PUBLIC COMMENTS OF WILLIAM B. ABRAMS TO THE COMMISSION ON CATASTROPHIC WILDFIRE COST AND RECOVERY

Submitted by,
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TO THE COMMISSION ON CATASTROPHIC WILDFIRE COST AND RECOVERY PURSUANT TO SENATE BILL 901 (2018).

I greatly appreciate the Governor's leadership, the Commission's commitment and the opportunity to provide these public comments. Primarily, the comments below represent my views as a fire survivor. While I feel these comments are representative of many in our communities, particularly wildfire survivors, they are my own and represent my recommendations based upon my personal experience as a fire survivor and my diverse public/private professional experience within government, nonprofit and private sectors.

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Introduction

On the night of October 8, 2017, I awoke in our Santa Rosa home and ran barefoot to my car with my wife and two young children as our house and our community was on fire. In the rush out the door, my 10-year old son, Leo had my sandals on his feet screaming while fighting smoke induced asthma "we are going to die… we are going to die". Half way up the driveway, he passed me the sandals so that I could pull burning branches out of the driveway and continue our escape. My son wrote the following essay in response to his experiences that night https://m.bohemian.com/northbay/the-oleary-factor/Content?oid=6851454 and it is this sentiment and his words of wisdom that gives me drive and hopefulness around these issues before the Commission.

While I greatly appreciate the Governor's and the Commission's leadership on these issues, I realize this work is by no means their own. The inter-connected issues created climate change and increasing wildfire risks are all of our responsibility. This is an "all-hands on deck" moment and the Governor's preemptive emergency declaration issued on March 22, 2019 is exactly the type of leadership and urgency we need around these issues. These critically important initiatives will take subject matter experts (SMEs) coming together around the interconnected and interdependent factors that cause, ignite, accelerate, propagate and mitigate wildfires while supporting the recovery and resiliency issues that help our communities rebuild and recover.

In the comments that follow, I will ideate, propose and recommend certain actions that I hope will support the overall direction and leadership of the Governor and this Commission on these issues. That said, I know there are many ways to move forward and I will certainly work to support the direction of our State leadership. As we know, there are many government agencies, businesses, nonprofits and individuals working on a great many tactics associated with these issues. However, what is of critical importance for the Commission is to set a measurable STRATEGY. We can have a great set of

tactics with a great many committed and diligent stakeholders but if we do not have a MEASURABLE strategy and continue to pursue a loose patchwork of subjective and general tactics we will not achieve our mutually desired outcomes.

I. Current State of Recovery and Resiliency

Before we set a path forward, it is important to take stock in what we have today. Without going into a detailed SWOT analysis which will be important to do before setting a baseline, I will highlight a few key features of our current state to give some added perspective to the Commission. Indeed, in the absence of this overarching strategic plan there are disconnected tactics that have been deployed with different levels of effectiveness and scalability to support State-wide systems and process improvements. These tactics and some associated consequences are as follows:

- **Lack of Synergy with State Objectives** – Exp. Senate Bill (SB 833) identifies general guidelines on what needs to be in an early alert system while cities and counties develop inconsistent and unmanageable divergent approaches as to how to meet these requirements.

- **Lack of Synergy between Counties and Cities** – Whenever there is a scarcity of resources and funds to address solutions there is a general grab of Federal and State funds by local agencies to address localized issues but the careful development of strategies, programs and solutions while occasionally applied is not prevalent. Fire survivors have been told "we don't control the cities", "we are waiting for funding" and "we never met with them" as reasons why there is a lack of coordination and progress around wildfire preparedness, alert/warning and recovery initiatives leaving residents scratching their heads.

- Alert Example: Alert systems are a hot mess of systems and disconnected processes (NIXLE, SOCO Alerts, EAS use, sirens, etc.) that creates confusion for residents. Rather than taking short-term steps for standardization and coordination that will lead to broader longer-term solutions, the grab at small pots of Federal/State funds leads to disconnected systems and disjointed or incoherent emergency management processes. Due to this lack of process definition, local agencies often rely upon personal and professional networking where Susie will call Jimmy who sends a text to Sally who has subject matter expertise to dispatch a particular part of the response effort. Of course, when Jimmy is out of the office, the process breaks down. In the absence of more coordinated systems and processes, residents get alerts like "fire in Healdsburg" with no follow up message or sense of what actions we might want to take. Similarly, when very hazardous air quality index (AQI) is measured due to fire activity, kids still are sent out on playgrounds and to sporting events because processes and standards are not there for who or how these air quality notices are sent.
- Vegetation Management Example: County agencies remove landscape plan requirements for the post-fire permit processes to reduce rebuilding costs and associated process hurdles while city building departments require landscape plans only for front yards which were primarily implemented for low-water use and aesthetic objectives. These shortcuts were implemented in support of the short-term benefits for fire survivors like me and to replenish the tax base but of course made us more vulnerable to wildfires in the long-term.
- Home Hardening Example: Throughout many of these wildfire ravaged counties, cities and towns, no added home hardening standards for new construction were added post-October 2017 through zoning ordinances or by any other means. Similarly, no retrofit requirements or incentive programs were set for renovations or home improvements. Due to underinsurance and

cost-saving measures many of the newly built homes are even less hardened then before the wildfires.

- **Dedicated Local Government Staff Step Up** - Despite these disconnects, our Sonoma County staff have done fantastic work under very difficult circumstances. I have been heartened by the compassion and hard work of our County staff and elected officials. However, the local inter-agency processes, silos and some inherent impediments like the Brown Act make driving long-term recovery and resiliency a very difficult proposition. Moreover, perceived political consequences in post-disaster communities make it hard to sell short-term costs (increased building requirements, vegetation management practices, etc.) for longer-term recovery and resiliency wins within a community.

- **Neighborhoods Filling Voids** – Residents are not seeing a clear strategy from the State, county or local agencies for how we are better preparing for the next wildfires. So, they are taking these matters into their own hands creating a patchwork of disconnected systems and processes:
    - **Neighborhood Groups** – Various neighborhoods are pulling together to form wildfire prevention/preparedness organizations (Neighborhood Fire Watch Groups, Community Emergency Response Teams (CERT), Citizens Organized to Prepare for Emergencies (COPE), Firewise Communities, etc.). Typically, these grass-roots organizations have varying levels of effectiveness and are only as good as the neighbor volunteers that manage them. Without a doubt, these are wonderful organizations that should be encouraged and supported but generally are not replicable or scalable in a manner that can be relied upon from a broader public safety perspective.
    - **Off-the-Shelf Alerting** – Residents are reaching out and grabbing home-based alert and warning systems and trying to tie them into local fire department systems in various ways. This is an effort to supplement current mobile, TV,

phone-tree and other public alert/warning-based solutions that aren't reliable in many active wildfire scenarios.

- **Diffusion of Responsibility** – Stakeholders across the State are doing fantastic work but without clarity in terms of who owns what. Cal Fire, IOUs, local government agencies, Fire Departments, etc. are all pointing at one another as to who is responsible for wildfire education/prevention, alert/warning standardization and vegetation management with equally conflicting information provided to residents.

- **Funding Availability Driving Tactics -** One of the biggest consequences of the lack of California State Strategic Plans around wildfire mitigation and recovery/resiliency is that local governments are then letting funding guidelines drive divergent and disconnected tactics. Counties and cities get a few dollars here for a few sirens or mobile alerts, get a few dollars there for a wood chipper program approximating vegetation management and don't have the subject matter expertise to develop repeatable/scalable tactics or strategies. This is no criticism of these local agencies, as no local government agency could drive these solutions on their own. It is a strategic imperative that the State of California drives the strategy and then funds "technical assistance" initiatives to provide local agencies with the guidance on how to implement these strategies at the local level. Of course, there will be push-back for "local control" but this is not like other issues where the benefits of local control outweigh the need for cohesive strategy. Indeed, having situational awareness and a common operating picture are cornerstones of any emergency preparedness plan. The scale and speed of climate change and wildfire impacts means that this lens and locus of control needs to be lifted to the State level. Yes, there are variations in deployment and management tactics that depend on rural vs. urban and other population characteristics but the strategy should drive and limit these variations substantially more than with other initiatives. I urge the Commission to consider this type of approach.

The good news is that there are unique on-the-ground conditions within our communities that could be leveraged to drive consensus, share resources and implement the comprehensive solutions we need around wildfire preparedness. Indeed, communities like those within Sonoma County have pulled together to support each other and there is a general understanding that we rely on each other for public safety particularly during these types of disaster events. There is general agreement that could not have been reached before the wildfires hit these communities that fire safe communities require structural hardening, vegetation management practices and other measures. Specifically, we have all sectors within our communities (business, government and nonprofit) with aligned interests and motivation to support big long-lasting changes. This represents a window of opportunity for the Commission that I suggest they leverage to further this wildfire agenda. Consider the following social, political and financial dynamics:

1. **Public Commitment and Motivation** – Recent wildfires provide strong personal motivation around family safety that is tied to a high propensity for action around new public safety initiatives
2. **Business Community Motivation** – The same wildfire prevention and alert/warning initiatives that protect residences also serve to mitigate business asset risks and employee turn-over due to wildfire related cost-of-living increases or personal safety concerns (insurance scarcity, reduced tourism/investment, etc. are also business risk factors).
3. **Political Viability for Action** – Our local and State politicians have a greater chance of enacting progressive legislation and passing ordinances due to #1 and #2 above. Additionally, broad public support exists to tackle these issues across the political spectrum due to the breadth of at-risk communities across the State. In this polarized political climate, wildfire mitigation may be one of the few remaining bipartisan issues.

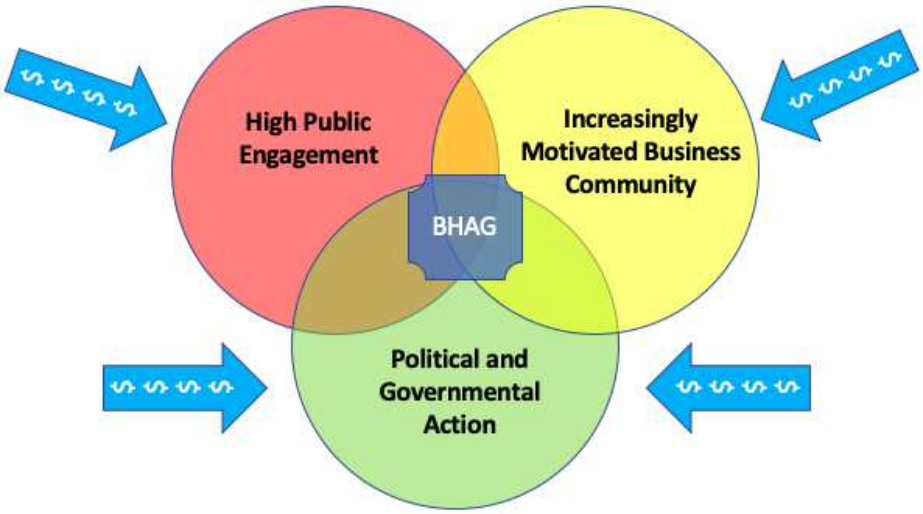


Figure A: Environment Ripe for Big Changes

This alignment creates the opportunity to create what renowned Business Strategist and Author, Jim Collins calls Big, Hairy, Audacious Goals (BHAGs). Setting large goals galvanizes resources and keeps stakeholders motivated to achieve great things. If ever there was a time for this type of prioritization of lofty goals, it is NOW. The strategy objectives below need to be measurable and all in alignment towards dramatic reduction in wildfire risks and the overall solutioning of our climate change agenda.

II. Strategic Planning, Wildfire Mitigation, Cost and Recovery

As a party to motions before the California Public Utility Commission (CPUC), I have made many recommendations for improvements to the proposed Investor Owned Utility (IOU) Wildfire Mitigation Plans (WMPs) that I will also include in these comments to the Catastrophic Wildfire Cost and Recovery Committee. It is important for this Commission to understand that the current wildfire "plans" proposed by the IOUs are neither strategic nor measurable in any meaningful manner and will not provide the safety and security we need for our energy grid. It is my hope that the next iteration to

these IOU "frameworks" posing as "plans" incorporate the following attributes so they can start to become the type of strategic documents we so urgently need:

1) **Metrics -** Specific performance-based risk mitigation metrics need to be incorporated from each Electric Utility. Moreover, these metrics need to be able to be independently and scientifically verified and tied directly to the reduction of wildfire ignition and propagation.
2) **Accountability –** Scorecards, Quality Control Plans and assessments tied to financial incentives and penalties for performance in wildfire risk reduction need to be actively incorporated so that the CPUC can enhance their oversight responsibilities. These recommendations come with the understanding that reimbursement from ratepayers should only be done when utilities provide "safe and reliable" service and meet the prudent manager standard. These measures would define those standards in a more substantive way and therefore well within California State guidelines, statutes and the CPUC mission.
3) **Process Improvements –** Identified and verifiable streamlined processes that speed up the self-identified bottlenecks of the Utilities should be set including but not limited to R&D, testing/deployment timeframes and for system safety improvements.
4) **Innovation –** The formation of think-tanks and inter-disciplinary taskforces that demonstrate collaboration across utilities and represent a significant increase in active collaboration with other industries where adjacent technologies and transferrable processes could improve key cycle-times and wildfire risk mitigation.

If these focus areas are incorporated into the current frameworks in a manner I describe in later sections of this document, I believe they could serve as strategic documents to move us forward. I would also expect that if these plans are developed in this way, the

CPUC as a regulatory and oversight body would have additional abilities to provide oversight and public assurances regarding increased wildfire risk mitigation.

However, if despite the best efforts of myself and other parties to improve these plans, they remain close to the state they are in now, I would wholeheartedly recommend that they not be supported by this Commission, not be approved by the CPUC and face the legislative consequences of this given SB901. Anything close to the current state of these plans, would represent a step backward and not a step forward in risk mitigation. These plans currently serve as more Financial Risk Avoidance Plans for the electric utilities than they serve to increase public safety. If not substantially improved, regardless of stipulations by parties and the CPUC, these plans will be pointed to by IOUs as cover when the next utility ignited wildfires occur. As is, each plan provided to the CPUC by each and every Utility is now a watered-down subset of internal plans where they are willing to invite some limited scrutiny and oversight. Given that, holding electric utilities to account based on their internal plans would be far better than relying on the proposed insubstantial plans for wildfire risk mitigation and public safety.

Overall, the most critical component of any strategic plan is an overarching measurable goal that drives accountability. This may sound like an obvious statement but it is the primary component that is most lacking from these plans which is why the CPUC will find it difficult to incorporate any type of accountability into the plans in their current form. Goals are supported by things like objectives, milestones, tactics and tasks. However, without this overarching measurable goal we are left with disconnected activities that may or may not achieve the goal of substantial reduction or elimination of utility caused wildfires.

If any IOU cannot or in most cases will not indicate this specific risk reduction ratio for a particular activity in question, it should be stricken from the proposed plans. There is an adage that is used in every other industry where competition drives success and that is

"you cannot manage what you cannot measure". I will dive deeper into this concept in the "performance metrics and monitoring" section of this document but I ask that you keep in mind the salient question of "what is the measurable wildfire risk mitigation achieved through this activity?" in each and every section of these plans.

III. Risk Analysis and Risk Drivers

The risk analysis provided by the IOUs in their submitted "plans" is flawed in a number of ways. The primary flaw is that this risk analysis is not based on risk ratios and probabilistic risk assessments. In section 3.7, page 35 of the PG&E plan, they expound upon the virtues of this "Use of Probabilistic Risk Assessment" and go into great detail about how they "leverage the rigorous modeling" and "state of the art analysis methodologies". However, after inquiring about this work through a data request they responded with no additional information only to say "PG&E is in the early stages of working with UCLA on wildfire probabilistic risk assessment". I requested that unsubstantiated and apparently immaterial assertions such as this be stricken from their Wildfire Mitigation Plan as apparently to date it has played no part in their Wildfire Mitigation Planning. That said these, risk ratios and this type of probabilistic risk mitigation is exactly what needs to be the basis of these plans. In the absence of this scientifically based risk mitigation the following poor substitutes have been offered by the IOUs and provide no basis of accountability:

1. **Anecdotal/Non-Statistically Significant Data Points** – The IOUs primarily point to investigations after wildfires occur as the basis of their plans. As an example, PG&E bases it's risk assessment primarily on a total of 414 events over the 3-year period from 2015 to 2017. In no way is this a prudent scientifically based way to develop a risk mitigation approach or the correct way to prioritize risk drivers in a system as large and complex as the PG&E grid. Similarly, they point to "property owner objections" in the plan as execution risks for tree trimming and pole

maintenance/replacement but these objections represent less than 1% of these categories of potential risk.

2. **Reliance on Outdated Analytics** – Rather than looking to adjacent industries like within the technology sectors, where there are significant advances due to competitive pressures there is an over-reliance on outdated analytical methodology. As an example, the PG&E plan relies upon the "Fire Index Areas (FIA)". These indices were developed in 1959 and haven't been updated since the 1960s. Use and reference to these types of frameworks as the basis of risk analysis is misplaced. One proof point here is the recent Camp Fire in which PG&E's own statement indicated "The Camp Fire did not start in any of the Fire Index Areas". Maybe, applying an index from 1959 doesn't point to locations of fires in 2018? Landscapes, forestation and urban development has changed a lot since 1959, so why is PG&E still using these indices? I suspect that this lack of updated analytics and associated indices are one of the many contributing factors that led PG&E to misdiagnosis and miscalculate the risks leading up the Camp Fire.

3. **Use of "Common Bowtie Risk Methodology"** – The IOUs point to this methodology a good bit as a basis of their plans and yes this methodology is common but the use of this in these plans is uncommon and incomplete. Typically, the center of the bowtie is a risk event or intervention like a wildfire. On the left side of the bowtie are the specific drivers and on the right side are typically reactive risk recovery/mitigation measures, reactive controls and escalation controls. The utility proposed bowties look more like side-ways neckties because these right-side mitigation measures are surreptitiously absent. As an example, please refer to the PG&E plan (figure 2 on page 21). Where is the right half of the bowtie? Yes, there are "consequences" there like burning my house down but where are the reactive risk drivers and why is this important? After the October 2017 fires PG&E spent a lot of time patting themselves on the back for putting the lines right back where they were very quickly. Putting

lines back the same way that caused the wildfire in the first place is risk mitigation? If they had developed this right half of the bowtie, perhaps they would have a strategy post-incident for mitigating future wildfires. The aftermath of these electric utility caused disasters also provide unique windows of opportunities to build wildfire mitigation from the ground-up into the system. As an example, two of the primary hurdles to undergrounding in the Wildlife Urban Interface (WUI) is securing the utility easements and the post ground repair after the lines are buried. If PG&E wanted an easement to underground lines across my lot after my home was burned down and the land was vacant, it would be fine. After I rebuild and landscape, this is not so easy. Should you underground lines before roads are redone with FEMA funds and avoid the cost of repaving? Makes sense if you have the right half of that bowtie. Maybe while IOUs are removing downed trees and other vegetation you can put the line below these burned trees rather than put the lines right back where they add risk to the system and communities *(see figure B below and the circled controls missing from the IOU plans)***.**

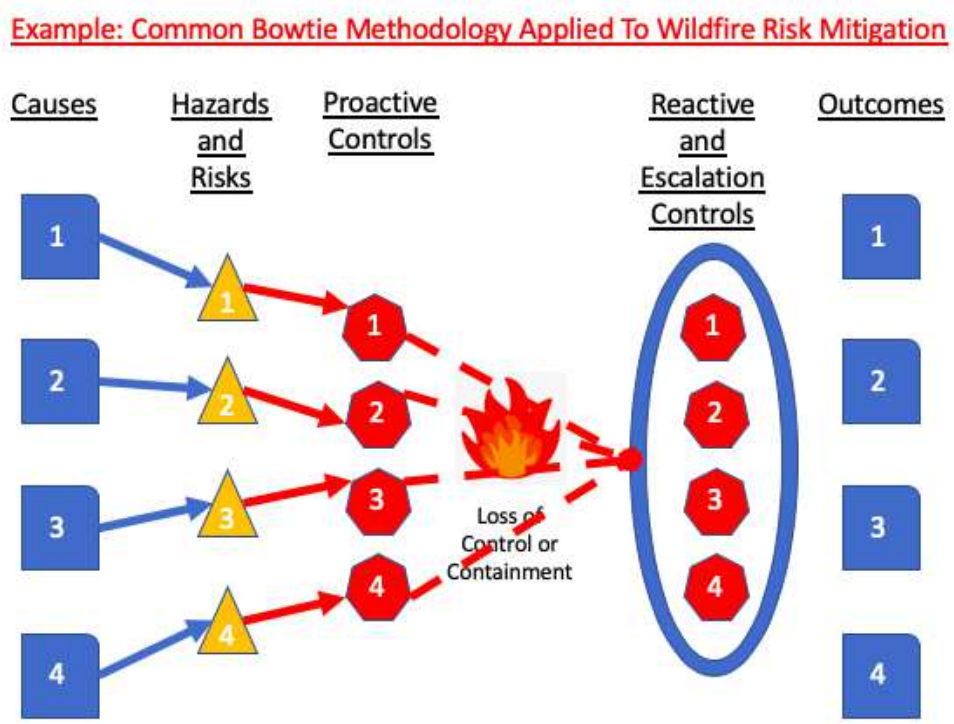


Figure B: Applying Risk Mitigation Ratios to a Risk Mitigation Plan

So, we can see from this assessment that the IOU Wildfire Mitigation Plans have incomplete and misleading identification of risk drivers. Unfortunately, often our local post-wildfire risk analysis is similarly flawed. Specifically, we have chosen to prioritize short-term rebuilding incentives over longer-term wildfire risk mitigation. As I described in the earlier section, we have windows of opportunity each time these catastrophic wildfires hit to rebuild in a way that incorporates infrastructure hardening, fuel breaks, fire breaks, landscape standards, etc. but choose to instead provide building permit processes and recovery initiatives that make it easier rather than safer for homeowners to rebuild. There are many consequences of this but one important financial consequence is that we have furthered insurance scarcity risks for our communities. The following equation helps to illustrate this point in the aftermath of the Northern California fires of 2017:

Figure C: Post-Wildfire Financial Equation

Now, these ever-increasing insurance scarcity issues coupled with looming exponential increases in electricity costs should be the only financial motivations we need to set and accomplish big, hairy, audacious goals within this Emergency State of California. Even if you don't see the other impacts of climate change that are as clear as day (when days aren't filled with smoke) these financial impacts are here before us now. Whether you are a business leader, elected official, nonprofit executive or just a resident like me, we have all the motivations we need to pull together and get this done for the long-term safety and security of our businesses, our communities and our families.

IV. Proposals in Support of Recovery and Resiliency Strategy

There are two general paths that we can take on our "road to recovery". One path involves furthering disjointed tactics with subjective measures that approximate real strategy. This path will add to the "diffusion of responsibility" and lack of accountability I described earlier. The other path allows us to establish measurable goals and objectives and a future for our children that includes some added levels of safety and security. Of course, the decision here seems clear but if we don't actively pursue and commit to this path (*Figure D: Option B*) we will default to current state and business-as-usual processes. Consider the following overview of these paths:

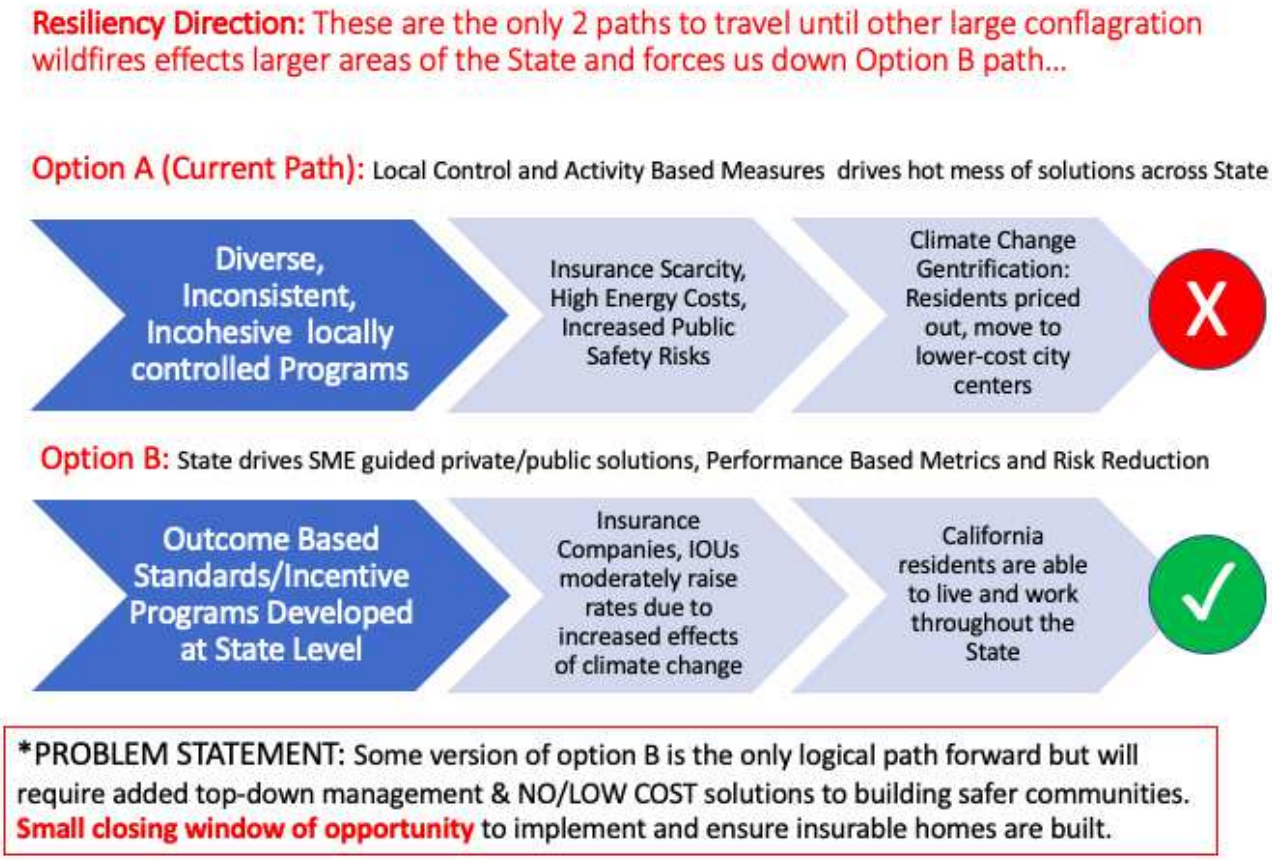


Figure D: Paths of Travel on the "Road to Recovery"

Unfortunately, the proposed "Wildfire Mitigation Plans" currently proposed by our Electric Utilities will take us down Path A if we don't course correct. The "strategies" and programs currently outlined in these proposed IOU plans do not convey or respond to the urgency of our times in relation to the ongoing wildfire risks. On the whole, the proposed strategies can be categorized as MORE of the SAME. On the whole, recloser operations, vegetation management, inspections, system hardening and situational awareness are the same tactics that have been leveraged for at least the last 20 years upon an energy grid that hasn't really been innovated in the last 100+ years in any significant way. This "more of the same" strategy needs to be replaced by innovation, collaboration and accountability tied to performance metrics (*Figure D: Option B*).

I would suggest to the Commission that despite the lowered ratings of our IOUs and the bankruptcy of our largest Utility, the impediments to these strategies are NOT financial. If anything, these increasing financial pressures should make corporate changes in strategy much more aligned with the public safety goals. I would submit to the Commission the following recommendations for new strategic directions for our IOUs to ensure we move forward to match the public urgency with urgent collective action:

1. **Formation of New R&D/Testing Thinktank** – What has been described by the 3 major IOUs as an execution risk is a lack of testing resources and a backlog of new technologies that are untested (laboratory, manipulative and controlled experiments). Fortunately, we have a model for electric innovation that just needs to be dusted off. Thomas Alva Edison formed Edison Laboratory for innovation back in the late 1800s in Menlo Park, New Jersey. I recommend that we form a new thinktank with that same innovative spirit a little closer to home (maybe Menlo Park, California). There are different types of less formal R&D collaborations described in the submitted IOU plans. However, through leveraging the collective resources across the utilities, we could spur a new wave of innovation around the safety of our energy grid given the increasing threats of climate change and wildfires. I would recommend a contract be established within 3-months that provides a mutual aid agreement across IOUs and includes Subject Matter Experts (SMEs) from Universities and other research/testing leaders from our high-tech industry. Specific measurable goals and objectives should be tied to this effort including identifying new technologies to mitigate wildfires and exponentially increasing testing timeframes.

2. **Leverage Adjacent Technologies** – Given that we have roughly the same energy grid as we did when the buggy whip was the primary means of reducing cycle-time, I suggest we look outside the electric utility industry to augment ideation. Specifically, there are High Availability (HA) and Disaster Tolerant Solutions

being improved and innovated within companies that are motivated by competitive pressures (HA focused companies like Veritas as well as larger players in this space like HP, Oracle, IBM and SAP). These failover technologies may be able to augment/improve recloser functions and other systems/processes. Similarly, there are telemetry devices and processes in adjacent industries that could be applicable for the types of wildfire risk mitigation we need. The types of inspections described by the IOUs is similar to an inspection done when a mechanic lifts up your hood to check engine functions in your old '57 Chevy. Now, they have these devices that check the health of your car with innovations like a "check engine light" and things that indicate "low tire pressure" and other sensors throughout your car's system. Similar telemetry devices are also used to check system health across server farms and in large geographically decentralized and complex systems. I recommend that the CPUC consider including incentives for these types of collaborative efforts to address increasing wildfire threats.

3. **Mutual Assistance Agreements for Implementation** – There has been a very effective Mutual Assistance agreement (GO 166, standard #2, standard #4) between the IOUs for restoring power after disaster. Given the urgency created by utility caused wildfires and the self-identified staffing/labor shortages as execution risks, I recommend that the CPUC ensure the formation of mutual-aid agreements for pre-disaster wildfire mitigation and include those provisions in these proposed IOU plans. The same collaborative efforts and resource alignment that brings power back after a disaster should be leveraged to roll out the wildfire mitigation and system hardening safeguards. Economies-of-scale enabled by these agreements, if leveraged properly, might actually reduce the costs to IOUs and reduce deployment cycle-times. I recommended that this Commission support the formation of these mutual assistant agreements as part of GO 166 within the next 3 months.

4. **Timeframes** – The clearest indication that the urgency of wildfire mitigation is not reflected within these IOU plans are "timeframes". Moreover, the use of timeframes within these plans does not seem to drive the type of accountability we need. As example, table #3 on page 15-16 of the PG&E plan has hard and fast deadlines like "within the next 5 years" or "more than 5 years". Where are the milestones and implementation dates? I would suggest that we get specific dates for specific actions built into these plans. I would ask that target dates that don't pinpoint a target timeframe to the month of implementation be stricken from the IOU proposed plans.

5. **Equitable Service Delivery** – Although there is a mandate by statute that "no public utility shall establish… unreasonable differences in service between localities and classes of service", there seems to be plenty in these plans that should be examined to ensure this equity. I attended the Northern California Community Meeting around the effects of de-energization on vulnerable populations back in January and it is apparent that there is a lack of coordination with organizations serving individuals with disabilities. There also seems to be a reluctance to address the very real issues that disproportionately effect individuals with disabilities and low-income populations within these plans. I would encourage the Commission to ensure these plans include tangible provisions for outreach and collaboration with these communities. The Americans with Disability Act (ADA) was often met with opposition from business leaders decrying the undo hardships this would put upon businesses large and small. Now, it is seen that these same provisions that add parking, ramps and other tangible improvements in addition to helping these populations also help all of us at different times in our lives when these accommodations are helpful. Similarly, consideration of how we mitigate wildfire risks for these populations will benefit all of us and needs to be specifically addressed within each section of the plan. As I read these plans, I am concerned that we are creating a situation where my

neighbors that live in affluent areas and can afford backup generators, solar panels, batteries, etc. will get one class of service, and those neighbors who have less financial means will get a different and much lower class of service. Figuratively and literally, a class of service that leaves them in the dark.

Beyond these strategic gaps and deficiencies in these proposed IOU frameworks, there is a general lack of coordinated strategy around two key initiatives:

1. **Vegetation Management -** practice of manipulating the species mix, age, fuel load, and/or distribution of wildland plant communities within a prescribed or designated area in order to achieve desired results and mitigate wildfires. It includes a number of tactics including but not limited to prescribed burning, grazing, chemical applications, biomass harvesting, and any other economically feasible methods of enhancing, retarding, modifying, transplanting, or removing the aboveground parts of plants.
2. **Structure Hardening -** taking steps to reduce the risk of wildfire caused ignitions and spread of fires throughout a structure by building or retrofitting structures with known scientifically proven best-practices to mitigate fire ignition/propagation

The difficulties in forming a cohesive strategy for vegetation management across stakeholders is primarily due to a strategic pitfall described by Jim Collins as "the tyranny of the OR". Too often we are debating among subject matter experts (SMEs) whether we should have drought tolerant plants, fire resistant plantings, reduce evasive species or protect our watershed. Different factions argue the merits of biofuels vs. logging vs. prescribed burns. Of course, the answer is not an "OR" but an "AND". We need to be more prescriptive in how and where we apply different tactics and priorities. Consider the following example of how zones might be identified through the collaboration of SMEs across industry and within different scientific fields:

Proposal: Targeted Land Management Plan/Maintenance Requirements and Resident Incentive Programs Based Upon Geography and Scientific Consensus

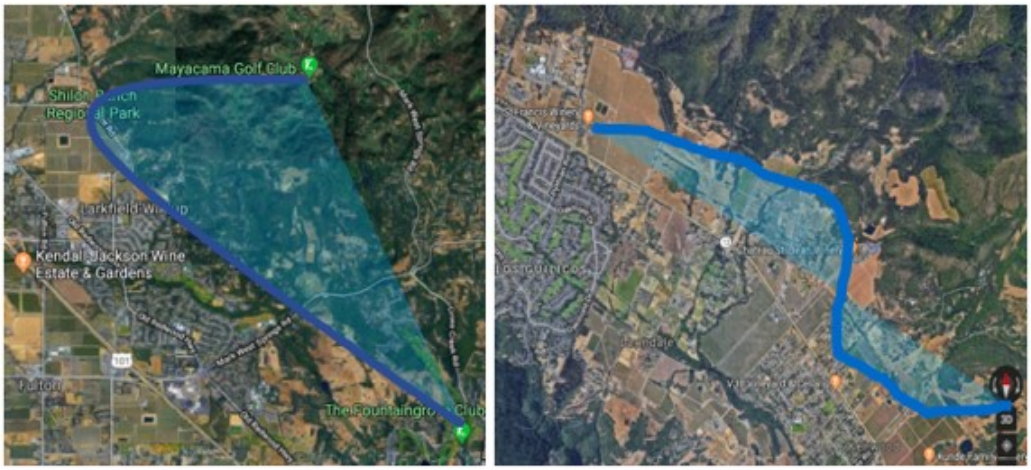
- Fire Break/Fire Retardation is Strategic Imperative
  - Landscape plan checklist includes only fire-safe plantings and suggests increases in defensible space
  - Optional Landscape Inspection offered to residents with significant percentage off water bill as incentive
- Water-Shed Support is Strategic Imperative
  - Landscape plan checklist favors plants that benefit watershed
  - Optional Landscape Inspection offered to residents with moderate percentage off water bill as incentive
- Drought Tolerant Plantings are a Priority
  - Landscape plan checklist includes only drought tolerant plants
  - Optional Landscape Inspection offered to residents with percentage off final inspection fee as incentive
- Reforestation is a Priority
  - Landscape plan checklist favors planting indigenous trees
  - Optional landscape inspection offered to residents with percentage off final inspection fee as incentive

Figure E: Targeted Land Management Approach Example

Of course, these zones would be determined by the application of existing environmental studies and known fire patterns. They could be revisited on an annual basis for further refinement and adjustments based upon the facts on the ground. What is important now is that we establish a baseline with this more prescriptive approach rather than the one-size-fits-all incentive programs for water conservation OR fuel management currently employed. Through these efforts, we could create incentive programs for large land owners (vineyards, golf courses, farms, etc.) to facilitate natural fire breaks and fuel breaks. Consider the following example:

Proposal: Financial Incentive Programs and "Win Win" Collaboration with Private Land Owners and State/Local Agencies to solution Fire Breaks/Fuel Breaks in WUI

1. Example: Well Irrigated Vineyards line Northeast side of Route 12 which is commonly used as a line of defense for fire resources yet are doted with trees and other fuels that could be mitigated with room for defensible positions (incentive programs tied to water use could be implemented)
2. Example: Golf Courses receive large subsidies/bill discounts for water use (leverage incentives to contribute to public safety). Fountaingrove Golf Course could have been leveraged in this way for October 2017 Fires
3. Example: Added standards/incentives to connect the dots geographically to ensure strong wildfire lines of defense



***REPLICATABLE AND SCALABLE:** These Protective Zones could be established throughout the State with the right incentive program and framework based upon risk reduction metrics

Figure F: Example of Intrinsic Fire Breaks/Fuel Break Approach with Incentive Programs

Of course, many of these large land owners already receive breaks on water bills and other business incentives but these types of incentive programs could even be created for the average homeowner within these zones to help protect communities. With the right financial incentives, landowners will do the right thing to support these breaks where known fire patterns like the Santa Ana/Diablo Winds exist. After all, these measures protect their business interests as well.

Similar to how we could create incentive programs for vegetation management/stewardship, we could also create incentive programs for structure hardening in these areas and throughout our communities that face increasing susceptibility to wildfires. Creating these incentive programs in collaboration with the insurance industry will be key to ensuring insurable homes and businesses throughout our

communities. I would suggest the Commission create a working group of fire science experts within our insurance industry and public policy agencies to create these programs. The following is an example of the type of model that could be created:

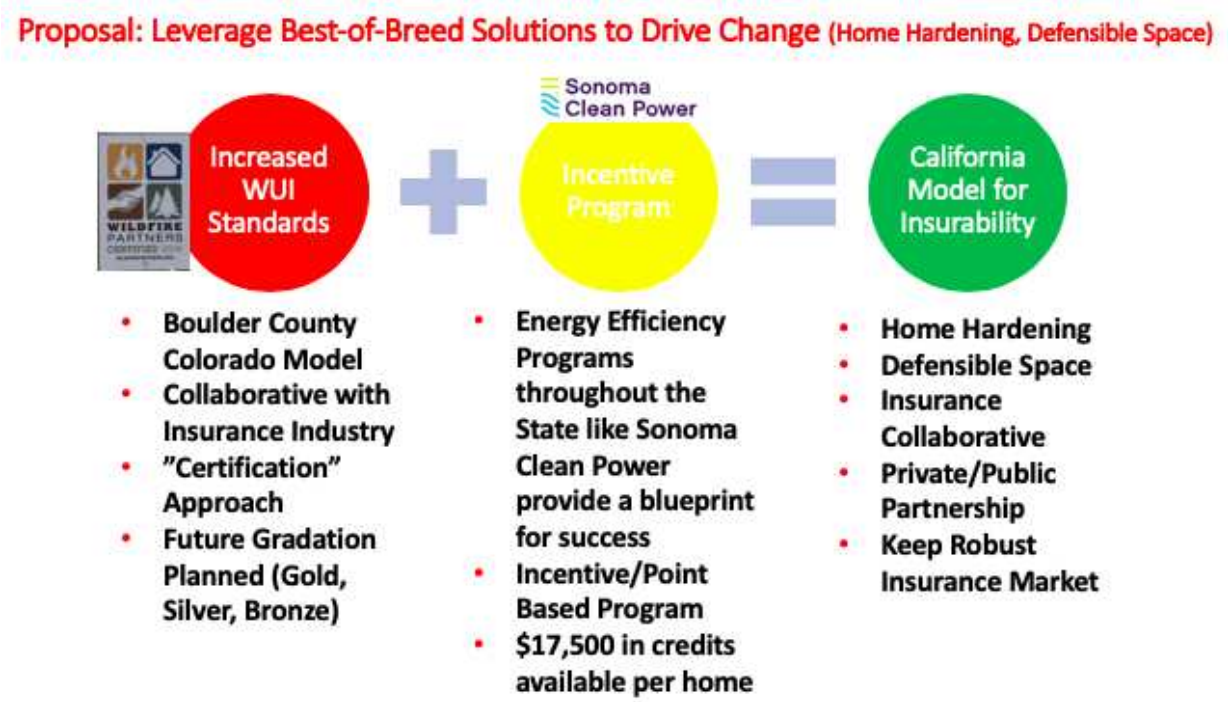


Figure G: Example of Best-Practice Model for Structure Hardening/Defensible Space

This type of model where we combine collaboration with insurance industry and certification/incentive-based programs could create some big wins for our communities. The County of Boulder Colorado has a successful model that involves certification and collaboration with individual insurers in the area. I suggest we take best-practices within this and other models like our home-grown energy efficiency programs in the State of California to create a scalable model that can grow and adapt with the climate change factors we face. Public/private partnerships should be formed around these models to help offset any start-up costs. As an example, consider a point-based system around known and widely accepted home hardening best practices:

Home Hardening Standards/Incentives based upon proven Fire Protection Practices
(determine verifiable measures/point value for each with X points required through zoning ordinances and X+Y points gets monetary credit like Sonoma Clean Power Incentive Program)

1. **Class A+ Roof** - Build your roof or re-roof with materials such as composition, metal or tile. Block any spaces between roof decking and covering to prevent embers from catching (science-based A+ roof defined)
2. **Vents** – Vents are openings for flying embers. Cover vent openings with 1/8" to ¼" metal mesh. Do not use fiberglass/plastic as it can melt or burn. Protect vents in eaves or cornices with baffles to block embers .
3. **Eaves and Soffits** - Eaves and soffits should be protected with ignition-resistant or non-combustible materials.
4. **Windows** – Heat can cause windows to break. Install dual-paned windows with at least one pane of tempered glass to reduce chance of breakage. Limit windows that will be less than 20' from vegetation.
5. **Siding** – Use only non-combustible choices such as stucco, fiber cement, stone or fire retardant treated wood. Be sure to extend materials from the foundation to the roof.
6. **Decks** – Only use ignition resistant, non-combustible materials. Remove combustible items under your decks.
7. **Gutters** – Screen or enclose rain gutters to avoid build up of plant material.
8. **Patio Covers** – Use same ignition resistant materials as for class A roofs.
9. **Avoid Chimneys** – Or cover w/ same mesh used for vent openings.
10. **Garage** – Have buckets and tools such as rakes, hoes and shovels in case of emergency. Fire extinguishers and easy to open doors are a must.
11. **Fences** – Ignition resistant/non-combustible materials only
12. **Driveways** – Ensure accessibility and fire engine turning radius.
13. **Address** – Make sure your address is clearly visible from the road.
14. **Water Supply** – Ensure garden hoses reach all areas and get back up pump.

Figure H: Example of Home Hardening Point-Based Incentives

This type of program needs to be designed and structured by the State of California, managed by local government and supported by private and nonprofit organizations. Yes, our private sector is ready, willing and able to support this type of model with sponsorships, material/product donations and other resources. Many nonprofit organizations are well positioned to support this type of program particularly for the disproportionately vulnerable populations within our communities. However, only our local government agencies are in a position to manage and execute this type of program and only the State of California can design and lead this type of effort. I believe that this type of program if designed and implemented effectively by the State could be the type of

infrastructure program that would create jobs and spur innovation. Perhaps this could be an extension of a green jobs program or similarly situated effort.

That said, comprehensive programs such as these need to include carrots and sticks. These incentive-based carrots need to be there to encourage homeowners/landowners to go above and beyond State building/vegetation management standards. The State of California still needs to incorporate more home-hardening, fire-wise landscapes and land management standards within building codes, land use and in other ways that have financial-based sticks to ensure wildfire mitigation and preparedness throughout the State.

V. Alert, Warning and Emergency Preparedness

The Electric Utility Wildfire Mitigation Plans submitted to the CPUC and associated plans for de-energization (aka Public Safety Power Shutoff) were woefully deficient when it comes to emergency preparedness. They describe a great many unmeasurable emergency responses but largely do not address the necessary alerts or wildfire mitigation in any substantive way. One reason for this lack of focus on wildfire risk mitigation with the restoration of power is that the primary metric indicated in these plans during this process is Estimated Time of Restoration (ETOR). Above all else, it is the speed of restoration which is the measure of success. This is wrong headed and is designed to provide short-term favorable satisfaction among customers while sacrificing long-term safety and security. As a fire survivor from the October 2017 wildfires, I can tell you I would have felt much better about rebuilding if PG&E took longer to restore power and explained that they were mitigating risks of future fires. These strategies need to be in place before fires occur and communicated to customers in the aftermath of the fires so they understand that delays in power restoration are directly tied to system improvements for safety.

Similarly, the Company Emergency Response Plans (CERP) submitted by IOUs seem to be activity-based rather than performance-based. As an example, the PG&E plan (section 5.1.1, page 118) goes into "conducting meetings", "reviewing disasters", "preparing after-action reports" and "conducting exercises" but the outcomes or increased performance achieved through these actions are not measured, not managed and not described in these plans. I recommend that these performance-based measures be included in these plans. If none exist for a particular activity there is no need for the IOUs to list them. All of these activities only matter to the extent that they increase the readiness/performance during emergencies and mitigate wildfire risk.

Similarly, there is significant real estate in these IOU plans discussing communication strategies and compliance with General Order (GO) 166, Standard #4. There is a list of all the communications conducted by the IOUs including website, customer contact mailers, advertising, social media, news stories, public notices, fact sheets and handouts. None of these activities are performance based. It would not matter if an IOU did mailers, email campaigns or a Super Bowl ad. What is important is the effectiveness of the communications. Specifically, did these communications drive awareness for customers and provide education for what to do during an emergency. I have requested that performance metrics be incorporated into GO 166. This can be accomplished through customer surveys around awareness of emergency protocols as well as other common measures of customer communication effectiveness including focus groups, click-through rates and email open rates. Currently, this General Order defines the number of inspections due and outstanding from each utility but includes nothing regarding the measured targets or performance goals related to those inspections.

As a fire survivor, I can tell you that one post-disaster area that is extremely important is transparency and flow of information in the time period from about 1 to 6 months after the incident. During this time, residents are weighing methods for rebuilding their communities and should be actively engaged in post-fire processes including the

restoration of power. I made several inquiries to PG&E asking for information about undergrounding lines in my community and none of that information was provided with transparency. Working together with community members can provide long-lasting improvements in wildfire mitigation efforts while improving IOU relationships with customers. In section 5.1.3.3 PG&E indicates "PG&Es revised Emergency Consumer Protection Plan does not discuss access to utility representatives". I would recommend that all utilities build up this part of their plans with defined tactics that improve post-wildfire communication channels with customers.

The Commission on Catastrophic Wildfire Cost and Recovery should also consider communication standardization around wildfire preparedness education, alert and warning within their scope. This should include short-term and long-term objectives given the current state of our alert and warning. Specifically, I recommend that an IOU mutual-assistance agreement be formed to administer a competitive bidding process, evaluate existing products and deploy an alert and warning system that can communicate de-energization events as well as wildfire alerts. There are low-cost, telemetry-based alert/warning devices and systems that could be leveraged and mounted on IOU owned poles or elsewhere to accomplish this. These systems can be customized to send notifications to residents in particular geographies and can also serve the dual-purpose of alert/warning when a utility caused wildfire occurs.

Moreover, these alert technologies have advanced in such a way where they do not resemble the sirens of old. Low-cost devices ping each other silently for testing, provide granular-level geographic alerting and have low-profile designs that would not impede electrical component performance or lineman safety for operation or maintenance. Selfishly and given that my family and I ran through flames in the wildfires of October 2017, I find this dual-purpose technology appealing. One might call this type of solution a "win-win" for both IOUs and the residents of the State of California.

Now, I understand that this may seem too bold or too ambitious. However, this is not the time for half-measures nor a time to retrofit misaligned communication tactics to these types of time-sensitive public safety alerts. How many IOU caused wildfires will it take to prompt these urgent actions? I am requesting that contracting guidelines and a Request for Proposals (RFP) be established to seek competitive bids for this type of solution. I am confident that the Wildfire Commission, CPUC and the IOUs will find an effective, low-cost solution among the many alert/warning technology and system-integration companies. Given the right amount of urgent leadership, such a solution could be developed and implemented within the next two years.

While SB 833 is a good step in this direction, it still leaves us without a cohesive approach. As I stated earlier in this document, the locus of control needs to be with the State of California and this legislation still leaves too much control in the hands of local agencies that are generally ill-equipped to manage these alert processes. Evidence of this can be seen in our current state of alerts across the State. In the interim, we need to standardize our existing alert messages. The hodgepodge of alerts as described in the "current state" section of this document needs urgent attention in preparation for the upcoming wildfire season. Baseline metrics need to be established and standardized alert/warning messages need to be established that can fit into current systems and processes. The current alerts from local municipalities are often equivalent to shouting "fire" in a crowded movie theater without any other direction.

Ideally, these communications would include specific actions but should at least have basic information that a father like me could use to make personal safety decisions for my family. Even if the fire is 5 miles away from my home and local officials don't feel like evacuations are necessary, they should at least communicate basic information so that I can prepare accordingly and maybe instead of going to bed, we will take a family road trip as a just-in-case measure. Consider the following as examples of basic information that could be standardized:

Alpha characters could indicate directions for the public:

A = No Action Required
B = Shelter in Place
C = Small Localized Evacuations Recommended (<1 sq/mile)
D = Small Localized Evacuations Mandatory
E = Larger Community-Wide Evacuations Recommended (>1 sq/mile)
F = Larger Community-Wide Evacuations Mandatory

G = Go – Evacuations in area are requested

Y = Caution – Stay Alert, Active Fire but no actions required

R = Stop – Fire under control, no actions required

Numerical Component that indicates fire severity:

1 = small (under 1 acre) fire and not contained
2 = mid size fire (1-10 acres) and contained
3 = mid size fire (1-10 acres) not contained
4 = large fire (over 10 acres) and contained
5 = large fire (over 10 acres) not contained

Fire size (acres)	USDA Forest Service Wildfire Classes
<0.25	A
0.26-9	B
10-99	C
100-299	D
300-999	E
1,000-4,999	F
5,000-9,999	G
>10,000	G

Example: Combine these types of simple alphanumeric standard codes/categories so that residents can get basic alert information

- ✓ Require "Active Fire" standard term when fire is active + wind speed/direction and location
- ✓ Require updates on status every X hours after initial notification for any active fire
- ✓ Require "Fire Contained" term when fire is under control
- ✓ Additionally standardize information for 211/311 operators so they can field calls/questions

Beaufort Force	Description	Wind (mph)	Wind (km/h)
0	Calm	less than 1	less than 2
1	Light air	1-3	2-5
2	Light breeze	4-7	6-11
3	Gentle breeze	8-12	12-19
4	Moderate breeze	13-18	20-29
5	Fresh breeze	19-24	30-39
6	Strong breeze	25-31	40-50
7	Moderate gale	32-38	51-61
8	Fresh gale	39-46	62-74
9	Strong gale	47-54	75-87
10	Whole gale	55-63	88-101
11	Violent storm	64-72	102-116
12	Hurricane	73+	117+

Air Quality Index - Particulate Matter	
301 – 500	Hazardous
201 – 300	Very Unhealthy
151 – 200	Unhealthy
101 – 150	Unhealthy for Sensitive Groups
51 – 100	Moderate
0 – 50	Good

Add Alert Code Components to give residents baseline information:

- ✓ Wind Speed (based on Beaufort Wind Scale)
- ✓ Direction of Wind (to understand likely fire path)
- ✓ Location (town, road intersection and map coordinates)
- ✓ Air Quality Index (whenever smoke is present)

Combined with fire size (# of acres) this allows residents to:

- ✓ Make personal/family decisions (when to sleep, send kids to school, hold outdoor activities, evacuate, set sprinklers, pack bags, etc.)
- ✓ Understand the requested/required actions regardless of alert origin (County, City, Fire Dept., Sheriff Dept., etc.)

Figure I: Examples of Standard Wildfire Alert Communication Measures

If measures similar to these were adopted along with State messaging standards for existing mobile-based alerting, the following could be positioned and provide big near-term wins for residents:

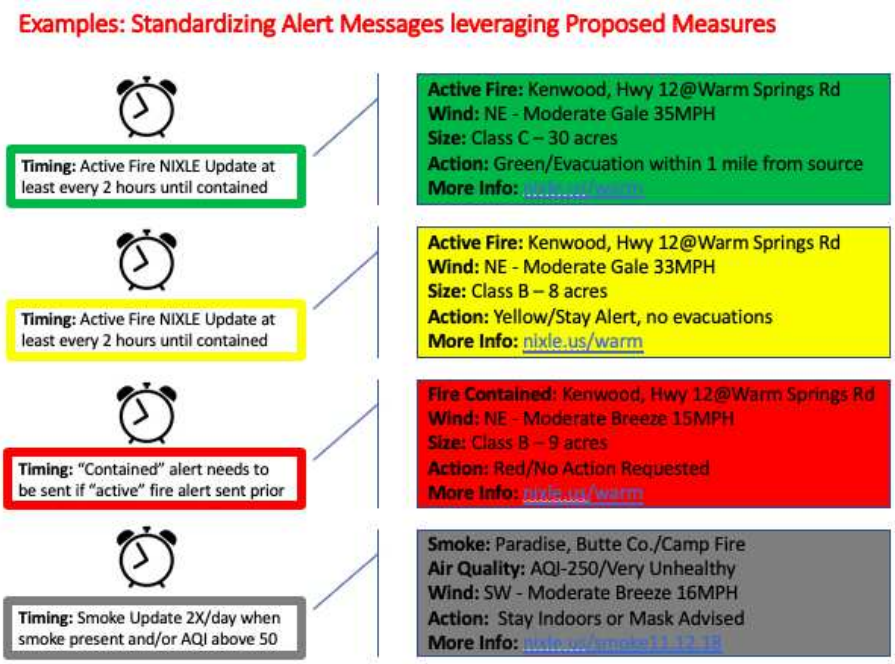


Figure J: Examples of Standardized Alerts if Metrics are Aligned

Of course, the geographic reach of these messages per incident could be left at the discretion of local officials with perhaps some level of State standardization. It is important to note that regardless of whether I am living in a rural, suburban or an urban environment there is basic information that is universally helpful for me to understand and prepare for wildfire emergencies. These types of messages would be crafted and standardized by communications experts and emergency response leadership. Of course, there is likely to be some healthy debate about exactly what metrics and how each of these communications should be phrased. That said, if we get 3 standards set or 20 standards set, it would be better than the current state of no standard alert communications and a hot mess of random messages.

Unfortunately, a side-effect of the current state of alerting is that residents opt-out of alerting or learn to mistrust the messages and the agencies that send them. These short-term fixes while we work toward the longer-term alert/siren-based systems and processes could produce the following types of reactions from residents:

VI. Performance Metrics and Outcome Orientation

So, all of the above recommendations and suggestions for the Commission to consider are certainly broad-stroke proposals that require further development and refinement. I propose them in the hopes that these can be developed, combined and used to augment other programs and initiatives around wildfire preparedness. That said, none of these proposals or any other proposal should pass by the Commission without measurable performance-based metrics focused on outcomes and tied to financial incentives and penalties.

I state this knowing that driving this type of accountability is no easy task. There are plenty of political pressures applied from many stakeholders pushing for activity-based measures masquerading as performance outcomes or subjective-based accountability. This allows many to claim "success" based on resource counts and busy work that may or may not effectively or efficiently produce outcomes. Often, the number of resources (dollars, personnel, pieces of equipment, etc.) is a substitute for performance outcomes. Some of the excuses for not driving towards these types of Total Quality Management (TQM) objectives are that these issues are too complex with too many variables. Imagine if we applied that logic to other complex systems like health care, financial markets or nuclear reactors. What outcomes might be produced?

So, I urge the Commission to bake these measurement practices into all plans and programs associated with these critical wildfire issues. These measures must then be tied to real financial consequences for all stakeholders. Yes, it would be nice to assume that given the urgency of our times all stakeholders would be singularly focused on public safety and the health of our planet. However, wishful thinking is not a worthwhile strategy. In the following, I will describe the recommendations I made regarding measurement standardization for our IOUs but these principles and practices could and should be applied to all stakeholders serving to provide wildfire preparedness and real sustainable recovery and resiliency for our communities.

Yes, the Electric Utilities made an extra effort in their plans to make sure that no metrics were introduced that could produce any level of accountability to the CPUC or their customers. Unless there is significant improvement in this part of the IOU proposed plans, I recommended that the CPUC not approve these frameworks. By definition, these submittals by the IOUs are not "plans" because they do not contain measurable goals and objectives that impact wildfire risk reduction. The following activities listed in the Wildfire Mitigation Plans only matter in as much as they actually contribute to risk

reduction. None of the following activities in the IOU plans currently have associated risk reduction ratios (RRR) identified:

a. **Operational Targets** – Number of Reclosers SCADA Enabled
b. **Inspection Targets -** Transmission and Distribution Structures and Substations Inspected, Quality of Transmission and Distribution Inspections
c. **System Hardening Targets and Indicators** – Miles of System Hardened, Quality of the Miles of System Hardening in HFTD Areas
d. **Vegetation Management Targets** – Miles of Enhanced Vegetation Management Work Completed, Completion of Drouth and Tree Mortality Patrols, Completion of Drought and Tree Mortality Work, Quality Assurance Results in HFTD Areas
e. **Situational Awareness Targets** – Weather Stations Installed, High-definition Cameras Installed

So, none of these tactics above are quantified in any way as a measure impacting overall risk mitigation in the system. As an example, PG&E touts what appear to be major successes in their plans on Table 1, page 3 indicating an 880% increase "circuit miles of tree wire projects" which sounds impressive until you realize that this represents ~0.11% of the lines. They go on and call out some very big numbers like a 235% increase in vegetation management but leave it up to the reader to do the math and realize this is 0.375% of "potential trees to either grow into or fall into the lines" (page 19 of their plan). There should be no "e for effort" reward here. No other industry would have these types of activity metrics to measure risk reduction. The IOU RAMP Reports also do not address this in any meaningful way. Without the work to tie these activities to overall risk reduction there is no risk mitigation plan here. If you cut down one tree or you cut down 1 Million trees is not the point of risk mitigation. The only pertinent question here is the percent of wildfire risk mitigation achieved through this effort. Yes, there are very definable scientifically-based metrics and it is important that we put a stake in the ground

and incorporate these in the IOU mitigation plans. All of the utilities have risk management and quality assurance departments that are well versed in the translation of scientific data into reportable and verifiable quality plans. If not, they should go contract those resources and apply them urgently to these issues. One applicable methodology for developing these metrics is as follows:

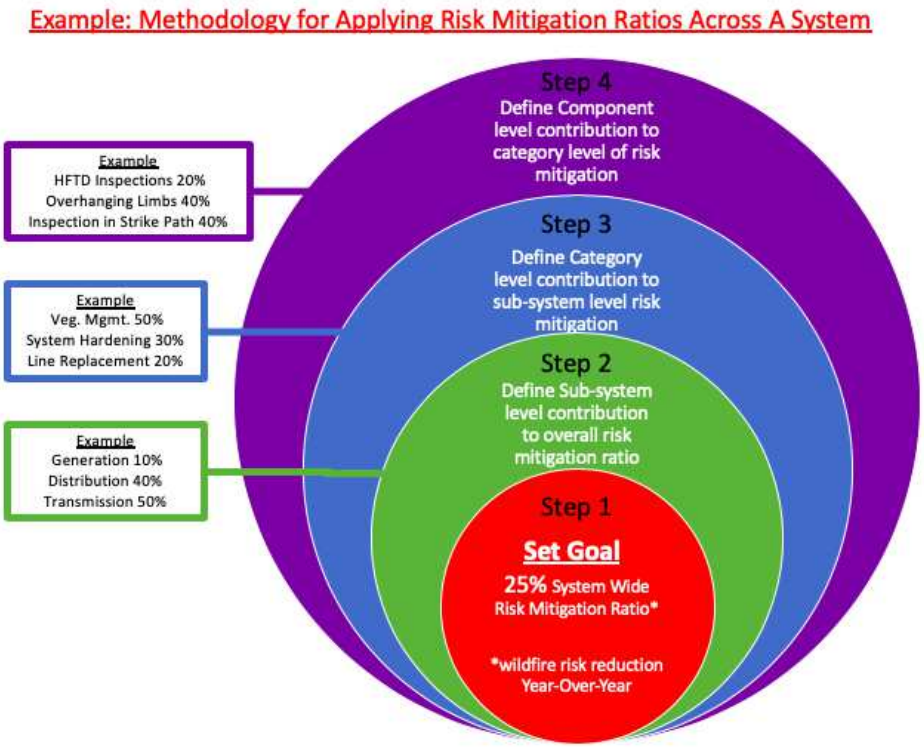


Figure K: Applying Risk Mitigation Ratios to a Risk Mitigation Plan

Through applying this type of methodology to all of the tactics and activities described in these plans, a scorecard then can be produced based upon the agreed upon measures. This will then enable the CPUC to tie actual risk mitigation metrics, to performance outcomes. Then performance outcomes can be tied to ratepayer reimbursement to ensure the financial incentives necessary to drive accountability. This direction is very much in keeping with the directive to provide "safe and reliable service" and the prudent manager standard. If utilities are not mitigating wildfire risk then the services are not safe, not reliable and not reasonable so should not be reimbursed for those system improvements.

In this way, different thresholds can be set that provide financial incentives and financial penalties. Based on the methodology outlined in Figure K above consider the following scorecard as an example of the type of accountability that could be built into the system and drive the type of wildfire risk reduction we need:

Wildfire Risk Mitigation Scorecard Example: Electrical Utility X

System Wide Safety Risk Metrics	Weight	Relative Risk Ratio	Actual Quality Score
Situational Awareness	5%	66%	Y
Inspections Distribution	10%	35%	G
Inspections Transmission	5%	72%	Y
Inspections Substations	10%	86%	Y
Resilience Zones	10%	62%	R
PSPS	5%	18%	Y
System Hardening	20%	27%	G
Vegetation Mgmt.	25%	21%	R
Public Education	10%	41%	R
Overall Wildfire Safety for Utility X	**100%**	**40%**	Y

Risk Mitigation Scorecard Example

- The scorecard represents the combined risk reduction of various functions across the System for a particular Utility
- Gives Utility and CPUC ability to make precise changes to improve quality before negative outcomes occur (wildfire, loss of life, devastated communities)
- Provides ongoing/standard tools to compare Utilities and leverage best practices across State

G 85%-100% Meets CPUC Standards and receives full reimbursement from rate payers plus X% incentive bonus

Y 70% - 84% Doesn't Meet CPUC Standards and receives Y% of rate payer reimbursement for mitigation measures

R 69% and under Well Below CPUC Prudent Manger Standard and Utility X does not get reimbursed for mitigation measures

Figure L: System-Wide Risk Mitigation Scorecard Example

Category Level Wildfire Risk Mitigation Scorecard Example

Vegetation Management Risk Mitigation Scorecard

- Measures degree to which risk is mitigated through a particular tactic or activity
- Provides snapshot of overall risk mitigation based upon utility prudent manager standard
- **The larger view of System-wide wildfire mitigation is a sum of these category level scores…**

Risk Mitigation Tactic	Weight	Target Risk Score	Actual Risk Score
4.4.1 Vegetation Trimming & Overhanging Tree Limbs	30%	98%	60%
4.4.2 HFTD VM Inspection Strategy	30%	98%	60%
4.4.3 Inspecting Trees w/ a Potential Strike Path to Power Lines	20%	90%	70%
4.4.4 At-Risk Species Mgmt.	10%	95%	80%
4.4.5 Challenges Associated with EVM	10%	95%	80%
Vegetation Management Risk Mitigation	**100%**	**95.8%**	**66%**

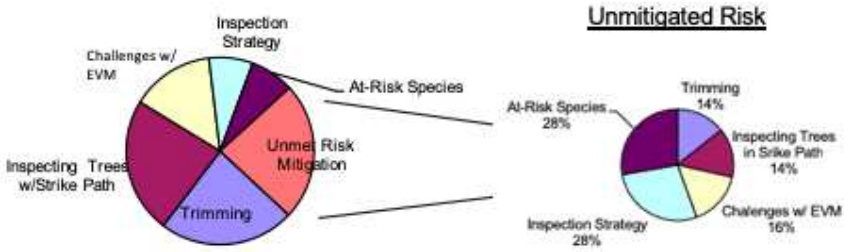


Figure M: Category-Level Risk Mitigation Scorecard Example

For certain, what is outlined above is only one general method to get to the type of measurable risk mitigation we need. More specific and well-developed methodology and accountability scorecards need to be applied. I would wholeheartedly support other wildfire risk mitigation methodologies and scorecards proposed by the IOUs. However, any rational risk mitigation plan must have the following attributes none of which are currently present in the proposed IOU risk mitigation plans:

1. System-Wide Risk Mitigation Ratios (RR) and Relative Risk Reduction (RRR) Metrics
2. Quality Controls (QC) – Tools to measure wildfire risk as a component of quality

3. Accountability/Reporting Tools - scorecards, assessment scores, etc.
4. Incentives - Ratepayer reimbursement based on risk mitigation in keeping with the prudent manager standard
5. Baseline and Continual Improvement Plan – Risk ratios and associated tools once established go into a regular cycle of refinement based upon new data and analytics. If these plans establish these baseline metrics, then the CPUC proposed annual plan review and approval process is perfectly situated to achieve this continual refinement of metrics, tools and reports.

If these 5 attributes are not ingrained in these plans, the notion of what constitutes risk reduction is lost. Consider what is described as "targets" within these Utility plans and you will see a long list of activities but very little of them approach measurable and verifiable targets. The current IOU mitigation plans and ratepayer reimbursement is like me turning to my general contractor who is rebuilding my home and basing his progress payment on the number of 2x4s he moved around or the number of nails he drove. None of this is important unless he is actually making progress and building my house to the current California Building Code which is full of building safety standards. In fact, given that my home was in the Wildlife Urban Interface (WUI), standards mandate a class A roof, certain siding and defensible space. My contractor won't get his progress payment unless these standards are incorporated into the build. Similarly, IOUs should receive ratepayer reimbursement when they meet system hardening and other wildfire mitigation standards.

If risk mitigation metrics, accountability and the process improvements are built into these initial plans, then we have a strong baseline for future plan development. Given this assumption, I recommended to the CPUC that future WMPs roughly align to the following 5-step process:

1. **Identify New Risk Mitigation Activities** – These plans would include the newly implemented components coming out of the proposed think-tank, best practices and other innovative risk mitigation tools and processes that are developed between now and the next WMP development cycle
2. **Develop New Risk Mitigation Metrics** – Based upon #1 new risk mitigation metrics would be developed and defined in collaboration with all parties
3. **Revise Existing Risk Mitigation Metrics** – Based upon any new findings, studies or assessments between now and the next WMP development cycle, risk ratios would be improved and included in plans to more accurately reflect new risk mitigation data points.
4. **Revise Accountability Scorecards** – Scorecards and scoring methodologies would be revised and included in the plans based on #2 and #3.
5. **Revise Ratepayer Reimbursement Rates** – Ratepayer Reimbursement Rates would be reassessed and aligned based upon the revised scorecards.

That said, if measurable risk mitigation metrics are not incorporated into these IOU submittals and we are left with a "framework" and not a "plan" as described in my introductory comments, I suggest that the subsequent Wildfire Mitigation Plan (WMP) process begin immediately through the CPUC with the guidance of the Wildfire Commission on Catastrophic Wildfire Cost and Recovery. As stated earlier, perhaps the lack of these performance-based/risk-ratio-based measures in the current plans is by design to extremely limit the ability of the CPUC to provide oversite. More importantly, these targets by enlarge do not provide measurable risk reduction. Of course, the main point from a fire survivor standpoint here is that I find no reassurance that my family and my community are any safer from the risks posed by the IOUs going forward then the night of October 8, 2017. I have requested that the CPUC ensures that these plans include the components listed above as a baseline for future plans. I am also requesting through these submitted comments that the Wildfire Commission on Catastrophic Wildfire Cost and Recovery ensures that all of the recommendations and initiatives

furthered by the Commission regardless of where they come from meet these types of performance-based standards tied to stakeholder financials.

VII. Summary and Conclusion

I very much appreciate the opportunity to put these comments forward for consideration by the Commission on Catastrophic Wildfire Cost and Recovery. I hope these comments are seen as supportive of the Commission's critical mission. Many of my neighbors and I stand ready to plug-in, roll up our sleeves and work in support of the goals and objectives set by this Commission. I encourage the Commission to promote and/or develop the type of inspiring and pragmatic strategic plan that can galvanize all stakeholders towards common goals and objectives. Certainly, we have choices in how we will confront these wildfire and climate change forces. Depending upon our relative success, our kids may have choices too but only if we set the strategic table in the right way. I look forward to working with the Commission on this path towards recovery and resiliency.

Dated:

April 2, 2019

Respectfully Submitted,

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