

Root Cause Analysis Workshop on PG&E 2017- 2018 Wildfires

December 5th, 2022

FOLLOW-UP WORKSHOP PURSUANT TO D.20-05-019



California Public
Utilities Commission

Welcome and Introduction

1:00pm-1:20pm

Virtual Housekeeping

- **Recording; Slides**

- Please note that this meeting is being recorded
- Workshop recording and slides will be sent to the service list and posted on the CPUC website after the meeting

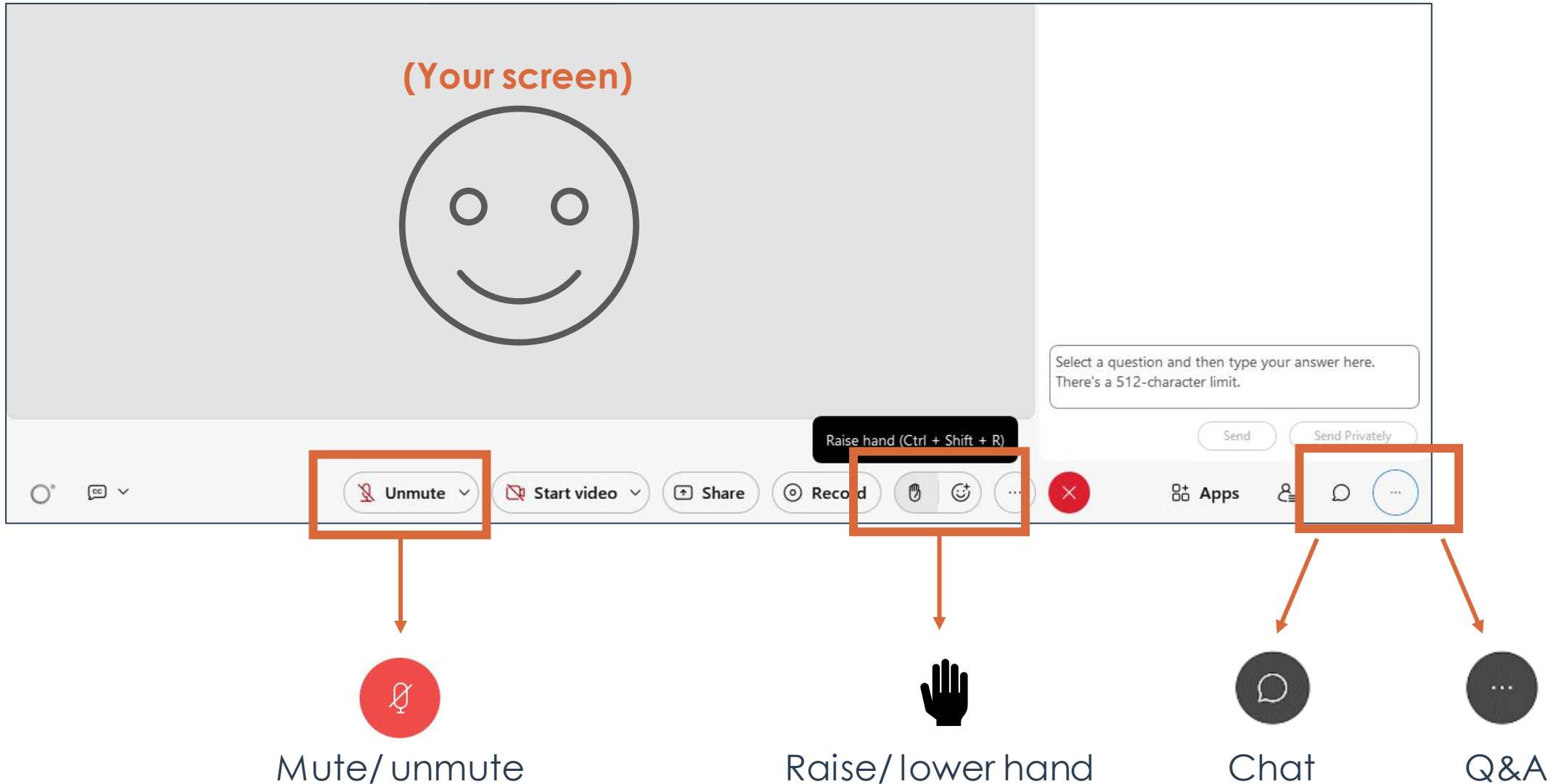
- **Questions**

- Please type questions into chat, use Q&A feature, or raise hand
- Q&A sessions throughout presentations, if time permits + longer discussion at the end of workshop
- Staff will follow to respond to any unanswered (or additional) questions after the workshop

- **Timing**

- To be respectful of everyone's time, we will maintain scheduled starting times for each presentation outlined in the agenda

Virtual Housekeeping, Continued



Workshop Agenda

Time	Topic
1pm-1:15pm	Welcome, Introduction, and Opening Remarks
1:15-1:20pm	Background on RCA project
1:20-2:20pm	Envista presentation on RCA Report Present (45 mins) Commissioners Q&A (15 mins)
2:20-2:30pm	Break
2:30-3:15pm	PG&E response and corrective actions(30 mins) Commissioners Q&A (15 mins)
3:15-4:00pm	CPUC staff proposal on corrective actions (30 Mins) Commissioners Q&A (15 mins)
4:00-4:15pm	Public comments
4:15-4:30pm	Closing Remarks and Next Steps

Commissioner Opening Remarks

Proceeding Background

Root Cause Analysis (RCA) Timeline to date

Date	Milestone
June 2019	Order Instituting Investigation I.19-06-015 opened to investigate the Role PG&E's Electrical Facilities had in Igniting Fires in its Service Territory in 2017.
May 2020	Decision D.20-05-19 ordered a Root Cause Analysis(RCA) of the 2017 and 2018 Camp fire be performed by an independent consultant.
July 2021	Envista Forsencis selected as the independent RCA consultant and begins work.
July 2022	Envista final RCA report issued.
August 2022	PG&E response issued.
Dec 2022	1 st Workshop to consider Corrective Actions.

Wildfires included in the Root Cause Analysis

Fire	Acres Burned	Buildings destroyed	Civilian Death
Adobe	56,556	1,355	1
Camp	153,336	18,804	85
Atlas	51,624	120	6
La Porte	6,151	74	
Lobo	821	47	
McCourtney	76	15	
Norrbom	1,836		
Nuns	56,556	1355	3
Oakmont/Pythian			
Partrick	8,283		
Pocket	17,357	6	
Point	130		
Redwood	36,523	587	9
Sulphur	2,207	162	
Youngs	89	1	
Total	391,545	22,526	104

Envista Presentation

1:20-2:20pm

PG&E Presentation

2:30-3:15pm

Safety Policy Division

3:15-4:00pm

Findings in Envista RCA report

Institutions

Envista Key point #2:
PG&E engineering functional groups, and the CPUC, failed to identify and mitigate the increasing risk profile of the electrical distribution system protection scheme, allowing downed conductors to remain energized and undetected for prolonged periods.

Circuits

Envista finding 11 :
The fundamental design of the overall PG&E electric system permits undetected ground-faulted overhead conductors to remain electrically energized in contrast to industry best practice.

Vegetation

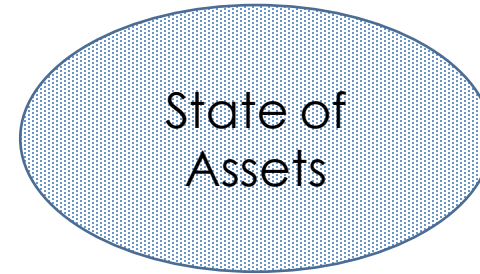
Envista finding 9 :
The PG&E Quality Assurance/QC Program wasn't designed for auditing tree populations but instead for line miles. In addition, the focus of these audits was to only identify trees not in compliance with the radial clearance requirements of General Order (GO) 95, Rule 35, and PRC-4293

Emergency Response

Envista Finding 13:
PG&E had taken steps before the 2017 wildfires to implement Incident Command System(ICS) but review of documents and interviews with PG&E emergency management officials identifies that the company had not fully implemented ICS before the fires in 2017.

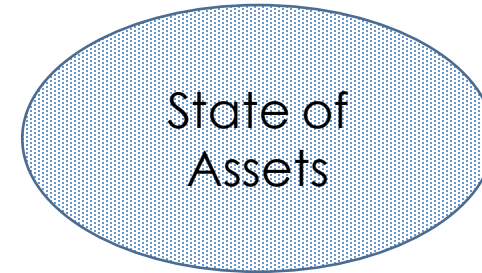
The RCA report revealed several underlying issues

- There is a fundamental dis-agreement about the safety of the three-wire distribution system used extensively by PG&E.

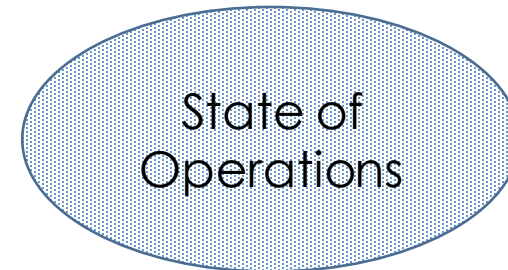


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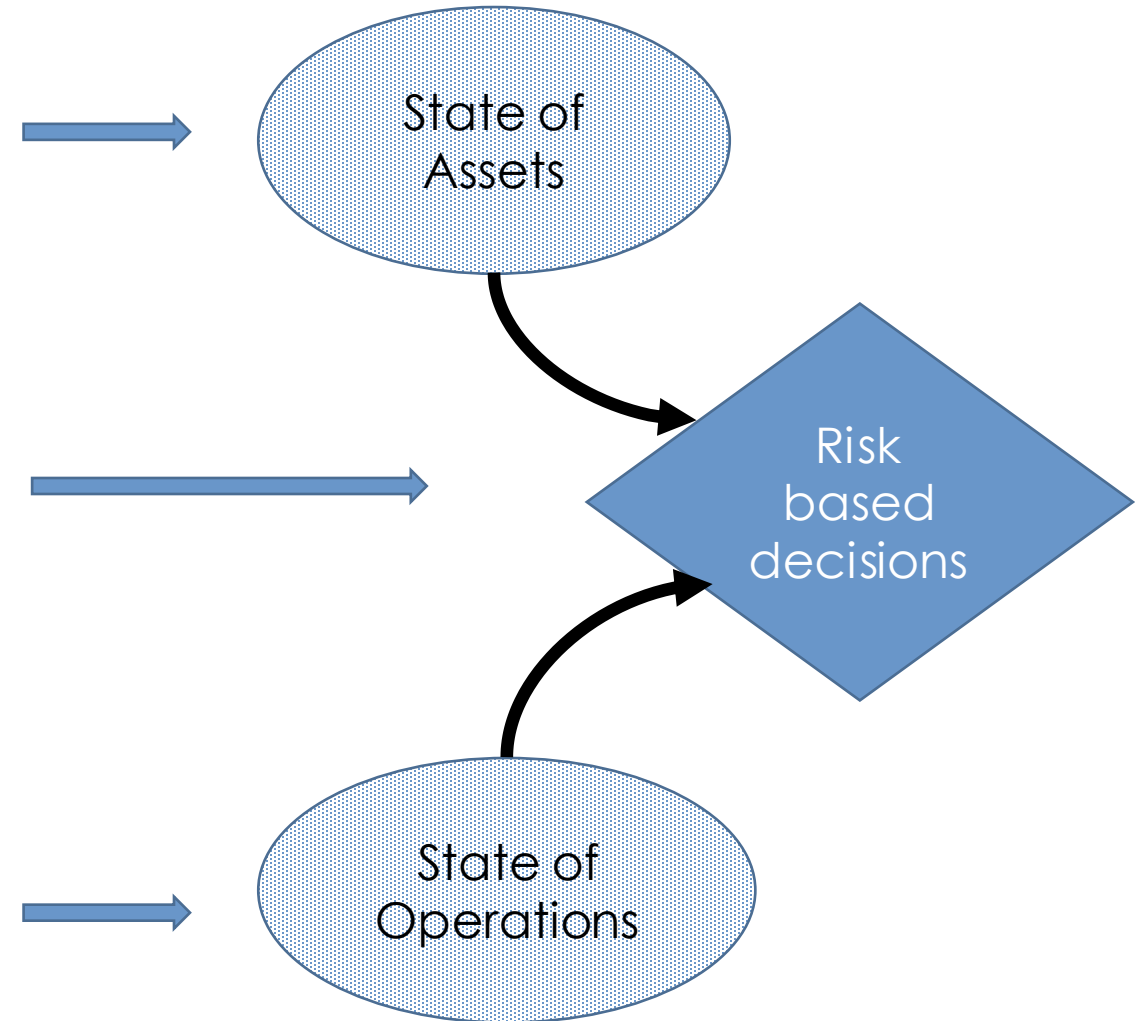


- Operational issues are pervasive throughout the Envista report , e.g., Vegetation management, maintenance practices, CAPA, and records management were all identified as issues.

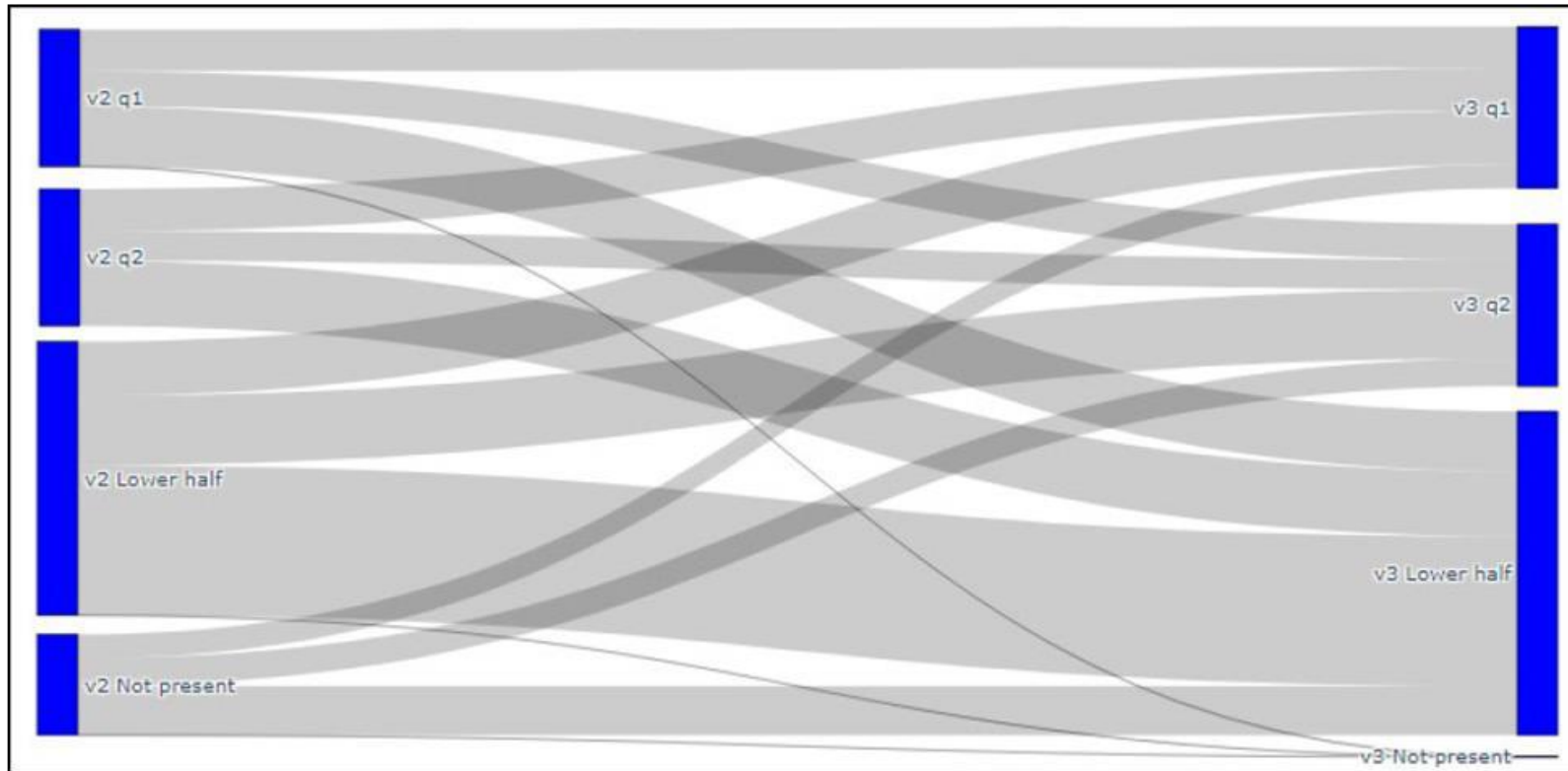


The RCA report revealed several underlying issues

- There is a fundamental disagreement about the safety of the three-wire distribution system used extensively by PG&E.
- Despite development of numerous sophisticated risk models, it is unclear how risk-based decision-making at PG&E is utilized.
- Operational issues are pervasive throughout the Envista report , e.g., Vegetation management, maintenance practices, CAPA, and records management were all identified as issues.



Risk-based decision-making at PG&E continues to be variable and opaque



The Independent Safety Monitor in its Oct 2022 report noted changes to the risk ranking of PG&E risk models from the 2018 to 2022.

“PG&E INDEPENDENT SAFETY MONITOR STATUS UPDATE REPORT”, Filsinger Energy Partners Oct 4th 2022.

High level objectives of CPUC staff preliminary proposed corrective actions

- Further investigate the risks associated with the three-wire vs. four-wire configuration of the distribution system and other alternatives that could be deployed to reduce wildfire risk.
- Independently verify and validate the performance of PG&E risk-based decision models over the entire portfolio of PG&E assets and operations.
- Improve data collection, record keeping, and transparency of information used to evaluate the performance of PG&E assets and operations.

Preliminary Proposal 1: Increase funding and scope of System Enhancement Initiative 20 (SEI-20) to evaluate PG&E three-wire infrastructure

Objectives

- Expand the SEI-20 project to perform a comprehensive comparison of the three-wire and four-wire systems sufficient to assess the expected circuit-level performance and ignition risk.
 - Establish best practices for three-wire and four-wire systems in California. - literature review on three-wire and four-wire performance and ignition risk.
 - Develop circuit-level test criteria and simulation models to estimate the expected system performance of a three-wire uni-grounded system and a four-wire system under a variety of conditions that exist in PG&E service territory.
 - Perform field and lab tests to estimate circuit-level performance in PG&E's service territory.

Preliminary Proposal 2: Require robust risk models of PG&E assets and operational portfolio – include an independent model validation process

Objectives

- Fund an independent evaluation of the entire portfolio of PG&E risks: including T&D asset risk, operations risk (vegetation management, maintenance, etc.), environmental risk (e.g., wind events), information risk, model risk
- Fund robust risk model evaluation, including:
 - Specify uncertainty using probability distributions;
 - Include correlation of key uncertainties, including asset condition, system performance, location, weather conditions, etc.;
 - Include sensitivity analysis of key parameters; and
 - Assess the tradeoffs between key attributes such as cost, wildfire risk, reliability, and regional and local impacts.
- Independent assessment should recommend if PG&E's models should be regularly validated and verified by independent entities in addition to the work done in WMPS and RAMPS.

Preliminary Proposal 3: Independent review of PG&E Records Management process.

Objectives

- Improve PG&E's Records Management Systems
 - Given persistent records management issues identified in the RCA and continuing to be identified by Office Energy Infrastructure Safety, should we mandate an independent review of records management within PG&E?
 - Identify key issues in PG&E records and asset management systems.
 - Identify data input streams to risk and operations models.
 - Inspection data
 - Asset conditions

Questions

Please raise hand, use chat, or use Q&A feature



Next Steps

Next steps

- Please provides comments to wildfireRCA@cpuc.ca.gov

Public Comments

4:00-4:15pm

Closing Remarks

4:15-4:30pm

THANK YOU