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Subject: Independent Evaluation Report of Silicon Valley Power Wildfire Mitigation Plan

1 Introduction

Silicon Valley Power (SVP) contracted with Dudek to engage in an independent evaluation of its Wildfire Mitigation Plan (WMP). This independent evaluation report (Report) describes the technical review and evaluation of the WMP prepared by Dudek, performed in November 2021 and in March 2022, and completed on August 22, 2022.

Dudek conducted an evaluation of Silicon Valley Power's WMP, as required under California Public Utilities Code (PUC) §8387(b). PUC §8387(b), as modified by Senate Bill (SB) 901, and the Administrative Law Judge's Ruling issued on January 17, 2019 in California Public Utilities Commission (CPUC) Docket No. R.18-10-007 (ALJ Ruling), applies to publicly owned electric utilities and required preparation of a WMP before January 1, 2020, and revising/updating the WMP in 2020 and annually thereafter.

The WMP requirements are codified in PUC §8387(b)(2) for local publicly owned electric utilities (POUs). PUC §8387(c) requires that an independent evaluator review and assess the comprehensiveness of a POU's WMP and issue a summary report.

Dudek conducted the initial review of SVP's WMP and provided recommendations for clarifications/modifications on November 3, 2021. The focus of the evaluation was to determine whether the WMP included all elements required under PUC §8387(b)(2) (listed in Attachment A). The first evaluation determined that the SVP's 2021 Wildfire Mitigation Plan did not include all the PUC §8387(b)(2) requirements. Dudek supplied recommendations to SVP staff on the missing elements in their WMP in a report sent to SVP in November 2021. Follow up calls and emails were exchanged from March 2022 to July 2022 which included discussions of the elements identified by Dudek. In August 2022, Silicon Valley Power staff provided a copy of their revised WMP for Dudek to review and the revised WMP was determined to meet the PUC §8387(b)(2) requirements.

In addition to evaluating the elements required by the Public Utility Code, Dudek evaluated the WMP for compliance with the Wildfire Safety Advisory Board (WSAB) Publicly Owned Utilities (POUs) WMP guidance recommendations and to address any deficiencies in the WSAB review of the WMP that was published in their February 2022 Guidance Advisory Opinion for the 2022 Wildfire Mitigation Plans of Electric Publicly Owned Utilities and Rural Electric Cooperatives. Following updates, the WMP was found to meet the recommendations for the Silicon Valley Power utility in the Guidance Advisory Opinion for 2022 Publicly Owned Utilities.

2 Wildfire Mitigation Plan Requirements

A. Senate Bill 901

Per Senate Bill (SB) 901, all Publicly Owned Utilities are required to adopt a Wildfire Mitigation Plan (WMP), which shall be reviewed by an independent third-party evaluator. SB 901 requires the governing board to determine whether any portion of the geographical area where the utility's overhead electrical lines and equipment are

located has a significant risk of catastrophic wildfire resulting from those electrical lines and equipment. The bill directs electrical utilities to annually prepare WMPs that include several mitigation and response elements in each utility's strategies, protocols, and programs. Each electric utility is to prepare and adopt a comprehensive WMP before January 1, 2020. The requirements for POUs are presented in PUC §8387. In addition, the WMP shall be reviewed by an approved, independent, third-party evaluator to review and assess the comprehensiveness of, and the POU's compliance with, this Plan.

B. AB 1054 & AB 111

Per Assembly Bill (AB) 1054, POUs must annually submit a WMP to the California Wildfire Safety Advisory Board, which will review the WMP and provide recommendations on mitigating wildfire risk. AB 1054 contains similar WMP requirements to SB 901 but allows WMPs of a three-year, rather than one-year duration.
AB 111 establishes the Wildfire Safety Division within the Public Utilities Commission.

C. Silicon Valley Power WMP Requirements

PUC §8387(b)(2) lists the statutory requirements for WMPs. These are the specific elements that the independent evaluator must review to make its determination for this report. The specific elements that must be addressed in SVP's WMP are summarized here for reference.

- The responsibilities of persons responsible for executing the plan.
- The objectives of the wildfire mitigation plan.
- The preventive strategies and programs to be adopted to minimize the risk of its electrical lines and equipment causing catastrophic wildfires.
- The metrics to use to evaluate the wildfire mitigation plan's performance.
- How the application of previously identified metrics has informed the wildfire mitigation plan.
- Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts.
- Procedures for notifying a customer who may be impacted by the deenergizing of electrical lines.
- Plans for vegetation management.
- Plans for inspections of the electrical infrastructure.
- Description of wildfire risks, and drivers for those risks, throughout the service territory, including design, construction, operation, and maintenance of equipment and facilities, and topographic and climatological risk factors.
- Identification of any geographic area in the service territory that is a higher wildfire threat than is identified in a commission fire threat map.
- Identification of enterprise-wide safety risk and wildfire-related risks.
- How the service will be restored after a wildfire.
- The processes and procedures used to monitor and audit the implementation of the wildfire mitigation plan, identify any deficiencies, and the effectiveness of electrical line and equipment inspections.

3 Description of Silicon Valley Power

Silicon Valley Power (SVP) is the City of Santa Clara municipal electric utility. SVP has substations and electrical facilities within the utility's service territory and in PG&E's service territory. The utility's service territory is generally defined as the area within the city limits of the City of Santa Clara. SVP provides electricity to consumers within the city. SVP's service territory is in the relatively flat Santa Clara valley and is an urban environment that is surrounded by urban environments. This portion of the utility's territory is not located within a Tier 2 or 3 Fire Threat district and with the nearest Tier 2 or 3 areas separated from the SVP's assets by several miles of urban

development. With the exception of scattered vacant lots and the areas along the creeks, this area of SVP's service territory lacks the volume and continuity of surface vegetation to sustain a destructive wildfire.

SVP has remote transmission assets which are located outside of the city limits of the City of Santa Clara in PG&E's service territory. This second area consists of five separate sections of lines; the Grizzly tie line, a 3.4 mile long transmission line in Plumas County, the Black Butte tie line a 9.5 mile long transmission line near the City of Orland in Glenn County, the Stoney Gorge tie line a 1 mile long transmission line in Glenn County, High Line Canal interconnection a 75 foot long transmission line in Glenn County, and the Castle Rock-Lakeville transmission lines are transmission lines in Sonoma and Napa county that SVP shares ownership with PG&E where PG&E is responsible for the operations and maintenance of the lines. All of SVP's remote assets are in rural or undeveloped areas crossing through hilly and rugged terrain. The Grizzly tie line, Stoney Gorge tie line, and Castle Rock-Lakeville transmission line are in Tier 2 and Tier 3 fire threat areas. The Black Butte tie in and the High Line Canal interconnection are located outside of the high fire threat areas but cross through areas of unmanaged vegetation. This area contains areas of continuous vegetation including grasslands and woodlands that can sustain a wildfire, in recent years portions of the SVP's remote assets in Napa and Plumas Counties have been impacted by nearby large wildfires.

SVP has taken appropriate actions to help prevent and respond to the increasing risk of devastating wildfires by following all applicable design, construction, operation, and maintenance requirements that reduce safety risks associated with its electric system.

4 Independent Evaluation

A. Independent Evaluator Requirement

PUC §8387 requires each POU to "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." Additionally, the independent evaluator's assessment of the comprehensiveness of the POU's WMP must be issued in a report that is both posted to the POU's website and presented at a public meeting of the POU's governing board.

B. Dudek's Qualifications

According to PUC §8387(c), the qualified independent evaluator that performs the assessment of SVP's WMP must have "experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of its wildfire mitigation plan." SVP has determined that Dudek is the independent evaluator who adequately understands the local conditions and fire risks of the service area.

C. Evaluation Methodology

Dudek evaluated the comprehensiveness of the SVP's 2022 WMP on the following measures:

- Statutory Compliance: Dudek ensured that each required element specified in PUC §8387 is either addressed in SVP's WMP or that SVP has sufficiently described why that element is not applicable due to SVP's size, geography, system or other relevant factor.
- Fulfillment of Wildfire Safety Advisory Board Guidance: Dudek reviewed WSAB guidance publications for Publicly Owned Utilities for recommendations that were relevant to the SVP's WMP and then compared the Board's recommendation to the content of the WMP.

- Industry Comparison: Dudek is familiar with existing industry practices and has reviewed the WMPs filed with the CPUC by similar POUs. Dudek has compared SVP's WMP to the contents of these similar POU's as well as reviewing which industry standard wildfire prevention measures are being utilized by the agency

D. Metrics

The SVP's Wildfire Mitigation Plan uses the following metrics to measure performance of its wildfire mitigation measures: (1) number of fire ignitions, and (2) wires down events. Dudek has determined that these are appropriate metrics for this WMP and that the WSAB has concluded that these two metrics, are generally acceptable metrics for a WMP.

Dudek recommends that the SVP consider adding a new metric or revising one of the current metrics to integrate a metric that shows the actions SVP is taking to reduce wildfire ignition risk for their remote assets. The current metrics show the outcome of the SVP's wildfire prevention strategies but do not provide much insight into the effectiveness of the elements of the SVP's wildfire prevention strategies.

5 Evaluation of the Silicon Valley Power Wildfire Mitigation Plan

A. Minimizing Wildfire Risks

PUC §8387(a) requires the following: "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."

The WMP describes the safety-related measures that SVP follows to reduce its risk of causing wildfires. Dudek has determined that Silicon Valley Power complies with this standard through the design of its system, its operational practices, and the construction of its equipment and resources.

B. Evaluation of WMP Elements

Dudek found that SVP's WMP meets the statutory requirements of comprehensiveness per PUC §8387. The review of the WMP's elements is summarized relative to the application of the WMP. The table in Attachment A lists each required element for SVP's WMP and provides Dudek's assessment of the comprehensiveness of that element within the WMP.

Below is a summary of the WMP elements as required by PUC §8387, including restating sections of the WMP where applicable.

> 8387(b)(2)(A): Responsibilities of Persons Responsible for Executing the Plan.
>
> **Silicon Valley Power's Chief Electric Utility Officer is responsible for the implementation of the WMP. The Electric Chief Operating Officer ensures agency staff receive the wildfire prevention training described in the WMP. The Electric Chief Operating Officer also ensures that the utility complied with relevant federal, state, and industry standards. The Assistant Director of Electric Operations is responsible for operating the utilities electrical system in a manner that will minimize the potential wildfire risks.**

8387(b)(2)(B): Objectives of the Wildfire Mitigation Plan

The objectives of the WMP are to: A.) minimize the probability that SVP's system is the origin or contributing source for a wildfire ignition, B) improve the resiliency of the electric grid, specifically to reduce the likelihood of an interruption of service and an improvement in the restoration of service after an interruption, and C) to improve the effectiveness of their wildfire prevention strategies by modifying or replacing elements of their wildfire prevention program that are ineffective

8387(b)(2)(C): Prevention Strategies and Programs

SVP's strategies to reduce wildfire risk is composed of five programs (1) Weather Monitoring and enhanced line patrols during high wildfire risk periods, (2) Ensuring all equipment design and construction meets CPUC GO 95 standards, (3) a vegetation management program that complies with CPUC GO 95 and PRC 4293 and treats the vegetation near its overhead circuits at its remote assets in Glenn and Tehama Counties as if they are located in a High Fire Threat Area regardless of whether they are located in one or not , (4) an inspection program that complies with CPUC GO 165 and GO 95, and includes an inspection process for its remote assets during high fire danger conditions, and (5) workforce training for staff responsible for the implementation of wildfire prevention programs.

8387(b)(2)(D): Metrics and Assumptions for Measuring WMP Performance

The SVP WMP uses two metrics to measure performance of its wildfire mitigation measures: (1) number of fire ignitions, and (2) wires down events. Dudek has determined that these are appropriate metrics for this WMP.

8387(b)(2)(E): Impact of Previous Metrics on WMP

The WMP describes that SVP will perform an analysis of each wire down or new ignition, and then will evaluate the WMP for potential improvements to the plan. Also described is that there have neither a wires down event nor a fire ignition event since the WMP created in January 2019.

8387(b)(2)(F): Reclosing Protocols

SVP does not have reclosers or reclosing schemes on any of its remote lines. This is a typical industry standard for distribution and transmission wires in rugged and remote terrain.

8387(b)(2)(G): De-energization Notification Procedures

SVP would make the decision to de-energize its lines due to fire threat conditions on a case-by-case decision and based on the weather and fuels conditions in the area around their remote assets as well as input from staff, fire and vegetation experts, and local fire officials. Since all of WVP's remote lines are generation tie-ins only, no residential or commercial customers would be impacted only other electric providers. In the event that SVP de-energizes one or more of its lines, it would do so in coordination with PG&E and other impacted utilities

8387(b)(2)(H): Vegetation Management

Silicon Valley Power has a line clearance and tree trimming program for its service territory and remote assets that complies with CPUC and PRC requirements. The WMP describes SVP's vegetation management program as a tree trimming program only that does not use herbicides or growth regulators. For the remote assets in Glenn and Tehama Counties, the SVP WMP describes that tree trimming is

performed to CPUC requirements for High Threat Areas even though the remote assets are not located within a high fire threat area.

8387(b)(2)(I): Inspections

SVP performs annual inspections of its transmission and distribution facilities in accordance with General Order 95 and General Order 165. Silicon Valley Power performs separate inspections for vegetation clearance and physical inspections of their equipment. Their inspections are performed every two years with the goal of completing their scheduled inspections before the start of fire season. SVP has an enhanced inspection program for both their equipment and nearby vegetation that uses the fire danger rating from the area Geographic Area Coordinating Center (the ONCC). During periods where the fire danger rating is High Risk when a Red Flag Warning is declared then SVP will perform additional vegetation and equipment inspections with sole purpose of identifying conditions that could lead to a new fire ignition.

8387(b)(2)(J)(i): Risks and Risk Drivers Associated with Design and Construction Standards

There is a section of the SVP WMP titled "Wildfire Risks and Drivers Associated with Design, Construction, Operation, and Maintenance" that provides an overview of each of the SVP's remote assets. Risks and risk drivers associated with design and construction standards are not specifically stated for each remote asset; however, the WMP does describe the surrounding environment for each remote asset including where lines overhang vegetation or non-combustible surfaces such as a road. The WMP states that its equipment and assets within its service territory (the City of Santa Clara) have minimal risk of wildfire and are not described further.

8387(b)(2)(J)(ii): Risks and Risk Drivers Associated with Topographic and Climatological Risk Factors

Similar to the risks and risk drivers associated with design and construction standards, the WMP provides a description of each remote asset and its surrounding environment including the dominant vegetation cover or land use.. Risks and rivers associated with climate and terrain are identified for some of the remote assets, specifically the areas where its tie-in lines cross through a high fire hazard zone.

8387(b)(2)(L): Enterprise-wide Safety Risks

The WMP describes how SVP has utilized senior staff and third-party subject matter experts to review enterprise-wide safety risks including wildfire risks. Silicon Valley Power also engages other utilities to compare the standards practiced by each utility and ensure that their standards comply with current industry standards.

8387(b)(2)(M): Restoration of Service

For its remote assets, the WMP described the restoration of service process. After a de-energization event, SVP would restore service in coordination with PG&E's restoration efforts. Silicon Valley Power would only re-energize lines after a physical inspection. In the event of an active nearby fire the restoration of power would done in coordination with local public safety officials as well.

8387(b)(2)(N)(i): Monitoring and Auditing WMP Implementation

Silicon Valley Power has a qualified Independent Evaluator review their WMP on an annual basis. Silicon Valley Power performs an annual review of their WMP that includes the monthly review of the plan by SVP

staff. Updates recommended by staff are incorporated into the WMP and then the plan is presented to the Santa Clara City Council for review.

8387(b)(2)(N)(ii): Identifying and correcting WMP deficiencies

Silicon Valley Power compiles information on deficiencies in the WMP and its strategies that are found by staff, contractors, and subject matter experts. Silicon Valley Power staff reviews this information about the deficiencies and implements improvements as appropriate.

8387(b)(2)(N)(iii): Monitoring and Auditing the effectiveness of inspections

Silicon Valley Power collects information on vegetation or equipment issues discovered during inspections. Inspection data is reviewed on an annual basis and trends in the plan metrics, repeated issues, or issue resolution are identified during the annual review. The inspection program is then adjusted accordingly.

6 Wildfire Safety Advisory Board Recommendations

The Wildfire Safety Advisory Board produces guidance documents for publicly owned utilities annually. These documents describe elements that should be revised or expanded in future WMPs to better organize the plan, clarify where PUC required information can be found, and to provide a more comprehensive description of the utility's wildfire prevention programs. Dudek reviewed the WSAB most recent guidance document and compared contents of the SVP's 2022 WMP to each recommended element.

1. Plan Structure, Staffing, and Evaluations

A. Context Setting Information: The WSAB recommended that POU's use an upfront table that contains information about the utility including number of customers, the size of its service areas, the service area within a high fire threat area, asset mix, and more. The intent was to provide a reviewer of the plan with a plain and accessible summary of the utility. The WSAB provided a template for this table in 2021. Silicon Valley Power's WMP uses the WSAB context information template and has added the completed table as an appendix to their plan.

B. General WMP Objectives: Many POU's use two general objectives; 1. Minimizing sources of ignition and 2. Improving the resiliency of the grid. These are valid objectives, but the WSAB believes that they may lead to limited approach by a utility to wildfire prevention. The WSAB recommends that POU's take a broader approach to their objectives and consider objectives that mitigate other risks associated with wildfire such as minimizing wildfire spread. Silicon Valley Power's WMP objectives include these two general objectives.

C. Staff Responsibilities and Approval Protocols: The WSAB requested that future WMPS include additional context information regarding the public input and approval processes for the WMP of each POU. The WMP contains a short description in the Overview and Monitoring and Auditing the Plan sections of the WMP approval process that includes staff review of the WMP, the review WMP of the City Council, and an opportunity to discuss the WMP and the IE report during a public meeting.

D. Metric Development and Evaluation: Many POU's use two basic metrics; 1. New ignitions and 2. Wires down. These are valid metrics, but the WSAB recommends that POU's consider adding or replacing these metrics with ones that better apply to their service territory and metrics that show progress towards an outcome as opposed to a metric that shows the outcome. The WMP has the two-basic metrics, and these

are relevant metrics to the SVP's assets. The SVP does track their two current metrics and the result are published in the WMP

2. Grid Design, System Hardening, Operations and Inspections:

A. In 2021 the WSAB requested POUs answer several questions about their system design and construction. The questions: 1. Are there design or construction issues related to the utility's specific topography or geographic location that the Board should be aware of? 2.How will the utility address risks associated with facilities requiring power that abut a Tier 2 or Tier 3 HFTD? 3.How does the utility assess its risks associated with system design and construction? 4.In what areas does the utility consider going above and beyond G.O. 95 or other General Order standards related to design and construction? The SVP's WMP provides a short but detailed summary of each of their remote transmission lines that includes the terrain the line traverses, whether it is in or near a fire threat area. The WMP does not fully address the WSAB four questions, specifically there is no section in the WMP that SVP describes how it addresses risks associated with its system design or construction.

B. The WSAB observed that the many POU WMPs state that they meet or exceed the CPUC GO 95 standards for their inspections. The WSAB comment is that the WMPs do not state if the POU are meeting the minimum standards of GO 95 or exceeding it where circumstances merit it. The WSAB is recommending that WMPs include a description of whether their inspection programs go beyond the GO 95 standards, why they do, and how they do. Silicon Valley Power's WMP states in several sections that they "meet or exceed" the minimum industry standards. The WMP does describe situations where SVP staff will perform inspections that exceed General Order requirements. Specifically, SVP has a patrol program for monitoring its remote assets during period of high or extreme fire danger. The WMP describes the conditions that would trigger these inspections, where they will be performed, and when these inspections will be performed.

C. The WSAB would like POUs to include in their WMPs a description of the new ideas or enhanced protocols the utility is considering in the design, building, and maintaining their system to mitigate the wildfire risk in the future. The WMP does include a description of the location of the remote assets where the SVP uses enhanced protocols and what those protocols are (e.g., greater vegetation clearance or thermal and coronal imaging.). The WMP does specifically state in section V that there are 'no other planned hardening measures at this time…'.

3. Vegetation Management and Inspections:

The WSAB requested that POUs describe their vegetation management practices and evaluate their impact on reducing wildfire related risk as well as the ecological impacts of the treatment options chosen. Silicon Valley Power's WMP has a description of the vegetation management program that includes their vegetation management practices i.e., tree trimming. The WMP does not include an evaluation of the wildfire risk reduction achieved (beyond meeting the CPUC requirements) or their ecological impact.

7 Comparison of Industry Standards to the Operations and Equipment in use by Silicon Valley Power

Dudek compared operational procedures and equipment used by the SVP to mitigate wildfire risk in their service territory with mitigation measures in approved Wildfire Mitigation Plans from a similar utilities and electrical industry standards.

Avian Deterrents

The SVP has installed avian deterrents 60 kV Black Butte line, a 9.5-mile-long transmission line that traverses rolling hills covered with annual grasses and agricultural fields. Large birds are a common hazard for power line poles and towers, installing these devices along this line prevents large birds from using the towers as perches and nesting sites. This is a typical industry practice and a CALFIRE recommended practice to prevent equipment failure and wildfire ignitions due to electrocuted birds or the accumulation of bird droppings on electrical equipment.

Expulsive fuses

At one of SVP's remote asset locations, the High Line Canal Interconnection, there are expulsive fuses. The High Line Interconnection is a 75-foot-long section of line is located above a dirt and gravel road outside of a high fire threat zone. Silicon Valley Power does not have plans to replace these with non-expulsive fuses, instead the SVP mitigates the risk of expulsive fuses starting a wildfire by clearing all vegetation within 10 feet of their poles. This accomplishes the same intent as expulsive fuse replacement and minimizes the risk that the expulsive fuse would land in a receptive fuel bed and start a wildfire.

Disabling Reclosing Operations

SVP does not have reclosers or reclosing schemes on its remote lines. In the event that one of its remotes lines is de-energized because of a wildfire then that line would only be re-energized after it was physically inspected. Re-energization operations would be performed in accordance with the utility's policies and in coordination with PG&E and public safety officials.

8 Conclusion

Dudek concludes that the Silicon Valley Power utility's Wildfire Mitigation Plan comprehensively addresses all the applicable statutorily required elements for a Publicly Owned Utilities' WMP as specified in California Public Utilities Code Section 8387. Dudek finds that SVP has taken reasonable actions to minimize the risk that its lines or equipment will cause a wildfire. Finally, Dudek finds that SVP has reviewed the guidance documentation provided by the Wildfire Safety Advisory Board and it is making efforts to incorporated recommended improvements to their WMP.

Sincerely,

Jeremy Cawn
Fire Protection Planner/Urban Forestry Specialist