

# Stanford | Doerr

## School of Sustainability

Electric Utilities and Wildfire

---

Michael Wara

NCPA

August 6, 2025



# Electric utilities and Wildfire

---

- Where we have been and where we are is not ok
- Why I sleep better at night on warm, windy October nights
- The big remaining challenges
- An all of society effort – how can utilities participate?

# Where we have been and where we are is not ok

---



Coffey Park, October 2017

# Where we have been and where we are is not ok

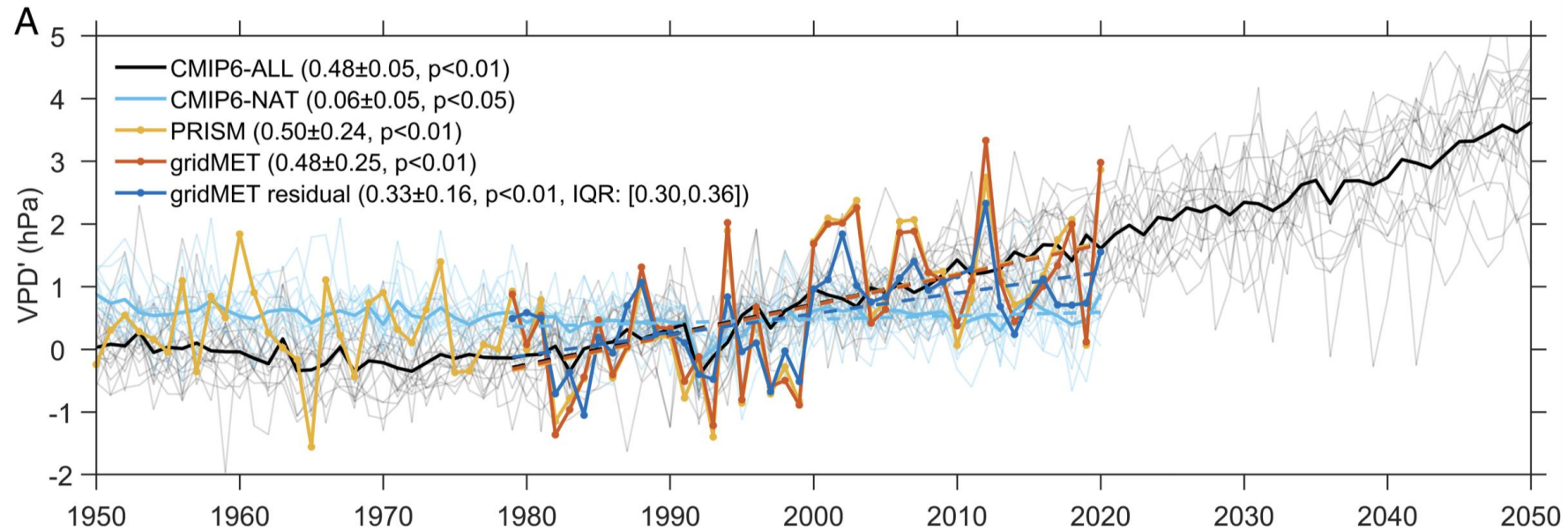
---



Altadena, January 2021

# Where we have been and where we are is not ok

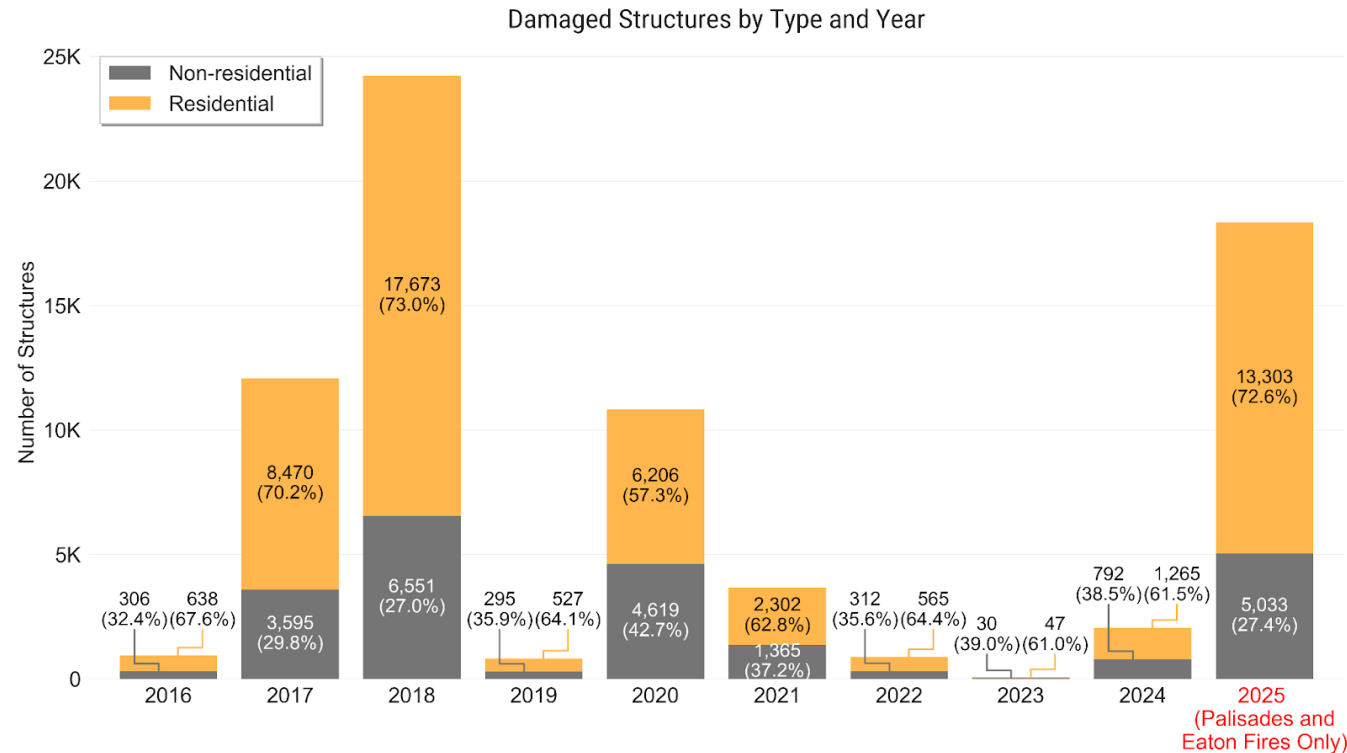
Extreme fire weather is increasingly likely. The extreme year today is the average year in 2035



Zhuang et al., PNAS 2021

# Where we have been and where we are is not ok

## 5 out of 10 past years are major structure loss years

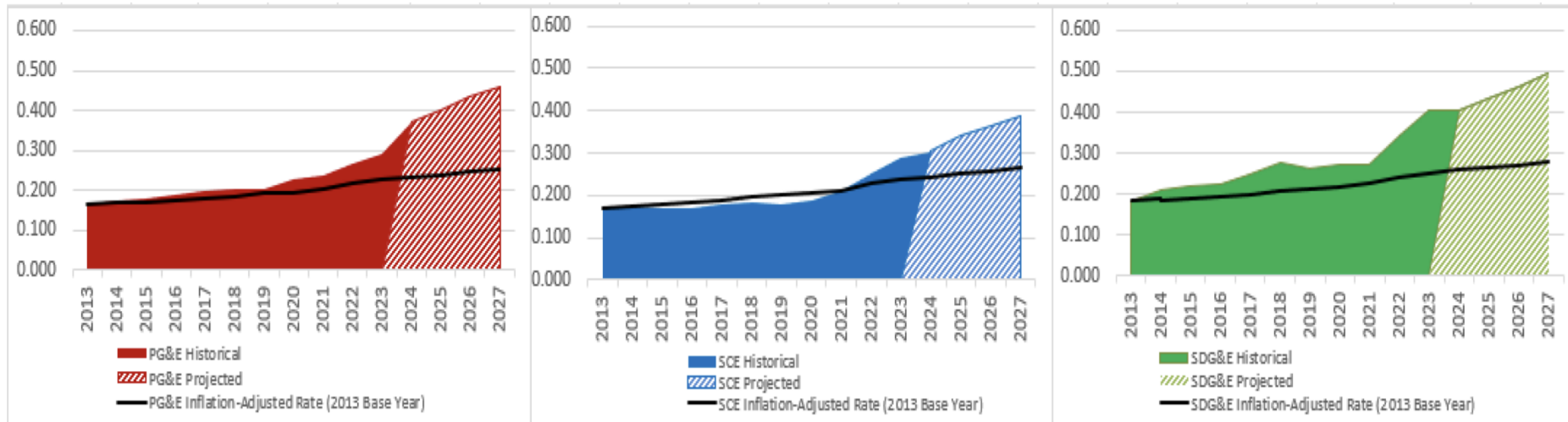


Structure loss in California by year and type over the past 10 years  
(CalFire DINS data set, 2025 includes only Palisades and Eaton Fires)

# Where we have been and where we are is not ok

## \$100 per month per customer increase since 2017

PG&E, SCE, and SDG&E Electric Bundled Residential Average Rates (\$/kWh)

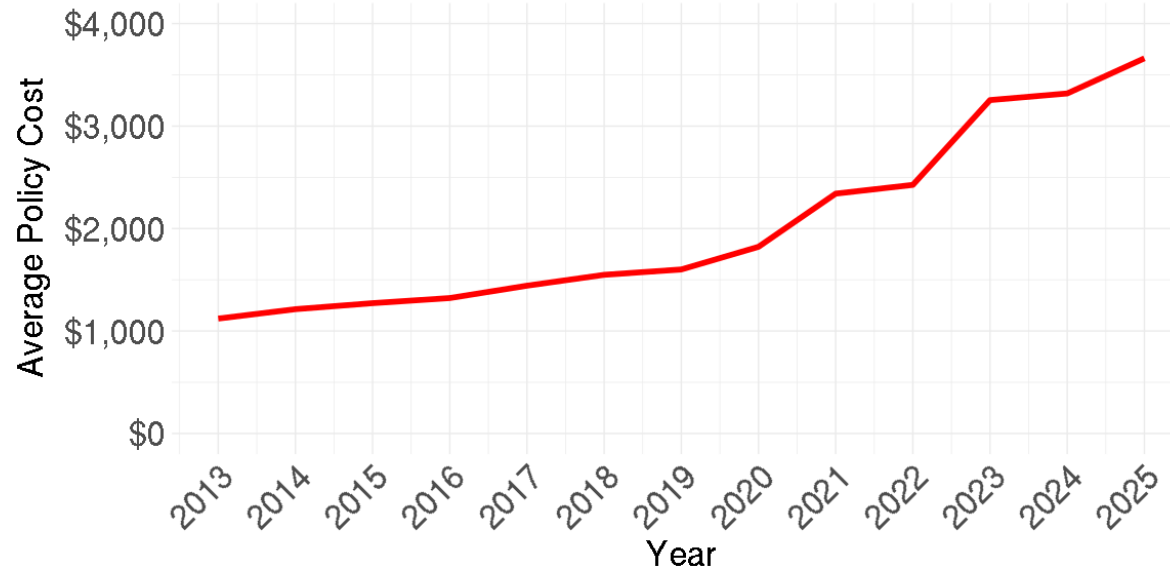


CPUC SB695 Affordability Report (2024)

# Where we have been and where we are is not ok

---

## \$160 per month per homeowner increase since 2017

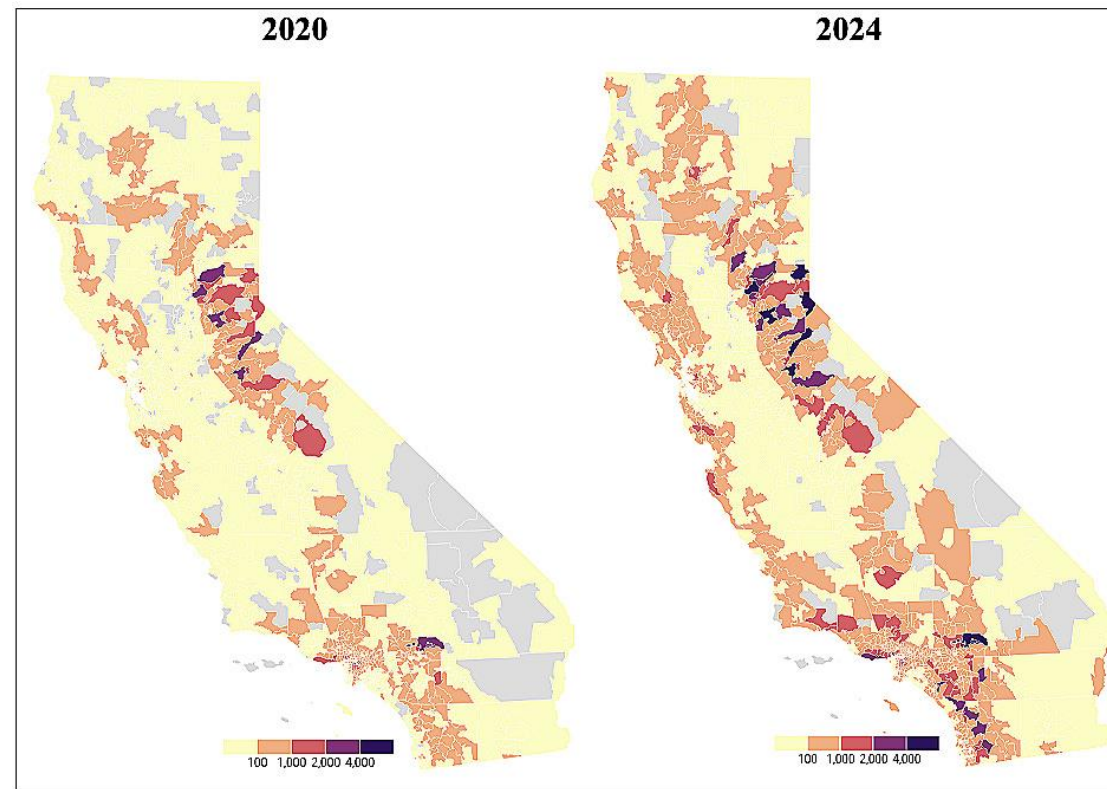


California HO-3 admitted lines average premium  
(adjusted for home price inflation; through April 2025)

# Where we have been and where we are is not ok

---

**FAIR plan exposure up 500% to \$605B from 9/2020 to 6/2025**



Map: Avery Bick - Stanford Climate and Energy Policy Program • Source: CA FAIR Plan • Map data: © Esri, TomTom North America, Inc., United States Postal Service • Created with Datawrapper

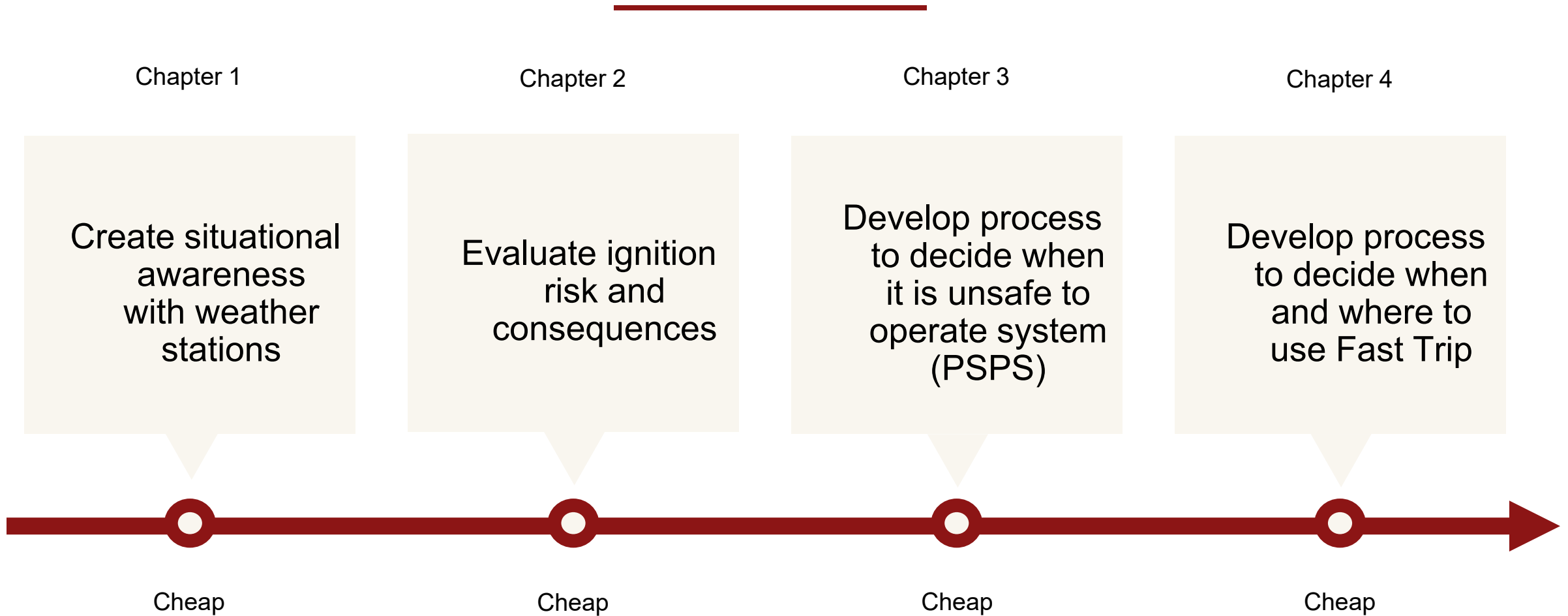
FAIR Plan policies in force by zip code, Q1 2020 vs Q4, 2024

# Why I sleep better on warm, windy October nights

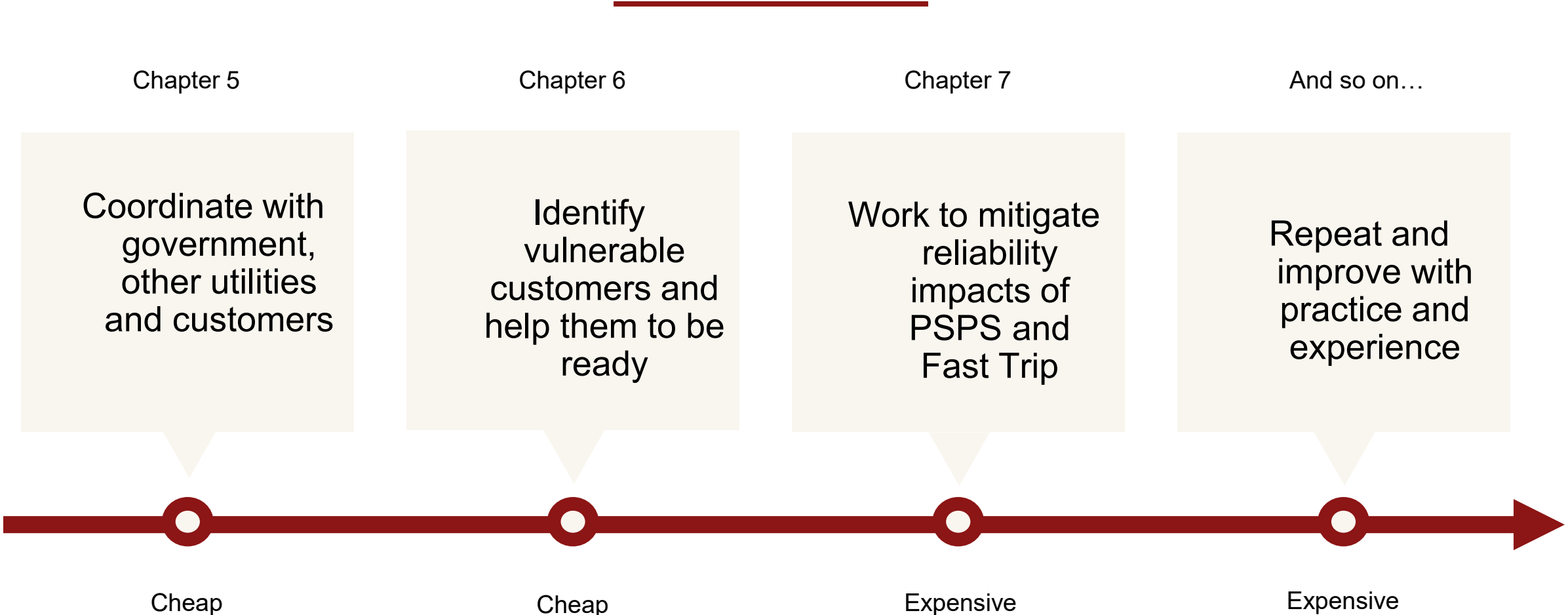


SCE Transmission, June Lake CA

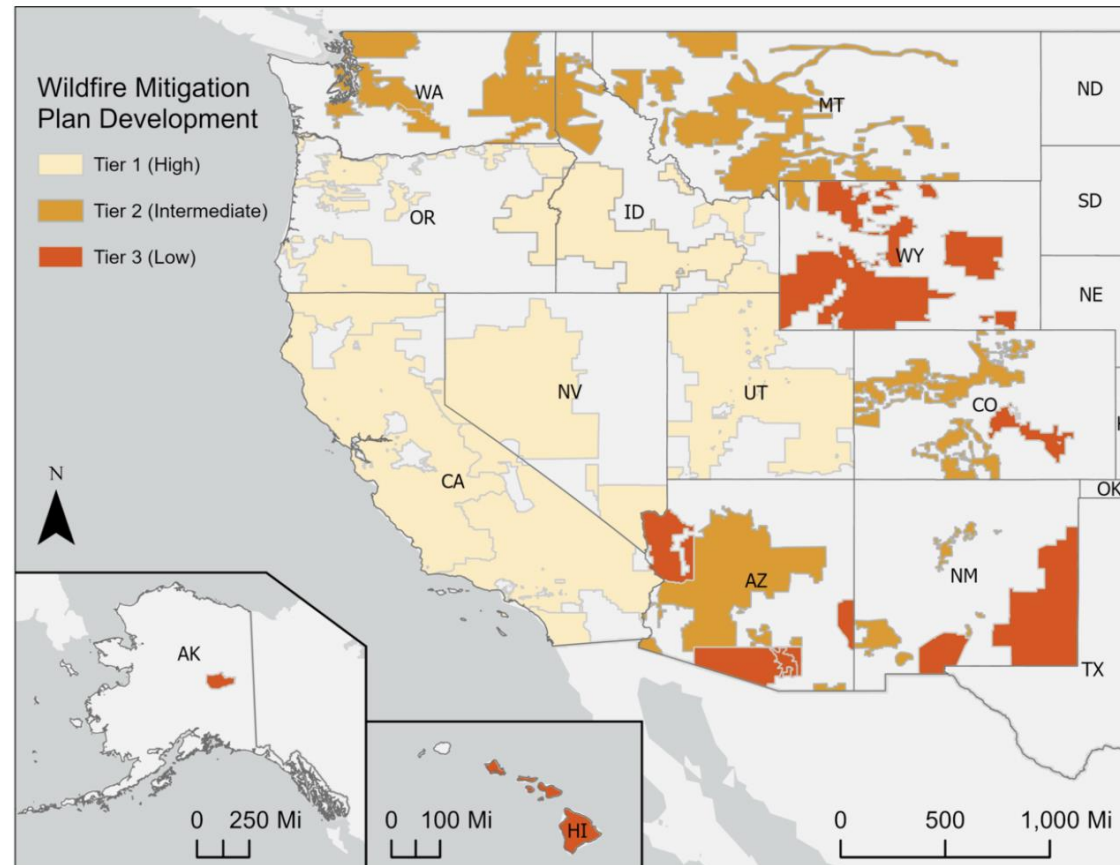
# The wildfire mitigation playbook



# The wildfire mitigation playbook

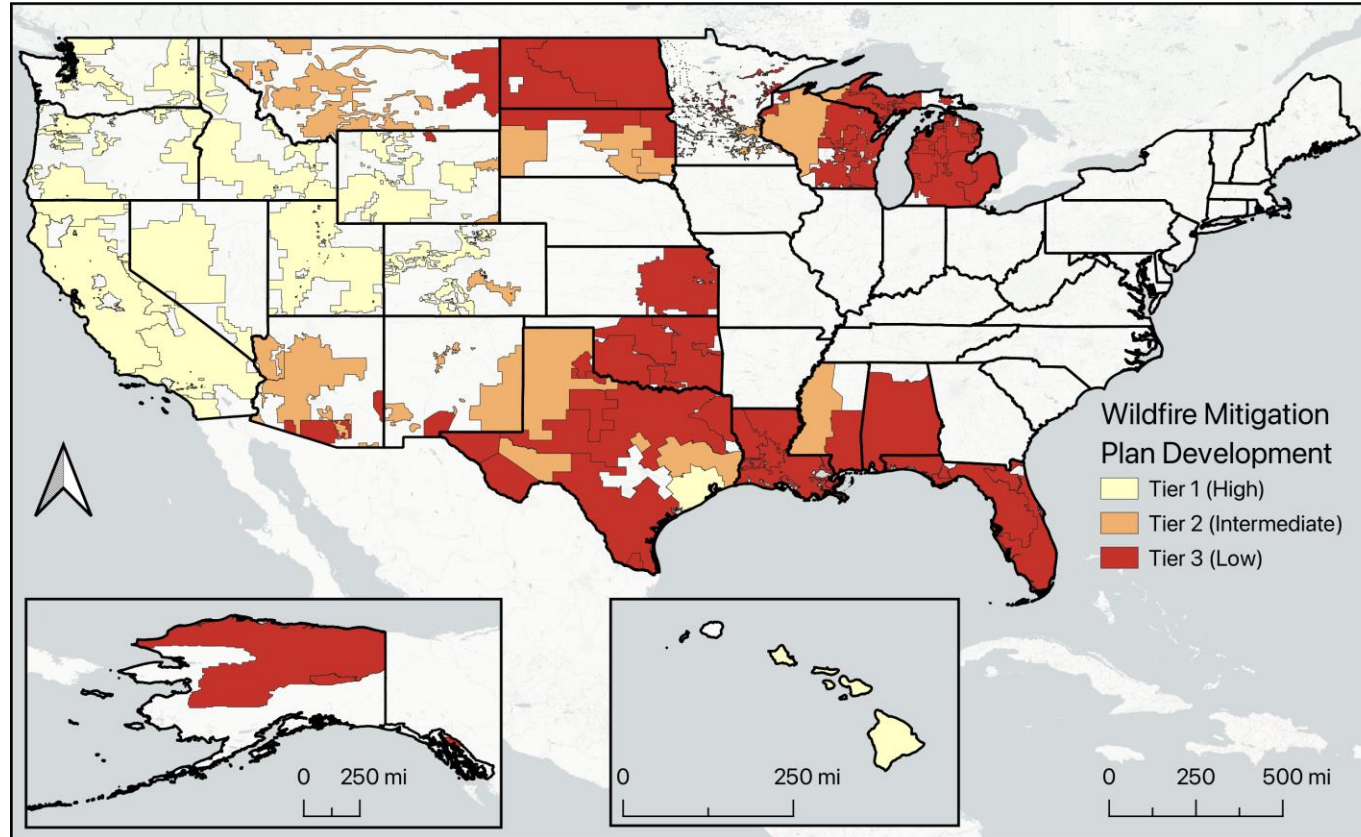


# Why I sleep better on warm, windy October nights



Stanford CEPP Utility Mitigation Maturity Study v1 (2024)

# Why I sleep better on warm, windy October nights



Stanford CEPP Utility Mitigation Maturity Study v2 (Draft, 2025)

# The big remaining challenges

---

1. Transmission

2. Cost

3. Non-utility risk



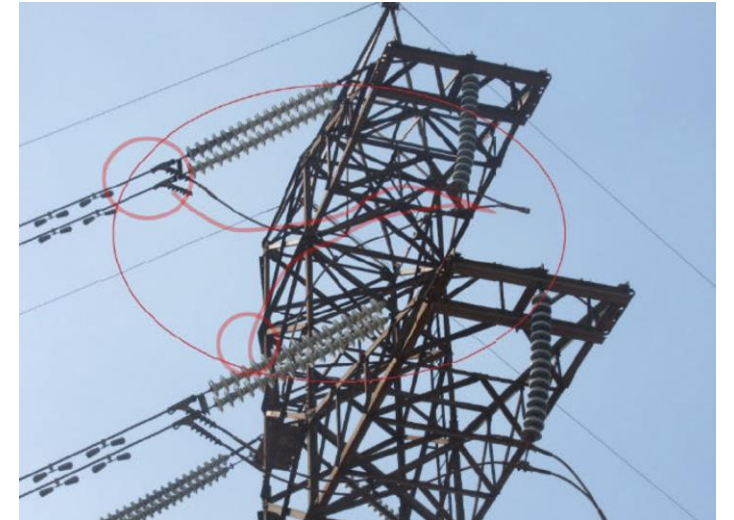
36kv tower and grounding wire, Eaton Canyon, January, 2025

# The big remaining challenges: Transmission

---

Transmission strategy fundamentally differs from distribution strategy

- Very little use of PSPS. Probably not possible in many contexts (all lines crossing Angeles NF for example)
- Heavy reliance on inspection to spot problems
- Transmission infrastructure can be *very* old.
  - Camp Fire, 1920s
  - Sawmill and Kincaid Fires, 1973
  - Eaton Fire, 1920s
- Transmission fails under only the most extreme conditions  
= HIGH CONSEQUENCE, SUPPRESSION INEFFECTIVE

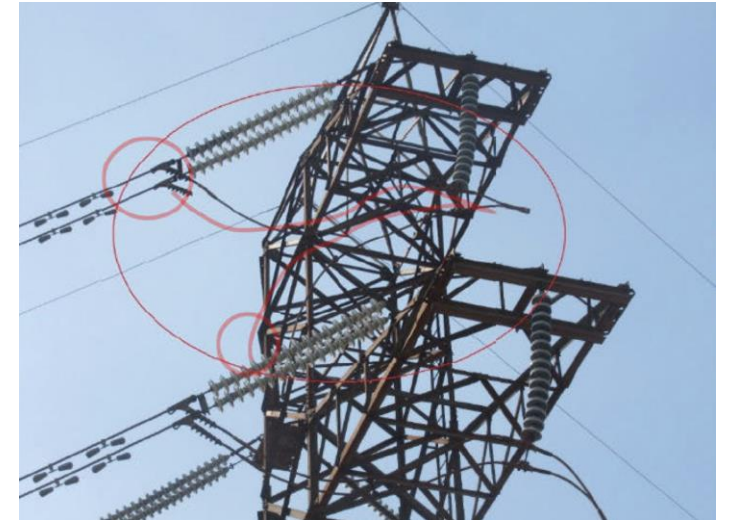


Kincaid Fire, broken jumper on tower, 2019

# The big remaining challenges: Transmission

---

- Hard to predict and spot all failure modes
- High consequences of failures given the conditions under which they are likely to occur
- When is it unacceptable to rely on an “inspect and catch all problems before they occur” strategy?
- Do we need to move towards a “remove or replace” approach for older lines? How old?



Kincaid Fire, broken jumper on tower, 2019

# The big remaining challenges: Cost

---

- Where wildfire mitigation is most mature, affordability is a huge issue
- Threatens or prevents other investments (load growth, clean energy)
- Given PSPS and fast trip, is grid hardening really about reliability more than safety?
- **Is the most cost-effective approach ignition prevention or consequence reduction?**



My kid's show with an unbalanced bow-tie.  
Too much lace on the left side of the knot!

# The big remaining challenges: Cost

---

- Utility grid hardening is **not the most cost-effective strategy** for reducing the risks to communities of utility caused wildfire in many circumstances.
- Home out wildfire mitigation is far cheaper and will reduce all-cause consequence.
- Pace and scale not limited by supply chains or supply of skilled labor
- Aligned with insurance industry



Fire following quake: the view from Twin Peaks, April 18, 1906.

# An all of society effort

---

- Why don't states do WMPs?
- Why don't we evaluate cost-effectiveness outside of the IOU WMP space?
- If we did, how much more space in rates would there be to manage electrification, data center load growth, and interconnection?
- Non-rate customer benefits



Fire safe gardening matters, Lahaina, 2023

# An all of society effort

---

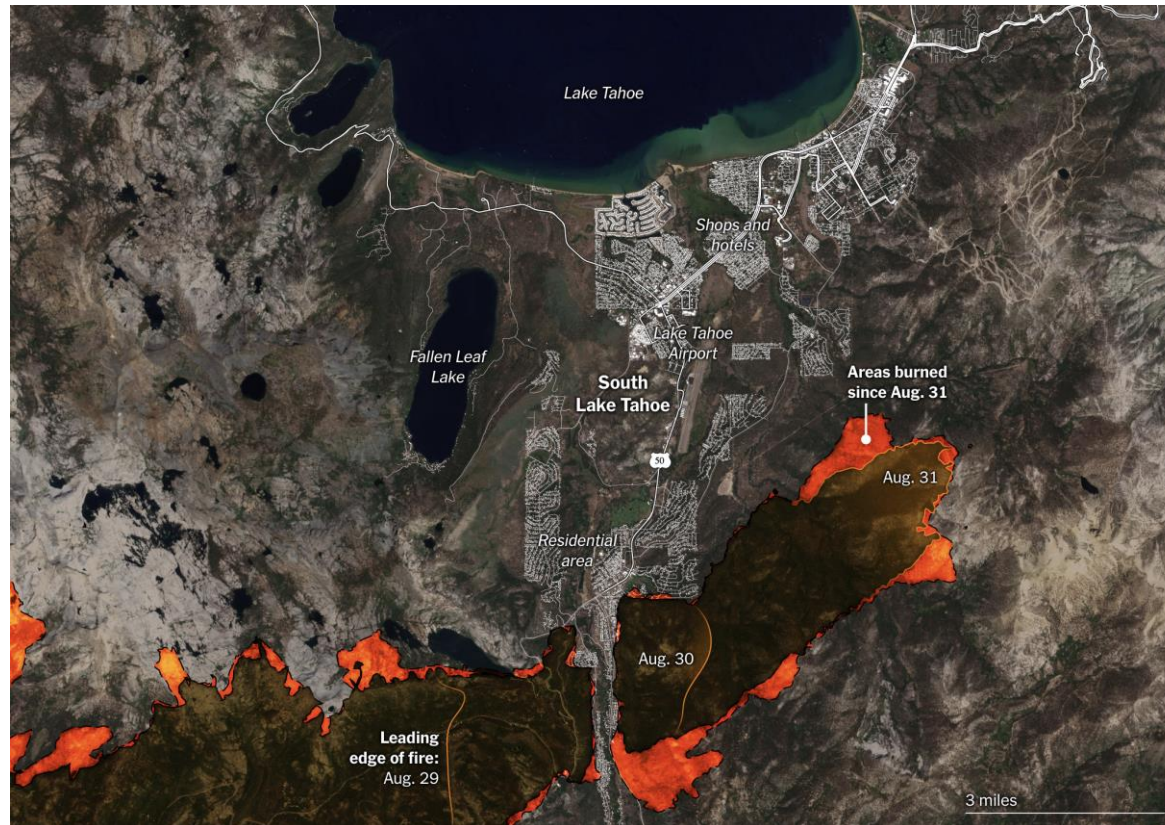
- The most important utility wildfire safety rulemaking this year (decade?) is at the BOF right now.
- Zone zero is how you keep houses from burning down.
- Implementation will be a huge challenge.



Fire safe gardening matters, Lahaina, 2023

# An all of society effort

---



Christmas Valley couldn't burn in the Caldor Fire (2020)

So it didn't burn!

# We have agency: a story from Altadena

---



All images courtesy Amy Harrity

# We have agency: a story from Altadena

---



Video courtesy Amy Harrity

# A word on the California Wildfire Fund

---

## Current Status of the Fund

- Paying claims from Dixie and Kincadee Fires
- Likely claims paying capacity after these of \$21B
- Eaton Claims in the range of \$14 to \$23B (Milliman estimate)
- Smoke claims and contractor surge are major uncertainties

Fund is likely depleted after Eaton Fire



# A word on the California Wildfire Fund

---

- New \$18B contribution from large IOUs and customers (**\$9 to \$11B NPV**)
- ROFR for subrogation
- Study on socialization of wildfire costs
- My view: this is a band aid.
- S&P agrees. Downgraded SCE to BBB- the Monday after passage.



# Conclusions

---

- The current situation is unsustainable.
- Utilities are making a lot of progress.
- We need innovative thinking on transmission wildfire risk.
- Utilities need to get out of their lane, align with fire services and insurance industry, and push hard for risk targeted mitigation in and adjacent to communities.
- Utilities buying more insurance or limiting their liability will not solve the problem for the communities they serve.

# Thank you!