

From: Parkes, Christopher
To: Stoms, David@Energy
Subject: Comments on July 25 2018 CEC Staff Workshop: Research Needs on Wildfire: Ensuring Grid Resilience and Public Safety
Date: Thursday, August 09, 2018 12:00:28 AM
Attachments: [CPUC OSA Comments.pdf](#)

Dear Dr. Stoms,

Attached are comments and suggestions from the California Public Utilities Commission (CPUC) Office of the Safety Advocate (OSA) in response to the California Energy Commission's July 25, 2018 staff workshop on Research Needs on Wildfire: Ensuring Grid Resilience and Public Safety.

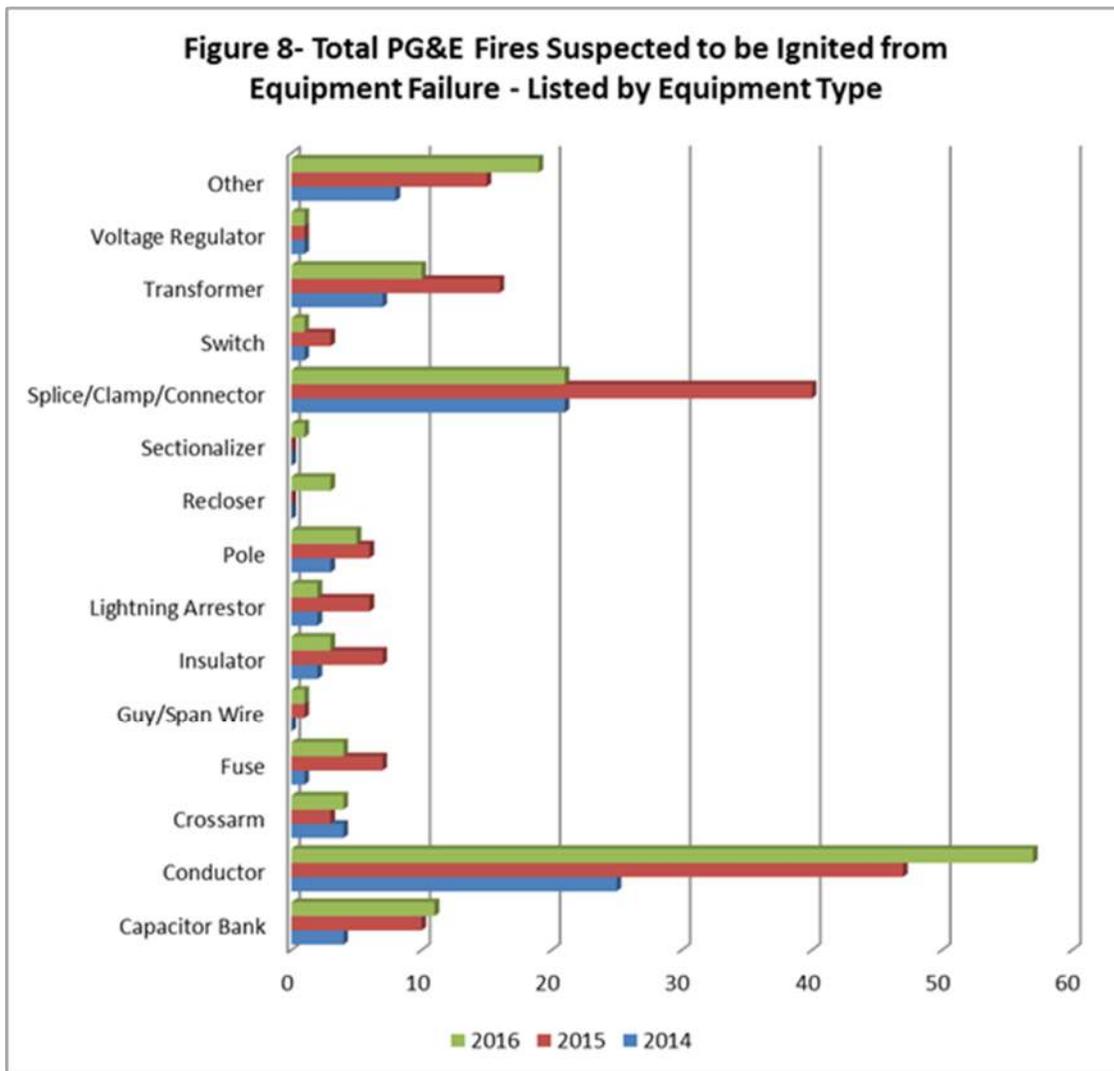
Thank you for the opportunity for OSA to provide input on critical research needs of the state to drive development of effective mitigation programs to limit and reduce the enormous public safety impacts from wildfires.

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The California Public Utilities Commission (CPUC) Office of the Safety Advocate (OSA) provides the following comments regarding potential research topics on wildfires related to ensuring grid resilience and public safety. The California Energy Commission (Energy Commission) solicited stakeholder input in response to the July 25, 2018 Staff Workshop: Research Needs on Wildfire: Ensuring Grid Resilience and Public Safety.

In June 2018, CAL FIRE investigators determined that 12 Northern California wildfires in the October 2017 Fire Siege were caused by electric power and distribution lines, conductors and the failure of power poles.¹ These fires are believed to have covered more than 120,000 acres, the loss of 2,300 structures, and linked to multiple fatalities. As one example of the relationship of utility infrastructure to utility ignitions, the CPUC provides the following 2014 – 2016 fire incident data, regarding PG&E equipment failure, on its website:²



¹ CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake, and Napa Counties, June 8, 2018

https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf

² 2014-2016 Fire Incident Data Collection

<http://cpuc.ca.gov/fireincidentsdata/>

The workshop provided information highlighting many factors that contribute to the development and impact of wildfires, utility infrastructure being one of those components.

Also, during the workshop, the Energy Commission identified Research Gaps.³ These included “Designing and assessing cost-effective adaptation strategies”. Such strategies can be optimized by research data to help guide utilities, the CPUC, and decision makers in developing and optimizing those strategies. Among topics related to the workshop, the Energy Commission asks “Are there topics not included in the current set of concepts where EPIC can add significant value? What are the topic(s) and what research would be needed to have a measurable impact?”⁴

At the workshop, CPUC’s Safety Enforcement Division (SED) provided a presentation, and OSA supports SED Risk Assessment Section’s proposal to develop “New Approaches to Wildfire R&D”.⁵

For new approaches to Wildfire R&D, SED’s presentation states:

Utilities are focusing on initiatives related to weather preparedness and situational awareness.

In addition, there are opportunities in Fuel Management and Ignition Control domains.

As well, on the topic of Ignition Control, SED’s presentation states:

The second leading cause of fire ignitions is failure of electric lines, accounting for roughly 20% of all reported ignitions.

Better information is needed about overhead conductor failure causation and failure prediction. Conductors fail for a myriad of reasons, including: impact from broken/falling vegetation, flying debris, wire slap, age and degradation, toppling poles, etc.

An extremely understudied area relates to improved methods for assessing the post-installation condition of overhead lines:

- Need to move beyond visual observation of conductor condition;
- Build on knowledge of conductor deterioration by weather;
- Better understand conductor splice failures and remedies.

Additional research opportunities include effectiveness of utility infrastructure hardening methods and fire safety of utility equipment.

³ “Resilience of California’s Electricity System to Wildfire”, Dr. David Stoms, Slide 9

http://www.energy.ca.gov/research/notices/2018-07-25_workshop/presentations/Stoms_CEC_25July2018.pdf

⁴ *Ibid.*, Slide 19

⁵ “New Approaches to Wildfire Prevention R&D”, Elizaveta Malashenko, Arthur O’Donnell

http://www.energy.ca.gov/research/notices/2018-07-25_workshop/presentations/Session_3a-CPUC-CEC_Wildfire_RD_072518_rev.pdf

Regarding potential research topics on wildfires related to ensuring grid resilience and public safety, OSA recommends the Energy Commission:

1. Conduct research to determine the most cost-efficient mitigations that will have the greatest impact on reducing utility infrastructure related wildfire ignitions. A broad scope and robust root cause analyses of ignitions may provide the most useful data. The objective would be to guide utilities and regulators in prioritization of mitigation measures and rate case programs to optimize safety benefits.

Investigation and/or research topics can include, but are not limited to:

- a. Alternative or improved vegetation management practices
- b. Improved aging infrastructure replacement or maintenance programs, which may target specific types of conductor, splices, transformers, etc. Research may identify the “low hanging fruit” for the most cost-effective investments to address equipment failures that contribute to ignitions that lead to wildfires. This may help identify specific types of transmission or distribution circuits of greatest concern.
- c. Improved pole replacement and/or maintenance
- d. Improved best practices, including pole loading, and a pole database
- e. Improved de-energization performance, including circuit breaker, recloser, advanced technology sensing, and proactive de-energization practices
- f. Investigation and profiling of wildfire fatalities and injuries to determine if there are opportunities to mitigate fire injuries and deaths

Research may find that prioritizations of mitigations are different for each of the utilities, based on their different locations, configurations, equipment, and other reasons that may make utilities unique.

One potential objective example:

Determine where funding could be spent to have the greatest impact on improving wildfire safety, if a utility were to invest an additional \$100 million in funding.

2. Investigate and conduct research on recent wildfire fatalities and injuries. With a robust detailed causal analysis of recent experience, researchers may be able to identify common contributing circumstances, new technologies, methods of public outreach, or communications, plus effective additions to existing – or new – Safety Management System (SMS) programs, or other opportunities that may have reduced some of the recent wildfire fatalities and injuries, given a holistic understanding of the specific circumstances of such events.
3. Consider a research project that investigates if supervisory control and data acquisition (SCADA) systems could be programmed to provide additional information to operators to quickly identify useful information to operators to reduce safety impacts in mitigation or response to wildfires. Additionally, what other beneficial programming operation decisions can be modified, such as, whether to reclose circuit breakers as discussed in the presentation provided by PG&E.
4. Assess utility Safety Management Systems to identify potential safety gaps and opportunities to improve safety outcomes. A research project that surveys multiple companies in the energy

industry that collect data on their wildfire safety programs and how they fit into their overall safety management system may provide valuable useful data. This information would be very helpful for the CPUC, utility companies, and the Energy Commission. It could help determine focus and priorities moving forward in this race for solutions to address wildfire disasters.