2023 Independent Evaluation of Sacramento Municipal Utility District's 2023-2025 Wildfire Mitigation Plan

Prepared for:

Sacramento Municipal Utility District

Submitted by:

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Executive Summary

Sacramento Municipal Utility District (SMUD) contracted with Guidehouse Inc. (Guidehouse) to engage in an independent evaluation of its Wildfire Mitigation Plan (Plan or WMP). This independent evaluation report (Report) describes the technical review and evaluation provided by Guidehouse. Guidehouse performed this evaluation in May 2023 and finalized the Report on May 30, 2023. Guidehouse's project team reviewed detailed information related to the Plan and assessed SMUD's procedures related to the Plan.

The Plan was prepared as a response to Senate Bill (SB) 901. SB 901 included a number of provisions and directives, among which includes the requirement for electric utilities to prepare and adopt WMPs and revise and update the Plan annually thereafter. These requirements are codified in the California Public Utilities Code (PUC) Section 8387 for publicly owned utilities (POUs).

Guidehouse evaluated the Plan based on the statutory requirements of PUC Section 8387 as it relates to POUs. This PUC Section was amended in 2019 with the signing of California's Assembly Bill (AB) 1054 into law. The POUs are now subject to the guidance provided by the California Wildfire Safety Advisory Board and mandatory cyclical reviews, including a comprehensive update every three years. The required elements for a WMP have not been modified by this new legislation. This Report meets SMUD's requirements under PUC Section 8387(c), which mandates an independent evaluation of SMUD's WMP. The Report was also developed to satisfy the statutory requirement for public review. This Report underlies the required presentation at a public meeting of the SMUD Board on June 14, 2023, for comments before and approval. The Report includes the following:

- Background of the legislative history requiring WMPs and their independent evaluations
- Approach and methodology evaluating the WMP's comprehensiveness
- SMUD's WMP elements and their compliance with SB 901 and PUC Section 8387 WMP elements and directives
- An evaluation of the WMP's presented metrics to assess the effectiveness of the overall WMP
- Determinations and results

Based on relevant experience in grid hardening and resiliency, natural disaster response, prior experience in WMP development, and active tracking of wildfire legislative and regulatory proceedings, Guidehouse has concluded that SMUD's WMP is comprehensive in accordance with PUC section 8387.

1. Background

In recent years, California has seen numerous utility equipment-involved, catastrophic wildfires. The unique geographic profile of California and the impacts of climate change, including prolonged drought, high winds, and elevated temperatures, have led to elongated fire seasons. The state also has historically high levels of past fire suppression efforts. This increasingly abundant dry vegetation is the leading driver of wildfires. These fuel-rich environments, coupled with intensified climatological conditions with high wind gusts and inherent electrical infrastructure risks, produce the conditions conducive to potential wildfire ignition. The three attributes that provide optimal conditions for a fire ignition are illustrated through the graphic in Figure 1-1.

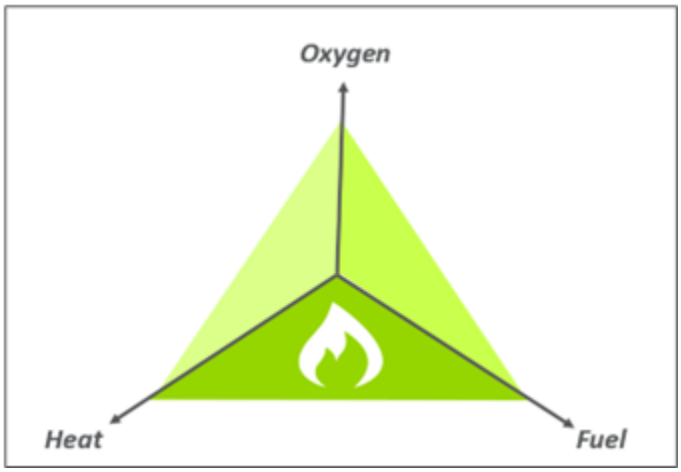

Figure 1-1 – Fire Triangle

Disastrous wildfire threat is a well-known and shared priority among electric utilities in California. Disastrous utility-involved wildfire incidents and the significant financial and livelihood impacts associated with them led California legislators and regulators to formalize requirements to ensure safe operations of electric utility equipment and greater investment in wildfire mitigation efforts. Specifically, the state has approved legislation that strengthens governmental and regulatory oversight of wildfire prevention implementation activities, utility wildfire mitigation plans, and proper dispersal of state funds to wildfire victims. In an effort to minimize future devastating occurrences through risk-driven wildfire prevention, electric utilities, including cooperatives, were mandated, by SB 901 (Senator Bill Dodd, 2018), to prepare and annually adopt a wildfire mitigation plan. This effort is foundational to the state's prioritized goal of minimizing the potential of devastating fires in future years.

1.1 Wildfire Mitigation Plans

1.1.1 SB 901

In an effort to minimize future devastating occurrences through risk-driven wildfire prevention, electric utilities, including publicly owned utilities (POUs), were mandated, by Senate Bill (SB) 901 to prepare and annually adopt a WMP. The WMPs must Include several mitigation and response elements in each utility's strategies, protocols, and programs. The requirements for POUs are codified in Public Utilities Code (PUC) Section 8387. Details relating to POU requirements are discussed in Section 2 of this WMP evaluation report (Report).

1.1.2 AB 1054 Statutory Modifications

In 2019, Assembly Bill (AB) 1054 was signed into law, modifying the requirements for POU WMPs. AB 1054 aims to mitigate the intensity of wildfire impacts through several initiatives separate from those actions required of electric utilities. AB 1054 includes directives to establish the Wildfire Safety Division[1] at the California Public Utilities Commission and the state's Wildfire Safety Advisory Board (WSAB). AB 1054 requires POUs submit their WMPs by July 1 of each year for review by and recommendations from WSAB and requires POUs to comprehensively update their WMPs at least every three years. The most recent *Guidance Advisory Opinion for 2022 POU WMPs* was published on March 2, 2022.

1.2 Sacramento Municipal Utility District Plan Preparation

SMUD is headquartered in Sacramento, California and owns and operates an electric system that has provided retail electric service since 1946. Its territory resides within a 900-mile area and it serves a population of about 1.5 million people. SMUD is a publicly owned utility that is governed by a seven-member popularly elected Board of Directors. SMUD owns a vertically integrated electric system which includes generation, transmission, and distribution facilities.

SMUD prepared its first WMP pursuant to SB 901 directives in 2019. In 2019, SMUD conducted extensive stakeholder outreach during its preparation of the initial WMP including meeting with local fire agencies and fire safe councils, Office of Emergency Services, and healthcare organizations. In addition, SMUD invited federal, state, and local agencies, representatives of utilities, telecommunication providers, and critical care customers to attend stakeholder outreach meetings where information regarding the preparation and contents of the WMP were provided. Updates to the plan are presented to and adopted by the Board at a noticed public meeting annually.

1.2.1 Independent Evaluation Services

PUC Section 8387(c) directs POUs to procure an independent evaluation (IE) of the comprehensiveness of the WMP. The provisions of PUC Section 8387 state that the "qualified independent evaluator" shall be experienced in "assessing the safe operation of electrical infrastructure" and will perform an assessment to determine the comprehensiveness of the WMP.

Accordingly, SMUD sought IE services to assess the comprehensiveness of its WMP pursuant to PUC Section 8387(c). SMUD selected Guidehouse to perform this assessment based on Guidehouse's prior experience with assessing the safe operation of electrical infrastructure, including grid-hardening and WMPs, with an emphasis on electrical equipment, public, and personnel safety. Guidehouse has conducted over 12 independent evaluations of POUs across California and is a California Office of Energy Infrastructure Safety ("Energy Safety") designated qualified independent evaluator for the last two years, and as such has conducted six independent evaluations of three CA IOUs.

This Report presents the results of Guidehouse's WMP IE.

[1] Oversight and responsibility for the Wildfire Safety Division was transferred from the California Public Utilities Commission to the California Natural Resources Agency on July 1, 2021 and is now known as the Office of Energy Infrastructure Safety.

2. Evaluation Scope and Approach

Guidehouse completed this evaluation based on industry standard practices, our experience performing independent evaluations of WMPs, our active tracking of wildfire regulatory proceedings, WSAB guidance, and, most importantly, a comparison of the specific criteria in PUC Section 8387(b)(2) to the specific wildfire-related plans outlined in SMUD's WMP.

2.1 Evaluation Parameters

2.1.1 WMP Requirements

Table 2-1 lists the requirements for the statutory requirements for POUs to address in their WMPs.

Table 2-1 – POU Requirements

PUC Section 8387
(a) Each local publicly owned electric utility and electrical cooperative shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment.
(b) (1) The local publicly owned electric utility or electrical cooperative shall, before January 1, 2020, prepare a wildfire mitigation plan. After January 1, 2020, a local publicly owned electric utility or electrical cooperative shall prepare a wildfire mitigation plan annually and shall submit the plan to the California Wildfire Safety Advisory Board on or before July 1 of that calendar year. Each local publicly owned electric utility and electrical cooperative shall update its plan annually and submit the update to the California Wildfire Safety Advisory Board by July 1 of each year. At least once every three years, the submission shall be a comprehensive revision of the plan.
(2) The wildfire mitigation plan shall consider as necessary, at minimum, all of the following:
(A) An accounting of the responsibilities of persons responsible for executing the plan.
(B) The objectives of the wildfire mitigation plan.
(C) A description of the preventive strategies and programs to be adopted by the local publicly owned electric utility or electrical cooperative to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.
(D) A description of the metrics the local publicly owned electric utility or electrical cooperative plans to use to evaluate the wildfire mitigation plan's performance and the assumptions that underlie the use of those metrics.
(E) A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.
(F) Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure.
(G) Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. The procedures shall consider the need to notify, as a priority, critical first responders, health care facilities, and operators of telecommunications infrastructure.
(H) Plans for vegetation management.
(I) Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.

(J) A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service territory. The list shall include, but not be limited to, both of the following:
(i) Risks and risk drivers associated with design, construction, operation, and maintenance of the local publicly owned electric utility's or electrical cooperative's equipment and facilities.
(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.
(K) Identification of any geographic area in the local publicly owned electric utility's or electrical cooperative's service territory that is a higher wildfire threat than is identified in a commission fire threat map, and identification of where the commission should expand a high fire-threat district based on new information or changes to the environment.
(L) A methodology for identifying and presenting enterprise wide safety risk and wildfire-related risk.
(M) A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.
(N) A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following:
(i) Monitor and audit the implementation of the wildfire mitigation plan.
(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation, and correct those deficiencies.
(iii) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, that are carried out under the plan, other applicable statutes, or commission rules.
(3) The local publicly owned electric utility or electrical cooperative shall, on or before January 1, 2020, and not less than annually thereafter, present its wildfire mitigation plan in an appropriately noticed public meeting. The local publicly owned electric utility or electrical cooperative shall accept comments on its wildfire mitigation plan from the public, other local and state agencies, and interested parties, and shall verify that the wildfire mitigation plan complies with all applicable rules, regulations, and standards, as appropriate.
(c) The local publicly owned electric utility or electrical cooperative shall contract with a qualified independent evaluator with experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of its wildfire mitigation plan. The independent evaluator shall issue a report that shall be made available on the internet website of the local publicly owned electric utility or electrical cooperative, and shall present the report at a public meeting of the local publicly owned electric utility's or electrical cooperative's governing board.

2.1.2 Industry Knowledge and Regulatory Proceedings

The state's priority towards abating future catastrophic wildfire events is demonstrated through aggressive measures, directing utilities to enhance their protocols for fire prevention, public communications, and response. That collection of information is presented in a comprehensive WMP. Guidehouse tracks state proceedings and routinely advises, assesses, and guides utility wildfire mitigation efforts. Accordingly, we reviewed SMUD's WMP against the provisions in PUC § 8387 and relative to its risk profile which includes, but is not limited to, its topography, climate, assets, and structure.

2.2 Evaluation Approach

Guidehouse assessed the comprehensiveness of the plan against the applicable regulations to determine whether SMUD meets the standard set forth in PUC § 8387(c).

2.2.1 Statutory Compliance

Guidehouse sought to determine compliance with the provisional requirements laid out in SB901 as codified in PUC Section 8387. The WMP's alignment with the statutory requirement is presented in Appendix A. SMUD's mitigation measures are not required to exceed the statutory requirements.

2.2.2 Industry Wildfire Mitigation Practices Comparison

Guidehouse's understanding of an effective WMP draws on comparisons from existing WMPs and industry practices, WSAB guidance, risk profile, and mitigation strategy. This mitigation strategy analysis is visually summarized in Figure 2-1.

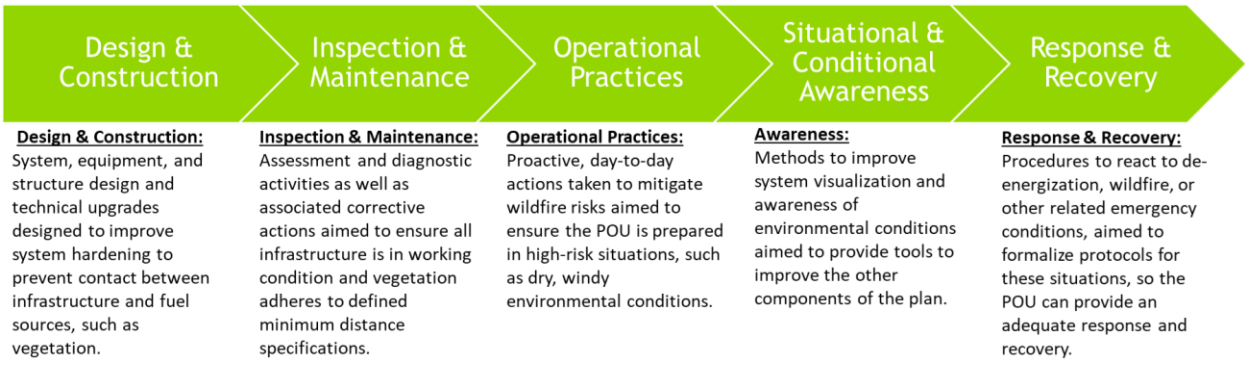

Figure 2-1 – Mitigation Strategy Overview

These critical elements are evaluated as part of Guidehouse's review of the comprehensiveness of SMUD's WMP. This evaluation includes a consideration that not all of these strategies are necessarily present in or applicable to SMUD's WMP, due to SMUD's inherent risk, size, location, and operational characteristics.

3. SMUD WMP Elements

Guidehouse reviewed the WMP elements and determined whether the activities achieve the objective of WMP "comprehensiveness" of PUC Section 8387. This determination incorporates individual elements as well as underlying data sources that further describe data collection methodologies and implementation procedures to ensure measures are carried out and also tracked.

Guidehouse determined SMUD's WMP meets the requirement of comprehensiveness in PUC Section 8387. In this section, we review the WMP's elements and their purpose relative to the development and successful execution of the WMP. A table comparing each subsection of PUC Section 8387 to the significant sections of the WMP can be found in Appendix A.

3.1 Responsibilities of Persons Responsible for Executing the Plan[2]

Section 2.5 states that SMUD's Chief Operating Officer and Chief Customer Officer are responsible for executing the various components of the WMP. The table below is in Section 2.5.1 and lists the Director within SMUD with responsibility for the department or workgroup that are accountable for the listed components of SMUD's WMP.

Table 3-1 – Accountability for the SMUD WMP components

Mitigation Activities	Responsible Department and Workgroup
Risk analysis	Director, Treasury Operations & Risk Management
Fire threat assessment in service area and UARP	Director, Distribution Planning & Operations
Wildfire prevention strategy and programs	
- Disable automatic reclosing - Planned de-energizations	Director, Transmission Planning & Operations, Director, Distribution Planning & Operations
- T&D line patrols - Aerial patrols - 69kV & Transmission line IR inspections - Wood pole intrusive inspection - Splice assessment - Detailed line inspections	Director, Line Assets
- Substation visual inspections	Director, Substation, Telecom & Metering Assets
- Vegetation management - Pole clearing program	Director, Line Assets
Fire mitigation construction	
- Natural Ester-based fluid - Cal FIRE exempt equipment in PCA	Director, Distribution Planning & Operations
- Weather stations	Director, Transmission Planning & Operations

[2] PUC Section 8387(2)(A)

Enhancement projects	
- Install SCADA reclosers in PCA	Director, Distribution Planning & Operations Director, Line Assets
Pilot projects	
- Light Detection and Ranging and Ortho Imagery	Director, Line Assets
Emergency preparedness	
- SMUD Emergency Operations Centers	Director, Facilities, Security & IPPS
- Public and agency communications for wildfires	Director, Customer Operations & Community Energy Services, Director, Customer Experience Delivery, Director, Corporate Communications

3.2 Objectives of the Plan[3]

The primary objectives of this WMP, are described in Section 2.4 of the WMP and include:

1. Minimize the probability that SMUD's transmission and Distribution system may be the origin or contributing source for the ignition of the wildfire
2. Implement a wildfire mitigation plan that embraces safety, prevention, mitigation and recovery as a central priority for SMUD
3. Create a WMP that is consistent with state law and objectives.

3.3 Wildfire Prevention Strategies[4]

Section 3 provides an overview of SMUD's preventative strategies and programs to minimize the risk of electrical lines and equipment causing a catastrophic wildfire. Table 4 of the WMP provides a summary of SMUD's programs and activities that support wildfire prevention and mitigation.

The five major categories included in Table 4 of the WMP are:

- Design and construction
- Inspection and maintenance
- Operational practice
- Situational/conditional awareness
- Response and recovery

These categories are elaborated on in detail in Sections 6, 7, and 8 of the WMP. Guidehouse agrees with the WSAB that SMUD has "exemplary description of comprehensive wildfire mitigation strategies in their 2022 WMP".

[3] PUC Section 8387(2)(B)
[4] PUC Section 8387(2)(C)

3.4 Metrics[5]

SMUD describes several metrics to assess the performance of the WMP and its effectiveness in reducing catastrophic wildfire in Section 9. These metrics are tied to more granular and specific maintenance activities that SMUD has determined are more closely tied to WMP performance. The types of metrics include Key Performance Indicators (KPIs) which measure inspection program performance, grid condition findings, drivers of ignition, project completion and community outreach programs. These are defined in Tables 8, 9, 10, 11 and 12 of the WMP.

The WMP also discusses the process used by SMUD to identify and establish metrics and benchmarks to minimize risk of wildfire ignition from SMUD assets at the transmission and distribution level. The WMP also discusses the process to determine realistic percentage reduction targets against the determined benchmarks.

Guidehouse agrees with the WSAB that SMUD's metrics are an excellent selection of comprehensive tracking metrics to assess progress on mitigation of wildfire risks.

3.5 Disabling Reclosers[6]

Sections 6.1.1 and 6.2.1 detail the procedures for operations of reclosers. According to the WMP, SMUD changes their distribution recloser operations during fire season which it defines as May 1 to October 1 or any time RFW is in effect for areas inside of or surrounding the Pole Clearing Ares (PCA). During this time, SMUD disables automatic reclosing on certain substations and line reclosers extending into the PCA. In cases where automatic reclosing cannot be disabled, line reclosers will be bypassed and fuses at the end of the line will provide protection. SMUD recognizes that with climate change, the dry summer season extends further into the year, and as a result, SMUD disables reclosing until the first major rain event within the service territory following the end of the summer period. In addition, reclosing on the transmission system is disabled throughout the entire year.

3.6 De-Energizing Protocols[7]

Section 6.1.2 details the planned de-energization during fire season for SMUD's distribution system. SMUD's Distribution System Operations (DSO) personnel have the authority to de-energize select distribution circuits in the PCA. DSO relies on weather data from various sources and SMUD's internal Energy Management System to make this determination. SMUD includes a list of triggers for de-energization for PCA circuits in their WMP.

Section 6.2.2 describes planned de-energization for SMUD's transmission grid. SMUD's Power System Operators (PSO) have the authority to de-energize portions or all the Valley and UARP transmission line(s) for safety, reliability, conditions beyond design criteria, threat of wildfires and during emergency conditions when requested by local law enforcement or fire officials. The PSO will take a combination of many factors into consideration when implementing de-energization procedures, which include triggers listed in Section 6.2.2. The PSO also utilizes

[5] PUC Section 8387(2)(D) and PUC Section 8387(2)(E)
[6] PUC Section 8387(2)(F)
[7] PUC Section 8387(2)(F)

operational and situational awareness tools to determine if de-energization is appropriate that are also included in Section 6.2.2.

3.7 Event Communication[8]

Section 7.2 of the WMP describes event communication. The WMP states that SMUD will communicate to key stakeholders such as impacted federal, state, and local officials, City and County executive staff, tribal representatives, and first responders through a variety of channels. SMUD has specific personnel for each specific stakeholder and critical customers potentially affected by a de-energization event.

Section 7.2.1 describes communication to customers for a de-energization event. The WMP states that SMUD will send automated pre-recorded phone call to customers in the impacted areas which directs them to SMUD's website for up-to-date information.

3.8 Vegetation Management[9]

Section 6.4 of the WMP details SMUD's Vegetation Management (VM) plan which takes place on the transmission and distribution system in the Valley and the UARP. The section describes how SMUD's program meets federal and state regulations including Public Resources Codes section 4292 and 4293 and the North American Electric Reliability Corporation's FAC-003-5 Transmission Vegetation Management reliability standard. The program also incorporates the standards in CPUC GO 95 Rule 35. In the PCA, poles with non-exempt equipment have annual vegetation clearing and/or pruning within a 10-foot radius in compliance with PRC 4292 prior to the start of fire season.

On the distribution system, SMUD conducts time-based trimming on one-, two- or three-year intervals using ground-based inspections. These are described in Section 6.4.1. SMUD uses a contractor to complete identified vegetation work and utilizes a 15-foot clearance on areas within SMUD's service area and 30+ feet of clearance in the HFTD tiers 2 and 3 at the time of tree work.

On the transmission system, SMUD conducts annual ground-based field patrols which are described in section 6.4.2. These patrols are traditional, ground-based inspections of tree and conductor clearance as well as hazard tree identification. Once identified, contractors will complete the VM planners' scope of work to achieve safety clearance. SMUD also complete two annual aerial patrols in El Dorado County to address ongoing challenge of tree mortality due to drought and insects.

3.9 Infrastructure Inspections[10]

Section 6.3 contains SMUD's infrastructure inspections and maintenance information. The WMP describes inspection practices for both transmission and distribution level circuits. The section states that SMUD's transmission lines are grouped into two inspection areas. These are the UARP region which is all lines east of Folsom to the hydroelectric facilities in the Sierra and the Valley region which contains all transmission lines in SMUD's service territory. Sections 6.3.1.1

[8] PUC Section 8387(2)(G)
[9] PUC Section 8387(2)(H)
[10] PUC Section 8387(2)(I)

through 6.3.1.4 of SMUD's WMP describe various types of transmission inspections which include aerial patrols, ground patrols, infrared (IR) inspections and wood pole intrusive inspections. Aerial patrols are performed in helicopters once per year in the Valley area and twice per year in the UARP. Ground patrols are performed by either walking or driving and occasionally include IR inspections. These occur once per year in UARP and once per two years in the Valley area. IR inspections are performed as part of one of the helicopter patrols. In these inspections an IR camera is used to identify hot spots on the transmission equipment. These occur annually on the UARP and every two years in the Valley. Wood pole intrusive inspections are performed using more sophisticated diagnostic tools and include taking a sample for analysis. These occur at a minimum cycle of once per 10 years and a maximum cycle of once per 14 years.

Distribution line inspections are described in Section 6.3.2. The distribution line inspections include detailed line inspections, line patrols, 69kV and pole clearing area 12kV IR inspections, wood pole intrusive inspections. Detailed line inspections are performed by walking and driving down distribution circuits. Each pole is part of a detailed visual inspection to check for damage and condition of equipment. These occur every five years on all overhead and pad mounted equipment and once per three years on underground equipment. Line patrols occur annually on all distribution lines and equipment and check for any obvious signs of defects, vegetation clearance issues or damage to equipment. 69kV and pole clearing area 12kV IR inspections are performed via helicopter using an IR camera. These inspections are performed every other year in the Valley area. Wood pole intrusive inspections follow the same criteria as transmission poles. As stated above, these are performed once per 10 to 14 years.

3.10 Risk Assessment and Drivers[11]

Section 4 of SMUD's WMP describes SMUD's risk assessment process and risk drivers. SMUD utilizes its existing ERM framework which considers both quantitative and qualitative factors to determine inherent and residual risk. When performing risk evaluation, SMUD's Enterprise Risk Oversight Committee oversees the process which is made up of a five-step process:

1. Identify
2. Analyze
3. Plan and Evaluate
4. Respond
5. Monitor and review

These steps were performed to during the risk assessment process for wildfire events. During the process, SMUD consulted subject matter experts to aid in developing key risk drivers and impacts for the WMP. From this process, SMUD determined four categories for potential fire risk drivers that could cause powerline sparks and ignitions. SMUD's WMP details these four drivers in Sections 4.2.1.1 through 4.2.1.4. The WMP identifies common and specific examples of risk drivers in each of the four categories. The four categories are:

- Contact from objects
- Equipment/facility failure
- Wire-to-wire contact/contamination

[11] PUC Section 8387(2)(J)(i); PUC Section 8387(2)(J)(ii); PUC Section 8387(2)(L)

- Other

In addition to identifying key risk drivers, the WMP also details SMUD's efforts to reduce risk of powerline ignition and improve the company's response to wildfire events. In Section 4.6, the WMP discusses actions taken since the plan's inception aimed at reducing risk of powerline ignitions. Examples in the WMP include undergrounding of 4kV lines, installing remote de-energization of 4kV lines, and a pilot program for taking drone photos of all transmission structures in the UARP. On top of these risk reduction efforts, SMUD performs regular tabletop exercises to test, analyze and enhance the current level of SMUD's internal and external coordination and expertise in responding to potential wildfire threats. The tabletop exercises' operational objectives are developed to evaluate SMUD's core response capabilities in three specific areas: (1) wildfire preparedness/mitigation, (2) emergency notification and response, and (3) short-term recovery operations and procedures. These exercises include external stakeholders such as local fire, law enforcement and emergency services serving communities.

3.11 Asset Overview and Service Territory[12]

Section 5 contains SMUD's asset threat overview. This section contains a description of asset categories and an inventory of SMUD's transmission and distribution assets in CPUC HFTD tiers and assets outside of tiered areas. There is a total of 89 circuit miles of overhead transmission in Tier 2 and 55 circuit miles of overhead transmission in Tier 3. This makes up 19% and 12% of the total overhead transmission circuit miles respectively. SMUD included the table below which shows the breakdown of assets by tier area and voltage.

Table 3-2 – Breakdown of SMUD's 2022 electrical assets within Tier 2 and Tier 3 HFTD

Asset	Total	Outside HFTD		Tier 2		Tier 3	
	Circuit-miles	Circuit-miles	%	Circuit-miles	%	Circuit-miles	%
Total OH transmission	470	326	69%	89	19%	55	12%
12 & 21 kV (Generation tie lines)	<1	<1	0	0	0	<1	<1%
69 kV	38	7	18%	31	81%	0	0%
115 kV	51	51	100%	0	0%	0	0%
230 kV	381	268	70%	58	15%	55	14%
Total OH distribution	3868	3867	100%	<1	<1%	0	0
Total OH T&D circuit-miles	4338	4194	97%	89	2%	55	1%
	Total No.	Outside HFTD		Tier 2		Tier 3	
Total load serving substations	243	243	100%	0	0%	0	0%

In Section 5.3, SMUD describes the "UARP" area which includes the hydroelectric project known as UARP and multiple switchyards which are connected via 69kV and 230kV lines which

[12] PUC Section 8387(2)(K)

traverse through the Sierra Nevada Mountain Range and the CPUC's HFTD Tier 2 and Tier 3 areas. This area is especially susceptible to wildfires due to regional climate that facilitates regular drought conditions, the natural plant communities that produce excess fuel, and the natural and anthropogenic ignition sources. Operation of SMUD's facilities in the UARP have never been associated with the ignition of a wildfire. Figure 3-1 was included in the WMP and shows the UARP area where all SMUD's Tier 2 and Tier 3 assets are located.

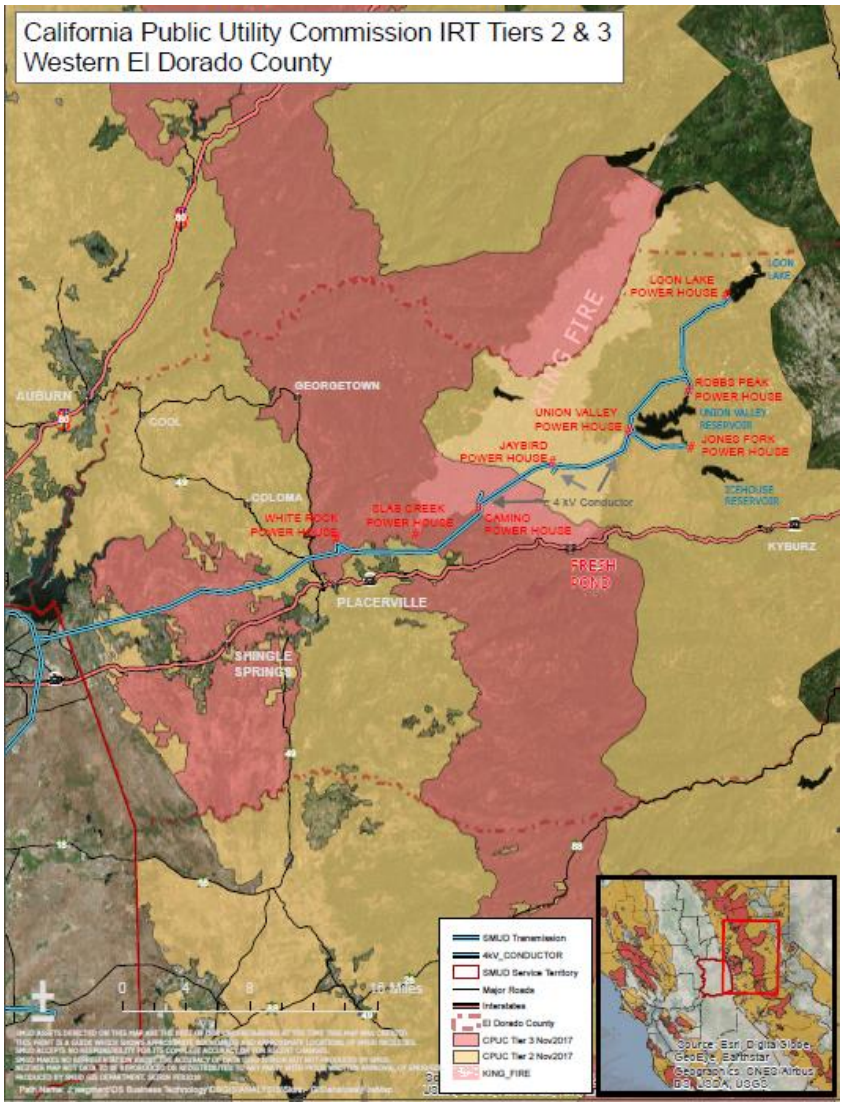

Figure 3-1 – UC Tier 2 and Tier 3 areas for SMUD's UARP

In Section 2, the WMP contains an overview of SMUD's service territory and the map shown below.

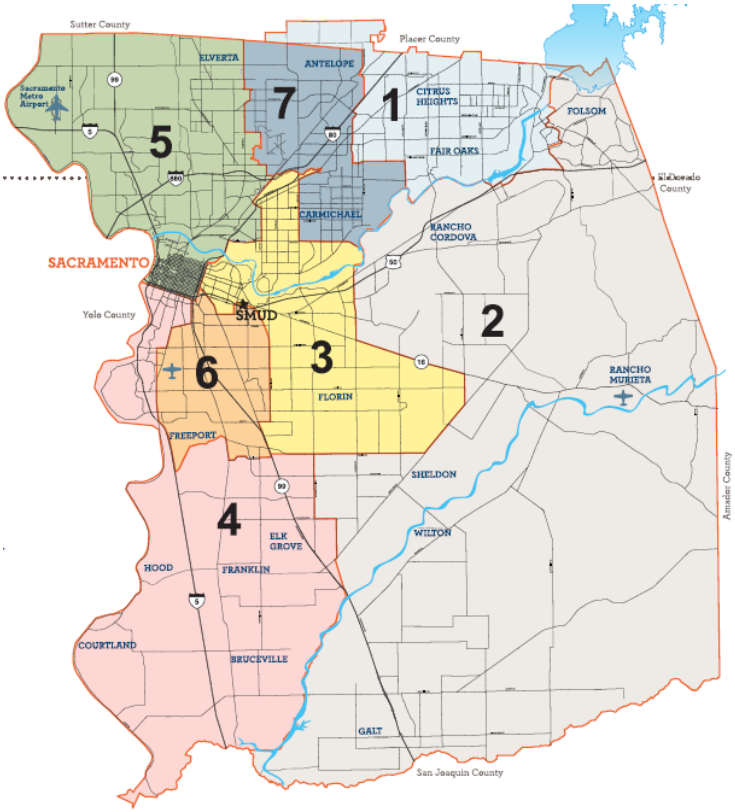

Figure 3-2 – Map of SMUD's Service Area

3.12 Restoration[13]

Section 8.1 describes restoration of service for SMUD if lines are de-energized in anticipation of a wildfire threat. In order to restore service, SMUD troubleshooters and patrollers must follow the following steps: 1) Patrol, 2) Repair, 3) Test and 4) Restore. During the patrol step, SMUD crews check the line for any obvious damage or vegetation in lines that may prevent safe energization. For the repair step, crews are dispatched to repair or replace any damage found on equipment on a circuit. Vegetation management crews may be called in to clear an area as well. In the test step, crews test the circuit by closing the fuse or breaker to re-energize the line segment. In the restore step, power is restored, and the outage management system provides notification of power restoration to customers.

Section 8.2 includes information on restoration of service after a wildfire event that causes damage to the system. If infrastructure is damaged during a wildfire event and reconstruction of a line or circuit is required, a more comprehensive restoration process is needed. This process consists of the following steps: 1) Assessment, 2) Planning, 3) Mobilize, 4) Rebuild and 5) Restore. Throughout the process, local agencies in charge of the fire are worked with to access areas impacted in a safe manner. During the assessment, crews patrol each line segment to determine the extent of damage that has occurred and the actions and personal protective equipment requirements for crew. VM crews assess vegetation damage. In the planning step, SMUD personnel including supervisors, managers and engineers meet and plan the restoration. During the mobilize stage, SMUD coordinates labor and material to perform the reconstruction

[13] PUC Section 8387(2)(M)

work. The next step is rebuild. In this step, lines are rebuilt with a mix of temporary and permanent structures. This step is highly dependent on the extent of the damage. Finally, the restore step takes place. SMUD will restore services to customers as soon as possible in this step.

3.13 Monitoring and Auditing the Plan[14]

Section 9.2 describes the monitoring and auditing of the WMP. This audit will align with SMUD's existing business planning process. SMUD's business planning process includes budgeting and strategic planning for a three-to-five-year planning horizon.

3.14 Annual Review[15]

Section 9.2 states that SMUD's WMP is reviewed annually. This review includes an assessment of the WMP programs and performance.

[14] PUC Section 8387(2)(N)(i) and PUC Section 8387(2)(N)(ii)
[15] PUC Section 8387(2)(N)(iii)

4. Results and Discussion

Guidehouse finalized this assessment on May 30, 2023. Over the course of reviewing SMUD's WMP, discussions with SMUD staff, and review of supporting documentation, Guidehouse captured takeaways and findings that align the WMP with state laws and effective wildfire measure demonstration for a utility of SMUD's size and risk profile. SMUD's WMP appropriately responds to each of the required elements of PUC Section 8387, which is detailed in Appendix A. The following describes the assessment and resulting findings of the WMP's proposed and established mitigation measures as it applies to safe, reliable operation of all electric infrastructure and wildfire prevention and response.

Report Conclusions

After internal review of the latest version of the WMP and associated data collection products, Guidehouse concludes this Report with the following:

- SMUD's WMP aligns appropriately with PUC Section 8387 and includes all required elements.[16]

- SMUD's WMP is comprehensive as described through this Report in accordance with PUC Section 8387.

[16] Following acceptance of this Report, SMUD will post the Report and results online for public view. The Report is scheduled for presentation to the City Council at a public meeting in June 2023. Accomplishing these follow-up tasks will meet all required statutory provisions up until presenting the final WMP to the SMUD Board.

Appendix A. Statutory Compliance Matrix

Required Statutory Element	Plan Section Reference(s)	SMUD Plan Elements *(Summarized)*	Meets Section Elements *(Determination)*
(a) Each local publicly owned electric utility and electrical cooperative shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment.			
(b) (1) The local publicly owned electric utility or electrical cooperative shall, before January 1, 2020, prepare a wildfire mitigation plan. After January 1, 2020, a local publicly owned electric utility or electrical cooperative shall prepare a wildfire mitigation plan annually and shall submit the plan to the California Wildfire Safety Advisory Board on or before July 1 of that calendar year. Each local publicly owned electric utility and electrical cooperative shall update its plan annually and submit the update to the California Wildfire Safety Advisory Board by July 1 of each year. At least once every three years, the submission shall be a comprehensive revision of the plan.			
(2) The wildfire mitigation plan shall consider as necessary, at minimum, all of the following:			
(A) An accounting of the responsibilities of persons responsible for executing the plan.	**Section 2.5**	SMUD has Accountability of the plan section in its plan with descriptions of the roles of SMUD's Chief Operating Officer, Chief Customer Officer, and others responsible for executing the various components of the WMP	**Yes**

(B) The objectives of the wildfire mitigation plan.	**Section 2.4**	SMUD has clearly stated objectives in its plan. (1) Minimize the probability that SMUD's transmission and Distribution system may be the origin or contributing source for the ignition of the wildfire. (2) Implement a wildfire mitigation plan that embraces safety, prevention, mitigation, and recovery as a central priority for SMUD. (3) Create a WMP that is consistent with state law and objectives.	**Yes**
(C) A description of the preventive strategies and programs to be adopted by the local publicly owned electric utility or electrical cooperative to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.	**Sections 3, 6, 7 and 8**	Section 3 provides an overview and Sections 6, 7, and 8 provide a detailed description of SMUD's preventative strategies with specific subsections on design and construction, inspection and maintenance (including vegetation management) operational practices, and situational/conditional awareness.	**Yes**
(D) A description of the metrics the local publicly owned electric utility or electrical cooperative plans to use to evaluate the wildfire mitigation plan's performance and the assumptions that underlie the use of those metrics.	**Section 9**	SMUD describes several metrics to assess the performance of the WMP and its effectiveness in reducing catastrophic wildfire in Section 9. These metrics tied to more granular and specific maintenance activities that SMUD has determined are more closely tied to WMP performance.	**Yes**
(E) A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.	**Section 9**	SMUD tracks KPIs which measure inspection program performance, grid condition findings, drivers of ignition, project completion and community outreach programs. These are used to inform the plan and determine realistic percentage reduction targets against the determined benchmarks.	**Yes**
(F) Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure.	**Sections 6.1.1, 6.1.2, 6.2.1, and 6.2.2**	Section 6.1.1 and 6.2.1 discuss disabling reclosers. According to the WMP, SMUD changes their operation during fire season which is defined as May 1 to October 1 or any time RFW is in effect for areas inside of or surrounding the PCA. SMUD also disables reclosing for all transmission lines in the valley and UARP. Section 6.1.2 and 6.2.2 of the WMP discusses de-energizing protocols for SMUD. Distribution System Operations (DSO) personnel have the authority to de-energize select distribution circuits and utilize weather data and SMUD's EMS to make the determination to de-energize. Similarly, the Power System Operators (PSOs) have authority to de-energize transmission lines due to fire danger conditions which exceed design criteria.	**Yes**

(G) Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. The procedures shall consider the need to notify, as a priority, critical first responders, health care facilities, and operators of telecommunications infrastructure.	**Section 7.2**	Section 7.2 of the WMP describes event communication. The WMP states that SMUD will communicate to key stakeholders such as impacted federal, state and local officials, City and County executive staff, tribe representatives and first responders through a variety of channels with stakeholder specific assigned personnel.	**Yes**
(H) Plans for vegetation management.	**Section 6.4**	SMUD details the vegetation management program in Section 6.4. It describes procedures for both transmission and distribution circuits as well as circuits located in HFTD Tiers 2 and 3.	**Yes**
(I) Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.	**Section 6.3**	SMUD describes its inspection process in the WMP for two areas – the UARP area and Valley area. SMUD uses a combination of ground and aerial inspections to patrol lines.	**Yes**
(J) A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service territory. The list shall include, but not be limited to, both of the following:	**Section 4**	SMUD's WMP includes a thorough assessment of risk and risk drivers as well as the process which risk is assessed for those drivers.	**Yes**
(i) Risks and risk drivers associated with design, construction, operation, and maintenance of the local publicly owned electric utility's or electrical cooperative's equipment and facilities.	**Section 4.2.1**	SMUD identifies four categories of risk drivers and details their potential impacts within the WMP.	**Yes**
(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.	**Section 4 & 5**	SMUD discusses particular risks associated with topographical and climatological risk factors throughout Section 4.2 and describes topographical risks associated with the UARP and Sierra Nevada mountains in Section 5.	**Yes**

(K) Identification of any geographic area in the local publicly owned electric utility's or electrical cooperative's service territory that is a higher wildfire threat than is identified in a commission fire threat map, and identification of where the commission should expand a high fire-threat district based on new information or changes to the environment.	**Section 5, 5.1, and 5.2**	Sections 5, 5.1, and 5.2 of the WMP contains SMUD's asset threat overview. These sections contain a description of asset categories and an inventory of SMUD's transmission and distribution assets in CPUC HFTD tiers and assets outside of tiered areas.	**Yes**
(L) A methodology for identifying and presenting enterprise wide safety risk and wildfire-related risk.	**Section 4.2**	SMUD includes a five-part process to evaluate its risk. (1) Identify, (2) Analyze, (3) Plan & Evaluate, (4) Respond and (5) Monitor & Review. The WMP also includes a bowtie risk assessment for key risk drivers and key risk impacts for wildfire related risk.	**Yes**
(M) A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.	**Section 8.1 and 8.2**	SMUD WMP provides a statement of how it plans to restore service after a wildfire, including a discussion of efforts to inspect the condition of the system prior to energization and restoration after a wildfire event that causes major damage to the system.	**Yes**
(N) A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following:			
(i) Monitor and audit the implementation of the wildfire mitigation plan.	**Section 9.2**	SMUD will audit the plan annually in alignment with SMUD's existing business planning process.	**Yes**
(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation, and correct those deficiencies.	**Section 9.2**	SMUD has stated that deficiencies identified should be corrected as they are found by the COO.	**Yes**
(iii) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, that are carried out under the plan, other applicable statutes, or commission rules.	**Section 9.2.3**	SMUD monitors and audits effectiveness of electrical line and equipment inspections. This process is described for distribution line inspections and vegetation management audits in Section 9.2.3.	**Yes**

(3) The local publicly owned electric utility or electrical cooperative shall, on or before January 1, 2020, and not less than annually thereafter, present its wildfire mitigation plan in an appropriately noticed public meeting. The local publicly owned electric utility or electrical cooperative shall accept comments on its wildfire mitigation plan from the public, other local and state agencies, and interested parties, and shall verify that the wildfire mitigation plan complies with all applicable rules, regulations, and standards, as appropriate.	**Section 2.6**	SMUD will present its WMP to the City Council at a public annually, following public posting and opportunities for public comment.	**Yes**
(c) The local publicly owned electric utility or electrical cooperative shall contract with a qualified independent evaluator with experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of its wildfire mitigation plan. The independent evaluator shall issue a report that shall be made available on the internet website of the local publicly owned electric utility or electrical cooperative, and shall present the report at a public meeting of the local publicly owned electric utility's or electrical cooperative's governing board.	**Section 2.6.3**	SMUD contracted with Guidehouse Consulting, Inc. to perform an independent evaluation of its WMP. Qualifications are described in Section 1.	**Yes**