and determine whether PG&E's 10,000-mile program is warranted and feasible, especially if it could result in long-term delays to safeguard high risk circuits in High Fire Threat Districts and leave many communities at the mercy of "last resort" PSPS and EPSS measures for years to come."[29]

5. GPI COMMENTS

5.1. Ratepayer Cost Increases are Already Excessive

MGRA Comments showed an example "toy" calculation showing how a rate increase of $300 per year could potentially reduce the lifespan of thousands of the poorest Californians by 380,000 years. GPI Comments show that in 2020 and 2021 *alone* PG&E has increased average

[28] RCRC Comments; p. 4.
[29] Id.; p. 5.

yearly rates by $222 dollars,[30] and that does not include its planned 10,000 mile undergrounding program. Energy Safety needs to consider the cost of mitigation programs from a public health and safety perspective.

5.2. GPI Makes Many Sound Technical Suggestions

GPI Comments make a number of technical recommendations that MGRA supports. To highlight two of these:

- "GPI recommends clarifying in the next WMP cycle whether HFTD mapping has shifted jurisdiction to the California Natural Resources Agency and OEIS, or whether the CPUC will continue to develop updated HFTD maps."[31]
- "GPI recommends that the 2022 WMP updates should not be approved unless and until model fit values are provided for at least the major ML derived planning models (e.g. PoI). Going forward, WMPs should be required to include model fit metrics for all utility-developed models used in risk-based decision making."[32]

5.3. Utilities Need to Consider Egress Issues When Planning Wildfire Mitigations

GPI discusses the egress/ingress issue in its section titled "IOUs have yet to successfully model risk on egress/ingress routes"[33], correctly noting that utilities have far to go in incorporating egress/ingress issues in their planning models. This should be considered a high priority issue as some areas are more prone to resident death and injury during wildfire because of limited evacuation options. Evacuation can also be hampered by falling poles and wires during a windstorm or catastrophic wildfire.

As a specific example, MGRA raised its own local area egress issues with SDG&E during the SDG&E RAMP proceeding. This excerpt from the MGRA SDG&E RAMP filing is attached as Appendix A.[34] It shows how an ignition in a segment of SDG&E's Ramona service area that has

[30] GPI Comments; p. 2.
[31] GPI Comments; p. 5.
[32] GPI Comments; p. 6.
[33] GPI Comments; p. 14.
[34] A.21-05-011, A.21-05-014; Safety Policy Division Staff Evaluation Report on SDG&E's and SoCalGas' Risk Assessment and Mitigation Phase (RAMP) Application Reports; November 5, 2021. (SPD SDG&E RAMP Report) including Addenda at pp. 207-252.

been historically prone to ignition and PSPS damage could lead to a rapid evacuation bottleneck in the case of a severe wind-driven wildfire.

Energy Safety should work with utilities to come up with optimal methods for weighting the added risk that evacuation issues pose to communities with limited egress/ingress.

Respectfully submitted this 18th day of April, 2022,

By: __*/S/*____***Joseph W. Mitchell, Ph.D.***_____

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APPENDIX A – MGRA COMMENTS ON SDG&E RAMP – EGRESS EXCERPT

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of San Diego Gas & Electric Company (U 902 M) to Submit Its 2021 Risk Assessment and Mitigation Phase Report	Application 21-05-011 (Filed May 17, 2021)
Application of Southern California Gas Company (U904G) to Submit Its 2021 Risk Assessment and Mitigation Phase Report.	Application 21-05-014 (Filed May 17, 2021)

MUSSEY GRADE ROAD ALLIANCE INFORMAL COMMENTS TO THE SAFETY POLICY DIVISION REGARDING SAN DIEGO GAS AND ELECTRIC COMPANY'S RAMP FILING

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Dated: October 22, 2021

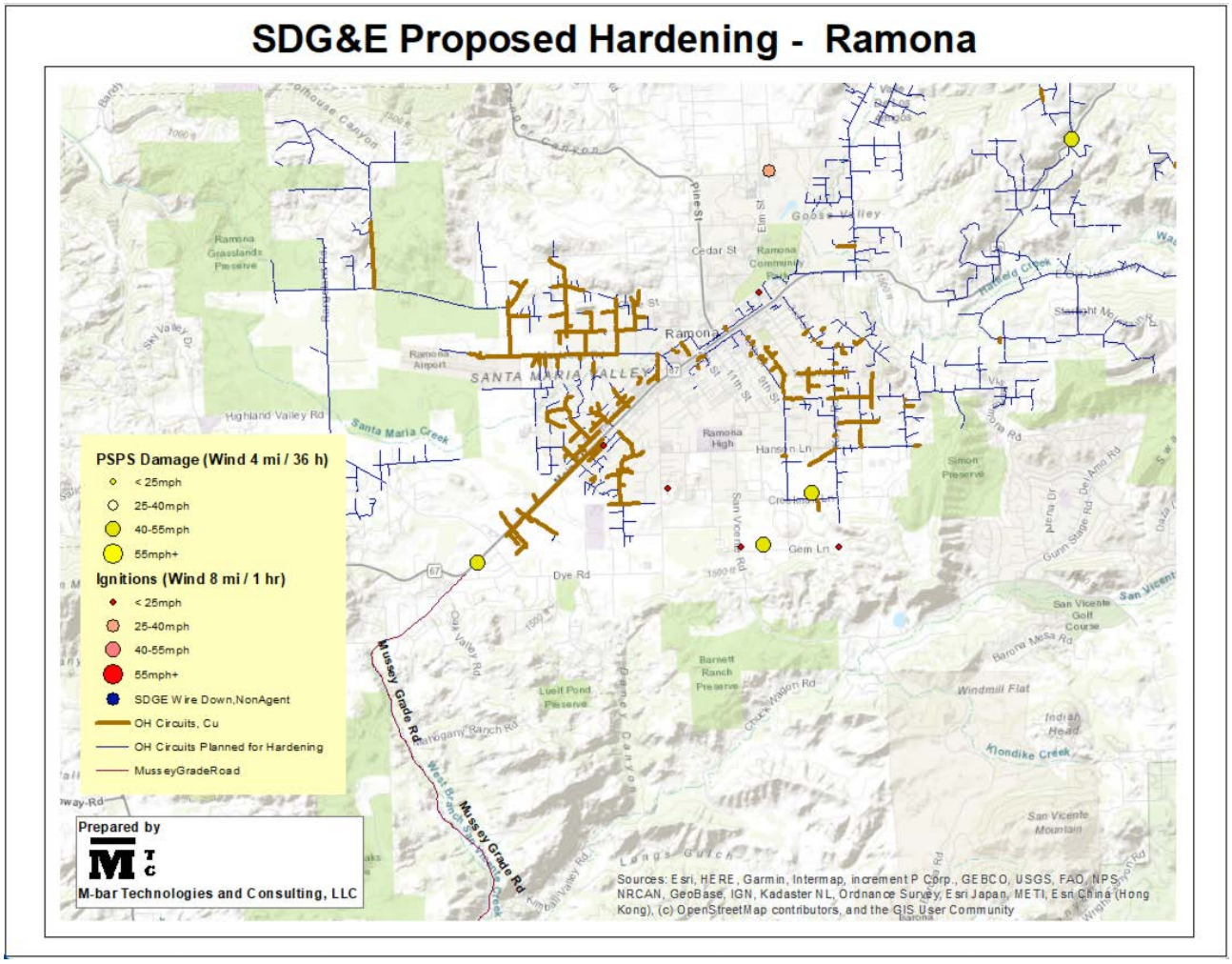

Figure 6 - SDG&E circuits near the Ramona, CA planned for hardening and historical ignitions, wire downs, and PSPS damage**.**

A number of damage events and ignitions on circuits not currently planned for remediation can be seen in the area south of Ramona, specifically in the Dye Road area. This indicates that there may be circuit or location specific risk factors that are ignored by the SDG&E risk ranking algorithm. Ignitions in this area are particularly worrisome to residents of the Mussey Grade Road corridor, who depend on a single egress from this neighborhood in the event of wildfire.

Issues of community egress, applied specifically to the Mussey Grade Road corridor, are further developed in the next section.

2.3.3. Community egress issues

The area of southwest Ramona where an excess of historical PSPS damage and ignition events occurred is shown in more detail below.

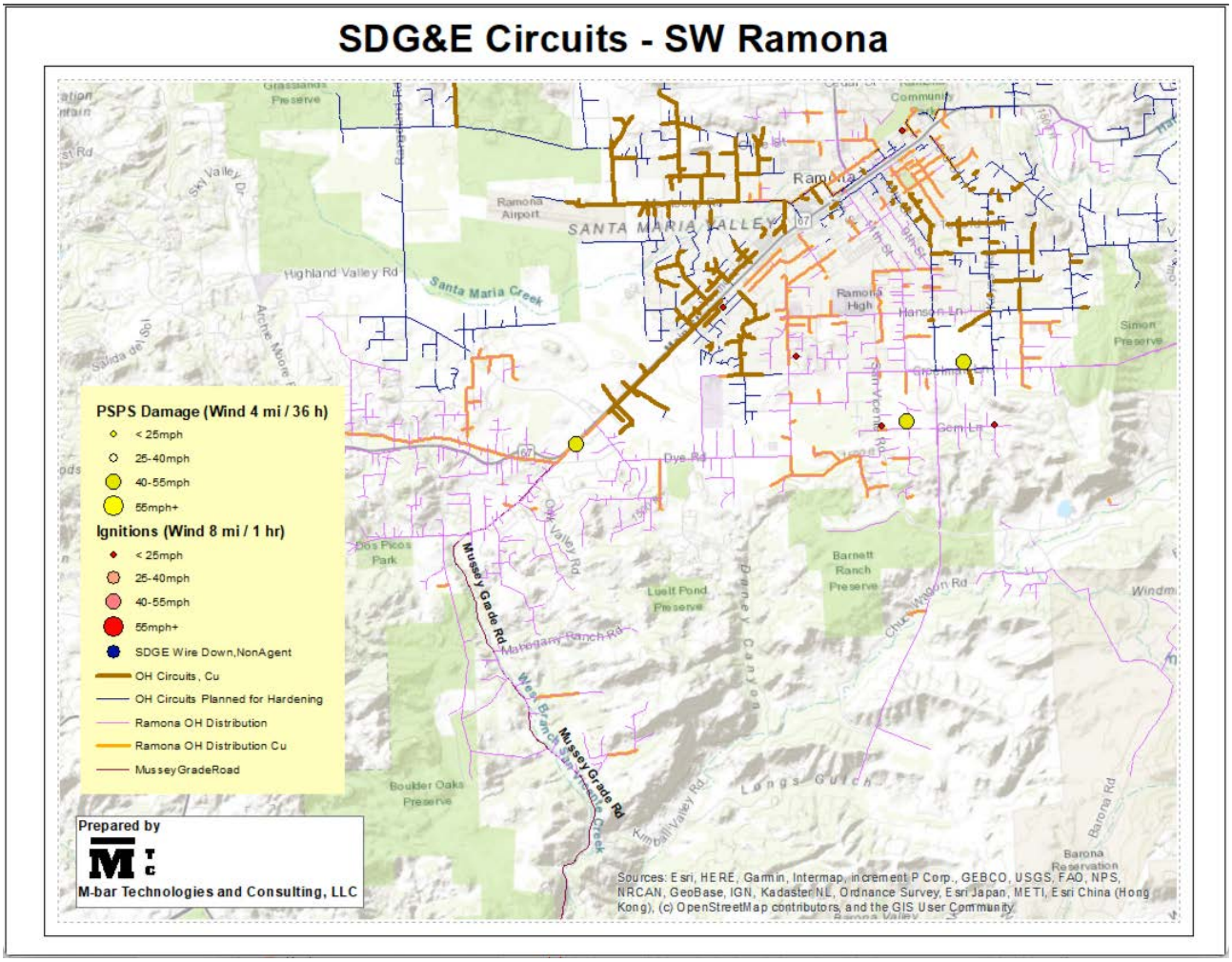

Figure 7 - Similar to the previous figure but showing more detail in the problem areas and also including all SDG&E circuits and not just those to be hardened in 2022-2024.

PSPS damage events have occurred on a number of circuit segments, as have ignitions. The ignitions were not associated with high wind gusts at local weather stations, but the PSPS damage events were. Most events also appear not to be associated with copper conductor.

This figure raises the question of how SDG&E prioritized hardening for the Ramona circuits. Circuits at risk include C-971, C-972, and C-973. Remediation work shown above is going into C-972. C-971 and C-973 are rated as having half or the risk of C-972.[66] SDG&E lists the following factors as contributing to this difference:

"*C-972 is a comparatively long circuit (53.77 miles).*

C-972 has, relative to other circuits, less hardening work completed.

[66] SDG&E Data Request Response MGRA-DR-006, Questions MGRA-27 and MGRA-28. Excel spreadsheet. See appendix.

C-972 has a larger average vegetation ignition factor compared to C-971 and C-973.

C-972 has a higher PSPS risk score associated with this circuit serving more than double the number of customers compared to either C-971 or C-973, and of particular note, there is a higher number of essential customers present on C-972."

These considerations do not include ignition clusters or PSPS damage, nor do they take into account community egress issues.

SDG&E was asked whether it incorporated egress into its risk model or into its considerations of when and where to de-energize. Its responses were:

"*SDG&E does not directly include egress from single access HFTD areas in its estimation of circuit risk, RSEs, or prioritization. SDG&E recognizes this as a potential opportunity for improvement in future versions of its models. While egress is not directly incorporated in the risk modeling, it is a consideration in the scoping phase of grid hardening implementation.*"[67]

"*SDG&E does not directly include egress from single access HFTD areas in its determination of whether to initiate a power shutoff for a given circuit.*"[68]

In order to determine wildfire risk, both generally and on an operational basis, SDG&E runs fire spread modeling for both historical and recent fires. It automatically runs simulations for all reported fires in the Integrated Reporting of Wildland-Fire Information (IRWIN).[69] This capability has also been operationalized:

"*SDG&E has further enhanced this model into an operational system (WRRM-Ops) by developing a fully automated process to ingest daily weather and fuel moisture data from its supercomputers, and to re-calculate risk levels to support emergency operations. This information is now leveraged by SDG&E's subject matter experts to gather intelligence and communicate potential impacts and risk for every potential fire of consequence that occurs in SDG&E's service territory*."[70]

[67] SDG&E Data Request Response MGRA-DR-007, Questions MGRA-40.
[68] SDG&E Data Request Response MGRA-DR-007, Questions MGRA-42.
[69] RAMP; SDG&E 1-19.
[70] SDG&E WMP Update; p. 176.

SDG&E uses Technosylva's FireSim package, which "*has the ability to generate conventional fire behavior outputs based on specific ignition location points. These outputs include Time of Arrival (fire perimeter) for a specific forecasted time period (duration), and fire behavior characteristics including the rate of spread, flame length and fireline intensity…. To calculate risk for each asset, a fire spread prediction is simulated using the asset location as the ignition point(s). Millions of ignition points are defined along the assets to run the simulations for different start times during a daily weather forecast*."[71]

It should be entirely reasonable, therefore, to inquire of SDG&E what the consequences would be for an ignition in the Dye Road area in order to determine whether and how a wildfire from such an ignition would affect the Mussey Grade Road area including its evacuation route. SDG&E runs "millions" of point simulations, so a simulation for a given point should not be a great burden for it to produce. Such a request falls squarely under the auspice of sensitivity analysis required in the Settlement Agreement.

MGRA requested two such simulations in its data requests, and SDG&E refused.[72] SDG&E's reasons for refusal were baseless, but there was insufficient time to compel compliance prior to the production of this document.

Even though SDG&E refused to perform or share Technosylva fire spread modeling for ignitions in the Dye Road area, similar modeling has been performed at the request of the County of San Diego by Rohde and Associates as part of a study of the opening of the Boulder Oaks Preserve adjacent to Mussey Grade Road in Ramona.[73]

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[71] Id.; p. 83.

[72] SDG&E Data Request Response MGRA-DR-007, Questions MGRA-46, MGRA-47: "*SDG&E objects to this request under Rule 10.1 of the Commission's Rules of Practice and Procedure on the grounds that it requests SDG&E to perform a study or analysis on MGRA's behalf that does not exist. SDG&E further objects to this request on the grounds that it calls for speculation and is vague and ambiguous as to "consequences" and "implications for evacuation." SDG&E further objects to this request to the extent it seeks the production of information that is neither relevant to the subject matter involved in the pending proceeding nor is reasonably calculated to lead to the discovery of admissible evidence*."

[73] BOULDER OAKS PRESERVE; Improvement Project; FIRE SERVICES OPERATIONAL ASSESSMENT; Prepared for the Fire Marshal, San Diego County Fire Authority, by: Rohde & Associates Emergency Management; March 11, 2020; p. 25. https://files.ceqanet.opr.ca.gov/255399-3/attachment/RoCw4UBieJabVxwD17qEFEgtaDfVVUZDJBkYn0n0nCMP5oee4U5QZTiblg509QlYUWMRtidLAvA6bb0m0 . Downloaded 10/18/2021.

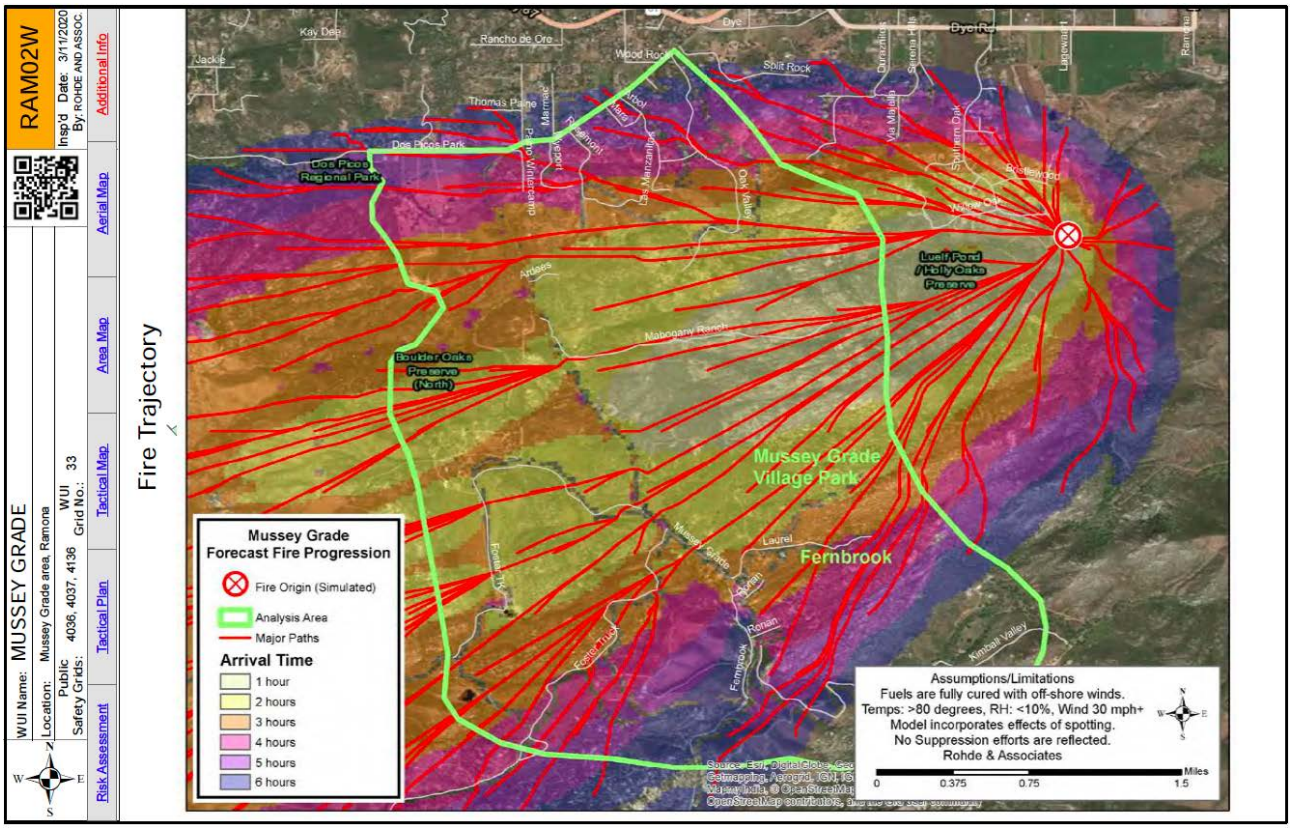

Figure 8 - Fire spread modeling for an ignition in the Dye Road area of Ramona, California, performed by Rohde and Associates at the behest of San Diego County. As can be seen, the Mussey Grade Road corridor can be impacted by the fire front in as little as an hour from ignition. The southern Mussey Grade Road corridor is home to hundreds of people and is a single-egress neighborhood depending on Mussey Grade Road for evacuation. This model does not take the effect of smoke into account, which could severely limit visibility along the evacuation route before the fire front arrives.

Rohde and Associates, the fire consultants hired by San Diego County, were hired to examine fire vulnerabilities and evacuation for the Mussey Grade area as part of an environmental assessment for the Boulder Oaks Preserve. Rohde and associates ran only one match-drop simulation (with multiple runs from the same ignition point). For their ignition point they chose a "worst-case" scenario: an ignition in the Dye Road area, coincidentally the same area where SDG&E ignitions and PSPS damage have been observed. The map shows potential fire paths in red. It also shows the fire spread as a color grade, with the lightest area being the spread in the first hour, and yellow the spread in the second hour. Assumptions included fully cured fuels, off-shore winds of over 30 mph, and temperature over 80 F. As can be seen, Mussey Grade Road (labeled in small letters, and which follows the wooded stream bed from northwest to southeast), could be impacted by the fire front in as little as one hour. This does not account for smoke impacts, which could greatly degrade visibility well before the fire front arrives, further hindering evacuation. Studies by the Alliance expert have shown that evacuation of the area, where hundreds of people reside, could

take well in excess of an hour, and there are no safe sheltering locations along the road. Hence, entrapment of residents and a large mass casualty event are possible in this scenario.

Generally, MGRA supports wildfire safety around the state as "typical" residents of a wildfire prone neighborhood. It was surprising to come to the realization as SDG&E data was analyzed that our area was at elevated risk for catastrophic power line fire compared to other areas of San Diego County. Other geographic areas not being addressed during SDG&E's 2022-24 RAMP cycle where excesses of ignitions and PSPS damage have been observed also include the Rincon and Viejas reservations. However, only the Mussey Grade area has the added complication of a 5-mile box canyon egress that would be directly threatened by an ignition in the area of concern. SDG&E should, as it prioritizes, look for vulnerabilities that are not yet incorporated into its risk modeling algorithms, including potential for egress problems and historical vulnerability to PSPS damage.

2.3.4. Segment Remediation and Prioritization Recommendations

Recommendations:

- Conclusions from this year's OEIS-facilitated workshops regarding covered conductor should be incorporated into SDG&E's GRC filing, including changes to cost and effectiveness estimates for covered conductor.
- SDG&E should provide analysis of future technologies such as "Falling Conductor Protection, Sensitive Ground Fault Protection, and Sensitive Profile Settings" in conjunction with covered conductor, as a potential alternative to undergrounding.
- SDG&E should cross-check its circuit prioritization algorithm against other available data, specifically location-specific clusters of ignitions, PSPS damage, and wires down.
- SDG&E should work with local fire agencies to identify single-egress communities that may be particularly vulnerable to ignitions blocking the egress. These considerations should be used for both hardening prioritization and shutoff threshold.
- Staff should request that SDG&E produce fire spread modeling as requested for specific locations.