California State Assembly
UTILITIES AND ENERGY

COTTIE PETRIE-NORRIS
CHAIR

State Capitol, P.O. Box 942849
(916) 319-2083
FAX: (916) 319-2183

Wednesday, March 5, 2025
1:30 p.m. – State Capitol, Room 437

OVERSIGHT HEARING

Energy Affordability: Wildfire Spending

Findings

- *Wildfire is one of the most significant risks for all of California's electric utilities, and also one of the biggest contributors to increasing utility bills. Reducing wildfire risk posed by utility infrastructure and containing, or even reducing, rising electric rates remain critical priorities for the Legislature. An appropriate balance between these sometimes opposing priorities must be struck.*

- *The California Public Utilities Commission (CPUC) recently issued a few recommendations – both statutory and administrative – for reducing wildfire costs. The Legislature should consider these recommendations as helpful starting points for driving down wildfire expenses.*

- *The Legislature and utility regulators should consider opportunities for smarter spending by: identifying efficiencies to existing processes; incorporating the latest academic analysis in order to prioritize risk-reduction measures with the greatest "cost per avoided ignition" value; consolidating wildfire spending into utility rate cases; and conducting an honest assessment of what moving wildfire costs "out of rates" implies.*

- *Require the CPUC and the Public Advocates Office (PAO) to categorize utility wildfire costs according to what provides a statewide-benefit, a ratepayer-benefit, or both. Should the total "statewide-benefit" costs far exceed what may be absorbable in existing funding streams, the Legislature may wish to consider novel approaches to funding this work.*

In October 2007, a series of large wildfires ignited and burned hundreds of thousands of acres in several counties[1] in Southern California.[2] The wildfires caused widespread evacuations of nearly one million residents, led to extensive damage to properties in the region, and resulted in a number of fatalities.[3] Among the fires, three – the Witch, Guejito, and Rice Fires – were attributed to San Diego Gas & Electric Company (SDG&E) facilities.[4] These fires, and the resultant damages, led to a comprehensive shift in SDG&E's operations: the Company established an internal directive that utility-caused wildfires were not acceptable and sought strategies to greatly reduce utility-caused ignitions. Over the subsequent decade SDG&E focused on hardening its electric system in high fire threat areas, installing a network of weather stations outfitted with advanced cameras, constructing a state-of-the-art emergency operations center, implementing a wood-to-steel pole replacement program, and adopting other fire risk mitigation strategies, including early usage of Public Safety Power Shutoffs. Over the same decade, the CPUC initiated rulemakings to improve fire safety from power lines,[5] adopted measures to enhance vegetation management,[6] required electric utilities to submit Fire Prevention Plans (FPPs),[7] approved an initial Fire Map of high fire threat zones,[8] and adopted overhead power line rules to account for pole sharing between electric and telecommunication companies.[9] SDG&E spent approximately $1.7 billion on wildfire-related activities over this decade,[10] with costs increasing year-over-year.[11]

In September 2015, the Butte Fire burned over 70,000 acres in the territory of Pacific Gas & Electric Company (PG&E) in Amador and Calaveras Counties, destroyed or damaged 965 structures, and resulted in two fatalities.[12] The California Department of Forestry and Fire Protection (Cal FIRE) determined the Butte Fire was caused by contact between an electric overhead line and a tree.[13] In 2016, in response to the Butte Fire, the Legislature adopted SB 1028 (Hill, Chapter 598, Statutes of 2016) which requires investor-owned utilities (IOU) to prepare and submit annual wildfire mitigation plans (WMPs) to the CPUC, and requires audits be conducted on plan compliance. Prior to SB 1028, IOUs filed FPPs that described their mitigation measures, but provided little justification of risk effectiveness; moreover the

[1] Spread over portions of Orange, San Diego, Los Angeles, San Bernardino, Ventura, Santa Barbara, and Riverside counties
[2] Maranghides, A., and Mell, W.; "A Case Study of a Community Affected by the Witch and Guejito Fires;" National Institute of Standards and Technology; NIST Technical Note 1635; April 2009; https://nvlpubs.nist.gov/nistpubs/Legacy/TN/nbstechnicalnote1635.pdf
[3] CPUC Decision 17-11-033. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M200/K045/200045020.PDF
[44] SDG&E Application to the CPUC A. 15-09-010
[5] Originally in R. 08-11-005, then R. 15-05-006
[6] CPUC Decision 09-08-029 and D.17-12-024
[7] D. 12-01-032
[8] D. 16-05-036
[9] D. 14-02-015
[10] Such as grid hardening, situational awareness, and vegetation management
[11] Pg. 35, CPUC; "Utility Costs and Affordability of the Grid of the Future: An Evaluation of Electric Costs, Rates, and Equity Issues pursuant to P.U. Code Section 913.1;" (i.e. 2021 SB 695 Report); https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2021/senate-bill-695-report-2021-and-en-banc-whitepaper_final_04302021.pdf
[12] https://www.fire.ca.gov/incidents/2015/9/9/butte-fire/
[13] CPUC Press Release; "CPUC Issues Staff Citations Totaling $8.3 Million to PG&E for Butte Fire;" April 25, 2017; https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M184/K956/184956998.PDF

plans were rarely updated.[14] The WMPs consists of performance-based metrics of fire prevention work that the CPUC must review. SB 1028 also requires publicly-owned utilities (POUs) and electrical cooperatives to determine the risk of catastrophic wildfire that can be caused by their electric equipment and submit WMPs to address these risks to their governing board for approval.[15]

In 2017 and 2018, California experienced some of its worst fire seasons on record, where particularly destructive wildfires took 139 lives and destroyed communities in both Northern and Southern California. Those years led to the most destructive and deadliest fires, including the November 2018 Camp Fire in Butte County, the December 2017 Thomas Fire in Santa Barbara and Ventura Counties,[16] and the October 2017 Fires in the North Bay, such as the Tubbs, Redwood Valley, and Atlas Fires.[17] All these fires were found to be caused by electrical equipment.[18]

In December 2017, the CPUC adopted new measures to enhance vegetation management and require more frequent inspections around power lines.[19] They also updated their Fire Map, more than doubling the high fire threat designations from earlier maps to include approximately 44% of California's total land area;[20] this map expansion increased the areas where IOUs needed to invest in more rigorous system hardening. The Legislature also passed several bills increasing oversight of IOUs and enhancing requirements to mitigate against utility-related wildfires. These bills included SB 901 (Dodd, Chapter 626, Statutes of 2018) and AB 1054 (Holden, Chapter 79, Statutes of 2019). Among their many provisions, these bills included more detailed requirements for IOU WMP filings, created a separate Office of Energy Infrastructure Safety (OEIS) under the Natural Resources Agency to evaluate the WMPs,[21] added an annual safety culture assessment of the IOUs, established the Wildfire Safety Advisory Board and mandated POUs submit WMPs to the Board, established a safety certification process at OEIS, and created a $21 billion Wildfire Fund to reimburse eligible claims arising from covered wildfires caused by participating IOUs.

This activity has led to approximately $16 billion of wildfire mitigation costs over the last five years[22] that the IOUs have been authorized to place in rates, in addition to approximately

[14] As of January 2018, prior to the adoption of the WMP process, SCE and PG&E had FPPs on file dated from August 2014 and 2015, respectively. SDG&E, in contrast, updated its FPP in late October 2017. See https://seuc.senate.ca.gov/sites/seuc.senate.ca.gov/files/01-26-18_background.pdf
[15] PUC § 8387
[16] https://www.fire.ca.gov/incidents/2017/12/4/thomas-fire/
[17] Cal FIRE "Top 20 Deadliest California Wildfires" and "Top 20 Most Destructive California Wildfires;" accessed 02.24.2025; https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_deadliest.pdf?rev=28a23478bd15493a8715436d9244eebd&hash=A9003EB730459250067C94C742B1C8DC and https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top20_destruction.pdf?rev=8d25d868e50f40aea60833642d65b449&hash=1DBAA251C9CC52EDC5AAEA2358158664
[18] *Ibid.*
[19] CPUC Decision D. 14-12-024
[20] D. 17-01-009
[21] The statute initially housed stood up the Wildfire Safety Division at the CPUC, with a requirement that OEIS be a successor to this Division, effective July 1, 2021. See AB 111 (Committee on Budget, Chapter 81, Statutes of 2019)
[22] 2019 to Q4 2023; pg. 49, CPUC; *2024 Senate Bill 695 Report*; July 2024; https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2024-sb-695-report.pdf

$11 billion for wildfire insurance premiums and catastrophic event costs.[23] Collectively, these "wildfire-related" costs resulted in over $5 billion per year over the last 5 years, when averaged amongst the three largest IOUs.[24] These wildfire-related costs have amounted to roughly 18% of overall system costs[25] for PG&E, 12% for Southern California Edison (SCE), and 9% for SDG&E.[26] For residential customers, these wildfire-related costs have led to a monthly $24 increase on the average 2023 bill for PG&E, a $18 increase for SCE, and a $13 increase for SDG&E; comprising between 7-12% of total monthly bills.[27]

Wildfire is one of the most significant risks for all of California's electric IOUs, and also one of the biggest contributors to increasing utility bills. Historically, utility infrastructure has been responsible for less than 10% of reported wildfires.[28] However, fires attributed to power lines consist of almost half of the most destructive fires in California history.[29] Utility wildfire costs have proven necessary for managing these risks across an IOU territory, and indications from SDG&E territory suggest these costs are unlikely to decline. But these wildfire-related costs are creating real impacts as overall electric bills continue to rise, far above inflation and far above what many Californians can bear.[30] Reducing wildfire risk posed by utility infrastructure *and* containing, or even reducing, rising electric rates remain critical priorities for the Legislature.

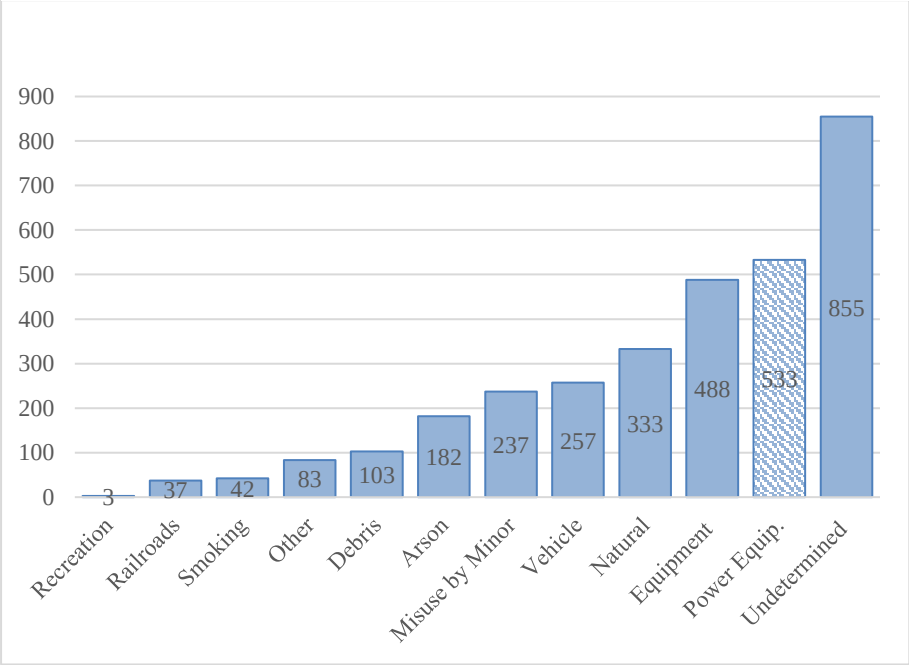
The purpose of this hearing is to examine growing utility wildfire costs, in an effort to understand the appropriate balance between reducing wildfire risk and cost. Wildfire costs will be scrutinized in order to understand how expenditures to date have reduced risk; how state agencies have balanced costs versus risk reduction; and whether rapid innovation in grid management could result in less expensive outcomes for the same level of risk reduction. The hearing will also examine which wildfire-related costs are necessary to provide electricity service versus which provide statewide benefits, evaluate these costs in the context of overall statewide wildfire expenditures, and discuss potential funding sources and budgeting tools outside of electric rates to cover these wildfire costs. While the majority of the discussion, both during the hearing and in this background document, will focus on IOU wildfire expenditures, representatives from California's POUs will participate and provide perspective on how they have also balanced wildfire risk reduction and cost. This hearing will be the first in a series of hearings exploring solutions to address energy affordability, this Committee's principal focus during this legislative session.

Electrical Equipment-Caused Fires. Human-caused ignitions account for the majority of known wildfire sources in the state, with electrical equipment being a subset. Power line fires occur hundreds of times each year. Rarely do these fires grow to be large and destructive, but

[23] Pg. 50, Table 6; CPUC; *2024 Senate Bill 695 Report*; July 2024; https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2024-sb-695-report.pdf
[24] PG&E, SCE, and SDG&E
[25] "system costs" means revenue requirement
[26] Pg. 52; *Ibid.*
[27] Table 8, pg. 53; *Ibid.*
[28] Legislative Analyst's Office, "Frequently Asked Questions About Wildfires in California;" February 13, 2025; https://lao.ca.gov/Publications/Report/4952
[29] https://www.fire.ca.gov/our-impact/statistics
[30] See Figures on pg. 12 of CPUC; *2024 Senate Bill 695 Report*; July 2024; https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2024-sb-695-report.pdf ; Roughly a third of IOU customers are on the low-income discount program, California Alternative Rates for Energy (CARE).

when they do they can be catastrophic. In 2023, the most recent year with complete fire activity statistics, electrical power-caused fires accounted for 37% of total acres burned.[31] Power equipment also represents the largest ignition source from 2019-2023, aside from those events whose source was undetermined, as shown in Figure 1.

Figure 1: Fires by Cause, 5 Yr. Avg. (2019-2023)[31]



Electrical equipment can act as an ignition source, arising from energized power lines contacting dried brush, arcing to neighboring equipment, or contacting with trees. Moreover, California's strong Diablo and Santa Ana winds that often damage utility infrastructure likewise contribute immensely to the spread of any resultant fire, increasing these particular fires' severity and scale. Overall risks for wildfires have also increased with the extended drought and bark beetle infestation that has increased tree mortalities and, as a result, increased the fuel for wildfires. Finally, IOUs' obligation to serve, requiring stringing power lines through woodland areas, and their aging infrastructure with slow investment timelines further contribute to the frequency of electrical-caused ignitions.

Wildfire Mitigation Planning Requirements. Utilities have for decades been assessing the risk wildfire poses to their infrastructure. PG&E has noted that it has formally tracked wildfire risk since 2006;[32] SDG&E for equally as long. Most of that tracking occurred as part of the IOUs' General Rate Case proceedings, where IOU costs are forecast, justified, and ultimately authorized or denied. As noted above, after the 2007 fires in Southern California, IOUs were required to file FPPs;[33] however, those filings were only a description of wildfire mitigation measures without an evaluation of effectiveness. Legislative efforts in 2016,[34]

[31] Listed as "PGTD = Power Generation/Transmission/Distribution" on Pg. 12, Table 7. "Number of SRA Acres Burned by Cause;" Cal FIRE *2023 Wildfire Activity Statistics* (i.e. "The Redbook"); https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/2023_redbook_final.pdf?rev=e3ba4cccf9fe4d0e97a921189d85baaf&hash=9593161EBE9D4EAC55B5ACD30F46228A

[32] Pg. 2-12; GRC 2017 Phase I (A 15-09-001); exhibit PG&E-4; September 1, 2015; https://pgera.azurewebsites.net/Regulation/search

[33] CPUC Decision D. 12-01-032

[34] SB 1028 (Hill, Chapter 598, Statutes of 2016)

2018,[35] and 2019[36] created the WMP process, which require utilities to assess the level of wildfire risk in their territories and provide plans for how to address those risks.

For IOUs, the assessment of WMPs is bisected between OEIS, who evaluates the safety of proposed projects, and the CPUC, who evaluates the costs to implement safety projects. This work occurs sequentially: OEIS approves the WMP for risk reduction before it is evaluated by the CPUC. Utilities file their WMPs with OEIS, which is responsible for reviewing and approving or denying the WMPs. Statute requires WMP filings every three-years, and outlines many of the required reporting, as shown in Box 1. As the extensive statutory requirements of Box 1 imply, the WMPs have evolved into a detailed, heavily scrutinized document. For instance, PG&E's 2023-2025 WMP was over 1,600 pages.[37]

OEIS is also responsible for overseeing IOU compliance with the WMPs by developing a field audit program;[38] directing the independent compliance evaluation;[39] and issuing an assessment.[40] OEIS's main objectives in assessing WMP compliance are to evaluate WMP completion, to understand plan effectiveness, and to track outcomes that reduce wildfire ignition risk.[41]

For POUs, statute[42] requires annual preparation of a WMP and submission to the California Wildfire Safety Advisory Board (WSAB) by July 1. WSAB is a board of independent experts that advise OEIS on WMPs, and are also directed to "review and provide comments" on POU and electrical cooperative WMPs.[43] Statute directs POUs to update WMPs annually, with a "comprehensive revision" every three years. Many of the 2025 WSAB recommendations request clearer reporting and data tracking.[44] Statute likewise requires both IOUs and POUs to engage an independent evaluator to review and assess the utilities' compliance with their plans.[45]

Maximizing Risk Reduction through Oversight. A key feature of OEIS's work is the separation of wildfire safety oversight from the ratemaking that occurs at the CPUC. OEIS employs a risk-reduction approach for review of the WMPs; while the CPUC employs a cost-benefit framework.[46] Both evaluations have evolved over time. Since 2014, the CPUC has employed a "risk-based decision-making framework" into their rate case proceedings.[47]

[35] SB 901 (Dodd, Chapter 626, Statutes of 2018)
[36] AB 1054 (Holden, Chapter 79, Statutes of 2019)
[37] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56145&shareable=true
[38] PUC §§ 326(a)(3), 8386.3(c)(5), 8389(e)(7)
[39] PUC § 8386.3 (c)(2)(B)
[40] PUC § 8386.3 (c)(4)
[41] OEIS "Compliance Process;" September 2024; https://energysafety.ca.gov/wp-content/uploads/2024/12//2024-wmp-compliance-process.pdf
[42] PUC § 8387
[43] PUC § 326.2
[44] WSAB, "Advisory Opinion for the 2025 WMP of POU and Electrical Cooperatives;" December 2024; file:///C:/Users/shybutla/Downloads/TN15071_20241206T094729_WSAB_Advisory_Opinion_on_POU_2025_WMPs%20(1).pdf
[45] PUC § 8386.3 (c)(2)(B) and § 8387 (c)
[46] Most recently updated and detailed in Appendix A of CPUC Decision D. 22-12-027
[47] CPUC Decision D. 14-12-025

Box 1: WMP Statutory Requirements

Public Utilities Code § 8386 and § 8387 detail the WMP filings of the IOUs and POUs, respectively. These statutes require WMPs to include:

- An accounting of the responsibilities of persons executing the plan;
- The plan objectives;
- A description of preventive strategies and programs to reduce wildfire risk;
- Metrics to evaluate the plan's performance, the underlying assumptions of the metrics, and a discussion of how the metrics informed the plan;
- Protocols for disabling reclosers and de-energizing portions of the distribution system, de-energizing portions of the transmission system, and consideration of these impacts to specified customers;
- Procedures for customer notification during de-energization events;
- Identification of frequently de-energized circuits and plans to reduce future de-energization of those circuits;
- Vegetation Management plans;
- Infrastructure inspection plans;
- List that identifies, describes, and prioritizes all wildfire risk, and lists the drivers of those risks;
- Actions to ensure the highest level of safety, reliability, and resiliency;
- Undergrounding plans for distribution lines;
- Showing an adequately sized and trained workforce;
- Areas of identified risk outside the CPUC's Fire Map;
- Methodology for identifying enterprise-wide safety risk;
- Restoration and customer support plans for both during and after wildfires;
- Processes to monitor, audit, identify deficiencies, and assess effectiveness of the plan.

IOUs file safety-risk threat assessments to the CPUC along with associated proposed mitigation plans and estimated costs and spending requests on a four-year cycle known as the Risk Assessment Mitigation Phase (RAMP). The goal of such activity is to ensure utilities carefully consider and fully disclose the safety risks to their system and explain how the utilities are equipped to contain those risks at the lowest practicable cost. The findings from the RAMP then feed into the IOU's GRC proceeding, where overall funding requests are scrutinized and authorized. Subsequent actions of the CPUC have refined the RAMP by establishing a separate proceeding, the Safety Model Assessment Proceeding (S-MAP),[48] to develop guidelines for the RAMP filings; by identifying 26 safety performance metrics IOUs must evaluate;[49] and by continually incorporating lessons-learned.[50]

OEIS's wildfire risk assessment requires IOUs to provide an overview of their risk methodology, the key input data and assumptions, their risk analysis, and the results of their assessments. This information is meant to enable a technical understanding of the foundational strategy motivating IOU risk reduction.[51] Recent updates to OEIS's risk assessment have incorporated a "maturity model" framework to assess the IOUs risk mitigation activities, where a specific IOU-proposed activity is given a maturity level ranging from "below statutory

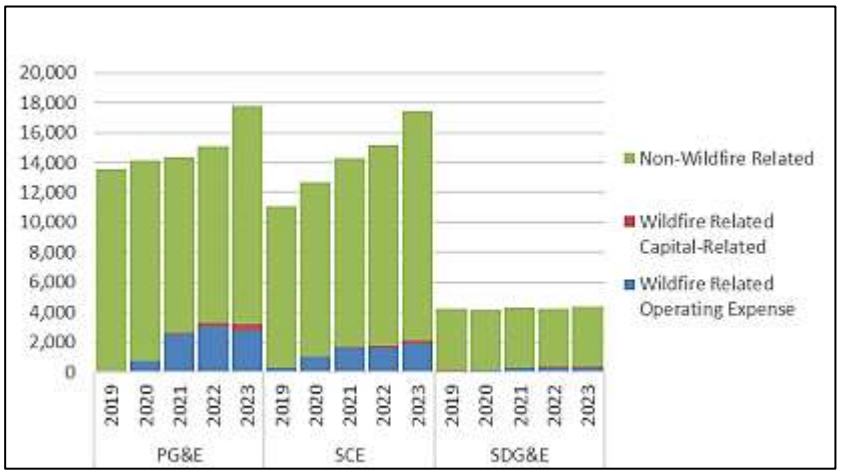
[48] CPUC Decision D. 16-08-018
[49] CPUC Decision D. 19-04-020
[50] CPUC proceeding R. 20-07-013
[51] Pg. 30; OEIS; "2023-2025 WMP Technical Guidelines;" December 6, 2022; https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true

minimums" up to "leading industry best practices,"[52] in order to better evaluate IOU risk-reduction proposals.

The CPUC's RAMP and S-MAP activities precede the establishment of the WMPs, and keep cost containment as a point of optimization in the modeling. The risk-assessment performed by OEIS optimizes for risk-reduction separately; the output of the OEIS WMP approval then feeds into IOU GRC applications or separate IOU cost recovery avenues at the CPUC.[53] The CPUC's RAMP activities also require risk evaluations and prioritization across all aspects of the utility enterprise, inclusive of seismic safety, cybersecurity, and natural gas activities, as applicable. OEIS's risk processes are solely focused on optimizing for wildfire risk reduction. In July 2021, OEIS and the CPUC signed a Memorandum of Understanding outlining data sharing and cooperativity in these duties, to ensure consistent and complimentary approaches to electric infrastructure safety. Legislative attempts to further refine the duties and outcomes between OEIS and the CPUC continue.[54]

Wildfire Spending.[55] Over the last five years[56] $16 billion of wildfire mitigation costs have been authorized to be collected from customers, in addition to approximately $11 billion for wildfire insurance premiums and catastrophic event costs.[57] Collectively, these "wildfire-related" costs resulted in over $5 billion per year over the last 5 years, when averaged amongst the three largest IOUs.[58] These wildfire-related costs have amounted to roughly 18% of overall system costs[59] for PG&E, 12% for SCE, and 9% for SDG&E,[60] as of 2023 as shown in Figure 2. For residential customers, these wildfire-related costs have led to a monthly $24 increase on the average 2023

Figure 2: Wildfire-Related Costs Relative to Total System Costs (Year-End, $ millions)[55]

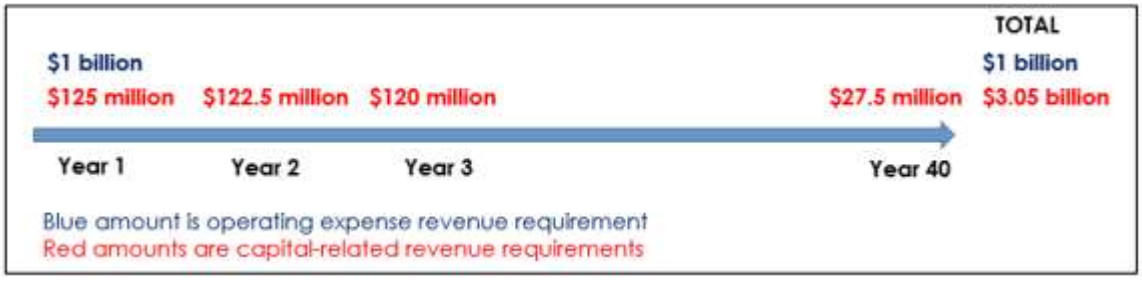


[52] Pg. 6; OEIS; "Draft Electrical Corporation Wildfire Mitigation Maturity Model and Survey Guidelines;" February 2025; https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=57960&shareable=true
[53] Statute (PUC § 8386.4) requires the CPUC to authorize memorandum accounts for tracking WMP implementation costs, and allows IOUs to "elect to file" recovery of the memorandum account costs separately from the GRC.
[54] Most recently in SB 1003 (Dodd, 2024)
[55] Much of this section is taken from the CPUC's 2024 SB 695 Report (citation #30), starting on pg. 47; Figure 2 is Figure 22 on pg. 53 of this CPUC 2024 SB 695 Report. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2024-sb-695-report.pdf
[56] 2019 to Q4 2023; pg. 49, CPUC; *2024 Senate Bill 695 Report*; July 2024; https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2024-sb-695-report.pdf
[57] Pg. 50, Table 6; CPUC; *2024 Senate Bill 695 Report*; July 2024; https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2024-sb-695-report.pdf
[58] PG&E, SCE, and SDG&E
[59] "system costs" means revenue requirement
[60] Pg. 52; *Ibid.*

bill for PG&E, a $18 increase for SCE, and a $13 increase for SDG&E; comprising between 7-12% of total monthly bills.[61]

While wildfire-related operating expenses, such as vegetation management and liability insurance coverage, make up the majority of these recent cost increases, wildfire-related capital expenses are anticipated to grow in time. Capital-related expenses, such as installing covered conductor or undergrounding portions of a distribution system, have a larger cumulative impact on rates relative to operating expenses, as capital costs are recovered over a much longer time horizon during which the IOUs also earn an authorized profit. As an example, as demonstrated in Figure 3, $1 billion in authorized operating expenses would equal $1 billion in the revenue collected from ratepayers. For capital expenses, $1 billion authorized would be roughly $3.05 billion cumulatively collected, assuming a theoretical 10% return on the undepreciated capital asset over the theoretical capital asset life of 40 years.[62] However, operating expenses are often collected in rates annually, whereas capital expenses are spread overtime. For the above scenario, that $1billion in operation costs would increase rates by $1 billion in Year 1; whereas for the capital costs, rates would increase by roughly $125 million in Year 1.[63]

Figure 3: Comparison of Timing of Recovery of $1 Billion in Wildfire Costs (Operating Expense vs. Capital-Related Costs)[63]



Ratepayers have been shielded from some of the cost impacts of these capital expenses due to two provisions of AB 1054 (Holden, Chapter 79, Statutes of 2019): 1) the first $5 billion of capital spending is excluded from earning a Return on Equity (i.e. shareholder profit); and 2) the first $5 billion of capital spending may also be securitized through a CPUC financing order rather than through more traditional unsecured bond offerings. The equity rate base exclusion of #1 is estimated to save ratepayers as much as $2 billion over the life of those capital assets.[64] The securitization of #2 benefits ratepayers by allowing the IOUs to financing wildfire-related capital projects with lower interest rates than would otherwise be available;[65] the overall anticipated savings from this securitization is currently unknown by this Committee.

---

[61] Table 8, pg. 53; *Ibid.*
[62] CPUC calculation assumes asset is financed entirely from equity (i.e., no debt), and depreciation is on a straight-line basis with no asset salvage value, and there are no tax effects included.
[63] See Figure 21, pg 51 of CPUC's 2024 SB 695 Report.
[64] Finding of Fact 2 of each CPUC Financing Order states the estimated Net Present Value (NPV) savings of each bond issuance authorized. D.20-11-007: $173 million; D.21-06-030: $633 million; D.21-10-025: $403 million; D.22-08-004: $659 million; D.23- 02-023: $493 million; D.24-02-011: $465 million. The CPUC also approved SDG&E AL 4078-E that demonstrated $84.3 million NPV savings.
[65] D.21-06-030 approved PG&E's first AB 1054 financing order requesting $1.2 billion in AB 1054 CapEx, of which bonds representing about $850 million were issued, D.22-08-004 approved its second AB 1054 financing order totaling about $1.4 billion in AB 1054 CapEx, of which bonds representing about $975 million were

The IOUs forecast the majority of their WMP costs in their GRCs; examples of common wildfire-related expenses are listed in Box 2. However, statute (PUC § 8386.4) allows the IOUs to seek recovery of any incremental spending recorded in the memorandum accounts in their GRCs or through a separate application.[66] The IOUs also recover certain wildfire-related costs that are external to the activities described in the WMP, including for wildfire insurance premiums and recovering from catastrophic events. Wildfire insurance costs that are incremental to the insurance costs authorized in the GRCs may be tracked for recovery through the Wildfire Expense Memorandum Account (WEMA) for PG&E and SCE, and the Liability Insurance Premiums Balancing Account (LIPBA) for SDG&E.[67] The IOUs also track eligible costs to respond to catastrophic events, including wildfires, in their Catastrophic Event Memorandum Accounts (CEMA).[68] These multiple accounting tools have led to stacking of authorized costs outside of the traditional GRC approval cadence; the most recent example occurring for PG&E customers in 2024 with six different rate increases authorized that year.[69]

Box 2: WMP Expenditures

IOU WMPs propose a host of projects, some of which are authorized by the CPUC for funding. Below are a list of common wildfire-related expenditures, using PG&E's 2023 GRC as an example.*

- Situational Awareness and Forecasting (i.e., weather stations and cameras)
- Staffing and managing PSPS events (average of 3/year)
- Enhanced Automation, such as single phase reclosers, distribution grid sensors, early equipment failure detection, line-to-ground fault reduction technology, and nearby object detection and line deactivation
- Grid sectionalizing devices
- Temporary generation programs to support microgrids during PSPS events
- Undergrounding assets
- Covered conductor installation
- Expulsion Fuse Replacement
- IT for Wildfire Mitigation
- Enhanced Powerline Safety Settings (i.e., adjustments to overhead powerline protective device settings to be more sensitive, thereby reducing the risk of ignition by having the line trip more readily)
- Vegetation Management
- Emergency Preparedness and Response (i.e., funding for appropriate facilities, logistics, technology and processes to be in place prior to an emergency)
- Wildfire "self-insurance"

*CPUC Decision D. 23-11-069, pg. 241-318

issued; and D.24-02-011 approved PG&E's request to securitize the remaining $1.385 billion AB 1054 CapEx---the bonds have not yet been issued at this time. D.20-11- 007, D.21-10-025 and D.23-02-023 approved SCE's first, second and third (final) AB 1054 financing orders totaling about $1.575 billion in AB 1054 CapEx of which bonds representing the same amount of CapEx were issued. Recovery bond financing costs apply to all AB 1054 securitizations.

[66] For example, SCE's A.23-10-001 requests recovery of incremental wildfire mitigation spending recorded in memorandum accounts, among other requested cost recovery.

[67] Wildfire-related liability costs are claims paid as a result of property losses, in addition to other incremental liability costs including higher-than-forecasted insurance premiums and legal fees

[68] Permissible CEMA expenses include restoring utility services to customers; repairing, replacing, or restoring damaged utility facilities; and complying with government agency orders resulting from declared disasters.

[69] Brisa Colón and Kate Nemarich, ABC30; "California regulators approve PG&E's 6th rate hike of 2024;" December 19, 2024; https://abc30.com/post/california-regulators-approve-pges-5th-rate-hike-

Applications to recover many of these costs are often filed after the work is complete – rather than forecast within the GRC – and involve lengthy, contentious proceedings to evaluate potential overlap with GRC approvals and the reasonableness of the expenditures. The Public Advocates Office has noted this trend of wildfire-related costs authorized via standalone accounts, rather than the GRC, and has advocated for consolidation.[70]

Approaches to Reduce Wildfire Spending. It is a fundamental requirement for utilities to operate their systems in a manner that minimizes the risk of catastrophic wildfire.[71] However the exact manner in which they reduce that risk is not uniform nor standardized. Much of the activity of OEIS has sought to provide needed scrutiny and guidance to IOU risk reduction plans. The CPUC further scrutinizes IOU plans for risk-spend efficiency, driving toward as much risk reduction at the lowest possible cost.

The strict liability paradigm of inverse condemnation – where utilities are held responsible for costs if any of their equipment or actions resulted in property damage, regardless of a finding of negligence or reasonable ("prudent manager") behavior – and, as noted above, the climate-change-driven weather conditions which amplify the scale and severity of utility-ignited wildfires, provide very strong incentives for utilities to be as aggressive as authorized in their risk reduction activities, alongside their core interests in protecting the safety of their customers and ensuring the reliability of the service they provide. However, utilities – and their regulators – are not immune to affordability concerns, and have sought in recent years ways to streamline and improve wildfire spending.

According to the CPUC, PG&E reports operational cost reductions in both vegetation management and undergrounding activities in 2023.[72] PG&E achieved a $300 million cost reduction in vegetation management by grouping work by location and standardizing unit rate contracts. In addition, PG&E reduced cost by $70 million by reducing the trench depth from 36" to 30" and implementing longer cable runs.[73]

The CPUC has contributed to ratepayer savings by approving proposals from PG&E and SCE to implement ratepayer-funded wildfire self-insurance,[74] estimated to have resulted in a $467 ratepayer savings impact in 2023. Under the self-insurance framework, future costs are lessened than with commercial insurance, as insurance costs collected from ratepayers would be available for subsequent years if not used to cover losses in a given year. Also the CPUC imposed "soft caps" on vegetation management costs to limit the IOUs' ability to recover vegetation management costs above authorized amounts without a reasonableness showing.[75]

2024/15679054/#:~:text=The%20California%20Public%20Utilities%20Commission,in%20San%20Luis%20Obispo%20County.

[70] See testimony of Linda Serizawa, Director of CalPAO, at this Committee's March 6, 2024 oversight hearing on electricity affordability; https://autl.assembly.ca.gov/media/1122

[71] PUC §§ 8386 (a) and 8387 (a)

[72] Pg. 25, CPUC's 2024 Annual Report; https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/reports/annual-reports/ar2024_web_012825.pdf

[73] Pg. 54, CPUC's 2024 SB 695 Report; https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2024-sb-695-report.pdf

[74] CPUC Decisions D.23-01-005 and D.23-05-013, respectively

[75] D.23-11-069 for PG&E and D.21-08-036 for SCE

Finally, in response to Governor Newsom's October 2024 Executive Order (N-5-24) to address energy affordability,[76] the CPUC identified a few additional solutions to reduce ratepayer wildfire spending:[77]

- *Consolidating and streamlining utility wildfire funding requests (i.e., moving most revenue requests to the GRC).* The CPUC recommends statutory changes to require IOUs to integrate WMP costs into normal GRC processes, as statute currently authorizes an alternative mechanism.[78] Moreover the CPUC acknowledges SB 1003 (Dodd, 2024), if chaptered, would capture most of this proposal.

- *Reducing the construction costs of undergrounding.* The CPUC recommends legislation authorizing OEIS's Dig Safe Board to develop regulations requiring contractors with a significant number of dig tickets to provide advance notice to utility operators, so that those operators may more effectively plan for large-scale projects. In other words, PG&E could let all the telecommunications, water, and sewer utilities and tribes in the areas it plans to underground electrical lines of its upcoming activities, so that a more comprehensive approach may be initiated.

- *Better Fuels Treatment Coordination between IOUs and Large Landowners.* Coordination of fuel management planning, environmental review, and work can lead to increased efficiency and potential reduction in costs. For instance, stewardship agreements could allow multiple entities to hire a single contractor across a broader geographic area. As an example, the 6,400-acre Liberty Utilities Resilience Corridors Project – coordinated with the U.S. Forest Service – enabled fuel reduction treatment along utility corridors and allowed Forest Service and Liberty Utilities to share in the costs.

Risk-Cost Tension: Scrutinizing Undergrounding Programs. The tension between safety and cost, and the different outcomes inherent in balancing the two, is highlighted acutely in considerations of utility undergrounding programs. As noted above, the assessment of WMPs is bisected between OEIS, who evaluates the safety of proposed projects, and the CPUC, who evaluates the costs to implement safety projects. Since these two entities have different and distinct priorities, often in practice the CPUC authorizes a modified version of the OEIS-approved WMP. For example, in PG&E's 2023-2025 WMP, OEIS approved the utility's plan to underground 2,100 miles from 2023 to 2026. Subsequently, PG&E requested rate recovery in their 2023-26 GRC for 2,000 miles of undergrounding – close to the estimation in their approved WMP – at an estimated cost of $5.9 billion. The CPUC then only authorized 1,230 miles of undergrounding, opting to authorize covered conduction installation for the other 778 miles, at a forecasted expenditure of $4.7 billion together.[79]

While undergrounding an asset substantially reduces the risk of wildfire ignition (PG&E claims 99% reduction from undergrounded asset), covered conductor offers significant risk reduction (of at least 62% - with evidence of higher effectiveness pursuant to recent filings by

[76] https://www.gov.ca.gov/wp-content/uploads/2024/10/energy-EO-10-30-24.pdf
[77] Pgs. 23-26; "CPUC Response to Executive Order N-5-24;" February 18, 2025. https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/reports/cpuc-response-to-executive-order-n-5-24.pdf
[78] PUC § 8386.4
[79] CPUC Decision D. 23-11-069

PG&E and other utilities with OEIS).[80] While undergrounding is the most effective way to reduce wildfire risk, it is also the slowest, most expensive way to do so. According to the Public Advocates Office, covered conductors generally take 1-2 years to install compared to 3-4 years for undergrounding and is approximately one-third of the cost. They note, for the cost of undergrounding 1 mile of power lines, a utility can protect almost 4 miles with covered conductors.[81] Covered conductor is also a proven mitigation, as it has been installed on thousands of miles across California. The CPUC has noted construction feasibility is a significant concern with PG&E's 10,000-mile undergrounding plan,[82] as unknowns around the availability of material and labor place an unreasonably high level of uncertainty around PG&E's ability to execute its plans and realize efficiencies of scale meant to drive down cost.[83]

Pursuant to SB 884 (McGuire, Chapter 819, Statutes of 2022) large IOUs may submit a 10-year distribution infrastructure undergrounding to OEIS for review. OEIS must approve, modify, or deny the plan within nine months of submission. OEIS may only approve the plan if it finds that the IOU's plan will achieve, at the least, both substantial increases to reliability by reducing use of public safety power shutoffs, enhanced powerline safety settings, de-energization events, and other outage programs; and substantial reduction of wildfire risk. If OEIS approves the plan, the IOU must submit to the CPUC, within 60 days OEIS's approval, a copy of the plan and an application requesting review and conditional approval of the plan's costs. The CPUC must approve, modify, or deny the Application within nine months of submission.

In February 2025, OEIS adopted guidelines for the IOUs' 10-year electrical underground plans.[84] The CPUC also adopted program guidelines in March 2024, which address the process and requirements for the CPUC's review of the undergrounding plans.[85] While these plans are still in development, the CPUC has estimated the portion of 2023 average monthly bills going to underground work to be $0.27 for PG&E and $0.10 for SCE, representing less than 0.1% of total bills.[86] It is likely that these percentages will increase, perhaps significantly, as the SB 884 Plans are incorporated.

However doing a straight comparison of undergrounding versus covered conductor misses opportunities that might arise in layering other technology solutions. In ongoing research from the University of California, detailed data on the impacts of wildfire risk mitigation investments are being assessed.[87] These data are summarized in a "cost per avoided ignition"

[80] Pg. 295, CPUC Decision D. 23-11-069
[81] Matt Baker, "Why we support the levels of undergrounding approved in PG&E's General Rate Case;" November 17, 2023; https://www.publicadvocates.cpuc.ca.gov/press-room/commentary/231117-undergrounding-pge-grc
[82] https://www.pge.com/content/dam/pge/docs/outages-and-safety/safety/pge-10k-undergrounding-program-city-county-maps-202307.pdf
[83] Pg. 295, CPUC Decision D. 23-11-069
[84] https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=58006&shareable=true
[85] CPUC Resolution SPD-15; March 7, 2024; https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M526/K984/526984185.pdf
[86] Pg. 54; CPUC's 2024 SB 695 Report; https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M526/K984/526984185.pdf
[87] Warner, C.; Callaway, D.; and Fowlie, M.; "Risk-Cost Tradeoffs in Power Sector Wildfire Prevention;" Energy Institute White Paper 347; February 2024; https://haas.berkeley.edu/wp-content/uploads/WP347.pdf

value, where fast-trip settings (like PG&E's Enhanced Powerline Safety Settings program)[88] are by far the most effective at delivering ignition reductions cost-effectively. The researchers also find reliability impacts for the fast-trip solution are very small relative to the costs of other alternatives. They also find IOU "enhanced vegetation management" as the least cost-effective option. In a post about the work, lead author Meredith Fowlie notes: "this suggests two choices. Eliminate an estimated 72% of risk along a circuit using operational measures [i.e., fast trip], or fully eliminate risk at a significantly higher cost with undergrounding."[89] It is unclear how utility 884 Plans, and OEIS and CPUC approval of those plans, will incorporate these latest findings. Most agree in the shared goal of a world where wildfire safety and reliability risks are eliminated at a much greater pace and at significantly lower cost, but it is unclear the place undergrounding will have: as one tool or as a "cornerstone" of the risk reduction.

Fiscal Landscape Outside of Rates. As the CPUC notes in their response to Governor Newsom's energy affordability Executive Order, "No matter the approach, the costs associated with hardening the electric grid to reduce the risk of utility-ignited wildfires are borne by ratepayers through increase in electricity rates. The most effective way to reduce the electricity bill impact is to fund these investments from a source other than ratepayers."[90] However, with over $5 billion per year over the last 5 years going to ratepayer-funded wildfire mitigation,[91] the obvious question remains: what other funding source could absorb such an expense?

As points of comparison, advocates for a "move-out-of-rates" approach may look at existing wildfire funding revenue streams. According to the Legislative Analyst's Office (LAO), Cal FIRE's wildfire resilience-related activities have grown over time, aided by significant augmentation in recent years. But the scale of this effort is roughly an order of magnitude removed from IOU spend: $140 million in 2016-2017 to $440 million in 2024-2025, with a rare, significant boost in 2023-2024 of $1.1 billion.[92] Ratepayer-funded costs would not be absorbable there, even with significant increases. The voter-approved Climate Bond, Proposition 4, dedicated $1.5 billion for a variety of activities related to wildfire and forest resilience,[93] far short of what might be helpful to offset rates. These considerations also ignore the very acute needs of forest treatment and community resilience that these funds support; activities that are significant priorities and can reduce overall IOU liability in the event of a catastrophic wildfire.

The Greenhouse Gas Reduction Fund (GGRF), the state account for cap-and-trade auction revenue, averages $4 billion in annual revenue; over 60% of which is continuously

[88] https://www.cpuc.ca.gov/industries-and-topics/wildfires/protective-equipment-device-settings
[89] *Fowlie, Meredith*. "Fighting Fires in the Power Sector" *Energy Institute Blog, UC Berkeley, February 20, 2024*, https://energyathaas.wordpress.com/2024/02/20/fighting-fires-in-the-power-sector/
[90] "CPUC Response to Executive Order N-5-24;" February 18, 2025. https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/reports/cpuc-response-to-executive-order-n-5-24.pdf
[91] Pg. 50; 2024 CPUC SB 695 Report; https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2024-sb-695-report.pdf
[92] LAO, "Frequently Asked Questions About Wildfires in California;" February 13, 2025; https://lao.ca.gov/Publications/Report/4952#How_has_state_spending_on_wildfire_resilience_changed_over_time.3F
[93] LAO, "The 2025-2026 Budget Proposition 4 Spending Plan:" February 12, 2025; https://lao.ca.gov/Publications/Report/4958

appropriated.[94] Assuming ratepayer-funded wildfire mitigation continues at the $5 billion per year level, as indications from SDG&E territory suggest,[95] the state would need to dedicate every penny of GGRF to IOU wildfire mitigation. Such an action would save ratepayers about $20/month, but lose every resource, transportation, and housing priority currently funded by GGRF.

Given this fiscal outlook, two options remain: 1) a surgical assessment of what should be "moved out of rates;" and/or 2) an evaluation of novel funding approaches that may better absorb these costs.

For the first point, it may be inaccurate or unfair to seek to move all $5 billion per year out of rates. Some of the IOU activities labeled as "wildfire" may serve additional purposes of increasing system reliability or upgrading capacity for new load. In fact, such multipurpose budgeting is highly favored, and would seem prudent for ratepayers to continue to cover those costs. However, parallel interest motivate these expenditures: providing statewide-benefits for risk reduction; providing ratepayer-benefit on improving reliability and safety of service; and providing shareholder- (and ultimately ratepayer-)benefit in reducing liability and demonstrating prudent manager behavior. It is unclear how the many costs that make up IOU wildfire spend may be grouped according to these categories; or whether such an exercise is even possible. Activities such as ratepayer-funded firefighting helicopters or the statewide weather monitoring and camera system may seem reasonable candidates to be moved out of rates, as they provide little in improving electricity delivery.

Such surgical solutions, however, would provide only modest relief on electric bills. Moreover, IOU regulators would need to thoroughly audit wildfire expenditures and recommend current ratepayer-funded activities as candidates for statewide fiscal support. The Committee is unaware of such an audit.

For the second, novel funding approaches could include the creation of avoided wildfire carbon credits or the establishment of a biomass economy to offset utility vegetation management costs, with the potential to leverage better fuels treatment coordination amongst interested parties, as mentioned above. Policymakers could also consider the establishment of a "rainy day fund" for emergencies such as wildfire, where surplus revenues in healthy budget years could be saved – without penalty from the Gann limit[96] – to be used for emergency response during disasters. Emergency restoration and response costs traditionally absorbed by ratepayers could be covered by such a fund. Enormous implementation and fiscal considerations, and the inherent tradeoffs, would need to be examined for any of these approaches to be seriously considered.

---

[94] LAO, "The 2025-2026 Budget Cap-and-Trade Expenditure Plan;" February 12, 2025; https://lao.ca.gov/Publications/Report/4960

[95] Pg. 35, CPUC; "Utility Costs and Affordability of the Grid of the Future: An Evaluation of Electric Costs, Rates, and Equity Issues pursuant to P.U. Code Section 913.1;" (i.e. 2021 SB 695 Report); https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2021/senate-bill-695-report-2021-and-en-banc-whitepaper_final_04302021.pdf

[96] Nicole Nixon, "How California budget rules can prevent saving for a rainy day – and why Newsom wants to change that;" *CapRadio*; January 22, 2024; https://www.capradio.org/articles/2024/01/22/how-california-budget-rules-can-prevent-saving-for-a-rainy-day-and-why-newsom-wants-to-change-that/

Conclusion. The cost of adapting to climate change and mitigating against wildfire risk is impacting consumer electricity prices over the last decade, and the effects are particularly acute for households with limited resources. These costs are likely to grow in the coming decade. Although cost of living concerns are front of mind for all Californians, unrestrained decreases to necessary wildfire expenditures is not an option. The Legislature and utility regulators should consider some opportunities for smarter spending:

- Identify efficiencies to existing processes, such as PG&E's 2023 vegetation management cost reduction of about $300 million achieved through bundling work by location instead of making several trips, and standardizing unit rate contracts. OEIS could examine WMPs to find such efficiencies, as well as implement better fuel-treatment coordination between IOUs and landowners, and – through their Dig Safe directorate – develop guidance for batching large-scale undergrounding projects.
- Incorporate the latest academic analysis[97] in order to prioritize risk-reduction measures with the greatest "cost per avoided ignition" value. Continuously scrutinize these metrics at both OEIS and the CPUC (RAMP/S-MAP).
- Consolidate as much wildfire spending into the GRC as possible. The Legislature may wish to consider removing provisions of statute that authorize specific accounts and exacerbate this issue.
- Conduct an honest assessment of what moving wildfire costs "out of rates" implies. Require the CPUC and PAO to categorize IOU wildfire costs according to what provides a statewide-benefit, a ratepayer-benefit, or both. Should the total "statewide-benefit" costs far exceed what may be absorbable in existing funding streams, the Legislature may wish to consider novel approaches to funding this work.

# # # # #

[97] Warner, C.; Callaway, D.; and Fowlie, M.; "Risk-Cost Tradeoffs in Power Sector Wildfire Prevention;" Energy Institute White Paper 347; February 2024; https://haas.berkeley.edu/wp-content/uploads/WP347.pdf